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DRAFT OFFER DOCUMENT
Dated December 21, 2022
Book Built Offer

BHARAT HIGHWAYS INVIT

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(Registered in the Republic of India as an irrevocable trust set up under the Indian Trusts Act, 1882 on June 16, 2022 and registered as an infrastructure investment trust under the Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014, as amended, ("**SEBI InvIT Regulations**") on August 3, 2022 having registration number IN/InvIT/22-23/0023)
Principal place of business and registered office: Novus Tower, Second Floor, Plot No. 18, Sector 18, Gurugram, Haryana 122 015, India
Tel: +91 98292 55067; **Compliance Officer**: Mohnish Dutta
E-mail: cs@bharatinvit.com; **Website**: www.bharatinvit.com

SPONSOR	INVESTMENT MANAGER	TRUSTEE
Lokesh Builders Private Limited	**GR Highways Investment Manager Private Limited**	**IDBI Trusteeship Services Limited**

Bharat Highways InvIT (the "**InvIT**") is issuing up to [●] Units (as defined below) for cash at a price of ₹ [●] per Unit aggregating up to ₹ 20,000.00 million (the "**Issue**").

INITIAL PUBLIC OFFER IN RELIANCE UPON REGULATION 14(4) OF THE SECURITIES AND EXCHANGE BOARD OF INDIA (INFRASTRUCTURE INVESTMENT TRUSTS) REGULATIONS, 2014, AS AMENDED.

The Units are proposed to be listed on the National Stock Exchange of India Limited (the "**NSE**") and BSE Limited (the "**BSE**", together with the NSE, the "**Stock Exchanges**"). In-principle approval for listing of the Units has been received from the BSE and NSE on [●] and [●], respectively. [●] is the Designated Stock Exchange. Pursuant to the Commitment Letter, the Sponsor will subscribe to [●] Units of the InvIT for a cash consideration of ₹[●] million to ensure that the aggregate unitholding of the Sponsor amounts to 15% of the total post-Issue unit capital of the InvIT in order to comply with the sponsor lock-in requirements under Regulation 12(3) of the SEBI InvIT Regulations ("**Sponsor Contribution**"). Upon Sponsor Contribution, the Issue Size will be reduced to the extent of such Sponsor Contribution (the Issue less Sponsor Contribution is hereinafter referred to as "**Net Issue**"). The Issue will constitute at least [●]% of the outstanding Units on a post-Issue basis.

The Price Band and the Minimum Bid Size (as determined by the Investment Manager in consultation with the Lead Managers) will be announced on the websites of the InvIT, the Sponsor, the Investment Manager and the Stock Exchanges, as well as advertised in all editions of [●] (a widely circulated English national daily newspaper) and in all editions of [●] (a widely circulated Hindi national daily newspaper with wide circulation in Haryana) at least two Working Days prior to the Bid/Issue Opening Date. For further information, see '***Basis for Issue Price***' on page 68.

In case of any revision to the Price Band, the Bid/Issue Period will be extended by at least one Working Day, subject to the total Bid/Issue Period not exceeding 30 days, provided that there shall not be more than two revisions to the Price Band during the Bid/Issue Period. Any revision to the Price Band and the revised Bid/Issue Period, if applicable, will be widely disseminated by notification to the Stock Exchanges during the Bid/Issue Period and by indicating the change on the websites of the InvIT, the Sponsor, the Investment Manager and Stock Exchanges.

In case of force majeure, banking strike or similar circumstances, the Bid/ Issue Period may, for reasons to be recorded in writing, be extended by a minimum period of three Working Days, subject to the total Bid/ Issue Period not exceeding 30 days.

The Issue is being made through the Book Building Process and in compliance with the SEBI InvIT Regulations and the SEBI Guidelines, wherein not more than 75% (excluding the Strategic Investor Portion) of the Net Issue shall be available for allocation on a proportionate basis to Institutional Investors, provided that the Investment Manager may, in consultation with the Lead Managers, allocate up to 60% of the Institutional Investor Portion to Anchor Investors on a discretionary basis in accordance with the SEBI InvIT Regulations and the SEBI Guidelines. Further, not less than 25% (excluding the Strategic Investor Portion) of the Net Issue shall be available for allocation on a proportionate basis to Non-Institutional Investors, in accordance with the SEBI InvIT Regulations and the SEBI Guidelines, subject to valid Bids being received at or above the Issue Price. The Net Issue may also include participation by Strategic Investors (as defined hereafter). For details, see '***Issue Procedure*** on page 345.

The Units have not been and will not be registered under the United States Securities Act of 1933, as amended (the "**Securities Act**") and may not be offered or sold within the United States except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act and applicable U.S. state securities laws. Accordingly, the Units are only being offered and sold outside the United States in "offshore transactions" as defined in, and in reliance on, Regulation S under the Securities Act ("**Regulation S**") and the applicable law of the jurisdictions where such offers and sales occur. The Units are transferable only in accordance with the restrictions described under the section titled "***Selling and Transfer Restrictions***" on page 337.

RISKS IN RELATION TO THE ISSUE

This being the first issue of units by the InvIT, there has been no formal market for the Units. No assurance can be given regarding an active or sustained trading in the Units or regarding the price at which the Units will be traded after listing.

GENERAL RISKS

INVESTMENTS IN UNITS INVOLVE RISKS AND BIDDERS SHOULD NOT INVEST ANY FUNDS IN THE ISSUE UNLESS THEY CAN AFFORD TO TAKE THE RISK OF LOSING THEIR ENTIRE INVESTMENT. FOR MAKING AN INVESTMENT DECISION, BIDDERS MUST RELY ON THEIR OWN EXAMINATION OF THE INVIT, THE UNITS, THE ISSUE AND THIS DRAFT OFFER DOCUMENT. BIDDERS ARE ADVISED TO CAREFULLY READ THIS DRAFT OFFER DOCUMENT, INCLUDING THE SECTIONS 'RISK FACTORS' AND 'RIGHTS OF UNITHOLDERS' ON PAGES 16 AND 232, RESPECTIVELY, BEFORE MAKING AN INVESTMENT DECISION. THE UNITS HAVE NOT BEEN RECOMMENDED OR APPROVED BY SEBI OR THE STOCK EXCHANGES. THE SEBI AND THE STOCK EXCHANGES DO NOT GUARANTEE THE ACCURACY OR ADEQUACY OF THE CONTENTS OF THIS DRAFT OFFER DOCUMENT. BIDDERS ARE ADVISED TO CONSULT THEIR OWN ADVISORS ABOUT THE CONSEQUENCES OF AN INVESTMENT IN THE UNITS BEING ISSUEED PURSUANT TO THIS DRAFT OFFER DOCUMENT.

INVESTMENT MANAGER'S AND SPONSOR'S ABSOLUTE RESPONSIBILITY

The Investment Manager and Sponsor, severally, having made all reasonable inquiries, accept responsibility for, and confirm that this Draft Offer Document contains all information with regard to the InvIT and this Issue, which is material in the context of this Issue, that the information contained in this Draft Offer Document is true and correct in all material respects and is not misleading in any material respect, that the opinions and intentions expressed herein are honestly held and that there are no other facts, the omission of which makes this Draft Offer Document as a whole or any of such information or the expression of any such opinions or intentions misleading in any material respect.

LEAD MANAGERS				REGISTRAR TO THE ISSUE
ICICI Securities Limited ICICI Venture House, Appasaheb Marathe Marg, Prabhadevi, Mumbai – 400025 **Tel.:** + 91 22 6807 7100 **E-mail:** bharat.invit@icicisecurities.com **Website:** www.icicisecurities.com **Investor Grievance E-mail:** customercare@icicisecurities.com **Contact Person:** Sumit Singh / Rupesh Khant **SEBI Registration No:** INM000011179	**Axis Capital Limited** Axis House, 1st Floor, Wadia International Centre, Pandurang Budhkar Marg, Worli, Mumbai 400 025 **Tel.:** + 91 22 4325 2183 **E-mail:** bharat.invit@axiscap.in **Website:** www.axiscapital.co.in **Investor Grievance E-mail:** complaints@axiscap.in **Contact Person:** Pavan Naik / Akash Aggarwal **SEBI Registration No:** INM000012029	**HDFC Bank Limited** Investment Banking Group Unit No. 401 & 402, 4th Floor Tower B, Peninsula Business Park, Lower Parel Mumbai 400 013 Maharashtra, India **Tel:** +91 22 3395 8233 **E-mail:** bharat.invit@hdfcbank.com **Website:** www.hdfcbank.com **Investor Grievance E-mail:** investor.redressal@hdfcbank.com **Contact Person:** Kunal Thakkar / Dhruv Bhavsar **SEBI Registration No:** INM000011252	**IIFL Securities Limited** 10th Floor, IIFL Centre Kamala City, Senapati Bapat Marg Lower Parel (West), Mumbai – 400 013 Maharashtra, India **Tel:** +91 22 4646 4728 **Email:** bharat.invit@iiflcap.com **Website:** www.iiflcap.com **Investor Grievance E-mail:** ig.ib@iiflcap.com **Contact person:** Pawan Kumar Jain/ Dhruv Bhagwat **SEBI Registration No:** INM000010940	**KFin Technologies Limited** Selenium, Tower-B, Plot 31 and 32, Financial District, Nanakramguda, Serilingampally, Hyderabad 500 032 **Tel:** +91 49 6716 2222 **E-mail:** bharathighways.invit@kfintech.com **Website:** www.kfintech.com **Investor Grievance E-mail:** einward.ris@kfintech.com **Contact Person:** M Murali Krishna **SEBI Registration No.:** INR000000221

BID / ISSUE PROGRAM#	
BID / ISSUE OPENS ON: [●]*	**BID / ISSUE CLOSES ON: [●]**

**The Investment Manager may, in consultation with the Lead Managers, consider participation by Anchor Investors in accordance with the SEBI InvIT Regulations and SEBI Guidelines. The Anchor Investor Bidding Date shall be one Working Day prior to the Bid/Issue Opening Date.*
#The Net Issue may also include participation by Strategic Investors in accordance with the SEBI Guidelines.

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NOTICE TO THE INVESTORS

The statements contained in this Draft Offer Document relating to the InvIT and the Units are, in all material respects, true and accurate and not misleading. The opinions and intentions expressed in this Draft Offer Document with regard to the InvIT and the Units are honestly held and have been reached after considering all relevant circumstances. Such opinions and intentions are based on reasonable assumptions and information presently available to each of the Sponsor, Trustee and the Investment Manager. There are no material facts in relation to the InvIT and the Units, the omission of which would, in the context of the Issue, make any statement in this Draft Offer Document misleading in any material respect. Further, the Investment Manager and Sponsor have made all reasonable enquiries to ascertain such facts and to verify the accuracy of all such information and statements.

Bidders acknowledge that they have neither relied on the Lead Managers nor any of their respective shareholders, employees, counsel, officers, directors, representatives, agents or affiliates in connection with such person's investigation of the accuracy of such information or such person's investment decision, and each such person must rely on his/her own examination of the InvIT and the merits and risks involved in investing in the Units. Bidders should not construe the contents of this Draft Offer Document as legal, business, tax, accounting or investment advice.

No person is authorized to give any information or to make any representation not contained in this Draft Offer Document and any information or representation not so contained must not be relied upon as having been authorized by or on behalf of the InvIT or by or on behalf of the Lead Managers.

Certain U.S. Matters

The Units to be issued pursuant to the issue have not been approved, disapproved or recommended by any regulatory authority in any jurisdiction, including the United States Securities and Exchange Commission ("**SEC**"), any other federal or state authorities in the United States, the securities authorities of any non-United States jurisdiction or any other United States or non-United States regulatory authority. No authority has passed on or endorsed the merits of the issue or the accuracy or adequacy of this Draft Offer Document. Any representation to the contrary is a criminal offence in the United States and may be a criminal offence in other jurisdictions.

The Units have not been and will not be registered under the Securities Act and may not be offered or sold within the United States except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act and applicable state securities laws. Accordingly, the Units are only being offered and sold outside the United States in "offshore transactions" as defined in, and in reliance on, Regulation S and the applicable laws of the jurisdictions where those offers and sales occur. The Units are transferable only in accordance with the restrictions described under the section "*Selling and Transfer Restrictions*" on page 337 of this Draft Offer Document.

Notice to Investors in certain other jurisdictions

The distribution of this Draft Offer Document and the issue of the Units in certain jurisdictions may be restricted by law. As such, this Draft Offer Document does not constitute, and may not be used for, or in connection with, an offer or solicitation by anyone in any jurisdiction in which such offer or solicitation is not authorised or to any person to whom it is unlawful to make such offer or solicitation. In particular, no action has been taken by the Investment Manager or the Lead Managers which would permit an issue of the Units or distribution of this Draft Offer Document in any jurisdiction other than India. Accordingly, the Units may not be offered or sold, directly or indirectly, and neither this Draft Offer Document nor any Issue materials in connection with the Units be distributed or published in or from any country or jurisdiction that would require registration of the Units in such country or jurisdiction.

Disclaimer

This Draft Offer Document does not, directly or indirectly, relate to any invitation, offer or sale of any securities, instruments or loans (including listed non-convertible debentures or bonds, if any) that may be issued by InvIT after the listing of the Units. Any prospective investor investing in such invitation, offer or sale of securities by InvIT should consult its own advisors before taking any decision in relation thereto. Each prospective investor acknowledges that neither the Lead Managers, nor their associates or affiliates have any responsibility or liability for such invitation, offer or sale of securities by InvIT.

DEFINITIONS AND ABBREVIATIONS

This Draft Offer Document uses certain definitions and abbreviations, which unless the context otherwise indicates or implies shall have the meanings ascribed to such terms herein below which you should consider when reading the information contained herein.

References to any legislation, act, regulation, rule, guideline, circular, notification, clarification or policy shall be to such legislation, act, regulation, rule, guideline, circular, notification, clarification or policy as amended, supplemented, or re-enacted from time to time and any reference to a statutory provision shall include any subordinate legislation made under that provision.

The words and expressions used in this Draft Offer Document, but not defined herein shall have the meaning ascribed to such terms under the SEBI InvIT Regulations, SEBI Guidelines, the SEBI Act, the Depositories Act, and the rules and regulations notified thereunder.

Notwithstanding the foregoing, the terms not defined but used in the sections "Special Purpose Combined Financial Statements", "Projections of Revenue from Operations and Cash Flows from Operating Activities", and "Material Litigation and Regulatory Action" on pages 241, 367, and 321, respectively, shall have the meanings ascribed to such terms in those respective sections.

In this Draft Offer Document, unless the context otherwise requires, a reference to "we", "us" and "our" refers to the InvIT and the Project SPVs on a consolidated basis. For the sole purpose of Special Purpose Combined Financial Statements, reference to "we", "us" and "our" refers to the Project SPVs on a combined basis.

InvIT Related Terms

Term	Description
Amended and Restated Trust Deed	The Original Trust Deed as amended by the amended and restated trust deed dated December 8, 2022, executed by and between the Sponsor, GRIL (the Settlor) and the Trustee
Associate	Associate shall have the meaning set forth in Regulation 2(1)(b) of the SEBI InvIT Regulations
Assignment Agreement(s)	The agreement(s) to be entered into by the InvIT (acting through the Trustee) and Investment Manager with GRIL and the Project SPVs in relation to assignment of outstanding unsecured loan availed by the Project SPVs from GRIL, to the InvIT
Auditors	SRBC & Co. LLP, statutory auditors of the InvIT
Audit Committee	The audit committee of the IM Board, as described in *"**Corporate Governance**"* on page 212
Borrowing Policy	The borrowing policy of the InvIT adopted by the Investment Manager pursuant to a resolution of the IM Board dated December 15, 2022
Commitment Letter	The letter agreement dated December 21, 2022 between the Investment Manager (on behalf of the InvIT) and the Sponsor, pursuant to which the Sponsor has agreed to contribute such amount towards subscription of such number of Units, prior to the Bid/ Issue Opening Date (but after the announcement of the Price Band), which shall be equivalent to at least 15% of the total Units of the InvIT on a post-Issue basis. For details, see '***Formation Transactions in relation to the InvIT – Sponsor Contribution***' on page 101
Compliance Officer	The compliance officer of the InvIT
Concession Agreements	Collectively, the concession agreements entered into between the Project SPVs and the relevant concessioning authorities. For details, see '***Summary of Concession Agreements***' on page 160
Distribution Policy	The distribution policy of the InvIT adopted by the Investment Manager pursuant to a resolution of the IM Board dated December 15, 2022
Existing Assets	GR Bahadurganj Araria Highway Private Limited, GR Amritsar Bathinda Highway Private Limited, GR Ludhiana Rupnagar Highway Private Limited, GR Bhimasar Bhuj Highway Private Limited, GR Bamni Highway Private Limited, GR Bandikui Jaipur Expressway Private Limited, GR Govindpur Rajura Highway Private Limited, GR Madanapalli Pileru Highway Private Limited and GR Ujjain Badnawar Highway Private Limited
Faridkote - Kotakpura Project	Project involving the widening and strengthening of existing two-lane carriageway to four lanes with paved side shoulders of Faridkot – Kotakpura – Bathinda section of NH-15 (New NH No. 54) from existing Km. 221.380 to Km. 287.615 of NH-15 including construction of combined Faridkot – Kotakpura bypass in the state of Punjab on EPC mode under NHDP-IV
Formation Transactions	The transactions pursuant to which the InvIT will acquire the Project SPVs and the InvIT Assets prior to the Allotment

Term	Description
GASHPL	GR Akkalkot Solapur Highway Private Limited
GDDHPL	GR Dwarka Devariya Highway Private Limited
GDHPL	GR Gundugolanu Devarapalli Highway Private Limited
GPEL	GR Phagwara Expressway Limited
GR Group	The entities which are promoted by Vinod Kumar Agarwal, Ajendra Kumar Agarwal, Purshottam Agarwal, promoters of GRIL and the Sponsor, Lokesh Builders Private Limited
GRIL	G R Infraprojects Limited, an Associate of the Sponsor
GSSHPL	GR Sangli Solapur Highway Private Limited
HAM	Hybrid Annuity Model
Hisar Dabwali Package 1	Project involving the four laning of Hisar to Dabwali section of NH-10 from Km. 170.000 to Km. 227.000 with paved shoulder in the state of Haryana (package – I)
Hisar Dabwali Package 2	Project involving the four laning of Hisar to Dabwali section of NH-10 from Km. 227.000 to Km. 314.660 with paved shoulder in the state of Haryana (package – II)
IM Board	The board of directors of the Investment Manager.
Investment Management Agreement	Investment management agreement dated July 21, 2022 entered into between the Trustee (on behalf of the InvIT) and the Investment Manager.
Investment Manager	The investment manager of the InvIT, being GR Highways Investment Manager Private Limited
InvIT	Bharat Highways InvIT
InvIT Assets	InvIT assets as defined in Regulation 2(l)(zb) of the SEBI InvIT Regulations, in this case being the assets held by the Project SPVs
InvIT Documents	The Amended and Restated Trust Deed, the Investment Management Agreement, the Project Management Agreement, any other document, letter or agreement with respect to the InvIT or the Units, executed for the purpose of the InvIT, the offer documents and such other documents in connection therewith, as originally executed and amended, modified, supplemented and restated from time to time, together with the respective annexures, schedules and exhibits, if any.
InvIT Rupee Term Loan	The rupee term loan facilities to be availed by the InvIT from certain external lenders. For details, see "***Financial Indebtedness and Deferred Payments – InvIT Rupee Term Loan***" on page 318
InvIT Offer Committee	The InvIT offer committee of the IM Board, as described in *"**Corporate Governance**"* on page 212
Jowai - Ratacherra Project	Project involving the rehabilitation and upgradation of existing road to 2-lane with paved shoulders configuration in Jowai – Meghalaya / Assam border section of NH-44 from Km. 69.200 to Km 173.200 in the state of Meghalaya
Nagaur Mukundgarh Project	Project involving the development and maintenance of Peelibanga – Lakhuwali sction of MDR – 103, Sardarshahar - Loonkaransar section of SH-6 A, Churu – Bhaleri section of SH-69, Sanju-Tarnau section of SH-60, Roopangarh – Naraina section of SH-100 and Nagaur-Tarnau Deewana – Mukundgarh section of SH-8, 19,60,82-A & 83.
NCDs	INR denominated, rated, listed, fully secured, redeemable, non-convertible debentures issued by certain of the Project SPVs. For details, see '***Financial Indebtedness and Deferred Payments'***, on page 312
Nomination and Remuneration Committee	The nomination and remuneration committee of the IM Board, as described in *"**Corporate Governance**"* on page 212
On-lending Agreement(s)	The loan agreement(s) to be entered into among the InvIT (acting through the Investment Manager), the Trustee and each of the Project SPVs, pursuant to which the Investment Manager, on behalf of the InvIT, shall provide secured rupee term loans from the Net Proceeds to the Project SPVs
Original Trust Deed	The trust deed executed by and between, GRIL (as the Settlor) and the Trustee, dated June 16, 2022
Parties to the InvIT	The Sponsor, the Trustee, the Investment Manager and the Project Manager
PDEPL	Porbandar Dwarka Expressway Private Limited
Phagwara Rupnagar Project	Project involving the 4-laning of Phagwara – Rupnagar section of NH-344A from Km. 0.00 to Km. 80.820 in the state of Punjab on hybrid annuity mode
Porbandar Dwarka Project	Project involving the four laning with paved shoulder of Porbandar – Dwarka section of NH-8E (Ext.) from Km. 356.766 (design chainage Km. 379.100) to Km. 473.000 (design chainage Km. 496.848) in the state of Gujarat through public private partnership on hybrid annuity mode
Project SPVs	(i) GR Akkalkot Solapur Highway Private Limited; (ii) GR Dwarka Devariya Highway Private Limited[(1)]; (iii) GR Gundugolanu Devarapalli Highway Private Limited; (iv) GR Phagwara Expressway Limited; (v) GR Sangli Solapur Highway Private Limited;

Term	Description
	(vi) Porbandar Dwarka Expressway Private Limited; and (vii) Varanasi Sangam Expressway Private Limited *(1) 49% equity shareholding of GDDHPL is proposed to be transferred to the InvIT pursuant to the respective Share Purchase Agreement and the remaining 51% equity shareholding of GDDHPL will be transferred to the InvIT after the completion of at least six months after the receipt of provisional COD certificate by GDDHPL and upon receipt of the NHAI approval, in accordance with the circulars issued by the MoRTH.*
Project Management Agreement	Project management agreement to be entered into between the Trustee (on behalf of the InvIT), the Project Manager, the Investment Manager and the Project SPVs
Project Manager	The project manager of the InvIT, being Lokesh Builders Private Limited
Projections of Revenue from Operations and Cash Flow from Operating Activities	Projections of revenue from operations and cash flow from operating activities of the InvIT (consisting of the InvIT and the Project SPVs) and the Project SPVs, individually, for the years ending March 31, 2025, March 31, 2024 and March 31, 2023 along with the basis of preparation and other explanatory information and significant assumptions.
Related Parties	Related parties as defined under Regulation 2(1)(zv) of the SEBI InvIT Regulations
ROFO Agreement	The right of first offer agreement to be entered into among GRIL (an Associate of the Sponsor), the InvIT (acting through the Trustee) and the Investment Manager
ROFO Securities	The fully paid-up equity shares, debt securities and other similar securities of the ROFO SPVs, held by GRIL (along with its nominees)
ROFO SPVs	The Existing Assets and any other special purpose vehicles in which GRIL and its nominees have, directly or indirectly, legal and beneficial ownership of at least 51% of the paid-up share capital of such special purpose vehicle or such other minimum shareholding as may be required under the SEBI InvIT Regulations in order to qualify as an 'SPV' of the InvIT"
RPT Policy	The policy on related party transactions of the InvIT adopted by the Investment Manager pursuant to a resolution of the IM Board dated December 15, 2022
Settlor	G R Infraprojects Limited, the settlor of the InvIT
Share Purchase Agreements	Collectively, the share purchase agreements proposed to be entered into among GRIL, the InvIT (acting through the Trustee), the Investment Manager and each of the Project SPVs, for transfer of shares held by GRIL and its nominees of the Project SPVs to the InvIT, in exchange for the consideration as specified therein. For further details, see '***Formation Transactions in Relation to the InvIT – Acquisition of the Project SPVs by the InvIT***' on page 97
Shillong Bypass Project	Project involving the two-laning of Shillong bypass connecting NH-40 and NH-44 from Km 61/800 of NH-40 to Km 34/850 of NH-44 in the state of Meghalaya on design, build, finance, operate and transfer patter under SARDP-NE on build, operate and transfer (annuity) basis
Special Purpose Combined Financial Statements	Audited special purpose combined financial statements of the Project SPVs, which comprise the special purpose combined balance sheets as at June 30, 2022, March 31, 2022, March 31, 2021 and March 31, 2020, and the special purpose combined statements of profit and loss (including other comprehensive income), combined statement of changes in equity, special purpose combined cash flow statement for the three month period ended June 30, 2022, for the years ended March 31, 2022, March 31, 2021 and March 31, 2020, the combined statement of net assets at fair value as at June 30, 2022, the combined statement of total returns at fair value for the three month period ended June 30, 2022 and year ended March 31, 2022 and notes to the special purpose combined financial statements including a summary of significant accounting policies and other explanatory information prepared in accordance with Ind AS except for Ind AS 33: Earnings per share read with the SEBI InvIT Regulations and the Guidance Note on Combined and Carve-Out Financial Statements issued by the Institute of Chartered Accountants of India. The Special Purpose Combined Financial Statements are based on the audited standalone financial statements prepared under Ind AS, of the respective Project SPVs that have been audited by the respective auditors of the Project SPVs including initial 49% and subsequent 51% shareholding in GDDHPL.
Sponsor	The sponsor of the InvIT, being Lokesh Builders Private Limited
Sponsor Contribution	The subscription of such number of Units which shall be equivalent to at least 15% of the total Units of the InvIT on a post-Issue basis, for a cash consideration of such amount, by the Sponsor prior to the Bid/ Issue Opening Date (but after the announcement of the Price Band) in accordance with the terms of the Commitment Letter
SPV(s)	Special purpose vehicles, as defined in Regulation 2(l)(zy) of the SEBI InvIT Regulations, in this case the Project SPVs
SPV Group	The Project SPVs on a combined basis
Stakeholders' Relationship Committee	The stakeholders' relationship committee of the IM Board, as described in *"**Corporate Governance**"* on page 212
Technical Consultant	FP Project Management (formerly known as Frischmann Prabhu (India) Private Limited)

Term	Description
Technical Reports	Technical consultant reports dated November 8, 2022 (for each of the Project SPVs other than GASHPL) and November 21, 2022 (for GASHPL), issued by the Technical Consultant, concerning the InvIT Assets, which are contained in this Draft Offer Document as included in Annexure II on page 468.
Trustee	The trustee of the InvIT, being, IDBI Trusteeship Services Limited
Unitholder(s)	Any Person or entity who holds Units (as hereinafter defined)
Unit	An undivided beneficial interest in the InvIT, and such units together represent the entire beneficial interest in the InvIT
UPSI Policy	The policy on unpublished price sensitive information and dealing in units by the Parties to the InvIT, adopted by the Investment Manager pursuant to a resolution of the IM Board dated December 15, 2022
Valuation Report	The valuation report dated December 13, 2022 issued by the Valuer, which sets out their opinion as to the fair enterprise value of the InvIT Assets as on June 30, 2022, which is set out in Annexure I to this Draft Offer Document on page 386
Valuer	S. Sundararaman
VSEPL	Varanasi Sangam Expressway Private Limited

Issue Related Terms

Term	Description
Acknowledgement Slip	The slip or document issued by the Designated Intermediary to a Bidder as proof of registration of the Bid cum Application Form
Allocated/ Allocation	Allocation of Units, following the determination of the Issue Price by the Investment Manager, in consultation with the Lead Managers, to Bidders on the basis of the Application Form submitted by Investor
Allot/ Allotment/ Allotted	Unless the context otherwise requires, the issue and allotment of Units to be issued pursuant to the Issue
Allotment Advice	Note, advice or intimation of Allotment sent to the Bidders who have been or are to be Allotted Units after the Basis of Allotment has been approved by the Designated Stock Exchange
Allottees	Bidders to whom Units are Allotted
Anchor Investor	An Institutional Investor, making an application of a value of at least ₹ 100 million, applying under the Anchor Investor Portion in accordance with the requirements specified in the SEBI InvIT Regulations and the SEBI Guidelines in terms of the Offer Document, including a Strategic Investor
Anchor Investor Allocation Price	Price at which Units will be allocated to Anchor Investors in terms of the Offer Document, decided by the Investment Manager in consultation with the Lead Managers
Anchor Investor Application Form	The form used by an Anchor Investor to make a Bid in the Anchor Investor Portion and which will be considered as an application for Allotment in terms of the Offer Document and the Final Offer Document
Anchor Investor Bidding Date	One Working Day prior to the Bid/Issue Opening Date, on which Bids by Anchor Investors are to be submitted and allocation to Anchor Investors shall be completed
Anchor Investor Portion	Not more than 60% of the Institutional Investor Portion which may be allocated by the Investment Manager in consultation with the Lead Managers on a discretionary basis
Anchor Investor Issue Price	Final price at which Units will be Allotted to Anchor Investors in terms of the Offer Document and the Final Offer Document, which price will be equal to or higher than the Issue Price but not higher than the Cap Price. The Anchor Investor Issue Price will be decided by the Investment Manager in consultation with the Lead Managers
Application Supported by Blocked Amount or ASBA	An application, whether physical or electronic, used by ASBA Bidders to make a Bid by authorising an SCSB to block the Bid Amount in the ASBA Account
ASBA Account	A bank account maintained with an SCSB and specified in the ASBA Form for blocking the Bid Amount mentioned in the ASBA Form
ASBA Bid	A Bid made by an ASBA Bidder including all revisions and modifications thereto as permitted under the SEBI InvIT Regulations and SEBI Guidelines
ASBA Bidder	All Bidders other than Anchor Investors and Strategic Investors
ASBA Form	An application form, whether physical or electronic, used by ASBA Bidders which will be considered as the application for Allotment in terms of the Offer Document and the Final Offer Document
Axis	Axis Capital Limited
Basis of Allotment	The basis on which Units will be Allotted to successful Bidders under the Issue and which is described in '***Issue Procedure***' on page 345
Bid	An indication to make an offer during the Bid/Issue Period by an ASBA Bidder pursuant

Term	Description
	to submission of the ASBA Form, or on the Anchor Investor Bidding Date by an Anchor Investor pursuant to submission of the Anchor Investor Application Form, to subscribe to or purchase Units of the InvIT at a price within the Price Band, including all revisions and modifications thereto as permitted under the SEBI InvIT Regulations and SEBI Guidelines
Bid Amount	The highest value of optional Bids indicated in the Bid cum Application Form and payable by the Bidder or blocked in the ASBA Account of the ASBA Bidder or the amount payable by any Strategic Investor, as the case may be, upon submission of the Bid in the Issue
Bid cum Application Form	The Anchor Investor Application Form or the ASBA Form, as the context requires
Bid/Issue Closing Date	Except in relation to any Bids received from the Anchor Investors and Strategic Investors, the date after which the Designated Intermediaries will not accept any Bids, which will be published in (i) all editions of [●] (a widely circulated English national daily newspaper); and (ii) all editions of [●] (a widely circulated Hindi national daily newspaper with wide circulation in Haryana)
Bid/Issue Opening Date	Except in relation to any Bids received from the Anchor Investors and Strategic Investors, the date on which the Designated Intermediaries shall start accepting Bids, which will be published in (i) all editions of [●] (a widely circulated English national daily newspaper); and (ii) all editions of [●] (a widely circulated Hindi national daily newspaper with wide circulation in Haryana)
Bid/ Issue Period	Period between the Bid/Issue Opening Date and the Bid/ Issue Closing Date, inclusive of both days, during which Bidders, other than Anchor Investors and Strategic Investors, can submit their Bids, including any revisions thereof
Bidder	Any prospective investor who makes a Bid pursuant to the terms of the Offer Document and the Bid cum Application Form and unless otherwise states or implies, includes an Anchor Investor and a Strategic Investor
Bidding Centres	Centres at which the Designated Intermediaries shall accept ASBA Forms, i.e. Designated SCSB Branch for SCSBs, Specified Locations for Syndicate, Broker Centres for Registered Brokers, Designated RTA Locations for RTAs and Designated CDP Locations for CDPs
Book Building Process	The book building process, as provided in Part A of Schedule XIII of the SEBI ICDR Regulations
Broker Centres	Broker centres notified by the Stock Exchanges where Bidders can submit the ASBA Forms to a Registered Broker The details of such broker centres, along with the names and contact details of the Registered Brokers are available on the websites of the respective Stock Exchanges (www.bseindia.com and www.nseindia.com)
Cap Price	The higher end of the Price Band, being ₹ [●] per Unit, above which the Issue Price will not be finalised and above which no Bids will be accepted
Client ID	Client identification number maintained with one of the Depositories in relation to a demat account
Confirmation of Allocation Note or CAN	Notice or intimation of allocation of Units sent to Anchor Investors and Strategic Investors, who have been allocated Units, after the Anchor Investor Bidding Date and Strategic Investors, as applicable
Collecting Depository Participant or CDP	A depository participant as defined under the Depositories Act, registered with SEBI and who is eligible to procure Bids at the Designated CDP Locations in terms of circular no. CIR/CFD/POLICYCELL/11/2015 dated November 10, 2015 issued by SEBI
Closing Date	Date on which Allotment shall be made, i.e. on or about [●]
Demographic Details	Details of the Bidders including the Bidder's address, name of the Bidder's father/husband, investor status, occupation and bank account details, PAN, DP ID and Client ID
Depository Participant or DP	A depository participant as defined under the Depositories Act
Designated CDP Locations	Such locations of the CDPs where Bidders can submit the ASBA Forms. The details of such Designated CDP Locations, along with names and contact details of the Collecting Depository Participants eligible to accept Bid cum Application Forms are available on the respective websites of the Stock Exchanges (www.bseindia.com and www.nseindia.com)
Designated Date	The date on which funds are transferred from the Escrow Account and the amounts blocked by the SCSBs are transferred from the ASBA Accounts, as the case may be, to the Public Offer Account or the Refund Account, as appropriate
Designated Intermediaries	Syndicate, sub-syndicate/agents, SCSBs, Registered Brokers, CDPs and RTAs, who are authorized to collect ASBA Forms from the ASBA Bidders, in relation to the Issue
Designated RTA Locations	Such locations of the RTAs where Bidders can submit ASBA Forms to RTAs. The details of such Designated RTA Locations, along with names and contact details of the RTAs eligible to accept Bid cum Application Forms are available on the respective websites of the Stock Exchanges (www.bseindia.com and www.nseindia.com)
Designated SCSB Branches	Such branches of the SCSBs which shall collect the ASBA Forms, a list of which is available

Term	Description
	on the website of SEBI at https://www.sebi.gov.in/sebiweb/other/OtherAction.do?doRecognised=yes or at such other website as may be prescribed by SEBI from time to time
Designated Stock Exchange	[●]
DP ID	Depository Participant's Identification
Draft Offer Document	This draft offer document dated December 21, 2022, issued in accordance with the SEBI InvIT Regulations and SEBI Guidelines, which does not contain complete particulars of the price at which the Units will be Allotted and the size of this Issue, including any addenda or corrigenda thereto
Eligible NRI(s)	NRI(s) from jurisdictions outside India where it is not unlawful to make an offer or invitation under the Issue and in relation to whom the ASBA Form and the Offer Document will constitute an invitation to subscribe to the Units
Escrow Account	'No-lien' and 'non-interest bearing' account opened with the Escrow Collection Bank(s) and in whose favour Anchor Investors and Strategic Investors will transfer money through direct credit/NEFT/NACH/RTGS in respect of the Bid Amount when submitting a Bid
Escrow Agent	[●]
Escrow and Sponsor Bank Agreement	Agreement dated [●], entered into amongst the Trustee (on behalf of the InvIT), the Investment Manager, the Registrar to the Issue, the Escrow Collection Banks, the Refund Banks, Sponsor Bank, Syndicate Members and the Lead Managers for, among other things, collection of the Bid Amounts and for remitting refunds, if any, of the amounts collected, to the Bidders
Escrow Collection Bank(s)	[●]
Final Offer Document	Final offer document dated [●], filed with SEBI and the Stock Exchanges after the Pricing Date in accordance with the SEBI InvIT Regulations and the SEBI Guidelines containing, amongst other things, the Issue Price that is determined at the end of the Book Building Process, the size of this Issue and certain other information, including any addenda or corrigenda thereto
First Bidder	Bidder whose name shall be mentioned first in the Bid cum Application Form or the Revision Form and in case of joint Bids, whose name shall also appear as the first holder of the beneficiary account held in joint names
Floor Price	The lower end of the Price Band, subject to any revision thereto, in this case being ₹ [●] at or above which the Issue Price and the Anchor Investor Issue Price and the Strategic Investor Issue Price will be finalised and below which no Bids will be accepted
HDFC Bank	HDFC Bank Limited
IIFL	IIFL Securities Limited
I-Sec	ICICI Securities Limited
Institutional Investors	Institutional investor means (i) a Qualified Institutional Buyer, or (ii) a family trust or systematically important non-banking financial companies registered with RBI or intermediaries registered with SEBI all with net-worth of more than ₹5,000 million as per the last audited financial statements
Institutional Investor Portion	Portion of the Net Issue (including the Anchor Investor Portion) being not more than 75% of the Net Issue (excluding the Strategic Investor Portion), comprising not more than [●] Units which shall be available for allocation to Institutional Investors (including Anchor Investors), subject to valid Bids being received at or above the Issue Price
Issue	The issue of up to [●] Units (as defined below) for cash at a price of ₹ [●] per Unit aggregating up to ₹ 20,000.00 million by the InvIT. Pursuant to the Commitment Letter, the Sponsor will subscribe to [●] Units of the InvIT for a cash consideration of ₹ [●] million to ensure that the aggregate unitholding of the Sponsor amounts to 15% of the total post-issue unit capital of the InvIT in order to comply with the sponsor lock-in requirements under Regulation 12(3) of the SEBI InvIT Regulations. Upon Sponsor Contribution, the Issue Size will be reduced to the extent of such Sponsor Contribution.
Issue Price	₹ [●] per Unit, being the final price at which Units will be Allotted to successful Bidders, other than Anchor Investors and Strategic Investors, in terms of the Offer Document. The Issue Price will be decided by the Investment Manager in consultation with the Lead Managers on the Pricing Date in accordance with the Book Building Process and in terms of the Offer Document and Final Offer Document.
Issue Proceeds	The proceeds of the Issue including the Sponsor Contribution, aggregating up to ₹ 20,000.00 million. For further details, see '***Use of Proceeds***' on page 70
Issue Size	[●] Units aggregating up to ₹ 20,000.00 million
Lead Managers	I-Sec, Axis, IIFL and HDFC Bank
Listing Agreement	Any listing agreement to be entered into with the Stock Exchanges by the InvIT, in line with the format as specified under the Securities and Exchange Board of India circular

Term	Description
	number CIR/CFD/CMD/6/2015 dated October 13, 2015 on "Format of uniform Listing Agreement"
Listing Date	Date on which the Units will be listed on the Stock Exchanges
Minimum Bid Size	₹ [●]
Mutual Funds	Mutual funds registered with SEBI under the Securities and Exchange Board of India (Mutual Funds) Regulations, 1996
Net Issue	The Issue less Sponsor Contribution
Net Proceeds	Issue Proceeds less Issue expenses. For further details, see "***Use of Proceeds***" on page 70
Non-Institutional Investors	All Bidders, that are not QIBs (including Anchor Investors) and Strategic Investors, who have Bid for Units in the Net Issue
Non-Institutional Investor Portion	Portion of the Net Issue being not less than 25% of the Net Issue (excluding the Strategic Investor Portion), comprising at least [●] Units, which shall be available for allocation on a proportionate basis to Non-Institutional Investors, subject to valid Bids being received at or above the Issue Price
Non-Resident Indian/ Non-Resident	An individual resident outside India who is a citizen or is an 'overseas citizen of India' cardholder within the meaning of Section 7A of the Citizenship Act, 1955 and includes a Non-Resident Indian, FVCIs, FIIs and FPIs
Offer Document	Offer Document dated [●], to be issued in accordance with the provisions of the SEBI InvIT Regulations and the SEBI Guidelines, which will not have complete particulars of the Price Band and the Issue Price at which the Units will be offered and the size of this Issue including any addenda, corrigenda thereto. The Offer Document will be filed with SEBI and the Stock Exchanges and shall become the Final Offer Document which shall be filed with SEBI and the Stock Exchanges after the Pricing Date
Price Band	Price band between the minimum price of ₹ [●] per Unit (Floor Price) and the maximum price of ₹ [●] per Unit (Cap Price) including any revision thereof. The Price Band will be decided by the Investment Manager, in consultation with the Lead Managers, and will be announced at least two Working Days prior to the Bid/ Issue Opening Date, on the websites of the InvIT, the Sponsor and the Investment Manager, and shall be made available to the Stock Exchanges for the purpose of uploading on their respective websites
Pricing Date	The date on which the Investment Manager in consultation with the Lead Managers, finalises the Issue Price in accordance with the Book Building Process and in terms of the Offer Document and Final Offer Document.
Public Offer Account	'No-lien' and 'non-interest bearing' bank account opened to receive monies from the Escrow Account and from the ASBA Accounts on the Designated Date
Qualified Institutional Buyers or QIB(s)	Qualified institutional buyers, as defined under Regulation 2(1)(ss) of the SEBI ICDR Regulations, which currently includes (i) a mutual fund, a VCF, an AIF and an FVCI registered with SEBI, (ii) an FPI, other than individuals, corporate bodies and family offices, (iii) a public financial institution as defined in section 2(72) of the Companies Act, 2013, (iv) a scheduled commercial bank as included in the second schedule to the Reserve Bank of India Act, 1934, (v) a multilateral and bilateral development financial institution, (vi) a state industrial development corporation, (vii) an insurance company registered with the IRDAI, (viii) a provident fund with minimum corpus of ₹ 250 million, (ix) a pension fund with minimum corpus of ₹ 250 million, (x) National Investment Fund set up by resolution no. F. No. 2/3/2005-DDII dated November 23, 2005 of the GoI published in the Gazette of India, (xi) insurance funds set up and managed by army, navy or air force of the Union of India, (xii) insurance funds set up and managed by the Department of Posts, India, and (xiii) systemically important non-banking financial companies.
Refund Account(s)	'No-lien' and 'non-interest bearing' account opened with the Refund Bank(s), from which refunds, if any, of the whole or part of the Bid Amount to Anchor Investors and Strategic Investors shall be made
Refund Bank(s)	[●]
Registered Brokers	Stock brokers registered with the stock exchanges having nationwide terminals, other than Lead Managers and the Syndicate Members, eligible to procure Bids in terms of Circular No. CIR/CFD/14/2012 dated October 4, 2012 issued by SEBI
Registrar Agreement	The agreement dated December 21, 2022, entered into between the Trustee (on behalf of the InvIT), the Investment Manager, and the Registrar to the Issue in relation to the responsibilities and obligations of the Registrar to the Issue pertaining to the Issue
Registrar and Share Transfer Agents or RTAs	Registrar and share transfer agents registered with SEBI and eligible to procure Bids at the Designated RTA Locations in terms of circular no. CIR/CFD/POLICYCELL/11/2015 dated November 10, 2015 issued by SEBI
Registrar to the Issue	KFin Technologies Limited

Term	Description
Revision Form	Form used by the Bidders to modify the quantity of Units or the Bid Amount in any of their ASBA Forms or any previous Revision Forms. Bidders are not allowed to withdraw or lower their Bids (in terms of number of Units or the Bid Amount) at any stage
Self Certified Syndicate Bank(s) or SCSB(s)	Banks registered with SEBI, offering services in relation to ASBA, a list of which is available on the website of SEBI at https://www.sebi.gov.in/sebiweb/other/OtherAction.do?doRecognisedFpi=yes&intmId=34 or https://www.sebi.gov.in/sebiweb/other/OtherAction.do?doRecognisedFpi=yes&intmId=35, as applicable, or such other website as updated from time to time, and updated from time to time
Specified Locations	Bidding centres where the Syndicate shall accept ASBA Forms from Bidders
Strategic Investor	A strategic investor means, (i) an infrastructure finance company registered with RBI as a non-banking financial company, (ii) a scheduled commercial bank, (iii) a multilateral and/ or bilateral development financial institution, (iv) a systemically important non-banking financial company registered with RBI, (v) an FPI, (vi) an insurance company registered with the IRDAI, or (vii) a mutual fund, who invest, either jointly or severally, not less than five percent of the total Issue Size or such other amount as may be specified by SEBI from time to time, subject to the compliance with the applicable provisions, if any, of the FEMA and the rules regulations or guidelines made thereunder
Strategic Investor Allocation Price	Price at which Units will be allocated to Strategic Investors in terms of the Offer Document and the relevant unit subscription agreement, decided by the Investment Manager, in consultation with the Lead Managers
Strategic Investor Issue Price	Final price at which Units will be Allotted to Strategic Investors in terms of the Offer Document and the Final Offer Document, which price will be equal to or higher than the Issue Price. The Strategic Investor Issue Price will be decided by the Investment Manager in consultation the Lead Manager
Strategic Investor Portion	Portion of the Net Issue being up to [●] Units aggregating up to ₹ [●] million, subject to a maximum of 25% of the Net Issue which shall be available for allocation to Strategic Investors
Syndicate Agreement	The agreement dated [●], entered into between the Trustee (on behalf of the InvIT), the Investment Manager, the Lead Managers, the Syndicate Members and the Registrar to the Issue in relation to collection of Bid cum Application Forms by the Syndicate
Syndicate/ Members of the Syndicate	The Lead Managers and the Syndicate Members
Syndicate Members	Intermediaries, registered with SEBI who are permitted to carry out activities as an underwriter, being, [●]
Underwriters	[●]
Underwriting Agreement	The agreement dated [●], entered into between the Trustee (on behalf of the InvIT), the Underwriters, the Investment Manager, the Trustee and the Sponsor
UPI	Unified Payments Interface which is an instant payment mechanism, developed by NPCI
UPI Bidder(s)	Collectively, individual investors applying as (i) Retail Individual Investors in the Retail Category, and (ii) Non-Institutional Investors with an application size of up to ₹ 500,000 in the Non-Institutional Category, and Bidding under the UPI Mechanism through ASBA Form(s) submitted with Syndicate Members, Registered Brokers, Collecting Depository Participants and Registrar and Share Transfer Agents.
UPI Circular	SEBI circular number SEBI/HO/DDHS_Div3/P/CIR/2022/085 dated June 24, 2022
UPI ID	ID created on the UPI for single-window mobile payment system developed by the NPCI
UPI Mandate Request	A request (intimating the UPI Bidders, by way of a notification on the UPI linked mobile application and by way of an SMS directing the UPI Bidders to such UPI linked mobile application) to the UPI Bidders using the UPI Mechanism initiated by the Sponsor Bank(s) to authorise blocking of funds equivalent to the Bid Amount in the relevant ASBA Account through the UPI linked mobile application, and the subsequent debit of funds in case of Allotment
UPI Mechanism	The Bidding mechanism that may be used by UPI Bidders to make Bids in the Issue in accordance with the UPI Circulars
Working Day	Working day, with reference to (a) announcement of Price Band; and (b) Bid/ Issue Period, shall mean all days, excluding Saturdays, Sundays and public holidays, on which commercial banks in Mumbai are open for business; and (c) the time period between the Bid/ Issue Closing Date and the listing of the Units on the Stock Exchanges, shall mean all trading days of Stock Exchanges, excluding Sundays and bank holidays, as per the SEBI

Term	Description
	Circular SEBI/HO/CFD/DIL2/CIR/P/2018/138 dated November 1, 2018

Technical and Industry related terms

Term	Description
Bid Project Cost	The estimated cost of a project at which it was awarded to the InvIT
BOT	Build Operate Transfer
BSE	BSE Limited
CCI	Competition Commission of India
CDSL	Central Depository Services (India) Limited
CIN	Corporate Identity Number
COD	Commercial operations date of the relevant Project SPVs as described in *'**Summary of Concession Agreements**'* on page 160
Companies Act	Companies Act, 1956 and/or the Companies Act, 2013, as applicable
Companies Act, 1956	Erstwhile, Companies Act, 1956, read with the rules and regulations thereunder
Companies Act, 2013	Companies Act, 2013, read with the rules and regulations thereunder
Competition Act	Competition Act, 2002
Contract Labour Act	Contract Labour (Regulation and Abolition) Act, 1970
Depository	A depository registered with SEBI under the Securities and Exchange Board of India (Depositories and Participants) Regulations, 2018
Depositories Act	Depositories Act, 1996
DIN	Director Identification Number
EPC	Engineering, procurement and construction
FEMA	Foreign Exchange Management Act, 1999, read with rules and regulations thereunder
FEMA Rules	Foreign Exchange Management (Non-debt Instruments) Rules, 2019
Financial Year or Fiscal Year or Fiscal	Period of 12 months ended March 31 of that particular year, unless otherwise stated
FDI	Foreign direct investment
FPI	Foreign portfolio investors
FVCI	Foreign venture capital investors, as defined under the SEBI FVCI Regulations
GAAP	Generally Accepted Accounting Principles
GAAR	General Anti-Avoidance Rules
GDP	Gross domestic product
GoI or Government	Government of India
GST	Goods and Services Tax
HAM	Hybrid Annuity Model
ICAI	Institute of Chartered Accountants of India
IFRS	International Financial Reporting Standards
Income Tax Act or IT Act	The Income-tax Act, 1961
Ind AS or Indian Accounting Standards	Indian Accounting Standards as defined in Rule 2(1)(a) of the Companies (Indian Accounting Standards) Rules, 2015 prescribed under Section 133 of the Companies Act, 2013, including any amendments or modifications thereto
Indian GAAP	Accounting standards notified under section 133 of the Companies Act, 2013, read with Companies (Accounting Standards) Rules, 2006, as amended and the Companies (Accounts) Rules, 2014, as amended
Indian GAAS	Generally Accepted Auditing Standards in India
IRDAI	Insurance Regulatory and Development Authority of India
Km	Kilometre
MCA	Ministry of Corporate Affairs, Government of India
MCLR	Marginal cost of funds based on lending rate
MoEF	Ministry of Environment, Forest and Climate Change
MoRTH	Ministry of Road Transport and Highways, Government of India
NACH	National Automated Clearing House
NSDL	National Securities Depository Limited
NEFT	National Electronic Funds Transfer
NSE	The National Stock Exchange of India Limited
NHAI	National Highways Authority of India
NH	National Highway
NHDP	National Highways Development Project
NOC	No-objection certificate
O&M	Operations and Maintenance
PCOD	Provisional commercial operation date
PAN	Permanent account number

Term	Description
RBI	Reserve Bank of India
Regulation	Regulation under the SEBI InvIT Regulations
Regulation S	Regulation S under the Securities Act
RoC	Registrar of Companies, Delhi and Haryana at New Delhi
Rs./Rupees/INR/₹	Indian Rupees
RTGS	Real Time Gross Settlement
SAE 3400	Standard on Assurance Engagement 3400, "The Examination of Prospective Financial Information", issued by the ICAI
SCRA	Securities Contracts (Regulation) Act, 1956
SCRR	Securities Contracts (Regulation) Rules, 1957
SEBI	Securities and Exchange Board of India constituted under the SEBI Act
SEBI Act	The Securities and Exchange Board of India Act, 1992
SEBI AIF Regulations	Securities and Exchange Board of India (Alternative Investments Funds) Regulations, 2012
SEBI Debenture Trustees Regulations	Securities and Exchange Board of India (Debenture Trustees) Regulations, 1993
SEBI FPI Regulations	Securities and Exchange Board of India (Foreign Portfolio Investors) Regulations, 2019
SEBI Guidelines	SEBI circular dated May 11, 2016, as amended on January 15, 2019, on guidelines for public issue of units of InvITs, SEBI circular dated October 20, 2016 on disclosure of financial information in offer document/placement memorandum for InvITs, SEBI circular dated November 29, 2016 on continuous disclosures and compliances by InvITs, SEBI circular dated January 18, 2018 on participation by Strategic Investor(s) in InvITs and REITs and SEBI circular dated April 23, 2019 on guidelines for determination of allotment and trading lot size for Real Estate Investment Trusts (REITs) and Infrastructure Investment Trusts (InvITs), SEBI master circular dated April 26, 2022, SEBI circular dated April 28, 2022 on Reduction of timelines for listing of units of Infrastructure Investment Trust (InvIT), SEBI Circular dated June 24, 2022 on Introduction of Unified Payments Interface (UPI) mechanism for Infrastructure Investment Trusts and any other circulars, guidelines and clarifications issued by SEBI and/or the Stock Exchanges under the SEBI InvIT Regulations, from time to time
SEBI ICDR Regulations	Securities and Exchange Board of India (Issue of Capital and Disclosure Requirements) Regulations, 2018
SEBI InvIT Regulations	Securities and Exchange Board of India (Infrastructure Investment Trust) Regulations, 2014 as amended from time to time including circulars, notifications, clarifications and guidelines issued thereunder
SEBI VCF Regulations	Securities and Exchange Board of India (Venture Capital Fund) Regulations, 1996, as repealed by the SEBI AIF Regulations
Securities Act	U.S. Securities Act of 1933, as amended
Stock Exchanges	Together, BSE and NSE
Trusts Act	The Indian Trusts Act, 1882, as amended
U.S./U.S.A/United States	United States of America
USD/US$	United States Dollars
U.S. GAAP	Generally Accepted Accounting Principles in the United States of America

PRESENTATION OF FINANCIAL, INDUSTRY AND MARKET DATA

Certain Conventions

All references in this Draft Offer Document to "India" are to the Republic of India and its territories and possessions and all references herein to the "Government", "Indian Government", "GoI", "Central Government" or the "State Government" are to the Government of India, central or state government, as applicable. Unless stated otherwise, all references to page numbers in this Draft Offer Document are to the page numbers of this Draft Offer Document.

Financial Data

The financial year for the InvIT, the Project SPVs and our Investment Manager commences on April 1 of the immediately preceding calendar year and ends on March 31 of that particular calendar year. Accordingly, all references to a particular financial year are to the 12-month period commencing on April 1 of the immediately preceding calendar year and ending on March 31 of that particular calendar year.

Unless stated otherwise or unless the context requires otherwise, the financial information in this Draft Offer Document is derived from the Special Purpose Combined Financial Statements. The Special Purpose Combined Financial Statements have been prepared in accordance with Indian Accounting Standards as defined in Rule 2(1)(a) of the Companies (Indian Accounting Standards) Rules, 2015 prescribed under Section 133 of the Companies Act, 2013 except for Ind AS 33: Earning per share read with the SEBI InvIT Regulations and the circulars issued thereunder, including provisions relating to disclosures required as per the SEBI InvIT Regulations and the SEBI Circular (CIR/IMD/DF/114/2016) dated October 20, 2016 on 'Disclosure of Financial Information in Placement Memorandum or any Offer Document for InvITs', and the Guidance Note on Combined and Carve-Out Financial Statements issued by the ICAI. The Special Purpose Combined Financial Statements are based on the audited standalone financial statements prepared under Ind AS, of the respective Project SPVs that have been audited by the respective auditors of the Project SPVs, as applicable. For further details, see '***Special Purpose Combined Financial Statements***' on page 241.

Further, this Draft Offer Document includes summary financial statements of the (i) Sponsor, as of and for past three Financial Years, prepared in accordance with Ind AS, and (ii) Investment Manager, for the three month period ended June 30, 2022, prepared in accordance with Ind AS. The Investment Manager was incorporated as a private company under Companies Act, 2013 on March 23, 2022 and accordingly, the financial statements of the Investment Manager are available only for the period from March 23, 2022 to June 30, 2022 For further details, see '***Summary Financial Information of the Sponsor***' and '***Summary Financial Information of the Investment Manager'*** on pages 47 and 50.

This Draft Offer Document includes projections of revenue from operations and cash flows from the operating activities, and the underlying assumptions thereto, of the InvIT and the InvIT Assets for the Financial Years ending March 31, 2023, March 31, 2024 and March 31, 2025. For further details, see '***Projections of Revenue from Operations and Cash Flow from Operating Activities***' on page 367.

The degree to which the financial information included in this Draft Offer Document will provide meaningful information is entirely dependent on the reader's level of familiarity with Indian accounting policies and practices, the Companies Act, the Indian GAAP, Ind AS and the SEBI InvIT Regulations. Any reliance by persons not familiar with Indian accounting policies and practices on the financial disclosures presented in this Draft Offer Document should accordingly be limited.

In this Draft Offer Document, any discrepancies in any table between the total and the sums of the amounts listed are due to rounding off. All figures and percentage figures have been rounded off to two decimal places.

Certain non-GAAP Measures

Certain non-GAAP measures presented in this Draft Offer Document are supplemental measures of our performance and liquidity that are not required by, or presented in accordance with, Ind AS, Indian GAAP, IFRS or US GAAP. Further, these non-GAAP measures are not a measurement of our financial performance or liquidity under Ind AS, Indian GAAP, IFRS or US GAAP and should not be considered in isolation or construed as an alternative to cash flows, profit/ (loss) for the years/ period or any other measure of financial performance or as an indicator of our operating performance, liquidity, profitability or cash flows generated by operating, investing or financing activities derived in accordance with Ind AS, Indian GAAP, IFRS or US GAAP. In addition, these non-GAAP measures are not standardized terms and hence have limited usefulness as comparative measures.

Although such non-GAAP Measures are not a measure of performance calculated in accordance with applicable accounting standards, the management believes that they are useful to an investor in evaluating us as they are widely used measures to evaluate operating performance.

Currency and Units of Presentation

All references to:

- "Rupees" or "Rs." or "INR" or "₹" are to Indian Rupees, the official currency of the Republic of India; and
- "USD" or "US$" or "$" or "U.S. dollars" are to United States Dollars, the official currency of the United States.

Except otherwise specified, numerical information in this Draft Offer Document has been presented in "million" units where one million represents 10,00,000.

Unless the context requires otherwise, any percentage amounts, as set forth in this Draft Offer Document, have been calculated on the basis of the Special Purpose Combined Financial Statements.

Exchange Rates

This Draft Offer Document contains conversion of certain other currency amounts into Rupees. These conversions should not be construed as a representation that these currency amounts could have been, or can be converted into Rupees, at any particular rate.

The following table sets forth, for the periods indicated, information with respect to the exchange rate between the Rupee and the US$:

(in ₹)

Currency	Exchange Rate as on June 30, 2022	Exchange Rate as on March 31, 2022	Exchange Rate as on March 31, 2021	Exchange Rate as on, March 31, 2020
1 US$	78.94	75.81	73.50	75.39

Source: www.fbil.org.in

Industry and Market Data

Unless stated otherwise, industry and market data used in this Draft Offer Document has been obtained or derived from publicly available information as well as other Government and industry publications and sources.

Industry publications as well as government publications generally state that the information contained in such publications has been obtained from various sources believed to be reliable but that their accuracy and completeness are not guaranteed and their reliability cannot be assured. Accordingly, no investment decisions should be based solely on such information. Although the Investment Manager and the Sponsor believe that the industry and market data used in this Draft Offer Document is reliable, such data has not been independently verified by the Investment Manager or the Sponsor or the Trustee or the Lead Managers and none of such entities make any representation as to the accuracy of such information. The data used in these sources may have been re-classified for the purposes of presentation. Data from these sources may also not be comparable. Such data involves risks, uncertainties and numerous assumptions and is subject to change based on various factors, including those disclosed in the section '***Risk Factors***' on page 16. Accordingly, investment decisions should not be based solely on such information.

Considering that there are no standard methodologies for compiling data with respect to the industry in which the InvIT operates, the methodologies and assumptions adopted may widely vary among different industry sources and accordingly, the extent to which the market and industry data used in this Draft Offer Document is meaningful depends on the reader's familiarity with and understanding of the methodologies used in compiling such data.

FORWARD LOOKING STATEMENTS AND FINANCIAL PROJECTIONS

This Draft Offer Document contains certain statements that are not statements of historical fact and accordingly constitute 'forward-looking statements'. These forward-looking statements include statements which can generally be identified by words or phrases such as 'aim', 'anticipate', 'believe', 'continue', 'can', 'could', 'estimate', 'expect', 'intend', 'may', 'objective', 'plan', 'potential', 'project', 'propose', 'pursue', 'seek', 'shall', 'should', 'will', 'would', or other words or phrases of similar import. Similarly, statements that describe our strategies, objectives, plans or goals, including the InvIT's business strategy, revenue and profitability (including, without limitation, any financial or operating projections or forecasts) and other matters discussed in this Draft Offer Document that are not historical facts, are also forward-looking statements. However, these are not the exclusive means of identifying forward-looking statements.

All statements regarding the InvIT's expected financial conditions, results of operations, cash flows, business plans and prospects are forward-looking statements.

These forward-looking statements and any other projections contained in this Draft Offer Document (whether made by us or any third party), are based on current plans, estimates, presumptions and expectations. In accordance with the SEBI InvIT Regulations, the Projections included in this Draft Offer Document are based on a number of assumptions and should be read together with the underlying assumptions and notes thereto. See '***Projections of Revenue from Operations and Cash Flows from Operating Activities***' on page 367.

The Valuation Report included in this Draft Offer Document, is based on certain projections and accordingly, should be read together with assumptions and notes thereto. For further details, see the '***Valuation Report***' attached as Annexure I on page 386 and '***Industry Overview'*** on page 134.

Actual results may differ materially from those suggested by forward-looking statements and financial projections due to certain known or unknown risks or uncertainties associated with the Investment Manager's expectations with respect to, but not limited to, the actual growth in the infrastructure sector, the Investment Manager's ability to successfully implement the strategy, growth and expansion plans, technological changes, cash flow projections, exposure to market risks, general economic and political conditions in India, changes in competition in the infrastructure sector, the outcome of any legal or regulatory proceedings and the future impact of new accounting standards. By their nature, certain of the market risk disclosures are only estimates and could be materially different from what actually occurs in the future. As a result, actual future gains, losses or impact on net income could materially differ from those that have been estimated.

Factors that could cause actual results, performance or achievements of the InvIT to differ materially include, but are not limited to those discussed under '***Risk Factors***', '***Industry Overview***', '***Business***' and '***Management's Discussion and Analysis of Financial Condition and Results of Operations***', on pages 16, 134, 138 and 290, respectively. Some of the factors that could cause the InvIT's actual results, performance or achievements to differ materially from those in the forward-looking statements, financial projections and financial information include, but are not limited to, the following:

- The InvIT is a newly settled trust and does not have an established operating history, which will make it difficult to accurately assess our future growth prospects;
- Consummation of the Formation Transactions pursuant to which we will acquire the Project SPVs is subject receipt of approval from NHAI and timely release of certain security created on the InvIT Assets;
- Our failure and inability to identify and acquire new infrastructure assets that generate comparable revenue, profits or cash flows may have an adverse effect on our business, financial condition, cash flows and results of operations and our ability to make distributions;
- All of our revenue from our InvIT Assets is dependent on receiving consistent annuity income from NHAI;
- If any of our InvIT Assets is terminated prematurely, we may not receive payments due to us which may result in a material adverse effect on our financial condition;
- If we fail to maintain the roads constructed by us pursuant to and as per the relevant contractual requirements, we may be subject to penalties or even termination of our contracts, which may have a material adverse effect on our reputation, business, financial condition, results of operations and cash

flows; and

- We may be subject to increase in costs, including operation and maintenance costs, which we cannot recover by increasing annuity income under the relevant Concession Agreement.

The forward-looking statements, Projections of Revenue from Operations and Cash Flow from Operating Activities and the Valuation Report reflect current views as of the date of this Draft Offer Document and are not a guarantee of future performance or returns to Bidders. These statements and projections are based on certain beliefs and assumptions, which in turn are based on currently available information. Although we believe that the expectations and the assumptions upon which such forward-looking statements are based, are reasonable at this time, we cannot assure Bidders that such expectations will prove to be correct or accurate. Given these uncertainties, investors are cautioned not to place undue reliance on such forward-looking statements and not to regard such statements as a guarantee of future performance.

In accordance with the SEBI InvIT Regulations, the assumptions underlying the Projections of Revenue from Operations and Cash Flow from Operating Activities have been examined by the Auditors in accordance with SAE 3400. The Projections of Revenue from Operations and Cash Flow from Operating Activities have been prepared for inclusion in this Draft Offer Document for the purposes of this Issue, using a set of assumptions that include hypothetical assumptions about future events and management's actions that are not necessarily expected to occur, and have been approved by the IM Board. Consequently, Bidders are cautioned that the Projections of Revenue from Operations and Cash Flow from Operating Activities may not be appropriate for purposes other than that described above.

In any event, these statements speak only as of the date of this Draft Offer Document or the respective dates indicated in this Draft Offer Document, and the InvIT, the Investment Manager, the Sponsor, the Trustee or the Lead Managers or their respective affiliates or advisors, (financial, legal or otherwise), undertake no obligation to update or revise any of the statements reflecting circumstances arising after its date or to reflect the occurrence of underlying events, whether as a result of new information, future events or otherwise after the date of this Draft Offer Document. In the event any of these risks and uncertainties materialise, or if any of the Investment Manager's underlying assumptions prove to be incorrect, the actual results of operations or financial condition or cash flows of the InvIT could differ materially from that described herein as anticipated, believed, estimated or expected. All subsequent forward-looking statements attributable to the InvIT are expressly qualified in their entirety by reference to these cautionary statements. Given these uncertainties, Bidders are cautioned not to place undue reliance on such forward-looking statements and financial projections, and not to regard such statements to be a guarantee or assurance of the InvIT's future performance or returns to investors.

RISK FACTORS

*An investment in the Units involves a high degree of risks. Before investing in the Units, prospective investors should pay particular attention to the fact that the InvIT, the Parties to the InvIT, the Project SPVs and each of their activities are governed by the legal, regulatory and business environment in India, which differs from that which prevails in other countries. Prospective investors should carefully consider all the information in this Draft Offer Document, including the risks and uncertainties described below, before making an investment in the Units. To obtain a complete understanding, prospective investors should read this section together with the sections '**Business**', '**Special Purpose Combined Financial Statements**', '**Management's Discussion and Analysis of Financial Condition and Results of Operations**' and '**Rights of Unitholders**', on pages 138, 241, 290 and 232 as well as the other information contained in this Draft Offer Document. The risks and uncertainties described in this section may not be the only risks and uncertainties the InvIT and the Project SPVs currently face. Additional risks and uncertainties not presently known to the Trustee, the Sponsor or the Investment Manager, or that the Trustee or the Investment Manager do not currently consider material, may arise or may adversely affect our business, financial condition, cash flows and results of operations. If any of the following risks, or other risks that are not currently known or are currently considered immaterial, actually occur, our business prospects, results of operations, cash flows and financial condition could suffer, the price of the Units could decline and prospective investors may lose all or part of their investment. Unless otherwise specified in the relevant risk factors, the Trustee, the Sponsor and the Investment Manager are not in a position to specify or quantify the financial or other risks mentioned herein.*

This Draft Offer Document also contains forward-looking statements that involve risks, uncertainties and assumptions. The actual results of the InvIT and the Project SPVs could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the considerations described below and elsewhere in this Draft Offer Document.

Prospective investors should be aware that the price of the Units, and the income from them, may be subject to volatility. If any of the risks described below occurs, our business and prospects could be materially and adversely affected, the trading price of the Units could decrease and investors could lose all or part of their original investment.

In making an investment decision, prospective investors must rely upon their own examinations and the terms of the Issue, including the merits and the risks involved. Prospective investors should consult their tax, financial and legal advisors about the particular consequences of investing in the Issue. In this section, unless the context otherwise requires, a reference to "we", "us" and "our" refers collectively to the InvIT and the Project SPVs. Further, unless the context otherwise requires, the financial information used in this section is derived from the Special Purpose Combined Financial Statements.

Risks Related to Our Business and Industry

1. The InvIT is a newly settled trust and does not have an established operating history, which will make it difficult to accurately assess our future growth prospects.

The InvIT was set-up as an infrastructure investment trust on August 3, 2022 and registered with the SEBI and proposes to acquire 100% of the equity shares in each of the Project SPVs from GRIL (an Associate of the Sponsor), including GDDHPL wherein the InvIT proposes to initially acquire 49% of the equity shares during the formation of the InvIT. For further details, please see "- ***The InvIT shall not initially acquire the entire equity share capital of one of the Project SPVs from GRIL***" on page 22. The InvIT does not have any operating history or its own historical financial information by which its past performance may be assessed. This will make it difficult for investors to assess its future performance. Growth prospects as an infrastructure investment trust can be affected by a wide variety of factors, including, inability to raise funds required for our operations, adverse developments in taxation regulations affecting our Unitholders, operational performance, distribution, and acquiring new assets. Any inability to meet these challenges could cause disruptions to our operations and could be detrimental to our long-term business outlook. There can be no assurance that the InvIT Assets will be able to generate sufficient revenue from their operations to generate sufficient cash flows to make distributions to the Unitholders, or that such distributions will be in line with those set out in the section titled "***Projections of Revenue from Operations and Cash Flow from Operating Activities***" on page 367. Additionally, the historical financial information of the Project SPVs on a combined basis has been included in this Draft Offer Document in the section titled "***Special Purpose Combined Financial Statements***" on page 241. There can be no assurance that our future performance will be consistent with the historical financial information on a combined basis included in this Draft Offer Document.

2. Consummation of the Formation Transactions pursuant to which we will acquire the Project SPVs is subject to receipt of approval from NHAI and timely release of certain security created on the InvIT Assets

Certain terms and conditions in the Concession Agreements require the NHAI's prior written approval to be obtained for one or more of the following actions, among others:

- undertaking or permitting any change in the ownership from national security and public interest perspective;
- amendment, modification or replacement by the Project SPV of any project agreements (including financing agreements) relating to the operation of the InvIT Assets to which the Project SPV is a party if the amendment, modification or replacement of such agreement increases or imposes any financial liability or obligation on the NHAI;
- the creation of any encumbrance or security interest over, or transfer of rights and benefits of the Project SPVs under, the Concession Agreements or any project agreements; and
- refinancing of a certain portion of the outstanding indebtedness of the Project SPVs, as described in this Draft Offer Document.

The Project SPVs have made applications dated August 23, 2022 to the NHAI in connection with undertaking Formation Transactions and related actions. While receipt of such approvals are pending as on date of this Draft Offer Document, the transfer of the Project SPVs to the InvIT, may be subject to certain conditions, specified by NHAI in their approval. We cannot assure you that the approval from the NHAI will be received in a timely manner or that we will be able to comply with the conditions provided under the NHAI approval, which may adversely impact our ability to complete the Issue within the anticipated time frame or at all.

Further, the Concession Agreements require the submission to the NHAI, for its review and comments, all project agreements (including financing arrangements) to which the Project SPVs are a party prior to execution or any subsequent amendment of such agreements. The Project SPVs, the InvIT and the Sponsor, as applicable, have submitted to the NHAI, draft of the Project Management Agreement and have intimated the NHAI in relation to the Formation Transactions. However, there can be no assurance that the NHAI will approve any of the arrangements as proposed in such applications.

Further, the lenders of the respective Project SPVs have created certain charges over the InvIT Assets. The security that has been created in favor of the lenders will be required to be released within an agreed period of time in order to consummate the Formation Transactions. If such security is not released by the lenders within the contemplated timeline, we may not be able to consummate the Formation Transaction in a timely manner or at all.

3. Our failure and inability to identify and acquire new infrastructure assets that generate comparable revenue, profits or cash flows may have an adverse effect on our business, financial condition, cash flows and results of operations and our ability to make distributions.

The InvIT Assets will comprise seven road assets, all operating on a hybrid annuity model in the states of Maharashtra, Andhra Pradesh, Punjab, Gujarat and Uttar Pradesh that the Project SPVs operate and maintain pursuant to concessions granted by the NHAI. The Concession Agreements of the Project SPVs stipulate a limited concession period at the end of which the operation of the relevant project will be transferred to NHAI. As at June 30, 2022, the residual periods for the concessions of the InvIT Assets ranged from approximately 12.7 to 15 years. For further details on the residual concession period of each of the InvIT Assets, see "***Business – Details of the Project SPVs and the InvIT Assets***" on page 144.

Our growth strategy in the future may involve strategic acquisitions of infrastructure assets. We may not be able to conclude appropriate or viable acquisitions in a timely manner. The success of our initial acquisitions and any future acquisitions will depend upon several factors, including:

- our ability to finance and acquire operational roads and other infrastructure assets on a cost-effective basis;
- our ability to integrate acquired personnel, operations and technologies into our organization effectively;

- unanticipated problems or legal liabilities of the acquired businesses; and
- tax or accounting issues relating to the acquired businesses.

We cannot assure you that we will be able to acquire new infrastructure assets upon the expiry of the term of the Project SPVs' existing Concession Agreements or at any time thereafter. Accordingly, the number of assets forming part of our portfolio and the revenue generated by them may vary. Further, even if new infrastructure assets are added to our portfolio, we cannot assure you that such infrastructure assets will be able to generate comparable cash flows, revenues and profits. If we are unable to acquire new road assets that generate comparable cash flows, revenue or profits, our business, financial condition, cash flows and results of operations and our ability to make distributions to Unitholders may be adversely affected. For further details on the terms of each of the Concession Agreements, see "***Summary of Concession Agreements***" on page 160.

Further, we cannot assure you that we will be able to achieve the strategic purpose of such acquisitions or operational integration or an acceptable return on such investments, which may adversely affect our profits, financial condition and distributions. The concession agreements for future road projects may also contain terms and conditions that are more restrictive than those under the existing Concession Agreements for the InvIT Assets. These restrictions may restrict our flexibility in managing our business or projects and could in turn adversely affect our business prospects, financial condition and results of operation. Further, if the operating periods of InvIT Assets are shortened or disrupted or the Project SPVs right to operate the InvIT Assets is terminated before the expiration of the concessions, the business, financial condition, cash flows and results of operations of the InvIT may be adversely affected.

4. All of our revenue from our InvIT Assets is dependent on receiving consistent annuity income from NHAI

All of our InvIT Assets are on hybrid annuity basis. Pursuant to the relevant Concession Agreement, a fixed amount is paid semi-annually as annuity by NHAI. Any reduction or non-receipt of annuity income from NHAI may adversely affect our distributions. Further, as per the Projections of Revenue from Operations and Cash Flow from Operating Activities, the revenue from operations for Fiscals 2025, 2024 and 2023 arising from the seven InvIT Assets is projected to be ₹6,151.63 million, ₹6,467.55 million and ₹14,515.66 million, respectively. In compliance with the InvIT Regulations, this Draft Offer Document includes certain forward-looking statements, such as Projections of Revenue from Operations and Cash Flows from Operating Activities, expectations, plans and analysis of the Projections, see "– ***The Special Purpose Combined Financial Statements and Projections of Revenue from Operations and Cash Flow from Operating Activities presented in this Draft Offer Document may not be indicative of the future financial condition and results of operations of the InvIT***" and the section titled "***Projections of Revenue from Operations and Cash Flow from Operating Activities***" on pages 23 and 367, respectively. Any adverse impact on the revenue from operations of the InvIT Assets will have an adverse impact on the business, cash flows and revenue from operations of the InvIT.

5. If any of our InvIT Assets are terminated prematurely, we may not receive payments due to us which may result in a material adverse effect on our financial condition.

The concessions in respect of our InvIT Assets are our principal assets. Our ability to receive annuity payments and apply such amounts to make distributions to our Unitholders will depend on the respective Project SPV's continuing concession right from the NHAI to operate the InvIT Assets. The NHAI may terminate the Concession Agreements and revoke the concessions for reasons set forth in the Concession Agreements, including, but not limited to, one or more of the following:

- failure to comply with operational or maintenance standards;
- failure to replenish performance security upon encashment and appropriation;
- failure to cure the default, within the cure period, for which the performance security was appropriated in terms of the Concession Agreements;
- abandonment or intention to abandon construction or operation of a project by us without the prior written consent of the concessioning authority;
- failure to complete a project within the prescribed timelines;

- failure to comply with the provisions of the escrow agreements entered into with the regulatory authorities;
- occurrence of a financial default and substitution by the lenders in terms of the substitution agreement;
- creation of encumbrance in breach of the Concession Agreements;
- occurrence of a material adverse effect due to a breach of any of the agreements in relation to our InvIT Assets;
- transfer of rights, obligations, assets or undertaking or execution of assets that causes a material adverse effect;
- continuation of a force majeure event, such as an act of God, act of war, expropriation or compulsory acquisition of any project assets by the Government, industrial strikes and public agitation, beyond a specified time; and
- temporary or permanent halt of operations of the InvIT Assets.

In the event that the early termination of the Concession Agreements is due to a breach by us, we are entitled to receive a termination payment equal to 65.00% of the annuity payments remaining unpaid, including interest thereon, in the manner prescribed under the Concession Agreements. In the event that the early termination of the Concession Agreements is due to a breach by the NHAI, we are entitled to receive a contractually agreed termination amount, as set out in "***Summary of Concession Agreements***" on page 160. As the termination payment payable to us in the event of a breach by us would be lower than what we would have otherwise been entitled to receive in the event that the Concession Agreement had not been terminated, we may not be adequately compensated for the actual costs and investments associated with the InvIT Assets and, therefore, may adversely affect our ability to make distributions to Unitholders.

There can be no assurance that the concessioning authority will pay such termination payments in time or at all. The Concession Agreements specify the termination payment shall become due and payable within 15 days of demand being made to the NHAI and no representation is made by the NHAI with respect to the timing of the release of such payment. In the event of a delay in the disbursement of a termination payment by the NHAI, in particular, if any dispute arises in respect of such payment, or in the event the NHAI fails to make the termination payment at all, we may be unable to make distributions to Unitholders. Further, there can be no assurance that the termination payments from the concessioning authority, if any, will be adequate to enable us to recover our investments made in our InvIT Assets. If the Concession Agreements are terminated prematurely, our business, results of operations, cash flows and financial condition may be adversely affected. Further, if there is any delay or pre-mature termination of any project due to our fault, our reputation may be adversely affected and we may also be blacklisted or debarred from participation in similar types of projects.

6. If we fail to maintain the roads constructed by us pursuant to and as per the relevant contractual requirements, we may be subject to penalties or even termination of our contracts, which may have a material adverse effect on our reputation, business, financial condition, results of operations and cash flows.

Our InvIT Assets require us to carry out repair or maintenance (in accordance with the terms of such contractual agreements) for various factors which may include natural disasters, accidents and other factors beyond our control. Further, under the terms of the Concession Agreements, as long as we are the concessionaire, we have obligations to maintain our InvIT Assets for a period of 15 years, in good working condition and are required to maintain the roads periodically, among other conditions specified under the Concession Agreements. NHAI periodically carries out tests through one or more engineering firms to assess the quality of roads and their maintenance. In the event we fail to maintain the roads to the standards set forth in the relevant Concession Agreements, NHAI may impose penalties, withhold annuity payments and demand remedies within cure periods. Further, in the event we are required to cure any defaults and we fail to cure such defaults within such time as may be prescribed under the Concession Agreements, the Concession Agreements may be terminated.

7. We may be subject to increase in costs, including O&M costs, which we cannot recover by increasing annuity income under the relevant Concession Agreement.

The terms and conditions of the Concession Agreements are fixed and are not negotiable during the concession

period. The Concession Agreements typically specify certain O&M standards and specifications to be met by us while undertaking our O&M activities and develop a maintenance manual. These specifications and standards require us to incur O&M costs on a regular basis. The O&M costs of our InvIT Assets may increase due to factors beyond our control, including:

- unanticipated increase in material and labour costs, traffic volume or environmental stress leading to more extensive or more frequent heavy repairs or maintenance costs;
- the Project SPVs being required to restore their project roads in the event of any landslides, floods, road subsidence, other natural disasters, accidents or other events causing structural damage or compromising safety;
- changes to the laws and regulations relating to insurance in India which results in an increase in the insurance premiums payable by the Project SPVs;
- an increase in minimum wages or other operating costs;
- the introduction of a levy on the usage of water for maintenance of the roads and highways;
- unforeseen legal, tax and accounting liabilities relating to acquired assets;
- increase in electricity or fuel costs resulting in an increase in the cost of energy;
- higher interest costs in relation to our borrowings; or
- any other unforeseen operational and maintenance costs.

In addition, our operations may be adversely affected by interruptions or failures in the technology and infrastructure systems that we use to support our operations. Any significant increase in O&M costs beyond our budget and any failure by us to meet quality standards may reduce our profits andcould expose us to regulatory penalties and could adversely affect our business, financial condition, cash flows and results of operations.

In the event that our costs increase, we may be unable to offset such increases with higher revenues by increasing annuity payments due to the restrictions of the Concession Agreements. Any significant increase in O&M costs beyond the amounts budgeted by us, or any failure to meet quality standards, may reduce our profits, could expose us to penalties imposed by the concessioning authorities and could have a material, adverse effect on our business, financial condition, cash flows and results of operations. Such events may also impact the ability of the Project SPVs to repay the debt obtained from the InvIT and our ability to make distributions to Unitholders. As such, the inability to change the terms and conditions, may materially and adversely affect our operational and financial flexibility.

8. There are risks associated with the potential acquisition of the ROFO Assets by the InvIT pursuant to the ROFO Agreement

GRIL (an Associate of the Sponsor) proposes to enter into the ROFO Agreement with the InvIT, pursuant to which GRIL proposes to grant a right of first offer to the InvIT to acquire the ROFO Assets. For more details, see the sections titled "***Business — ROFO Assets***" and *"**Formation Transactions in Relation to the InvIT – Acquisition of future assets by the InvIT – ROFO Agreement***" on pages 155 and 101, respectively.

The concession agreements entered into by the ROFO Assets may require GRIL to maintain a specified percentage of equity shareholding, both during and after the construction period, and certain ROFO Assets may necessitate the prior approval of NHAI before undertaking any 'change in ownership' (as defined under the relevant concession agreement). As certain of these projects are currently under different phases of construction, such projects are subject to various construction related risks, including time and costs overruns and delays in obtaining regulatory approvals, which may delay or prevent GRIL from selling its shareholding in the ROFO Assets to the InvIT pursuant to the ROFO Agreement. Moreover, any future acquisition pursuant to the ROFO Agreement will have to be undertaken by the InvIT in compliance with, and subject to any restrictions prescribed under, the then prevailing policy framework for divestment of equity by concessionaires/developers, as set out by the NHAI.

Pursuant to the ROFO Agreement, the InvIT will undertake a diligence and valuation exercise prior to making an offer to buy such asset. For additional details, see the section titled "***Formation Transactions in Relation to the InvIT- Acquisition of future assets by the InvIT – ROFO Agreement***" on page 101. Accordingly, the ROFO

Assets might not be free from defects or be subject to approval requirements and other restrictions when they are offered to the InvIT under the ROFO Agreement and the InvIT may decide not to acquire any of the ROFO Assets.

9. We may face limitations and risks associated with debt financing, refinancing and restrictions on investment, which may adversely affect our operations and our ability to make distributions to Unitholders.

We are subject to regulatory restrictions in relation to our debt financing and refinancing. We may from time to time require debt financing and refinancing to carry out the Investment Manager's investment strategy. In the event, that we undertake debt financing or refinancing, we may be limited by Indian law as to the nature of financing or refinancing that we may undertake. Under the SEBI InvIT Regulations, the aggregate consolidated borrowings and deferred payments of the InvIT shall not exceed 70% of the value of the InvIT assets and any borrowings above 25% of the value of the InvIT assets shall be subject to certain conditions, including Unitholders approval. For borrowings upto 49% of the value of InvIT assets, the InvIT shall obtain: (a) credit rating from a credit rating agency registered with SEBI; and (b) seek Unitholders approval in the manner provided under the SEBI InvIT Regulations. Further for borrowings exceeding 49% of the value of the InvIT assets, the InvIT: (a) shall utilise the funds only for acquisition or development of infrastructure projects; (b) shall obtain the prescribed credit rating for its consolidated borrowing and proposed borrowing; (c) have a track record of at least six distributions on a continuous basis post listing in the year preceding the financial year in which the enhanced borrowings are proposed to be made; and (d) obtain the prescribed Unitholders approval in accordance with the SEBI InvIT Regulations. There is no assurance that the relevant approval can be obtained in a timely manner, or at all. The InvIT will rely on debt and equity financing to expand its portfolio of projects through acquisitions, which may not be available on favourable terms or at all. Debt financing to fund the acquisition of a project may not be available on short notice or may not be available on acceptable terms. Since the timing and size of acquisitions cannot be readily predicted, the InvIT may need to be able to obtain funding on short notice to benefit fully from opportunities. In addition, the level of indebtedness of the Project SPVs may affect the InvIT's ability to borrow without prior Unitholders' approval.

Restrictions imposed by the Reserve Bank of India may limit the InvIT's ability to borrow overseas for projects under development and hence could constrain its ability to obtain financing on competitive terms and refinance existing indebtedness. In addition, there can be no assurance that any required regulatory approvals or borrowing in foreign currencies will be granted to the InvIT without onerous conditions, or at all.

Debt financing may increase the InvIT's vulnerability to general adverse economic and industry conditions by limiting its flexibility in planning for or reacting to changes in its business and its industry. The InvIT will also be subject to the risk that certain covenants in connection with any future borrowings may limit or otherwise adversely affect its operations and its ability to make distributions to its Unitholders. Such covenants may also restrict the InvIT's ability to acquire additional projects or undertake other capital expenditure by requiring it to dedicate a substantial portion of its cash flows from operations to interest and principal payments on its debt.

In the event that we undertake debt financing or refinancing, we may also be subject to risks associated with debt financing and refinancing, including the risk that our cash flow may be insufficient to meet required payments of principal and interest under such financing and to make distributions to Unitholders. Our ability to generate sufficient cash to satisfy our debt obligations will depend on our future operating performance, which may be affected by prevailing economic conditions and financial, business and other factors beyond our control. There is no assurance that we will be able to generate sufficient cash flow to meet all of our debt obligations. If we are unable to make payments due under our debt facilities, the lenders may be able to declare an event of default and initiate enforcement proceedings relating to any security provided in respect of the loan facilities, and/or call upon any guarantees, and this may adversely affect our ability to make distributions to Unitholders. Such default may also result in the termination of certain Concession Agreements by the concessioning authority.

We may also be subject to certain covenants in connection with any future borrowings that may limit or otherwise adversely affect our operations and our ability to make distributions to Unitholders, such as covenants restricting our ability to acquire assets or undertake other capital expenditure, requirements to set aside funds for maintenance or repayment of security deposits or requirements to maintain certain financial ratios. For further details, see "***Financial Indebtedness and Deferred Payments***" on page 312.

Further, if prevailing interest rates or other factors at the time of financing or refinancing (including changes in market conditions and maturity term imposed by any lenders) result in higher interest rates, the interest expense may be significant and may have an adverse effect on our cash flow and the amount of distributions available to Unitholders.

10. The acquisition by the InvIT of the Project SPVs from GRIL may be subject to certain risks, which may result in damages and losses, and conditions that may prevent the InvIT from acquiring the Project SPVs, operating and maintaining the InvIT Assets or providing debt financing to them.

While the Investment Manager believes that reasonable due diligence will have been carried out on the Project SPVs prior to their acquisition by the InvIT, there can be no assurance that the InvIT Assets will not have defects or deficiencies that are unknown or unquantified and that may require additional capital expenditure or obligations to third parties, including to the relevant concessioning and statutory authorities, which may have an adverse effect on the InvIT's earnings and cash flows and the distributions to the Unitholders.

GRIL, under each Share Purchase Agreement, has agreed to indemnify the InvIT and the Investment Manager for any losses resulting from (i) actual or alleged breach, inaccuracy or misrepresentation in any of the warranties or breach of any covenant; or (ii) any pending or threatened claims against the Project SPVs from the period prior and including the closing date as defined under the Share Purchase Agreement. Under the terms of the Share Purchase Agreement, the period for claiming under the indemnity shall be (i) unlimited, in case of fundamental warranties; (ii) three years, in case of business warranties; and (iii) eight years, in case of tax warranties. For further details, see the section titled "***Formation Transactions in Relation to the InvIT – Arrangements pertaining to InvIT Assets entered into with parties to the InvIT prior to the Issue – Share Purchase Agreements*** " on page 97.

Further, in the event of failure or default by the Project Manager under the Project Management Agreement, the aggrieved party shall be entitled to recover damages from the Project Manager, including on account of any penalty or deduction in annuity payments levied by the NHAI and such damages shall be based on actual loss or actual damage incurred by the aggrieved party. Claims exceeding the amount limits, not indemnified by the Project Manager, would have an adverse effect on the Project SPVs' financial performance.

The Project SPVs may, from time to time, receive letters and notices from the respective concessioning authorities imposing penalties and seeking claims for any deficiencies or non-compliance with the terms of the respective Concession Agreement or other project agreements. However, there would be an adverse effect on the relevant Project SPV's operations and financial condition if a claim is decided against such Project SPV. Further, the Projects SPVs have applied to the concessioning authorities for their consent in relation to, amongst others, undertaking or permitting any change in the ownership from national security and public interest perspective.

In addition, the Project SPVs may be subject to unknown or contingent liabilities for which the InvIT may have limited or no recourse against GRIL. Such unknown or contingent liabilities may also include tax liabilities and other liabilities whether incurred in the ordinary course of business or otherwise.

11. The InvIT shall not initially acquire the entire equity share capital of one of the Project SPVs from GRIL

The InvIT intends to acquire 100% of the equity share capital of each of the Project SPVs from GRIL, including GDDHPL, which is currently an under-construction project, wherein the InvIT presently proposes to acquire 49% of the equity share capital while the remaining 51% equity shareholding in GDDHPL will be acquired upon completion of six months from the commercial operation date of GDDHPL, after obtaining appropriate approvals, including from the NHAI. Accordingly, our combined financial statements and projections have been prepared considering 100% interest in GDDHPL. However, there can be no assurance that the InvIT will be able to acquire the remaining 51% shareholding in GDDHPL in a timely manner. For further details on GDDHPL, see the section titled "***Formation Transactions in relation to the InvIT***" on page 91.

12. Our Investment Manager has not executed any binding agreements with respect to the Share Purchase Agreements, Assignment Agreements, Shared Services Agreement, Project Management Agreement, On-lending Agreements and the ROFO Agreement. Our Investment Manager's inability to consummate transactions in relation to these agreements will impact the Issue and its ability to complete the Issue within the anticipated time frame or at all.

Our Investment Manager has not executed binding agreements with respect to (i) the Share Purchase Agreements; (ii) Assignment Agreements; (iii) Shared Services Agreements; (iv) Project Management Agreement; (v) On-lending Agreements; and (vi) the ROFO Agreement. These agreements will be executed prior to the filing of the Offer Document, and the underlying transactions, will be consummated or become effective, as applicable, after the Bid/Issue Closing date. While the agreed forms of these agreements have been taken on record by the IM Board, and the broad terms of these agreements have been disclosed in this Draft Offer Document, the scope of

these agreements are indicative in nature and consequently, subject to change. For further details, see "***Parties to the InvIT***" and "***Related Party Transactions***" on pages 103 and 224.

13. The Special Purpose Combined Financial Statements and Projections of Revenue from Operations and Cash Flow from Operating Activities presented in this Draft Offer Document may not be indicative of the future financial condition, cash flows and results of operations of the InvIT.

The Special Purpose Combined Financial Statements of the Project SPVs for Financial Years ended 2022, 2021 and 2020 and the three month period ended June 30, 2022, constitute a different presentation of information and may not necessarily reflect the consolidated financial position, results of operations or cash flows of the InvIT, and nor will they necessarily give an indication of the financial position, results of operations or cash flows of the InvIT or the Project SPVs in the future.

After the listing and trading of units, there may be certain changes to the InvIT's cost structure, levels of indebtedness and operations, and these could differ materially from the historical combined cost structure and levels of indebtedness presented in the Special Purpose Combined Financial Statements. For example, there are certain costs, such as the Investment Manager's fee, the Project Manager's fee and other costs relating to shared services for the Project SPVs and the InvIT, that will be incurred by the InvIT going forward, some of which were not incurred by the Project SPVs historically. For details of recurring expenses, see the section titled *"**Overview of the InvIT**"* on page 89. In addition, the Project SPVs will be valued at fair value at the time of the actual acquisition of such assets by the InvIT in accordance with the Valuation Report, which will occur prior to the Closing Date, for the purpose of a purchase price allocation exercise required under Ind AS for financial reporting purposes. Furthermore, the future consolidated financial statements of the InvIT will be prepared considering the acquisition of and control over the Project SPVs in line with Ind AS 103, business combination and Ind AS 110, consolidated financial statements, which may be substantially different from the accounting policies used for the preparation of the Special Purpose Combined Financial Statements.

The financial projections contained in this Draft Offer Document are based on historical financial information and certain estimates and assumptions. There can be no assurance that the Project SPVs will be able to generate sufficient cash from the operations of the InvIT Assets for the InvIT to make distributions to Unitholders or that such distributions will be in line with those set out in the section titled *"**Projections of Revenue from Operations and Cash Flow from Operating Activities**"* on page 367. The future financial performance of the InvIT could vary materially from the financial projections and some of such projections' underlying assumptions might change or not materialise as expected. Unfavourable events or circumstances not anticipated may also arise. There can be no assurance that the assumptions will be realised or actual distributions will be as anticipated.

14. Our Project SPVs are subject to restrictive covenants under their financing agreements that could limit our flexibility in managing our business or to use cash or other assets. Any default under the existing financing arrangements by any of the Project SPVs could adversely impact the InvIT's ability to continue to own a majority of each of the Project SPVs, its cash flows and its ability to make distributions to Unitholders.

Financing agreements that the Project SPVs have entered into with certain banks and financial institutions contain certain restrictive covenants. GPEL, PDEPL, GDHPL, GASHPL, VSEPL, GSSHPL and GDDHPL have obtained consents from its lenders for the Issue and the Formation Transactions. The consents obtained from certain of the lenders in relation to the Formation Transactions impose certain obligations on the InvIT. Such obligations include, among others:

- GRIL shall remain the sponsor of the InvIT until the subsistence of the loan facilities and until the non-convertible debentures are redeemed;
- GR Highways Investment Manager Private Limited shall be controlled by GRIL by way of majority equity shareholding until the subsistence of the loan facilities and until the non-convertible debentures are redeemed;
- The InvIT shall maintain a credit rating of 'AAA' until the subsistence of the loan facilities and until the non-convertible debentures are redeemed;
- No prepayment of the non-convertible debentures from the funds raised by the InvIT in the Issue; and

- The GRIL Loans proposed to be assigned to the InvIT shall be subordinate to the non-convertible debentures.

For details, see "***Financial Indebtedness and Deferred Payments***" on page 312. As a result of the change in Sponsor from GRIL to Lokesh Builders Private Limited, we are in the process of renegotiating the above mentioned restrictive covenants with certain lenders. However, we cannot assure you that we will be able to negotiate terms favourable to the InvIT. Additionally, these restrictive covenants may also affect some of the InvIT's rights as the shareholder of the Project SPVs and the Project SPVs ability to pay dividends if it is in breach of its obligations under the applicable financing agreements. Further, as on the date of this Draft Offer Document, while the Project SPVs have obtained lender consents from a majority of their lenders for the purpose of the Issue and the Formation Transactions, we are yet to receive consent from Indian Bank for the Formation Transactions in relation to GDDHPL.

Such financing agreements also require us to maintain certain financial ratios. In the event of any breach of any covenant contained in these financing agreements, we may be required to immediately repay our borrowings either in whole or in part, together with any related costs.

If the Project SPV is suspended under the relevant Concession Agreements in relation to any default by such Project SPV, at any time during such suspension, the lenders of each Project SPV have the right to request the NHAI to substitute the concessionaire in accordance with a substitution agreement.

Any downgrading of the credit rating of the Project SPVs by a credit rating agency below a certain scale may qualify as an event of default under the relevant financing agreements of our Project SPVs. Certain financing agreements also provide the banks and financial institutions with the right to convert amounts due into equity in the event of default, with the approval of the relevant concessioning authority. Certain of these banks and financial institutions also have a right to appoint nominee directors or observer under these financing agreements in the event of default. Pursuant to the provisions of certain loan facilities availed by us, the lenders are entitled to recall the loan at any time on demand or call notice, requiring the borrower to repay (either in full or in part) the amount outstanding on any particular day upon occurrence of event of default. Any or all of the above restrictive covenants may restrict our ability to conduct business and any breach thereof may adversely affect our results of operations, cash flows and financial condition.

15. The global spread of the COVID-19 could adversely affected our business, results of operations, cash flows and financial conditions.

In the recent past, there have been rapid developments in the wide-spread global pandemic of a severe acute respiratory syndrome coronavirus 2 (commonly known as SARS-CoV-2) and the infectious disease novel coronavirus ("**COVID-19**"), caused by the virus, which the World Health Organisation declared a pandemic on March 11, 2020. In order to contain the spread of the COVID-19 virus, the Government of India and various states in India declared various lockdowns in the country and various states in 2020 and 2021, which included a ban on travel and imposition of transport restrictions. The continued global spread of COVID-19 is adversely affecting the global and Indian economy, the financial markets and the prevailing business sentiment and environment. Further, when the lockdown restrictions were slowly being eased and the SPV Group resumed construction activities, we faced shortage of labour staff owing to the COVID-19 pandemic. This resulted in labour shortages as a consequence of the COVID-19 pandemic. We cannot assure you that we may not face such shortage of labour in the future with respect to our InvIT Assets.

The actual extent of the COVID-19 pandemic and its impact on the economy globally in general and in India, still remains uncertain at this point in time and may turn severe in future. While, the Project SPVs have assessed the possible impact of the COVID-19 pandemic on their business operations, liquidity position and recoverability of its assets as on date based on internal and external sources of information, the extent to which the COVID-19 pandemic impacts the business operations of the Project SPVs will depend on future developments. While presently there has been no material adverse impact on account of COVID-19 on our liquidity position, including our ability to service debt, non-fulfilment of the obligations of any existing contracts/ agreements by any party on account of COVID-19, the direct and indirect impact of the COVID-19 pandemic remains uncertain, the GoI and the RBI have announced fiscal stimulus packages in anticipation of a significant negative impact on the economy. A worsening of the current outbreak of COVID-19 virus or future outbreaks of COVID-19 virus could adversely affect the Indian economy and economic activity in the region. If the COVID-19 pandemic, or any other pandemics or other severe epidemics, continue for an extended period, occur again and/or increase in severity, it could have an adverse effect on economic activity worldwide, including India, and could materially and adversely affect our business, cash flows, financial condition and results of operations and the trading price of the Units.

16. Our insurance policies may not provide adequate protection against all possible risks associated with our operations.

The Project SPVs' insurance coverage include fire, burglary, public liability, contractor all-risk insurance and commercial general liability insurance. However, we cannot assure you that all possible risks are adequately insured against or that we will be able to procure adequate insurance coverage at commercially reasonable rates in the future. Further, the InvIT Assets are subject to various risks that we may not be insured against, adequately or at all, including:

- changes in governmental and regulatory policies;
- shortages of, or adverse price movement for, construction materials;
- design and engineering defects;
- breakdown, failure or substandard performance of the road assets and other equipment;
- improper installation or operation of the road assets and other equipment;
- labor disturbances; and
- adverse developments in the overall economic environment in India.

Further, we are subject to various risks in the operation of the InvIT Assets, including on account of accidents on the InvIT Assets. Our insurance may not provide adequate coverage in certain circumstances and is subject to certain deductibles, exclusions and limits on coverage. To the extent we suffer damage or loss which is not covered by insurance, or exceed our insurance coverage, such damage or loss would have to be borne by us. We can make no assurance that material losses in excess of insurance proceeds (if any at all) will not occur in the future, which could adversely affect our financial condition, business, cash flows and results of operations.

17. A portion of the Net Proceeds may be utilized for repayment or pre-payment of loans taken from HDFC Bank Limited, which is a Lead Manager to the Issue and Axis Bank Limited , which is an affiliate of Axis Capital Limited one of the Lead Managers to the Issue.

We may repay certain loans obtained by the Project SPVs from Axis Bank Limited and HDFC Bank Limited, from the Net Proceeds as disclosed in "***Use of Proceeds***" on page 70. HDFC Bank Limited is a Lead Manager to the Issue and Axis Capital Limited a Lead Manager to the Issue is an affiliate of Axis Bank Limited and are not associates of the InvIT in terms of the SEBI (Merchant Bankers) Regulations, 1992. Loans and facilities sanctioned to the Project SPVs by Axis Bank Limited and HDFC Bank Limited are part of its normal commercial lending activity and we do not believe that there is any conflict of interest under the SEBI (Merchant Bankers) Regulations, 1992, as amended, or any other applicable SEBI rules or regulations. However, the amount of Net Proceeds utilized towards such repayment or prepayment to Axis Bank Limited and HDFC Bank Limited, will not be available for use in our business for any other purposes. For details, see "***Use of Proceeds***" on page 70.

18. Certain of the Associates of the Sponsor, Project SPVs and the Trustee are involved in certain legal and other proceedings, which may not be decided in their favour.

Certain of the Associates of the Sponsor and the Trustee are involved in legal proceedings or claims which are pending at different levels of adjudication before various courts, tribunals and regulatory authorities. For details of such material outstanding legal proceedings, see "***Material Litigation and Regulatory Action****"* on page 321. There is no assurance that these legal proceedings and regulatory matters will be decided in favor of the respective entities. Decisions in any of the aforesaid proceedings adverse to our interests may have a material, adverse effect on our or their business, future financial performance, cash flows and results of operations. If the courts, tribunals or regulatory authorities decide against the Associates of the Sponsor or the Trustee, we or such entities may face monetary and/or reputational losses and may have to make provisions in our financial statements, which could increase expenses and liabilities. The Project SPVs have received certain notices from tax authorities and are involved in tax proceedings. Further, there may be legal proceedings involving the Project SPVs as well in the future. Pursuant to the completion of the Formation Transactions, we are responsible for legal proceedings against the Project SPVs. While GRIL (as the seller of such Project SPVs) will provide certain indemnities under the relevant Share Purchase Agreements, we cannot assure you that the relevant Project SPV or the InvIT will be able to successfully bring a claim against GRIL (as the seller of such Project SPVs) under the relevant Share Purchase

Agreements or that such indemnities will be adequate to satisfy all the losses, damages, costs and expenses suffered by the InvIT and the Project SPVs arising from such proceedings or the consequences thereof.

19. We will depend on various third parties to undertake certain activities in relation to the operation and maintenance of the InvIT Assets and any delay, default or unsatisfactory performance by these third parties could materially and adversely affect our ability to effectively operate or maintain the InvIT Assets.

We will depend on the availability and skills of third-party employees and contractors pertaining to the operation and maintenance of the InvIT Assets. We can also make no assurance that the services of such third parties will continue to be available at reasonable rates in the areas in which we conduct our operations or at all. We may be exposed to risks relating to the inability of such third parties to obtain requisite approvals for the operation and maintenance activities, as well as the quality of their services, equipment and supplies. We may also be exposed to civil and criminal liability in relation to the actions of other third parties, including our employees and contractors.

We can make no assurance that such contractors or their sub-contractors will continue to hold or renew valid registrations under the relevant labour laws in India or be able to obtain the requisite approvals for undertaking such construction and operation. Furthermore, in case of failure by the sub-contractor to pay the labour costs of the workers engaged by them, we may be liable to pay such costs to the contracted labourers. Any violation of the provisions of the Contract Labour Act by the Project SPV may result in penalties pursuant to the provisions of the Contract Labour Act. If the Project SPV is subjected to other penalties under the Contract Labour Act, the reputation, results of operations, cash flows and financial condition of the InvIT could be adversely affected. Any delay, default or unsatisfactory performance by these third parties could materially and adversely affect our ability to manage the operation and maintenance of the InvIT Assets under the Concession Agreements in a timely manner or at all. Any of the foregoing factors could have a material adverse effect on our business, financial condition, reputation, cash flows and results of operations.

20. We may be required to pay additional stamp duty if any Concession Agreement is subject to payment of stamp duty as a deed creating leasehold rights, or as a development agreement.

For the purposes of stamp duty payment, concession agreements are generally considered to be agreements which are not lease deeds and stamp duty ranging between ₹100 and ₹500 is typically paid for such concession agreements. However, stamp duty authorities of certain states in India have issued notices to some concessionaires alleging inadequate stamp duty on the concession agreements executed between the concessionaires and the NHAI. The stamp authorities have claimed that since concession agreements relate to the letting of tolls to the concessionaires in the form of leases, or as development agreements, such agreements were required to be stamped as lease agreements or development agreements, as applicable. It is currently unclear whether this interpretation will apply to InvIT Assets as well. The stamp duty for a lease agreement or a development agreement ranges between 1.0% and 11.0% of the annual rent or premium payable or the market value of the property. Furthermore, stamp duty authorities may impose penalties for payment of inadequate stamp duty, which could extend up to 10 times the amount of the stamp duty payable. The High Courts of Allahabad and Madhya Pradesh have also held that a concession agreement ought to be stamped as a lease agreement and have upheld the imposition of a higher stamp duty on such agreements.

If any of the Concession Agreements were determined to be inadequately stamped, then such agreements would be inadmissible as evidence in any legal action, until the deficient amount of stamp duty together with penalties, if any, was paid. Any deficiently stamped documents can also be impounded by any person having authority, by law or consent, to receive evidence or every person who is in-charge of a public office, and such impounded documents could be made subject to stamp duty and penalty. In addition, a person who signs an instrument chargeable with stamp duty will be subject to a fine if such instrument is not duly stamped.

While we believe that the stamp duty payment is adequate and we have paid stamp duty of ₹200 on each of the Concession Agreements, if any demand for payment of a higher stamp duty or penalty is imposed which would increase the costs of the InvIT Assets, then to the extent such additional costs are not recoverable from the concession authorities, such demand could adversely affect our business, cash flows, results of operations and prospects.

21. The independent auditor´s report on the InvIT´s Projections of Revenue from Operations and Cash Flow from Operating Activities contains restrictions with respect to the purpose and use of the report by investors in the United States.

The independent auditors' report on the InvIT's Projections of Revenue from Operations and Cash Flow from Operating Activities, contains restrictions to indicate that the report is required by the SEBI InvIT Regulations requiring the independent auditor to issue a report on the Projections of Revenue from Operations and Cash Flow from Operating Activities and is issued for the sole purpose of the Issue in accordance with the SEBI InvIT Regulations. The independent auditor's work has not been carried out in accordance with auditing or other standards and practices generally accepted in jurisdictions outside India, including in the United States, and accordingly should not be relied upon as if it had been carried out in accordance with those standards and practices. U.S. securities regulations do not require profit forecasts to be reported by a third party and the report should not be relied upon by anyone in such jurisdictions. The independent auditors accept no responsibility and deny any liability to any person who seeks to rely on the report and who may seek to make a claim in connection with any offering of securities on the basis that they had acted in reliance of such information under the protections afforded by the law of the United States.

22. We may be unable to renew or maintain the statutory and regulatory permits and approvals required to operate the InvIT Assets which may have an adverse effect on our business, results of operation and financial condition.

The Project SPVs are required to obtain and maintain certain permits, approvals, licenses, registrations and permissions under various regulations, guidelines, circulars and statutes regulated by various regulatory and governmental authorities for operating the InvIT Assets. For further details, see section titled "***Regulatory Approvals***" on page 332. We cannot assure you that the Project SPVs have obtained all necessary approvals or that they will continue to obtain the necessary approvals or have been and will continue to be in compliance with all applicable laws and regulations. If the Project SPVs and/or the third-party contractor(s) fail to obtain or maintain them, or if there is any delay in obtaining or renewing them, our business, financial condition, cash flows and results of operations could be adversely affected. Further, these permits, approvals, licenses, registrations and permissions could be subject to several conditions, and we can make no assurance that we would be able to continuously meet such conditions or be able to prove compliance with such conditions to the statutory authorities. Any non-compliance may lead to the cancellation, revocation or suspension of relevant permits, licenses or approvals, which may result in the interruption of our operations and may adversely affect our business, financial condition, cash flows and results of operations.

23. Compliance with, and changes in, safety, health and environmental laws and regulations in India may adversely affect our business.

Our business will be subject to environmental, health and safety laws and regulations and various labor, workplace and related laws and regulations in India and requirements under the Concession Agreements. For further details, see section titled "***Regulations and Policies in India***" on page 221. Any changes in, or amendments to, these standards or laws and regulations could further regulate our business and could require us to incur additional, unanticipated expenses in order to comply with these changed standards. If we fail to meet safety, health and environmental requirements, we may also be subject to administrative, civil and criminal proceedings by governmental authorities, as well as civil proceedings by environmental groups and other individuals, which could result in substantial fines and penalties against us. Penalties imposed by regulatory authorities on us or third parties upon whom we depend may also disrupt our business and operations.

We cannot assure you that we will not become involved in future litigation or other proceedings or be held responsible in any such future litigation or proceedings relating to safety, health and environmental matters in the future. Clean-up and remediation costs, as well as damages, payment of fines or other penalties, other liabilities and related litigation, could adversely affect our business, prospects, financial condition, cash flows and results of operations.

24. The Project SPVs' financing agreements entail interest at floating rates, and any increases in interest rates may adversely affect our results of operations, financial condition and cash flows.

The Project SPVs are susceptible to changes in interest rates and the risks arising therefrom. For details, see section titled "***Financial Indebtedness and Deferred Payments***" on page 312. These financing agreements entail interest at floating rates with a provision for periodic reset of interest rates. Currently, all of the Project SPVs' borrowings are at floating rates of interest. Further, in recent years, the Government has taken measures to control

inflation, which have included tightening monetary policy by raising interest rates. Any increase in interest rates may have an adverse effect on our results of operations, financial condition and cash flows.

25. As a proposed shareholder of the Project SPVs, the InvIT's rights are subordinated to the rights of creditors, debt holders and other parties specified under Indian law in the event of insolvency or liquidation of the Project SPVs.

In the event of liquidation of any Project SPV, the secured and unsecured creditors of the relevant Project SPV will be entitled to payment from the liquidation proceeds in priority to us in our capacity as an equity shareholder of the Project SPVs. Under the Insolvency and Bankruptcy Code, 2016, in the event of winding-up of any Project SPV, workmen's dues and debts due to secured creditors which rank pari passu are required to be paid in priority over all other outstanding debt, followed by wages and salaries of employees, debts due to unsecured creditors, any amounts due to the central or state government, any other debts, preference shareholders and equity shareholders. Further, amounts payable to us in respect of any unsecured debt issued to the relevant Project SPV will be subordinated in the manner set forth above. Further, should the InvIT be dissolved, depending on the circumstances and the terms upon which our assets are disposed of, there is no assurance that a Unitholder will recover all or any part of its investment. There may also be uncertainty around the interpretation and implementation of certain provisions in relation to insolvency of a trust under the Insolvency and Bankruptcy Code, 2016.

26. Our actual results may be materially different from the expectations expressed or implied in the Projections of Revenue from Operations and Cash Flow from Operating Activities to this Draft Offer Document and are inherently uncertain and subject to significant business, economic, financial, regulatory and competitive risks and uncertainties that could cause actual results to differ materially from those projected.

This Draft Offer Document contains forward-looking statements regarding, among other things, the projections of revenue, profit and cash flows for Fiscals 2025, 2024 and 2023 for the InvIT set out in the section "***Projections of Revenue from Operations and Cash Flow from Operating Activities***" on page 367. The Projections of Revenue from Operations and Cash Flow from Operating Activities have been prepared on the basis of best-estimate (i.e. assumptions as to future events which are expected to take place and the actions expected to take place as of the date the information is prepared) and hypothetical assumptions (about future events and actions which may or may not necessarily take place), which are, by their nature, subject to significant risks and uncertainties. Such events and circumstances may not occur as expected. Such risks, uncertainties, contingencies and other factors which may cause the actual results or performance of the InvIT and the Project SPVs to be materially different from any future results or performance expressed or implied by these financial projections. The actual future results or performance of the InvIT and the Project SPVs will be affected by numerous factors, including those discussed in the section titled "***Forward-looking Statements and Financial Projections***" on page 14. Our revenue will be dependent on the cash flows from dividends, buyback of SPV shares, and principal and interest payments (net of applicable taxes and expenses) from the Project SPVs, whose revenue in turn is dependent on a number of factors, including the completion of our projects within expected timelines. Accordingly, we cannot assure you that we will be able to achieve the financial projections or make the distributions as set out in the Projections of Revenue from Operations and Cash Flow from Operating Activities in the future. As a result, investors should not rely upon the projections in making an investment decision given the possibility that actual results may differ materially from the underlying estimates and assumptions.

27. The Valuation Report by S. Sundararaman is not an opinion on the commercial merits and structure of the Issue nor is it an opinion, express or implied, as to the future trading price of Units or the financial condition of the InvIT upon the Listing, and the valuation of the Project SPVs contained in such Valuation Report may not be indicative of the true value of the Project SPVs.

S. Sundararaman has been appointed as the Valuer to undertake independent appraisals of the Project SPVs. The Valuation Report which sets out the opinion as to the fair enterprise value of the Project SPVs as of June 30, 2022. In order to issue the Valuation Report, the Valuer based his assumptions regarding the revenue cash-flows, expenditure, capital expenditure, direct taxes, working capital and GST claims, on information provided by and discussions with or on behalf of us, the Sponsor, GRIL and the Investment Manager, and which reflects current expectations and views regarding future events and, therefore, necessarily involves known and unknown risks and uncertainties.

The Valuation Report is neither an opinion on the commercial merits and structure of the Issue, nor is it an opinion,

express or implied, as to the future trading price of Units or the financial condition of the InvIT upon Listing. The Valuation Report does not purport to contain all the information that may be necessary or desirable to fully evaluate the commercial or investment merits of the Issue or the InvIT. The Valuation Report does not confer rights or remedies upon investors or any other person, and does not constitute and should not be construed as any form of assurance as to the financial condition or future performance of the InvIT or the Project SPVs. The Valuation Report has not been updated since the date of its issue and does not take into account any developments subsequent to the date of its issue.

We cannot assure you that the Valuation Report reflects the true value of the Project SPVs or that other independent valuers would arrive at the same valuation. Accordingly, investors should not rely unduly on the Valuation Report in making an investment decision to purchase Units in the Issue. For details, see the Valuation Report in Annexure I on page 386.

28. The InvIT and the Project SPVs have entered into certain related party transactions and expect to continue to enter into related party transactions and there can be no assurance that such transactions will not have an adverse effect on our results of operations, cash flows and financial condition.

The InvIT has entered and will in the future enter into certain transactions with related parties, including the Project Manager, Associates of the Sponsor and the Investment Manager. The Project SPVs have also entered into transactions with related parties. Such transactions in the future or any other future transactions with related parties may potentially involve conflicts of interest and impose certain liabilities on the InvIT or the Project SPVs.

There can be no assurance that previous related party transactions could not have been made on more favourable terms with unrelated parties, and there can be no assurance that such in the future or any other future transactions or future transactions, individually or in the aggregate, will not have an adverse effect on our results of operations, cash flows and financial condition. For detailed information on related party transactions, see the section titled "***Related Party Transactions***" on page 224.

29. Changes in the policies adopted by governmental entities or in the relationships of the InvIT and the Project SPVs with the Government of India or state governments could adversely affect our business, financial performance, cash flows and results of operations.

The Project SPVs derive almost all of their revenue from their respective Concession Agreements with the NHAI and must maintain good relationships with the NHAI, the Government of India and the various state governments. We expect that, after the consummation of the Formation Transactions, we will continue to depend on, and benefit from, policies relating to the terms of the concessions and other incentives that we will receive from governmental entities in respect of the Project SPVs' existing projects and any future projects. In addition, we expect to benefit from, and depend on, the NHAI and various Government of India and state government entities in terms of policies, incentives, budgetary allocations and other resources provided by these entities for the roads industry in general. Any adverse change in any existing governmental policies, incentives, allocations or resources, or any change in our relationships with governmental entities, could adversely affect our business, financial condition, cash flows and results of operations. Also see section titled "***Regulations and Policies in India***" on page 221.

Additionally, roads which involve public-private partnerships may be subject to delays, extensive internal processes, policy changes, changes due to local, national and internal political pressures and changes in governmental or external budgetary allocation and insufficiency of funds. Since governmental entities are responsible for awarding concessions and are a party to the development and operation of the awarded projects, our business will be directly and significantly dependent on their support. Any withdrawal of support or adverse changes in their policies, even if not quantifiable monetarily, may lead to the Concession Agreements being restructured or renegotiated or the concession period being decreased, which could adversely affect the Project SPVs' financing, capital expenditure, revenues, development or operations.

30. The results of operations of the Project SPVs could be adversely affected by strikes, work stoppages or increased wage demands by its employees and sub-contractors.

The Project SPVs' employees are currently not represented by any labour union. In the event of any strikes or work stoppages due to increased wage demands by the employees and sub-contractors or the inability by the Project SPVs to either retain or recruit employees and sub-contractors with suitable credentials, the ability of the Project SPVs to maintain and operate the projects will be adversely affected. In addition, any disruption to the services provided by the Project SPVs' employees will have an adverse effect on the operations of the Project SPVs. We cannot assure you that future disruptions will not be experienced due to disputes or other problems

with the work force, which may adversely affect the business and results of operations of the Project SPVs.

31. The ability of the InvIT to make or maintain consistency in distributions to Unitholders depends on the financial performance of the Project SPVs and their profitability.

The amount of future distributions, if any, will depend upon various factors including future earnings, financial condition, cash flows, working capital requirements and capital expenditures of the Project SPVs and the dividends, interest payments and repayments of indebtedness that are distributed to the InvIT. The income earned from the InvIT Assets depends on, among other things, the level of operating and other expenses incurred. If the InvIT Assets do not generate sufficient operating profit, the income of the InvIT, cash flows and ability to make distributions to Unitholders will be adversely affected.

The ability of the Project SPVs to make dividend payments is subject to, among other things, applicable laws and regulations in India and other contractual restrictions that they may be bound by. Under the terms of the SEBI InvIT Regulations, in the event any assets are sold by the InvIT or any Project SPV or if the equity shareholding or interest in any Project SPV is disposed of by the InvIT and the proceeds of such sale are proposed to be reinvested in another infrastructure asset, then the InvIT is not obligated to make any distributions from such proceeds to the Unitholders.

In addition, the SEBI InvIT Regulations provide that the InvIT must distribute not less than 90% of net distributable cash flows of each Project SPV in proportion of its holding in each of the Project SPV subject to the applicable provisions of the Companies Act. The distributions to the Unitholders must be declared and made not less than once every quarter in a financial year in each Fiscal and must not be made later than 15 days from the date of such declaration. For detailed information on distributions, see the section titled "***Distributions***" on page 229. There is no assurance that the InvIT will be able to make distributions to the Unitholders or that such distributions will be consistent across various periods.

Further, the method of calculating the net distributable cash flows of a Project SPV is subject to change and any change in the applicable laws in India or elsewhere may limit the InvIT's ability to pay or maintain consistency in distributions to Unitholders. There is also no assurance that the expansion of the InvIT's portfolio of infrastructure assets will increase the InvIT's cash flows and thereby result in an increase in the level of distributions to Unitholders over time.

32. The Project SPVs' concessions are illiquid in nature, which may make it difficult for the InvIT to realize, sell or dispose of its non-performing assets.

The Project SPVs' concessions are illiquid in nature, among other reasons, on account of market conditions, the residual periods of the Concession Agreements, various approvals, consents and confirmations required by the NHAI as per the Concession Agreements, and a scarcity of disposal options and/or potential acquirers. As a result, in the event that any of the InvIT Assets are performing poorly, the InvIT may experience difficulty in realizing, selling or disposing of our shareholdings in the Project SPVs at an attractive price, or at the appropriate time, or at all, and this may have an adverse effect on our market value, business, prospects, financial condition, cash flows and results of operations.

33. We will assume liabilities in relation to the InvIT Assets and Project SPVs and these liabilities, if realised, may adversely affect our results of operations, cash flows, the trading price of the Units and our profitability and ability to make distributions.

Pursuant to the Formation Transactions, we will assume liabilities of the InvIT Assets and of the Project SPVs that own the InvIT Assets. While we have conducted due diligence on the InvIT Assets and of the Project SPVs with the objective of identifying any material liabilities, we may not be able to identify all such liabilities prior to the consummation of the Formation Transactions. Further, the terms of the Share Purchase Agreements contain limited representations and warranties, which are qualified by any disclosure in the Offer Document. The indemnities under the Share Purchase Agreements also include limitations on account of monetary or time limits, which may adversely affect our ability to recover monetary compensation. Any losses or liabilities suffered by us in relation to our portfolio for which we are unable to recover under these agreements will adversely affect our results of operations, cash flows, the trading price of our Units and our ability to make distributions to the Unitholders.

Risks related to our organization and the structure of the InvIT

34. We must maintain certain investment ratios, which may present additional risks to us.

Pursuant to the SEBI InvIT Regulations, we are required to invest not less than 80% of the value of our assets proportionate to our holding in completed and revenue generating infrastructure projects subject to conditions specified in the SEBI InvIT Regulations. In addition, we must not invest more than 20% of the value of our assets in under-construction infrastructure projects and certain financial instruments subject to the thresholds specified in the SEBI InvIT Regulations. If these conditions are not fulfilled or breached on account of market movements of the price of the underlying assets or securities, the Investment Manager must inform the Trustee and ensure that these conditions are satisfied within six months of such breach (or within one year with Unitholder approval). Failure to comply with these conditions may present additional risks to us, including divestment of some or all of our assets, delisting of the units from the stock exchanges and other penalties, which could have a material adverse effect on our business, financial condition, cash flows and results of operations.

35. We depend on the Investment Manager, the Project Manager and the Trustee to manage our business and InvIT Assets, and our financial condition, results of operations and cash flows and our ability to make distributions may be harmed if the Investment Manager, Project Manager or the Trustee fail to perform satisfactorily. The rights of the InvIT and the rights of the Unitholders to recover claims against the Project Manager, the Investment Manager or the Trustee may be limited.

The success of our business and growth strategy and the operational success of our assets will depend significantly upon the Investment Manager, the Project Manager and the Trustee's satisfactory performance of their respective services. Our recourse against the Project Manager, the Trustee and Investment Manager is limited in accordance with the Project Management Agreement, Trust Deed and Investment Management Agreement. If the Trustee is required by the SEBI InvIT Regulations or any applicable law to provide information regarding the InvIT or the Sponsor or the Unitholders, the investments made by the InvIT and income therefrom and provisions of such presents, and complies with such request in good faith, whether or not it was in fact enforceable, the Trustee shall not be liable to the Unitholders or to any other party as a result of such compliance or in connection with such compliance. The Trustee is also not liable on account of anything done or omitted to be done or suffered by the Trustee in good faith in accordance with, or in pursuance of any request or advice of the Investment Manager. Further, the Trustee is not liable for any act or omission or (as the case may be) failing to do any act or thing which may result in a loss to a Unitholder (by reason of any depletion in the value of the Project SPVs or otherwise), except in the event that such loss is a direct result of fraud, gross negligence or wilful default on the part of the Trustee or results from a breach by the Trustee of the Amended and Restated Trust Deed, as determined by a court of competent jurisdiction. The liability of the Trustee shall be limited to the extent of the fees received by it, in all circumstances whatsoever except (a) in case of any negligence or misconduct or fraud on the part of the Trustee as may be determined by a court of competent jurisdiction, or (b) any failure on the part of the Trustee to protect the interests of the Unitholders. The Investment Manager's liability to Trustee, its directors, employees and officers for breach of its obligations under the Investment Management Agreement in each financial year is limited to the aggregate fees paid to the Investment Manager for the immediately preceding financial year under the agreement, except in the event that such liability arises out of any gross negligence, wilful default or misconduct or fraud of the Investment Manager, as determined by the competent court of jurisdiction. Further, the Investment Manager is not liable for any act or omission which may result in a loss to a Unitholder (by reason of any depletion in the value of the Project SPVs or otherwise), except in the event that such loss is a result of the Investment Manager's fraud or gross negligence or wilful default. Accordingly, the Unitholders may not be able to recover claims against the Project Manager, the Trustee or the Investment Manager.

If the abovementioned agreements were to be terminated or if their terms were to be altered, our business could be adversely affected, as the Trustee may not be able to immediately replace such services provided by the Investment Manager and Project Manager, and even if replacement services were immediately available, the terms offered or obtained with the new managers could be less favourable than the ones currently offered by the Investment Manager and the Project Manager.

36. The InvIT may be dissolved, and the proceeds from the dissolution thereof may be less than the amount invested by the Unitholders.

The InvIT is an irrevocable trust registered under the Indian Registration Act, 1908 and it may only be extinguished: (i) if it is impossible to continue with the InvIT or if the Trustee, on the advice of the Investment Manager, deems it impracticable to continue with us; (ii) on the written recommendation of the Investment Manager and upon obtaining the prior written consent of such number of the Unitholders as is required under the

SEBI InvIT Regulations; (iii) if our Units are delisted from the Stock Exchange; (iv) if the SEBI passes a direction to wind up the InvIT or the delisting of the Units; or (v) in the event our activities are rendered illegal. Should the InvIT be dissolved, depending on the circumstances and the terms upon which our assets are disposed of, there is no assurance that our Unitholders will recover all or any part of their investment. If a default is triggered under the financing documents the InvIT is a party to, the Trustee will take steps to cure such default and/or to repay the affected lender by appropriate means, including divesting or liquidating the assets of the InvIT or raising additional financing, in accordance with such financing documents and applicable laws. If such default is not cured, and the affected lender initiates proceedings against the InvIT, the InvIT will be dissolved immediately in accordance with applicable laws. In the event of a dissolution of the InvIT, the net assets which will be paid to the Unitholders will take into account the debt, liabilities and obligations of the InvIT. There is no assurance that Unitholders will recover all or any part of their investments.

37. The interpretation and enforcement of the regulatory framework governing infrastructure investment trusts in India is untested and is still evolving, which may have an adverse effect on our business, financial condition and results of operations and our ability to make distributions to Unitholders.

The SEBI issued the SEBI InvIT Regulations with effect from September 26, 2014. The SEBI InvIT Regulations have been amended pursuant to notifications, and further supplemented with additional guidelines and circulars issued by SEBI. Because the regulatory framework governing infrastructure investment trusts in India comprises a relatively new set of regulations, interpretations and enforcement by regulators and courts involves uncertainties. For example, with effect from April 1, 2021, units and other instruments issued by an InvIT have been included in the definition of 'securities' under section 2(h) of the SCRA and consequently, the implementation and interpretation of these amendments is untested and evolving. Accordingly, the applicability of several regulations (including regulations relating to intermediaries, underwriters, merchant bankers, insider trading, takeovers and fraudulent and unfair trade practices) to the InvIT is subject to the interpretation and clarifications issued by regulatory bodies such as SEBI. Infrastructure investment trusts operate in a new and relatively unclear regulatory environment. Changes to the Issue structure, changes to agreements entered into or proposed to be entered into in connection with the Issue, cost increases, fines, legal fees or business interruptions may result from changes to regulations, from new regulations, from new interpretations by courts or regulators of existing regulations or from stricter enforcement practices by regulatory authorities of existing regulations. In addition, new costs may arise from audit, certification and/or self-assessment standards required to maintain compliance with new and existing SEBI InvIT Regulations. Such changes in regulation, interpretation and enforcement may render it economically infeasible to continue conducting business as an infrastructure investment trust or otherwise have a material, adverse effect on our business, financial condition, cash flows and results of operations.

Because we will operate in a new and relatively unclear regulatory environment, it is difficult to forecast how any new laws, regulations or standards or future amendments to the SEBI InvIT Regulations will affect infrastructure investment trusts and the infrastructure sector in India, and no assurance can be given that the regulatory system will not change in a way that will impair our ability to comply with the regulations, conduct our business, compete effectively or make distributions. Failure to comply with changes in laws, regulations and standards may have a material, adverse effect on our business, financial condition, cash flows, results of operations and prospects.

38. This Draft Offer Document contains industry information from publicly available resources

The information in the section titled "***Industry Overview***" on page 134 is based on publicly available information. Neither we, nor the Trustee, the Sponsor, the Lead Managers, the Investment Manager nor any other person connected with the Issue has verified such third-party and industry related information. Further, such industry-based data is based on information as of specific dates and may no longer be current or reflect current trends. Further, the accuracy of statistical and other information with respect to the road infrastructure sector and the Technical Reports commissioned by the Sponsor for the InvIT Assets contained in this Draft Offer Document cannot be guaranteed.

Statistical and other information in this Draft Offer Document relating to India, the Indian economy or the road infrastructure sector have been derived from various government publications, research reports from reputable institutions and communications with various Indian government agencies that are believed to be reliable. However, such information might not be reliable or accurate. Further, certain data relating to the business of the Project SPVs has been assessed and quantified by the Project SPVs internally, as no other credible third party sources are available for such data. Such assessment is based on each Project SPV's understanding, experience and internal estimates of its business.

While reasonable care has been taken in the reproduction of the information, no assurance can be made as to the

accuracy of such facts and statistics, which may not be consistent with other information compiled within or outside India. Due to possibly inconsistent or ineffective collection methods or discrepancies between published information and market practice, the statistics contained in the Technical Reports may be inaccurate or may not be comparable to statistics produced for other economies and should not be unduly relied upon. Further, there is no assurance that the statistics are stated or compiled on the same basis or with the same degree of accuracy as may be the case with information from elsewhere.

39. Any payment by the Project SPVs, including in an event of termination of the relevant Concession Agreement, is subject to a mandatory escrow arrangement which restricts their flexibility to utilize the available funds.

The escrow arrangements mandated under the Concession Agreements require all monies that are received by each Project SPV, including, among others, all monies received in relation to the project from any source, including senior lenders, lenders of subordinated debt, and NHAI, all funds received by the Project SPVs from its shareholders, all proceeds received pursuant to any insurance claims, and any termination payments received from the NHAI, to be deposited in an escrow account and utilized only in accordance with the order prescribed under the escrow agreement. The escrow arrangements typically prioritize the payment of all taxes due, followed by payment of expenses in connection with the construction of the project, operation and maintenance expenses, any amount due and payable to NHAI, debt service payments, and any reserve requirements set forth in the financing agreements. For details of the escrow arrangements, see section titled "***Summary of Concession Agreements***" on page 160.

With respect to withdrawals on termination, certain escrow arrangements prioritize the payment of all taxes due, followed by the payment of 90% of debt due excluding subordinate debt, all payments and damages certified by NHAI as due and payable, including any claims with or arising out of the termination, outstanding debt service, outstanding subordinated debt, incurred or accrued O&M expenses, any other payments under the relevant Concession Agreement, after which the balance may be withdrawn by the Project SPVs for their own purposes. Any shortfall in the termination payments received from the NHAI may prevent us from recovering our investments or returns in the relevant Project SPVs adequately or at all.

The InvIT is currently not a party to, or a third party beneficiary under, the escrow agreements entered into by the Project SPVs and does not currently have any enforceable rights under such escrow agreements, including any right to instruct the escrow agent to make any payments, which may adversely affect the ability of the InvIT to recover amounts to it.

40. We will depend on certain directors and key employees of the Investment Manager, the Project Manager and the Project SPVs, and such entities may be unable to retain such personnel or to replace them with similarly qualified personnel, which could have a material, adverse effect on the business, financial condition, cash flows, results of operations and prospects of the InvIT and the Project SPVs.

Our performance will depend, in part, upon the continued service and performance of certain directors, executive officers and key employees of the Investment Manager and the Project Manager. The continued operations and growth of our business will be dependent upon the Investment Manager and the Project Manager being able to attract and retain personnel who have the necessary and required experience and expertise. Competition for qualified personnel with relevant industry expertise in India is intense due to the scarcity of qualified individuals in the roads business, and the aforesaid entities may not be able to retain their key employees or attract and retain fresh talent in the future. Any inability by the Investment Manager to retain their respective directors and key employees, or the inability to replace such individuals with similarly qualified personnel, could have a material, adverse effect on the business, financial condition, cash flows, results of operations and prospects of the InvIT and the Project SPVs.

41. We have not been able to obtain certain records of the educational qualifications of Raghav Chandra, a director on the IM Board, and have relied on the information provided on certain government websites and the declarations and undertakings furnished by such director for inclusion of such details in this Draft Offer Document.

Raghav Chandra, an independent director on the IM Board, has been unable to trace copies of documents pertaining to his educational qualifications. Accordingly, reliance has been placed on (i) certification furnished by such director to us and the Lead Managers; and (ii) the information provided on certain government websites, to disclose details of his educational qualifications in this Draft Offer Document. Further, there can be no assurances that the director will be able to trace the relevant documents pertaining to his qualifications in the

future, or at all.

Risks Related to the InvIT's Relationships with the Sponsor and the Investment Manager

42. The Sponsor and its Associates, whose interests may be different from the other Unitholders, will be able to exercise significant influence over the InvIT.

After the completion of the Issue, the Sponsor will hold an aggregate of [●] % of the issued and outstanding Units and GRIL (as seller of the Project SPVs and Associate of the Sponsor) will hold an aggregate of [●] % of the issued and outstanding Units. The Sponsor and GRIL will be entitled to vote as a Unitholder on all matters other than matters where it is a related party and not permitted to vote under the SEBI InvIT Regulations. Also see " – ***The InvIT is a newly settled trust and does not have an established operating history, which will make it difficult to accurately assess our future growth prospects***" on page 16. Although the Investment Manager will have a distinct board of directors, the Sponsor and GRIL (as seller of the Project SPVs and Associate of the Sponsor) may nonetheless be in a position to exercise significant influence in matters which require the approval of Unitholders by virtue of its ownership of Units in the InvIT. The interests of the Sponsor and GRIL (as seller of the Project SPVs and Associate of the Sponsor) may conflict with the interests of our other Unitholders and the Sponsor and GRIL (as seller of the Project SPVs and Associate of the Sponsor) may, for business considerations or otherwise, seek to benefit itself instead of the InvIT or the interests of the other Unitholders. The Sponsor will also exercise significant influence over the Investment Manager, which will continue to be a subsidiary of the Sponsor.

43. The Investment Manager has limited experience and may not be able to implement its capital and risk management strategies.

The combined experience of the directors of the Investment Manager is above 33 years. However, none of the Investment Manager and its directors and employees has experience in investment management activities for an InvIT. Further, there is no assurance that the Investment Manager will be able to implement these management strategies successfully or that it will be able to expand our portfolio at any specified rate or to any specified size or to maintain distributions at projected levels. The Investment Manager may not be able to make acquisitions or investments on favorable terms or within a desired time frame, and it may not be able to manage the operations of its underlying assets in a profitable manner. Factors that may affect this risk may include, but are not limited to, changes in the regulatory framework in India, competition for assets, partial award of concessions or licenses favoring local or other competitors of the InvIT, changes in the Indian regulatory or legal environment or macro-economic conditions. If the Investment Manager is unable to implement these strategies successfully or expand our portfolio, we will nonetheless be required to pay the Investment Manager an annual management fee of up to 1.50% of the aggregate cash flow of the InvIT on an annual (pro-rata) basis (subject to an escalation of up to 10% on a year-on-year basis.) and incentive based fee of up to 0.50% of the enterprise value of the assets acquired by the InvIT, which may be revised with the approval of the Unitholders such that the votes cast in favor of the resolution are not less than one-and-a-half times the votes against such resolution, in accordance with the terms of appointment of the Investment Manager. Even if the Investment Manager is able to successfully grow the operating business of the underlying assets and to acquire roads and other eligible infrastructure projects in India, we cannot assure you that the Investment Manager will achieve any returns on such acquisitions or capital investments.

44. Parties to the InvIT are required to maintain the eligibility conditions specified under Regulation 4 of the SEBI InvIT Regulations on an ongoing basis. The InvIT may not be able to ensure such ongoing compliance by the Sponsor/Project Manager, the Investment Manager and the Trustee, which could result in the cancellation of the registration of the InvIT.

Parties to the InvIT are required to maintain the eligibility conditions specified under Regulation 4 of the SEBI InvIT Regulations on an ongoing basis. These eligibility conditions include, among other things, that (a) the Sponsor, Investment Manager and Trustee are separate entities, (b) the Sponsor has a net worth of not less than ₹1,000 million; (c) the Sponsor or its Associate has a sound track record in the development of infrastructure or fund management in the infrastructure sector, (d) the Investment Manager has a net worth of not less than ₹100 million and has not less than five years' experience in fund management or advisory services or development in the infrastructure sector, (e) the Trustee is registered with the SEBI under Securities and Exchange Board of India (Debenture Trustees) Regulations, 1993 and is not an Associate of the Sponsor or Investment Manager and (f) each of the Sponsor/Project Manager, the Investment Manager and the Trustee are "fit and proper persons" as defined under Schedule II of the SEBI Intermediaries Regulations on an ongoing basis. The InvIT may not be able to ensure such ongoing compliance by the Sponsor/Project Manager, the Investment Manager and the Trustee,

which could result in the cancellation of the registration of the InvIT.

45. The Investment Manager is required to comply with certain ongoing reporting and management obligations in relation to the InvIT. We cannot assure you that the Investment Manager will be able to comply with such requirements.

The Investment Manager is required to comply with certain ongoing reporting and management obligations in relation to the InvIT in accordance with the SEBI InvIT Regulations. These requirements include, among other things, (a) making investment decisions with respect to the underlying assets or projects of the InvIT, (b) overseeing the activities of the Project Manager, (c) investing and declaring distributions in accordance with the SEBI InvIT Regulations, (d) submitting reports to the Trustee and (e) ensuring the audit of the InvIT's accounts. We cannot assure you that the Investment Manager will be able to comply with such requirements in a timely manner or at all, which could subject the Investment Manager, the other parties to the InvIT, the InvIT or any person involved in the activity of the InvIT to applicable penalties under the SEBI InvIT Regulations and/or the SEBI Act. Any such failure to comply or the imposition of any penalty could have an adverse effect on our business, financial condition, cash flows and results of operations. Under the SEBI InvIT Regulations, the SEBI also has the right to inspect documents, accounts and records relating to the activity of the InvIT, Project SPVs or Parties to the InvIT and may issue directions in the nature of, *inter-alia*, (i) requiring the InvIT to surrender its certificate of registration; (ii) requiring the InvIT to wind-up; (iii) requiring the InvIT to sell its assets; (iv) requiring the InvIT or Parties to the InvIT to take such action as may be in the interest of investors; or (v) prohibiting the InvIT or Parties to the InvIT from operating in the capital markets or from accessing the capital markets for a specified period.

46. The SEBI InvIT Regulations allow for sponsors of listed InvITs to be declassified from the status of sponsors subject to certain conditions. There can be no assurance that the Sponsor will not exercise its ability to be declassified as the Sponsor of the InvIT.

The SEBI InvIT Regulations permit sponsors of listed infrastructure investment trusts to be declassified from the status of sponsors subject to compliance with the following conditions: (i) The units of the relevant InvIT should have been listed on the stock exchanges for a period of three years; (ii) The unitholding of such sponsor and its associates taken together should not exceed 10.00% of the outstanding units of the relevant InvIT; (iii) The investment manager of the relevant InvIT is not an entity controlled by such sponsor or its associates; and (iv) approval of unitholders has been obtained in accordance with the SEBI InvIT Regulations. There can be no assurance that in the future, the Sponsor, upon fulfilment of the aforementioned conditions or any other conditions that SEBI prescribes for declassifications of sponsors, will not exercise its ability to declassify itself from the status of the Sponsor.

Risks Related to Ownership of the Units

47. The price of the Units may decline after the Issue.

The Issue Price determined by the Investment Manager may not be indicative of the price of the Units upon completion of the Issue. If the price of the Units declines significantly, prospective investors may be unable to resell their Units at or above their purchase price, if at all. We cannot assure you that the price of the Units will not fluctuate or decline significantly in the future. The price and value of the Units will depend on many factors, including, among others:

- the perceived prospects of our business and investments and the market for infrastructure projects;
- differences between our actual financial and operating results and those expected by investors and analysts;
- the perceived prospects of future roads and other infrastructure projects that may be added to our portfolio in accordance with our investment mandate;
- changes in general economic or market conditions;
- the market value of our assets;
- the perceived attractiveness of the Units against those of other business trusts, equity or debt securities;
- the balance of buyers and sellers of the Units;

- the size and liquidity of the Indian business trusts market;
- any changes to the regulatory system, including the tax system, both generally and specifically in relation to India business trusts;
- the ability of the Investment Manager to implement successfully its investment and growth strategies;
- foreign exchange rates;
- variations in our quarterly operating results;
- additions or departures of key management personnel of the Investment Manager and/or the Project SPVs;
- changes in the amounts of our distributions, if any, and changes in the distribution payment policy or failure to execute the existing distribution policy;
- actions by Unitholders;
- changes in market valuations of similar business entities or companies;
- announcements by us or our competitors of significant contracts, acquisitions, disposals, strategic partnerships, joint ventures or capital commitments;
- speculation in the press or investment community; and
- changes or proposed changes in laws or regulations affecting the road industry and infrastructure development in India or enforcement of these laws and regulations, or announcements relating to these matters.

To the extent that we retain operating cash flow for investment purposes, working capital reserves or other purposes, these retained funds, while increasing the value of our underlying assets, may not correspondingly increase the price of the Units. Our performance with regard to future earnings and distributions may adversely affect the market price of the Units. In addition, Unitholders who do not, or are not able to, participate in a new issuance of Units may experience a dilution of their interest in the InvIT. The Units are not capital-safe products and there is no guarantee that Unitholders can regain the amount invested, in full or in part. If the InvIT is extinguished, it is possible that investors may lose a part or all of their investment in the Units.

48. The sale or possible sale of a substantial number of Units by the Sponsor in the public market following the lapse of its lock-in requirement as prescribed under the SEBI InvIT Regulations could adversely affect the price of the Units.

Under the SEBI InvIT Regulations, the Sponsor is required to hold a minimum of 15% of our Units for a minimum period of three years from the date of listing pursuant to this Issue and the balance of its unitholding in the InvIT is required to be locked in for a period of one year from the date of listing of the Units. If the Sponsor, following the lapse of either of the aforesaid lock-in periods directly or indirectly sells or is perceived as intending to sell a substantial number of its Units, or if a secondary offering of the Units is undertaken, the market price for the Units could be adversely affected.

49. Under Indian law, foreign investors are subject to restrictions that limit their ability to transfer or redeem Units, which may adversely impact the trading price of the Units.

Under foreign exchange regulations currently in force in India, transfers of units between non-residents and residents are permitted, subject to certain exceptions, if they comply with the pricing and reporting requirements specified by RBI. If a transfer of units is not compliant with such pricing or reporting requirements and does not fall under any of the exceptions specified by RBI, then RBI's prior approval is required. Additionally, unitholders who may seek to convert Indian rupee proceeds from a sale of units in India into foreign currency and repatriate that foreign currency from India require a no-objection or a tax clearance certificate from the Indian income tax authorities. We cannot assure you that any required approval from RBI or any other Governmental agency can be obtained on any particular terms or in a timely manner, or at all. Our Unitholders will not have the right to redeem or request the redemption of our Units while our Units are listed on the Stock Exchange. In terms of the SEBI InvIT Regulations, an infrastructure investment trust may redeem units only by way of a buyback or at the time

of delisting of units and may be subject to additional conditions and restrictions under Indian regulations.

50. The Units have never been traded and the listing of the Units on the Stock Exchange may not result in an active or liquid market for the Units.

There is no market for the Units prior to the Issue and an active market for the Units may not develop or be sustained after the Issue. Moreover, the listing and quotation do not guarantee that a trading market for the Units will develop or, if a market does develop, the liquidity of that market for the Units. The price of the Units may be volatile, and investors may be unable to resell the Units at or above the Issue Price, or at all. Although it is currently intended that the Units will remain listed on the Stock Exchange, there is no guarantee of the continued listing of the Units. There is no assurance that the InvIT will continue to satisfy the listing requirements for InvITs. Further, it may be difficult to assess the InvIT's performance against domestic benchmarks.

51. There is no assurance that our Units will remain listed on the stock exchange.

Although it is currently intended that the Units will remain listed on the Stock Exchanges, there is no guarantee of the continued listing of the Units. Among other factors, we may not continue to satisfy the listing requirements of the Stock Exchange. Accordingly, Unitholders will not be able to sell their Units through trading on the Stock Exchanges if the Units are no longer listed on the Stock Exchange. While the SEBI InvIT Regulations state that we must provide Unitholders with an exit prior to delisting, the specific mechanism of such delisting and related exit offer has not yet been finalised by the SEBI.

Further, under the SEBI InvIT Regulations, we are required to maintain a minimum Unitholders (other than the Sponsor, its related parties and its Associates) at all times after the listing of the Units pursuant to the Issue and certain minimum public holding requirements. Failure to maintain such minimum number of Unitholders or public holding may result in action being taken against us by the SEBI and the Stock Exchange, including the compulsory delisting of our Units.

52. Market and economic conditions may affect the market price and demand for the Units.

Movements in domestic and international securities markets, economic conditions, foreign exchange rates and interest rates may affect the market price of and demand for the Units. In particular, an increase in market interest rates may have an adverse impact on the market price of the Units if the annual yield on the price paid for the Units gives investors a lower return as compared to other investments.

53. We may not be able to make distributions to Unitholders or the level of distributions may fall.

The InvIT's distributions will be based on the NDCF available for distribution and not on whether the InvIT makes an accounting profit or loss. The SEBI InvIT Regulations provide that not less than 90% of NDCF of each Project SPV are required to be distributed to the InvIT in proportion of its holding in each of the Project SPVs subject to applicable provisions of the Companies Act. Such distributions are required to be made not later than fifteen days from the date of declaration. In relation to the InvIT and the Project SPVs, the Investment Manager has adopted a distribution policy pursuant to which distributions are required to be made to the Unitholders on a quarterly basis for periods after Allotment pursuant to the Issue. For further details, see section titled "***Distributions***" on page 229.

The InvIT will rely on the receipt of interest, dividends, principal repayments and buy back of shares (net of applicable taxes and expenses) and certain tax benefits thereon from the Project SPVs in order to make distributions to the Unitholders. We cannot assure or guarantee that the InvIT will have sufficient distributable or realized profits or surplus in any future period to make distributions quarterly in any amount or at all. The ability of the Project SPVs to pay dividends, make interest payments may be affected by a number of factors including, among other things:

- their respective businesses and financial positions;
- insufficient cash flows received from the assets;
- applicable law which may restrict the payment of dividends by the Project SPVs;
- operating losses incurred by the Project SPVs in any financial year;
- changes in accounting standards, taxation laws and regulations, laws and regulations in respect of foreign

exchange repatriation of funds, corporation laws and regulations relating thereto; and

- the terms of agreements, including any Concession Agreements or financing agreements, to which they are, or may become, a party.

Further, the method of calculation of NDCF is subject to change. Any change in the applicable law in India or elsewhere (including, for example, tax laws and foreign exchange controls) may limit the InvIT's ability to pay or maintain distributions to Unitholders. No assurance can be given that the InvIT will be able to pay or maintain the levels of distributions or that the level of distributions will increase over time, or that future acquisitions will increase the InvIT's distributable free cash flow to Unitholders. Any reduction in, or elimination or taxation of, payments of distributions could adversely affect the distributions made by the InvIT.

54. The reporting requirements and other obligations of infrastructure investment trusts post-listing are still evolving. Accordingly, the level of ongoing disclosures made to and the protection granted to Unitholders may be more limited than those made to or available to the shareholders of a company that has listed its equity shares upon a recognized stock exchange in India.

The SEBI InvIT Regulations, along with the guidelines and circulars issued by the SEBI from time to time, govern the affairs of infrastructure investment trusts in India. However, as compared to the statutory and regulatory framework governing companies that have listed their equity shares upon a recognized stock exchanges in India, the regulatory framework applicable to infrastructure investment trusts is relatively nascent and thus, still evolving. While the SEBI InvIT Regulations were notified with effect from September 26, 2014, the guidelines and procedures in relation to a public issue of units by an infrastructure investment trust were only notified by SEBI recently (by way of circular no. CIR/IMD/DF/55/2016 dated May 11, 2016). Further, pursuant to a circular dated November 29, 2016, the SEBI has prescribed certain continuous disclosure requirements that will be applicable to the InvIT after Listing.

Accordingly, the ongoing disclosures made to Unitholders under the SEBI InvIT Regulations may differ from those made to the shareholders of a company that has listed its equity shares upon a recognized stock exchange in India in accordance with the Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015. Further, the rights of the Unitholders may not be as extensive as the rights of the shareholders of a company that has listed its equity shares upon a recognized stock exchange in India, and accordingly, the protection available to the Unitholders may be more limited than those available to such shareholders.

55. Our rights and the rights of the Unitholders to recover claims against the Investment Manager or the Trustee are limited.

Under the Investment Management Agreement, the Investment Manager is not liable for, among other things, any action for any investment decision taken in respect of the InvIT, other than for gross negligence, gross misconduct, wilful default and fraud on the part of the Investment Manager.

Pursuant to the Amended and Restated Trust Deed, the Trustee is not liable for anything done or omitted to be done or suffered by the Trustee in good faith. Further, the Trustee is not liable for any action or omission that results in a loss to a Unitholder by way of depletion in the value of the trust fund, except in situations where such depletion is a result of fraud, gross negligence or misconduct part of the Trustee. Any costs and expenses incurred by the Trustee in connection with any legal proceedings, in relation to the InvIT, shall be incurred by the Trustee from the Trust Fund.

The Investment Management Agreement provides that the Investment Manager is entitled to be indemnified out of the Trust Funds against any claims, losses, costs, damages, liabilities, suits, proceedings and expenses, including legal fees incurred in connection with the InvIT, unless arising out of gross negligence, gross misconduct, wilful default and fraud. As a result, the InvIT's rights and the rights of the Unitholders to recover claims against the Investment Manager are limited. Further, recourse to the Trustee may be limited under the Amended and Restated Trust Deed. The Amended and Restated Trust Deed provides for the indemnification of the Trustee for all claims, liabilities, damages and expenses, including legal fees, except losses incurred due to any gross negligence, fraud, misconduct or violation of laws or is in material violation of the Amended and Restated Trust Deed.

56. It may not be possible for Unitholders to enforce foreign judgements.

The Trustee, the Investment Manager and the Sponsor are incorporated in India and the InvIT is settled and

registered in India. All of our assets are located in India and we may, from time to time, invest in roads in India. Where investors wish to enforce foreign judgements in India, where our assets are or will be located, they may face difficulties in enforcing such judgements. India is not a party to any international treaty in relation to the recognition or enforcement of foreign judgements. India exercises reciprocal recognition and enforcement of judgements in civil and commercial matters with a limited number of jurisdictions, including Singapore. In order to be enforceable, a judgement obtained in a jurisdiction which India recognizes as a reciprocating territory must meet certain requirements of the Code of Civil Procedure, 1908 ("**Civil Code**"). Further, the Civil Code only permits enforcement of monetary decrees not being in the nature of any amounts payable in respect of taxes, or other charges of a like nature or in respect of a fine or other penalty and does not provide for the enforcement of arbitration awards even if such awards are enforceable as a decree or judgement. Judgements or decrees from jurisdictions not recognized as a reciprocating territory by India cannot be enforced or executed in India except through a fresh suit upon judgement. Even if we or a Unitholder were to obtain a judgement in such a jurisdiction, we or it would be required to institute a fresh suit upon the judgement and would not be able to enforce such judgement by proceedings in execution. In addition, the party which has obtained such judgement must institute the new proceedings within three years of obtaining the judgement. It is unlikely that an Indian court would award damages on the same basis or to the same extent as was awarded in a judgement rendered by a foreign court if the Indian court believed that the amount of damages awarded was excessive or inconsistent with public policy in India. In addition, any person seeking to enforce a foreign judgement in India is required to obtain prior approval of the RBI to repatriate outside India any amount recovered pursuant to the execution of the judgement.

Consequently, it may not be possible to enforce in an Indian court any judgement obtained in a foreign court, or effect service of process outside of India, against Indian companies, their directors and executive officers, and any other parties resident in India. Additionally, there is no assurance that a suit brought in an Indian court in relation to a foreign judgement will be disposed of in a timely manner.

Risks Related to India

57. Changing laws, rules and regulations, including changes in legislation or the rules relating to tax regimes, legal uncertainties and the political situation in India may adversely affect our business, financial condition, cash flows and results of operations

Our business, financial condition, cash flows and results of operations could be adversely affected by any change in laws or interpretations of existing, or the promulgation of new, laws, rules and regulations applicable to us and our business. We cannot assure you that the Government of India or the state governments will not implement new regulations and policies which will require the InvIT and the Project SPVs to obtain additional approvals and licenses from governmental and other regulatory bodies or impose onerous requirements and conditions on our operations.

Tax laws and regulations are subject to differing interpretations by tax authorities. Differing interpretations of tax and other fiscal laws and regulations may exist within governmental ministries, including tax administrations and appellate authorities, thus creating uncertainty and potential unexpected results. The degree of uncertainty in tax laws and regulations, combined with significant penalties for default and a risk of aggressive action, including by retrospective legislation, by the governmental or tax authorities, may result in tax risks in the jurisdictions in which we operate being significantly higher than expected. These events may result in an adverse effect on our business, financial condition, cash flows, results of operations and prospects. Tax authorities in India may also introduce additional or new regulations applicable to our business which could adversely affect our business and profitability.

The Government of India has implemented two major reforms in Indian tax laws, namely the goods and services tax and provisions relating to GAAR. Given the recent implementation of these laws, we cannot assure you as to the manner in which this tax regime will be implemented, which could create uncertainty.

The right to own property in India is subject to restrictions that may be imposed by the Government of India. In particular, the Government of India under the provisions of the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 ("**Land Acquisition Act**") has the right to compulsorily acquire any land if such acquisition is for a "public purpose," after providing compensation to the owner. However, the compensation paid pursuant to such acquisition may not be adequate to compensate the owner for the loss of such property. The likelihood of such acquisitions may increase as central and state governments seek to acquire land for the development of infrastructure projects such as roads, railways, airports and townships. While the NHAI or the relevant concessioning authority is responsible for the acquisition of the land underlying road infrastructure projects, any delays or disputes relating to such acquisition could lead to delays

and disruptions in the execution of our projects, which would have an adverse effect on our business, financial condition, cash flows and results of operations. For further details, see section titled "***Regulations and Policies in India***" on page 221.

The Competition Act, regulates practices having an appreciable adverse effect on competition in the relevant market in India. The Competition Act aims to, among other things, prohibit all agreements and transactions which may have an appreciable adverse effect on competition in India. Further, the CCI has extra-territorial powers and can investigate any agreements, abusive conduct or combination occurring outside India if such agreement, conduct or combination has an appreciable adverse effect on competition in India. In the event that that any of the assets proposed to be acquired by us in the future cross the prescribed thresholds, we cannot assure you that we will receive the necessary approvals from the CCI to consummate such transactions. Any prohibition or substantial penalties levied under the Competition Act could adversely affect our financial condition, cash flows and results of operations. Any adverse impact on our financial condition or operations due to the Competition Act may have an adverse impact on our business, financial condition, cash flows, results of operations and prospects and our ability to make distributions to the Unitholders.

58. Our business is dependent on economic growth in India and financial stability in Indian markets, and any slowdown in the Indian economy or in Indian financial markets could have an adverse effect on our business.

The InvIT is registered in India, and all of our assets are located in India. As a result, we are highly dependent on the prevailing economic conditions in India and our results of operations are significantly affected by factors influencing the Indian economy. Factors that may adversely affect the Indian economy, and hence our results of operations, may include:

- any increase in interest rates or inflation in India;
- any exchange rate fluctuations;
- any scarcity of credit or other financing in India;
- prevailing income, consumption and saving conditions among consumers and corporations in India;
- changes in India's tax, trade, fiscal or monetary policies;
- political instability, terrorism or military conflict in India or in countries in the region or globally, including in India's various neighbouring countries;
- the occurrence of natural or man-made disasters or epidemics or pandemics such as COVID-19;
- prevailing regional or global economic conditions;
- the balance of trade movements, including export demand and movements in key imports, including oil and oil products; annual rainfall which affects agricultural production;
- civil unrest, riots, protests, acts of violence, terrorist attacks, regional conflicts or situations or war involving India or other countries could adversely affect the financial markets, which could impact our business; and
- other significant regulatory or economic developments in or affecting India or its infrastructure sector.

Any slowdown or perceived slowdown in the Indian economy, or in specific sectors of the Indian economy, could have an adverse effect on our business, financial condition, cash flows and results of operations and the price of the Units.

Further, the Indian economy and Indian financial market are influenced by economic and market conditions in other countries, particularly in emerging market in Asian countries. Financial turmoil in Asia, Europe, the United States and elsewhere in the world in recent years has affected the Indian economy. Although economic conditions are different in each country, investors' reactions to developments in one country can have an adverse effect on the securities of companies in other countries, including India. A loss in investor confidence in the financial systems of other emerging markets may cause increased volatility in Indian financial markets and, indirectly, in the Indian economy in general. Any global financial instability, including any instability related to current relation

between the United States and China, could also have a negative impact on the Indian economy. Financial disruptions may occur again and could harm our results of operations and financial condition

59. Any downgrading of India's sovereign debt rating by a domestic or international rating agency could adversely affect our ability to obtain financing and, in turn, our business and financial performance.

India's sovereign debt rating could be downgraded due to various factors, including changes in tax or fiscal policy or a decline in India's foreign exchange reserves, which are outside of our control. Any adverse revisions to India's credit ratings for domestic and international debt by domestic or international rating agencies may adversely impact our ability to raise additional financing, and the interest rates and other commercial terms at which any such additional financing is available. This could have an adverse effect on our business and financial performance, ability to obtain financing for capital expenditures and the price of the Units.

60. Fluctuations in the exchange rate of the Indian Rupee with respect to the U.S. Dollar or other currencies will affect the foreign currency equivalent of the value of the Units and any distributions.

Fluctuations in the exchange rates between the Indian Rupee and other currencies will affect the foreign currency equivalent of the Indian Rupee price of the Units. Such fluctuations will also affect the amount that holders of the Units will receive in foreign currency upon conversion of any cash distributions or other distributions paid in Indian Rupees by us on the Units, and any proceeds paid in Indian Rupees from any sale of the Units.

61. If inflation rises in India, increased costs may result in a decline in profits.

Inflation rates in India have been volatile in recent years, and such volatility may continue. Increasing inflation in India could cause a rise in the price of transportation, wages, raw materials and other expenses. While the escalable component of the transmission charges is linked to inflation, there can be no assurance that increased escalable transmission charges will sufficiently offset our increased costs due to inflation which could have a material adverse effect on our business, prospects, financial condition, results of operations and cash flows. Inflation may also have an impact on interest rates, which can affect our profitability.

62. Significant differences could exist between Ind AS and other accounting principles, such as Indian GAAP and IFRS, which may affect investors' assessments of the InvIT's financial condition.

The Special Purpose Combined Financial Statements included in this Draft Offer Document have been prepared in accordance with Ind AS except for Ind AS 33, Earnings per share read with the SEBI InvIT Regulations and the Guidance Note on Combined and Carve-Out Financial Statements issued by the Institute of Chartered Accountants of India. The impact of Indian GAAP or IFRS on such financial information included in this Draft Offer Document has not been quantified and the Special Purpose Combined Financial Statements have been prepared without reconciliation to any other body of accounting principles. Each of Indian GAAP and IFRS differs in significant respects from Ind AS. Accordingly, the degree to which the Special Purpose Combined Financial Statements included in this Draft Offer Document will provide meaningful information is dependent on the reader's level of familiarity with the relevant accounting practices. Any reliance by persons not familiar with such accounting practices on the financial disclosures presented in this Draft Offer Document should accordingly be limited.

Risks Related to Tax

63. Changes in legislation or the rules relating to tax regimes could adversely affect our business, prospects, cash flows and results of operations.

There have been two recent major reforms in Indian tax laws, namely the introduction of the GST and provisions relating to general anti-avoidance rules ("**GAAR**").

The GST regime came into effect on July 1, 2017, combining taxes and levies by the Government and State Governments into a unified rate structure. Given the limited availability of information in the public domain concerning the GST, we cannot assure you as to the tax regime following implementation of the GST. Additionally, there is limited clarity on the availability of input tax credit, and any unfavorable orders in this regard may have an adverse effect on our financial position and cash flows. Further, any application of existing law or future amendments may affect our overall tax efficiency, and may result in significant additional taxes becoming payable. The GAAR regime came into effect on April 1, 2017. The tax consequences of the GAAR provisions being applied to an arrangement could result in denial of tax benefit, amongst other consequences, including on the interest paid by the Project SPVs on the debt from the InvIT. In the absence of any precedents

on the subject, the application of these provisions is uncertain. If the GAAR provisions are made applicable to the InvIT or any member of the InvIT, it may have an adverse effect on the InvIT.

The GOI has announced the union budget for the Fiscal 2021 and the Finance Act, 2021 (the "Finance Act") has been granted assent by the President of India on March 28, 2021. By way of the Finance Act, the GoI, amongst others, amended the SCRA to recognise pooled investment vehicles and recognise the units, debentures, other marketable securities and other instruments issued by InvITs as "securities". The Finance Act exempted the payment of tax deducted at source on dividends paid to InvITs. For further details, please see "**– *Investors may be subject to Indian taxes arising out of capital gains on the sale of Units and on any dividend or interest component of any returns from the Units***" on page 42.

The Investment Manager has not determined the impact of such existing or proposed legislations on our business. Uncertainty in the applicability, interpretation or implementation of any amendment to, or change in, governing law, regulation or policy, including by reason of an absence, or a limited body, of administrative or judicial precedent, may be time consuming as well as costly for us to resolve and may impact the viability of our current business or restrict our ability to grow our business in the future.

64. Investors may be subject to Indian taxes arising out of capital gains on the sale of Units and on any dividend or interest component of any returns from the Units.

Under current Indian tax laws, units of a business trust held for more than 36 months are considered as long-term capital assets. In case of sale of such units through a recognized stock exchange in India and subject to payment of securities transaction tax ("**STT**"), any gain arising in excess of ₹ 0.10 million is subject to long term capital gains tax at a concessional rate of 10% (plus applicable surcharge and cess). However, if the said units are sold in any other manner, the same shall be subject to long term capital gains tax at 20% (plus applicable surcharge and cess).

In case the units are held for less than or up to 36 months, the same shall be regarded as short-term capital assets. Any gain arising in case of sale of such units through a recognized stock exchange in India and subject to payment of STT, is subject to short term capital gains tax at concessional rate of 15% (plus applicable surcharge and cess). However, if the said units are sold in any other manner, the same shall be subject to short term capital gains tax at applicable tax rates of the holder (plus applicable surcharge and cess).

The aforesaid taxability in India is subject to tax treaty benefits in the case of a non-resident holder. Further, the applicable taxes on the sale of Units and on any dividend or interest component of any returns from the Unit will also be subject to the category of investor holding or selling the Units.

The Finance Act, 2020 amended the IT Act to abolish the dividend distribution tax regime and shift the incidence of taxation of dividend (declared or distributed on or after April 1, 2020) to shareholder. Under the Finance Act, 2020, a distribution made by a business trust, being in nature dividend income received from a special purpose vehicle, will not be subject to tax in the hands of a unitholder, so long as the special purpose vehicle has not opted to pay corporate tax under the beneficial regime introduced under Section 115BAA of the IT Act. Similarly, a business trust (which includes an infrastructure investment trust) will not be required to withhold tax on any distributions which are in the nature of dividend income received from a special purpose vehicle, so long as such special purpose vehicle has not opted to pay corporate tax under the beneficial regime introduced under Section 115BAA of the IT Act. However, where the special purpose vehicle opts to pay tax under Section 115BAA of the IT Act, dividend income distributed by the business trust would be taxed in the hands of a non-resident unitholder at 20% (plus applicable surcharge and cess) or the applicable treaty rate and at the ordinary rate for a resident unitholder.

Further, the business trust would be required to withhold tax on such distributions made from dividend received from the special purpose vehicle. Thus, the taxability of dividends distributed by the InvIT will depend on the taxation regime opted by the Project SPVs. It may also be noted that in terms of Section 194(LBA)(1) of the IT Act, any distributable income in the nature of interest income and rental income in the hands of a resident investor is subject to deduction of tax at the rate of 10%. Similarly, in terms of Section 194(LBA)(2) of the IT Act, any distributable income in the nature of interest income and rental income in the hands of a non-resident is subject to deduction of tax at the rate of 5%.

Further, the Finance Act, has included a definition of "pooled investment vehicle" which comprises business trusts as defined under the IT Act. The IT Act defines business trusts as trusts registered with SEBI as an InvIT. This amendment has come into effect from April 1, 2021. The Finance Act recognizes units, debentures and other

instruments issued by infrastructure investment trusts as "securities" under the SCRA. This may have further implications under various regulations issued by SEBI, governing securities, including under the SEBI LODR Regulations and the SEBI PIT Regulations. As announced in previous budgets, the dividend distribution tax applicable on InvITs was abolished and replaced with dividend withholding tax. The Finance Act has also exempted payment of tax deducted at source on dividend paid to InvITs, with effect from April 1, 2020.

Furthermore, the InvIT might not be able to pay or maintain the levels of distributions or ensure that the level of distributions will increase over time, or that future acquisitions will increase the InvIT's distributable free cash flow to the Unitholders. Any reduction in, or elimination or taxation of, payments of distributions could materially and adversely affect the market price of the Units.

65. Tax laws are subject to changes and differing interpretations, which may adversely affect our operations

Tax laws and regulations are subject to differing interpretations by tax authorities. Differing interpretations of tax and other fiscal laws and regulations may exist within governmental ministries, including tax administrations and appellate authorities, thus creating uncertainty and potential unexpected results. The degree of uncertainty in tax laws and regulations, combined with significant penalties for default and a risk of aggressive action by the governmental or tax authorities, may result in tax risks in the jurisdictions in which we operate being significantly higher than expected. For example, transactions between the Project SPVs and their associated enterprises are required to be carried out at arm's length pricing and comply with the transfer pricing under the Income Tax Act, 1961. Any failure to comply with such rules, including any failure to maintain required documentation or furnish required information to the tax regulator, may result in penalties of 2% of the value of the relevant transaction.

Our investment manager of the InvIT intends to take measures to ensure that it is in compliance with all relevant tax laws. However, the tax authorities might take a position that differs from the position taken by us with regard to our tax treatment of various items.

SUMMARY COMBINED FINANCIAL STATEMENTS

Summary Combined Statement of Profit and Loss

(*All amounts are in rupees million*)

	Three month period ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020
Income				
(a) Revenue from operations	4,428.17	15,857.02	21,539.65	30,740.50
(b) Interest on deposits with banks	43.37	104.76	36.59	2.49
(c) Interest from vendor advance and income tax refund	0.80	40.02	124.67	184.28
(d) Other income	-	-	3.02	-
Total income (I)	**4,472.34**	**16,001.80**	**21,703.93**	**30,927.27**
Expenses				
(a) sub - contractor charges	2,154.02	11,381.55	16,365.78	27,824.54
(b) Employee benefits expense	1.00	3.92	4.58	3.70
(c) Finance costs	829.98	3,440.87	2,648.58	1,712.12
(d) Other expenses	76.66	332.27	341.77	299.73
Total expenses (II)	**3,061.66**	**15,158.61**	**19,360.71**	**29,840.09**
Profit before tax (III)=(I-II)	**1,410.68**	**843.19**	**2,343.22**	**1,087.18**
Tax expense:				
(a) Current tax	12.57	-	-	202.75
(b) Adjustment of tax related to earlier periods	-	-	(202.75)	-
(c) Deferred tax charges	664.50	212.67	1,051.51	130.19
Total tax expenses (IV)	**677.07**	**212.67**	**848.76**	**332.94**
Net profit for the period/year (V)= (III-IV)	**733.61**	**630.52**	**1,494.46**	**754.24**

Summary Combined Balance sheet:

(*All amounts are in rupees million*)

Particulars	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Assets				
Non-current assets				
(a) Contract assets	3,695.31	2,295.33	6,924.58	15,833.38
(b) Financial assets				
(i) Receivable under service concession agreements	38,895.78	38,321.40	26,766.39	4,914.96
(ii) Other financial assets	9.78	9.48	8.51	1.34
(c) Income tax assets (net)	994.88	872.06	534.38	241.87
(d) Other non-current assets	2,629.19	3,258.11	3,996.43	3,288.01
Total Non-Current Assets	**46,224.94**	**44,756.38**	**38,230.29**	**24,279.56**
Current assets				
(a) Contract assets	1,238.38	1,349.82	4,107.35	8,522.23
(b) Financial assets				
(i) Trade receivables	147.67	226.79	346.97	86.56
(ii) Cash and cash equivalents	1,123.82	2,113.68	1,343.27	189.98
(iii) Bank balances other than (ii) above	3,783.41	3,032.13	1,380.88	27.65
(iv) Receivable under service concession agreements	2,831.29	2,491.18	2,640.10	390.33
(v) Other financial assets	9.60	21.01	14.49	14.16
(c) Other current assets	1,933.37	1,374.80	1,376.11	2,259.01
Total Current Assets	**11,067.54**	**10,609.41**	**11,209.17**	**11,489.92**
Total Assets	**57,292.48**	**55,365.79**	**49,439.46**	**35,769.48**
Equity and liabilities				
Equity				
(a) Equity share capital	1,877.90	1,877.90	1,877.90	1,783.00
(b) Other equity	4,759.58	4,025.97	3,395.45	1,900.99
Total Equity	**6,637.48**	**5,903.87**	**5,273.35**	**3,683.99**
Liabilities				
Non-current liabilities				
(a) Financial liabilities				
(i) Borrowings	44,580.78	44,337.71	35,587.66	22,554.47
(b) Deferred tax liabilities (net)	2,137.62	1,473.12	1,260.45	208.94
Total Non-Current Liabilities	**46,718.40**	**45,810.83**	**36,848.11**	**22,763.41**
Current liabilities				
(a) Contract liabilities	23.89	64.50	577.26	3,315.29
(b) Financial liabilities				
(i) Borrowings	2,422.36	2,454.91	1,516.67	286.36
(ii) Trade payables				
(a) Total outstanding dues of micro enterprises and small enterprises	0.48	0.39	0.19	0.68
(b) Total outstanding dues of creditors other than micro and small enterprises	1,459.85	1,039.73	5,139.09	5,591.27
(iii) Other financial liabilities	0.33	0.33	0.40	0.08
(c) Other current liabilities	17.12	91.23	84.39	128.40
(d) Current tax liabilities (net)	12.57	-	-	-
Total Current Liabilities	**3,936.60**	**3,651.09**	**7,318.00**	**9,322.08**
Total Liabilities	**50,655.00**	**49,461.92**	**44,166.11**	**32,085.49**
Total Equity and Liabilities	**57,292.48**	**55,365.79**	**49,439.46**	**35,769.48**

Summary Combined Statement of Cash Flows

(*All amounts are in rupees million*)

Particulars	Three month period ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020
Cash flows from operating activities				
Profit before tax	**1,410.68**	**843.19**	**2,343.22**	**1,087.18**
Adjustment to reconcile profit before tax to net cash flows:				
Interest income	(44.17)	(144.78)	(161.26)	(186.77)
Finance costs	829.98	3,440.87	2,648.58	1,712.12
Operating Profit before Working Capital changes	**2,196.49**	**4,139.28**	**4,830.54**	**2,612.53**
Working capital adjustments:				
(Increase) in receivable under service concession agreements and contract assets	(2,203.03)	(4,019.31)	(10,777.52)	(14,869.93)
(Decrease) in contract liabilities	(40.61)	(512.76)	(2,738.03)	(104.97)
Decrease/ (Increase) in financial and non-financial assets	81.16	721.75	92.43	(1,191.98)
Decrease /(Increase) in trade receivables	79.12	120.18	(260.41)	2.37
(Decrease) / Increase in trade payables	420.21	(4,099.16)	(452.67)	1,693.71
(Decrease)/ Increase in provisions, financial and non-financial liabilities	(74.11)	6.77	(43.69)	37.78
Cash generated from / (used in) operating activities	**459.23**	**(3,643.25)**	**(9,349.35)**	**(11,820.49)**
Direct tax paid (net, of refunds)	(122.82)	(337.68)	(89.76)	(380.28)
Net Cash generated from / (used in) operating activities – (A)	**336.41**	**(3,980.93)**	**(9,439.11)**	**(12,200.77)**
Cash Flows from Investing Activities				
(Investments)/ Redemptions in bank deposits more than three months (net)	(720.93)	(1,651.25)	(1,346.87)	554.54
Interest received	13.82	144.78	154.90	186.77
Net Cash generated from / (used in) investing activities – (B)	**(707.11)**	**(1,506.47)**	**(1,191.97)**	**741.31**
Cash Flows from Financing Activities				
Proceeds from issue of share capital	-	-	94.90	0.10
Proceeds from non-current borrowings	1,260.04	42,827.81	23,549.72	13,207.88
Repayment of non-current borrowings	(882.62)	(33,413.00)	(9,173.66)	-
Interest and other borrowing cost paid	(996.58)	(3,157.00)	(2,686.59)	(1,590.80)
Net cash generated from / (used in) financing activities (C)	**(619.16)**	**6,257.81**	**11,784.37**	**11,617.18**
Net Increase / (Decrease) in cash and cash equivalents (A+B+C)	**(989.86)**	**770.41**	**1,153.29**	**157.72**
Cash and cash equivalents at the beginning of the period/year	2,113.68	1,343.27	189.98	32.26
Cash and cash equivalents at the end of the period/year	**1,123.82**	**2,113.68**	**1,343.27**	**189.98**

SUMMARY FINANCIAL INFORMATION OF THE SPONSOR

Summary Statement of Profit & Loss:

(in ₹ million)

Particulars	For the year ended 31st March, 2022 (Consolidated)	For the year ended 31st March, 2021 (Consolidated)	For the year ended 31st March, 2020 (Consolidated)
Total Income (A)	**950.17**	**0.24**	**0.14**
Expenses			-
(a) Cost of materials consumed	-	-	-
(b) Change in inventories of finished goods	-	-	-
(c) Employee benefits expenses	-	-	-
(d) Finance costs	8.79	11.26	10.18
(e) Depreciation and amortization expenses	-	-	-
(f) Other expenses	1.99	0.03	0.03
Total expenses (B)	**10.78**	**11.29**	**10.22**
Profit / (Loss) before exceptional and extraordinary items and tax (C) = (A - B)	**939.40**	**(11.05)**	**(10.07)**
Exceptional items (D)	-	-	-
Profit / (Loss) before extraordinary items and tax (E)= (C ± D)	**939.40**	**(11.05)**	**(10.07)**
Extraordinary items (F)	-	-	-
Profit / (Loss) before tax (G) = (E ± F)	**939.40**	**(11.05)**	**(10.07)**
Tax expense:	**-**	**-**	**-**
(a) Current tax expense for current year	82.57	0.02	-
(b) (Less): MAT credit (where applicable)	-	-	-
(c) Current tax expense relating to prior years	0.00	-	0.00
(d) Net current tax expense	82.57	0.02	0.00
(e) Deferred tax	-	-	-
Tax expense (H)	**82.57**	**0.02**	**0.00**
Profit/(Loss) for the year (I) = (G -H)	**856.83**	**(11.07)**	**(10.07)**
Share profit of associate	**2,200.25**	**3,153.13**	**2,434.47**
Profit for the year	**3,057.08**	**3,142.06**	**2,424.40**
No. of Equity Share	**86000**	**86000**	**86000**
Earnings per share (of Rs. 10/- each):			
(a) Basic (In Rs.)	35,547.43	36,535.59	28,190.65
(b) Diluted (In Rs.)	35,547.43	36,535.59	28,190.65

Summary Balance Sheet:

(in ₹ million)

Particulars	As at 31st March, 2022 (Consolidated)	As at 31st March, 2021 (Consolidated)	As at 31st March, 2020 (Consolidated)
EQUITY AND LIABILITIES			
Shareholders' funds			
(a) Share capital	40.36	40.36	40.36
(b) Reserves and surplus	15,349.17	12,292.09	9,150.03
(c) Money received against share warrants	-	-	-
			-
Share application money pending allotment	-	-	-
			-
Non-current liabilities			-
(a) Long-term borrowings	103.45	547.81	501.75
(b) Deferred tax liabilities (net)	-	-	-
(c) Other long-term liabilities	-	-	-
(d) Long-term provisions	-	-	-
			-
Current liabilities			-
(a) Short-term borrowings	-	-	40.75
(b) Trade payables	-	-	-
(A) total outstanding dues of micro enterprises and small enterprises; and	-	-	-
(B) total outstanding dues of creditors other than micro enterprises and small enterprises	-	-	-
(c) Other current liabilities	0.64	0.84	0.94
(d) Short-term provisions	82.57	0.02	0.01
Total Equity & Liabilities	**15,576.18**	**12,881.13**	**9,733.84**
ASSETS			-
			-
Non-current assets			-
(a) Property, Plant and Equipment and Intangible Assets			-
(i) Property, Plant and Equipment	-	-	-
(ii) Intangible assets	-	-	-
(iii) Capital work-in-progress	-	-	-
(b) Non-current investments	15,164.81	12,879.22	9,726.10
(c) Deferred tax assets (net)	-	-	-
(d) Long-term loan and advances	-	-	-
(e) Other non-current assets	-	-	-
			-
Current assets			-
(a) Current investments	269.39	-	-
(b) Inventories	-	-	-
(c) Trade receivables	-	-	-
(d) Cash and cash equivalents	0.74	0.06	0.32
(e) Short-term loans and advances	141.05	1.80	**0.06**
(f) Other current assets	0.19	0.05	7.38
Total Assets	**15,576.18**	**12,881.13**	**9,733.84**

Summary Statement of Cashflows:

(in ₹ million)

Particulars	For the year ended 31st March, 2022 (Consolidated)	For the year ended 31st March, 2021 (Consolidated)	For the year ended 31st March, 2020 (Consolidated)
A. Cash flow from operating activities			
Net Profit / (Loss) before extraordinary items & tax	939.40	(11.05)	(10.07)
Adjustments for:			
Interest paid on borrowings	8.79	-	-
Interest Income	-	-	-
Operating profit / (loss) before working capital changes	948.19	(11.05)	(10.07)
Changes in working capital:			
Adjustments for (increase) / decrease in operating assets:			
Trade receivables	-	-	-
Short-term loans and advances	(139.25)	(1.74)	(0.02)
Other current assets	(0.14)	7.33	0.04
Current Investment	-	-	-
Adjustments for increase / (decrease) in operating liabilities:			
Trade payables	-	0.02	-
Short-term borrowings	-	(40.75)	40.75
Other current liabilities	82.34	(0.10)	(95.13)
Cash flow from extraordinary items	-	-	-
Cash generated from operations	891.13	(46.30)	(64.42)
Net income tax (paid) / refunds	(82.57)	(0.02)	(0.00)
Net cash flow from / (used in) operating activities (A)	**808.56**	**(46.32)**	**(64.42)**
B. Cash flow from investing activities			
Sale of investment	(85.34)	-	-
Investment in Mutual Fund	(269.39)	-	-
Interest income Mutual Fund	-	-	-
Net cash flow from / (used in) investing activities (B)	**(354.73)**	**-**	**-**
C. Cash flow from financing activities			
Long Term Borrowing	(444.36)	46.06	64.71
Proceeds from issue of equity shares	-	-	-
Interest paid	(8.79)	-	-
Net cash flow from / (used in) financing activities (C)	**(453.15)**	**46.06**	**64.71**
Net increase / (decrease) in Cash and cash equivalents (A+B+C)	**0.68**	**(0.25)**	**0.30**
Cash and cash equivalents at the beginning of the year	0.06	0.32	0.02
Cash and cash equivalents at the end of the year	**0.74**	**0.06**	**0.32**

SUMMARY FINANCIAL INFORMATION OF THE INVESTMENT MANAGER

Summary Statement of Profit & Loss:

(in ₹ million)

Particulars	For the period March 23, 2022 to June 30, 2022*
Income	
Revenue from operations	-
Total income	**-**
Expenses	
Other expenses	0.93
Total expenses	**0.93**
Profit before tax	**(0.93)**
Tax expense:	
Deferred tax (credit)	(0.23)
Profit for the period	**(0.70)**
Other comprehensive income	
Items that will not be reclassified subsequently to profit or loss	
Re-measurements of defined benefit liability/ (asset)	-
Income tax relating to above	-
Other comprehensive income for the period, net of tax	-
Total comprehensive income for the period	**(0.70)**
Earnings per share (not annualized)	
(Nominal value of share Rs.10 each)	
Basic (Rs.)	(69.50)
Diluted (Rs.)	(69.50)

** The Investment Manager was incorporated as a private company under Companies Act, 2013 on March 23, 2022 and accordingly, the financial statements of the Investment Manager are available only for the period from March 23, 2022 to June 30, 2022.*

Summary of Balance Sheet:

(in ₹ million)

Particulars	As at 30 June 2022*
Assets	
Non-current assets	
(a) Deferred tax Assets (net)	0.23
Total Non-Current Assets	**0.23**
Current assets	
(a) Financial assets	-
(i) Cash and cash equivalents	0.07
(b) Other current assets	0.00
Total Current Assets	**0.07**
Total Assets	**0.30**
Equity and liabilities	
Equity	
(a) Equity share capital	0.10
(b) Other equity	(0.70)
Total Equity	**(0.60)**
Liabilities	
Current liabilities	
(a) Financial Liabilities	-
(i) Borrowings	0.90
Total Current Liabilities	0.90
Total Liabilities	**0.90**
Total equity and liabilities	**0.30**

** The Investment Manager was incorporated as a private company under Companies Act, 2013 on March 23, 2022 and accordingly, the financial statements of the Investment Manager are available only for the period from March 23, 2022 to June 30, 2022.*

Summary Statement of Cash flows:

(in ₹ million)

Particulars	For the period March 23, 2022 to June 30, 2022*
Cash flows from operating activities	
Profit before tax	(0.93)
Adjustments for:	-
Finance costs	-
Working capital adjustments:	-
(Increase) in financial and non-financial assets	(0.24)
Cash (used in) operating activities	(1.16)
Income tax paid (net)	0.23
Net cash (used in) operating activities (A)	**(0.93)**
Cash flows from investing activities	
Interest received	-
Net cash generated from investing activities (B)	-
Cash flows from financing activities	
Proceeds from issue of share capital	0.10
Proceeds from current borrowings	0.90
Net cash generated from financing activities (C)	**1.00**
Net increase in cash and cash equivalents (A+B+C)	**0.07**
Cash and cash equivalents at March 23, 2022	-
Cash and cash equivalents at 30 June 2022	**0.07**

** The Investment Manager was incorporated as a private company under Companies Act, 2013 on March 23, 2022 and accordingly, the financial statements of the Investment Manager are available only for the period from March 23, 2022 to June 30, 2022.*

SUMMARY OF INDUSTRY

Overview of the Indian Economy

As per 2022 estimates, India has a population of approximately 1.38 billion, second only to China. India's GDP grew at a CAGR of 5.4%, growing to INR 147 trillion in Fiscal Year 2022 from INR 87 trillion in Fiscal Year 2012.

Fiscal Year 2021 was an aberration from this trajectory, primarily on account of the COVID-19 pandemic. At approximately INR 136 trillion in Fiscal Year 2021, India's GDP (in absolute terms) was below the Fiscal Year 2020 level of approximately INR 145 trillion. On account of the COVID-19 pandemic, India's GDP contracted in the first half of Fiscal Year 2021. However, the Indian economy rebounded in the second half of the Fiscal Year 2021. During Fiscal Year 2022, the Indian economy has shown further recovery with the GDP expanding 20.1% year-on-year in the first quarter of Fiscal Year 2022, 8.4% in the second quarter and 5.4% in the third quarter before slowing down to 4.1% in the fourth quarter *(Source: Ministry of Statistics and Programme Implementation, Government of India)*

Overview of the Infrastructure Sector in India

The development of the infrastructure sector has been a priority area for the Government and has witnessed enhanced public investment over the years. The infrastructure sector comprises of roads, railways, power, ports, telecommunication and civil aviation among others. The size and magnitude of major infrastructure development projects dictate substantial capital investment. Many reforms have been initiated in the infrastructure sector, resulting in a robust growth. The Government has introduced policy reforms which resulted in total FDI inflows of $ 26.21 billion in construction activities in infrastructure from the Fiscal Year 2001 to Fiscal Year 2022 *(Source: Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry*).

Overview of the Road Sector in India

Road Network in India

India has the second largest road network in the world, spanning a total of 6.37 million km. *(Source: Annual Report 2021-22, Ministry of Road Transport and Highways, Government of India)* This road network primarily comprises national highways, expressways, state highways, major district roads, other district roads and village roads. Road network in India can be classified into the following categories:

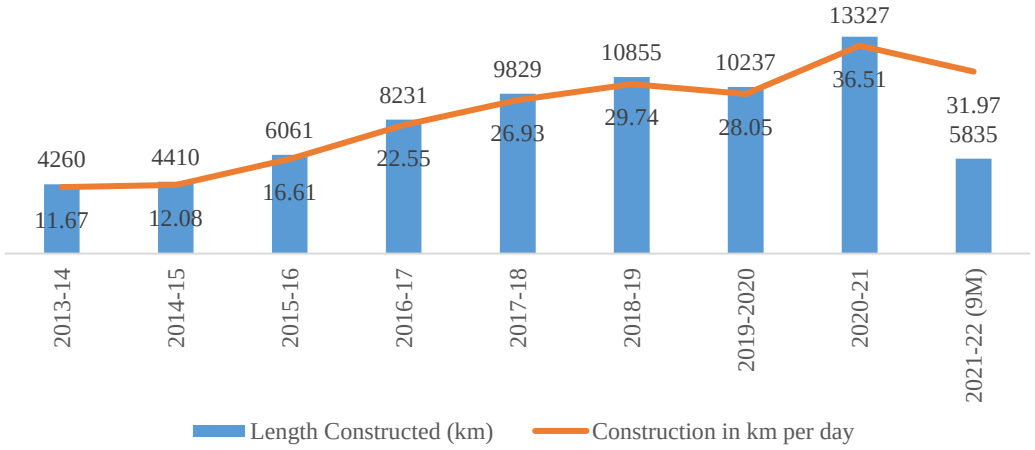
- *National Highways* constitute the primary system of road transportation in India, which facilitates medium and long-distance inter-city passenger and freight traffic across the country.
- *State Highways* constitute the secondary system of road transportation in India, which facilitates the traffic across major centers within the states.
- *District Roads* primarily link and provide accessibility within the districts and provide the secondary function of linkage between the highways and rural roads.
- *Rural Roads* are a key component of rural development providing accessibility to the villages to meet their social needs as also act as the means to transport agriculture produce from village to nearby markets.

Road Network in India by Category (length in km)

Category	FY18	FY19	FY20	FY21	FY22
National Highways	1,26,500	1,32,500	1,32,995	1,36,440	1,40,995
State Highways	1,86,908	1,86,528	1,94,900	1,76,818	1,71,039
Other Roads	59,02,539	60,67,269	61,65,660	59,02,539	60,59,813
Total	**62,15,797**	**63,86,297**	**64,93,555**	**62,15,797**	**63,71,847**

(Source: Annual Report 2021-22, Ministry of Road Transport and Highways, Government of India)

Road Construction in India



(Source: Economic Survey 2021-22, Ministry of Finance, Government of India)

In the Union Budget for Fiscal Year 2022-23, a total of ₹ 1,99,108 crores have been budgeted for the MoRTH, which is 52% higher than the revised estimates for Fiscal Year 2021-22.

Budget Allocation for MoRTH (in ₹ crore)

	Fiscal Year 2020-21 (Actual)	Fiscal Year 2021-22 (Revised estimate)	Fiscal Year 2022-23 (Budget estimate)	% change (Revised estimate over budget estimate)
Revenue Expenditure	9,964	9,898	11,364	15%
Capital Expenditure	89,195	1,21,251	1,87,744	55%
Total	**99,159**	**1,31,149**	**1,99,108**	**52%**

(Source: Demands for Grants 2022-23, MoRTH}

Development and Maintenance of Roads and Highways

The Government has taken several initiatives for development of roads and highways in India.

Bharatmala Pariyojana

Bharatmala Pariyojana is an umbrella scheme, which supersedes the existing NHDP Phase-I of Bharatmala Pariyojana envisages to construct about 24,800 km of highways under the following categories: National Corridor (North-South, East-West and the Golden Quadrilateral), economic corridors, inter-corridor roads, feeder roads, international connectivity, border roads, coastal roads, port connectivity roads and expressways. The scheme will include the existing NHDP programme as well. *(Source: Annual Report 2021-22, MoRTH)*

The Government approved Phase-I of Bharatmala Pariyojana in October 2017 with an aggregate length of about 34,800 km (including the residual NHDP stretches of 10,000 km) at an estimated outlay of ~₹ 5.35 trillion. Phase-I will involve development of the following:

Scheme	Length (km)	Cost (in ₹ Crore)
Economic Corridors	9,000	1,20,000
Inter-Corridors & feeder roads	6,000	80,000
National Corridor Efficiency improvement	5,000	1,00,000
Border & International connectivity roads	2,000	25,000
Coastal & port connectivity roads	2,000	20,000
Expressways	800	40,000
Sub-total	**24,800**	**3,85,000**
Ongoing Projects (incl. NHDP)	10,000	1,50,000
Total	**34,800**	**5,35,000**

Source: MoRTH

SUMMARY OF BUSINESS

Overview

We are an infrastructure investment trust established to acquire, manage and invest in a portfolio of infrastructure assets in India and to carry on the activities of an infrastructure investment trust, as permissible under the SEBI InvIT Regulations. We were settled by way of the Original Trust Deed, by GRIL (the Settlor), and registered as an infrastructure investment trust with SEBI on August 3, 2022 pursuant to the SEBI InvIT Regulations.

The Sponsor is a private company, limited by shares, and an entity forming part of the GR Group. GRIL is the flagship entity of GR Group and is engaged in integrated road engineering, procurement and construction with an experience of over 25 years in design and construction of various road/highway projects across 16 states in India and more than 100 road construction projects executed since 2006. The GR Group carries out its operations through GRIL and other entities primarily in three categories: (i) civil construction activities, under which it provides EPC services; (ii) development of roads, highways on a BOT basis, including under annuity and HAM; and (iii) manufacturing activities, under which GRIL processes bitumen, manufactures thermoplastic road-marking paint, electric poles and road signage and fabricates and galvanizes metal crash barriers.

The Sponsor holds 31.83% (as of September 30, 2022) of the issued, subscribed and paid-up equity share capital of GRIL, and is an identified promoter of GRIL. The Sponsor complies with the eligibility requirements under the SEBI InvIT Regulations of ensuring a sound track record in development of infrastructure through GRIL.

The Sponsor is authorized by its memorandum of association to, among other things, to (i) purchase, acquire, get, convert, develop or construct land and buildings, deal in land, manage land and buildings; and (ii) carry on the business of contractors, general construction, builders; develop, construct, build, erect, demolish or do any other works in connection with any building, roads, etc and is currently engaged in the business of developing, improving, constructing, leasing & sub-leasing, repairing, maintaining real estate properties, and is exploring opportunities in the infrastructure sector.

Our initial portfolio assets consist of seven road assets, all operating on HAM basis, in the states of Punjab, Gujarat, Andhra Pradesh, Maharashtra and Uttar Pradesh. These roads are operated and maintained pursuant to concession rights granted by the NHAI and are owned and operated by the Project SPVs, which are currently wholly owned by GRIL (an Associate of the Sponsor). For more information about the InvIT Assets, see " – ***Details of the Project SPVs and the InvIT Assets***" on page 144.

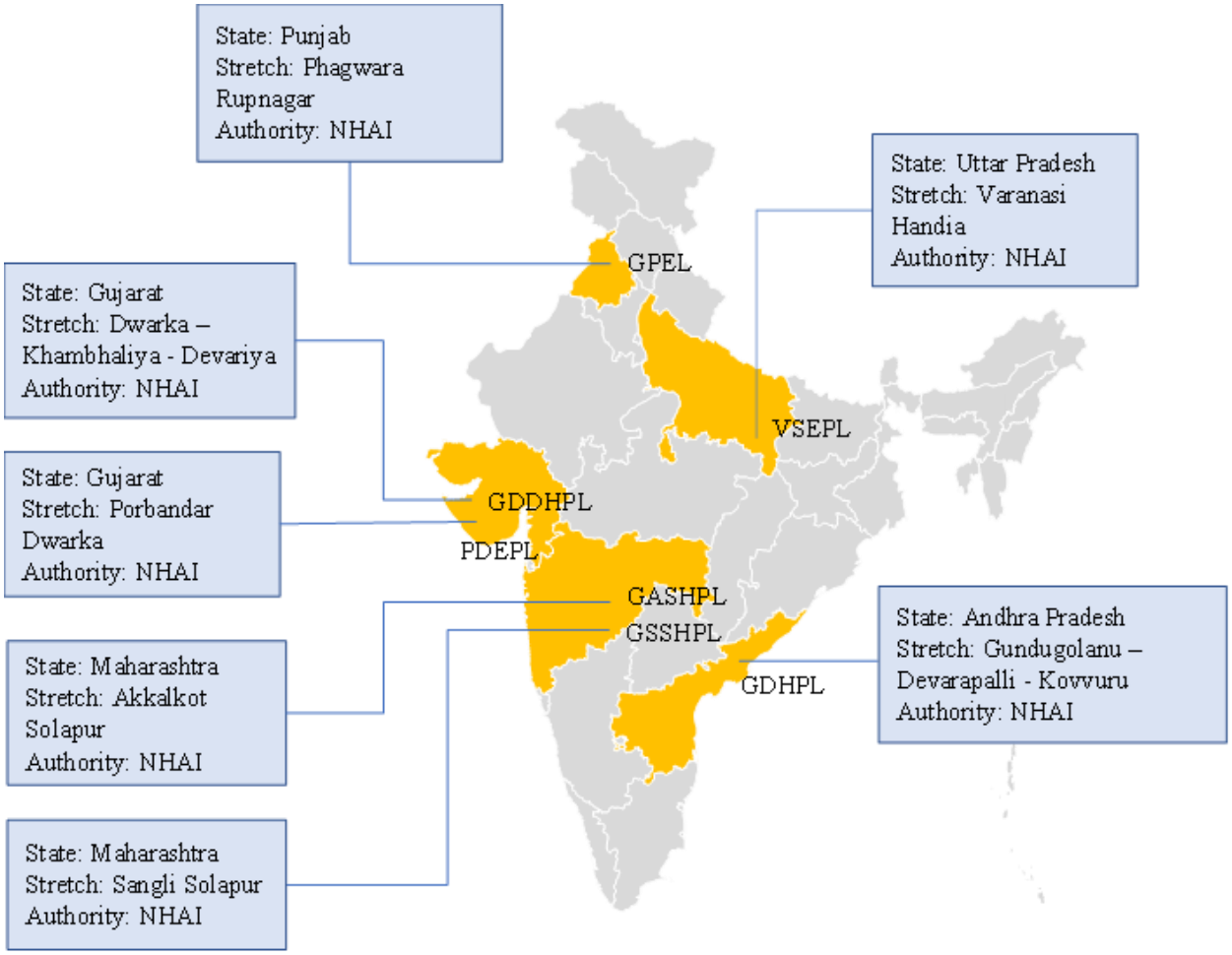
In addition, the InvIT proposes to enter into a ROFO Agreement with GRIL, pursuant to which GRIL will grant a right of first offer to the InvIT to acquire certain other assets owned and developed by GRIL. For more details, see "***Business – ROFO Assets****" and "****Formation Transactions in relation to the InvIT – Acquisition of future assets by the InvIT - ROFO Agreement***" on pages 155 and 101, respectively.

The Formation Transactions

Subject to the receipt of requisite approvals, the InvIT intends to acquire 100.00% of the equity shares in each of the Project SPVs from GRIL (an Associate of the Sponsor), except GDDHPL wherein the InvIT proposes to acquire 49% of the equity share capital. GDDHPL is currently an under-construction project and investment in acquisition of 49% of the shares of GDDHPL will not exceed 10 percent of the value of the InvIT Assets and will be in compliance with Regulation 18(5) of the SEBI InvIT Regulations. Subject to necessary approvals, including the NHAI approval, the InvIT proposes to acquire the remaining 51% equity shareholding of the GDDHPL after the completion of at least six months after the receipt of provisional COD certificate by GDDHPL, in accordance with the circulars issued by the MoRTH. As consideration for the acquisition of the equity shares of the Project SPVs, the InvIT will issue Units in accordance with the relevant Share Purchase Agreements to GRIL after the Bid/Issue Closing Date and prior to the Allotment in the Issue, i.e., the closing date pursuant to the Share Purchase Agreements. For more information about the Formation Transactions and key terms of the Share Purchase Agreements, see "***Formation Transactions in relation to the InvIT***" on page 91.

As of June 30, 2022, the following projects, which are owned, operated and maintained by the Project SPVs, comprise the InvIT Assets consisting of approximately 497.292 km of constructed and operational roads across five states in India:

Name of the InvIT Asset	GR Phagwara Expressway Limited ("GPEL")	Porbandar Dwarka Expressway Private Limited ("PDEPL")	GR Gundugolanu Devarapalli Highway Private Limited ("GDHPL")	GR Akkalkot Solapur Highway Private Limited ("GASHPL")	Varanasi Sangam Expressway Private Limited ("VSEPL")	GR Sangli Solapur Highway Private Limited ("GSSHPL")	GR Dwarka Devariya Highway Private Limited ("GDDHPL")
Brief Description	GPEL is a special purpose vehicle which was incorporated for the purpose of four laning of Phagwara to Rupnagar section of NH-344A from km. 0.00 (design chainage) to km. 80.820 (design chainage)	PDEPL is a special purpose vehicle which was incorporated for the purpose of four laning with paved shoulder of Porbandar - Dwarka section of NH-8E (Ext.) from km 356.766 (design chainage km. 379.100) to km 473.000 (Design Chainage km 496.848)	GDHPL is a special purpose vehicle which was incorporated for the purpose of four laning of the Gundugolanu – Devarapalli – Kovvuru section of NH-16 from km. 15.320 (existing km. 15.700) to km. 85.204 (existing km. 81.400)	GASHPL is a special purpose vehicle which was incorporated for the purpose of four laning of Akkalkot – Solapur secti– n of NH – 150E with paved shoulders from design chainage km. 99.400 to km. 138.352 / existing chainage from km. 102.819 to km. 141.800 (design length 38.952 km.) including Akkalkot bypass (design length 7.350 km.)	VSEPL is a special purpose vehicle which was incorporated for the purpose of six laning of Handia to Varanasi section of NH-2 from km 713.146 to km 785.544	GSSHPL is a special purpose vehicle was incorporate for the purpose of four-laning of Sangli – Solapur (Package-III: Watambare to Mangalwedha) Section of NH-166 from existing Chainage Km 272.394 to Ch. Km 314.969 (Design Chainage km. 276.000 to Chainage km. 321.600)	GDDHPL is a special purpose vehicle which was incorporated for the purpose of four laning of Dwarka (Kuranga) – Khambhaliya – Devariya section of NH 151A from km 203/500 to 176/500 and from km 171/800 to km 125/000 (designed length 71.890 km)
State	Punjab	Gujarat	Andhra Pradesh	Maharashtra	Uttar Pradesh	Maharashtra	Gujarat
Design Length (in kms approx.)	80.820	117.748	69.884	38.952	72.398	45.600	71.890
Awarding Authority	NHAI	NHAI	NHAI	NHAI	NHAI	NHAI	NHAI
Date of signing of Concession Agreement	October 5, 2016	August 8, 2017	April 26, 2018	June 20, 2018	May 15, 2017	June 20, 2018	May 22, 2019
PCOD	February 25, 2020	April 18, 2020	July 10, 2021	March 31, 2021	November 2, 2020	June 28, 2021	August 2, 2022
Operations and maintenance period (in years)	15	15	15	15	15	15	15
Bid Project Cost (In ₹ millions)	13,670	16,000	18,270	8,070	24,470	9,570	11,010



All of the InvIT Assets are HAM projects awarded by NHAI. The total income of the SPV Group for the three month period ended June 30, 2022 and Financial Years ended March 31, 2022, 2021 and 2020 was ₹ 4,472.34 million, ₹ 16,001.80 million, ₹ 21,703.93 million and ₹ 30,927.27 million, respectively. For more information in relation to financial information of the Project SPVs, see "***Management's Discussion and Analysis of Financial Condition and Results of Operations***" on page 290.

Our Investment Manager is GR Highways Investment Manager Private Limited. The Investment Manager was incorporated as a private limited company on March 23, 2022, and will be relying on the experience/ expertise of its employees in the financial management, advisory and/or infrastructure development sector, which cumulatively exceeds 30 years (with experience of each such employee exceeding five years) and complies with the eligibility requirements under the SEBI InvIT Regulations. Accordingly, the Investment Manager is in compliance with the eligibility requirements prescribed under the SEBI InvIT Regulations. For more information about the Investment Manager, see "***Parties to the InvIT – The Investment Manager – GR Highways Investment Manager Private Ltd***" on page 115.

The Trustee, the Investment Manager and the respective Project SPVs have appointed the Sponsor, Lokesh Builders Private Limited, to act as the Project Manager for each Project SPV. Given its experience in constructing, operating and maintaining road projects in accordance with the terms of concession agreements, the EPC work in relation of the Project SPVs will be undertaken by GRIL.

GRIL (as Settlor), through the Sponsor, has appointed IDBI Trusteeship Services Limited to act as the sole Trustee of the Trust. The Trustee is registered with SEBI as a debenture trustee under the Securities and Exchange Board of India (Debenture Trustees) Regulations, 1993 and is eligible to act as the trustee to the InvIT in accordance with the SEBI InvIT Regulations. For more information about the Trustee, see "***Parties to the InvIT – The Trustee – IDBI Trusteeship Services Limited***" on page 104.

In addition, the InvIT (acting through the Trustee) intends to enter into the debt financing agreements with the Project SPVs. For more information, see "***Use of Proceeds***" on page 70.

Hedge against adverse interest rate movements

The NHAI hybrid annuity projects provide a natural hedge against the risk of adverse interest rate movement. In addition to the annuity payments due under the respective concession agreements during the operations period, NHAI is required to pay interest on the reducing balance of the completion cost (equivalent to 60% of the BPC) throughout the operation period at the rate of 3% above the average of one year MCLR of top five scheduled commercial banks.

Accordingly, any increase in the interest payable on loans with floating interest rates by the InvIT due to an increase in interest rates gets offset by the increased revenues as a result of increase in interest on reducing balance of completion cost.

Investment Strategy and Risk and Capital Management Strategy

Our principal business strategies are as set out below:

Institute and maintain capital management policies

The Investment Manager intends to pursue a strategy to maximise distributions to Unitholders while optimising our capital structure in order for us to retain enough flexibility to make acquisitions in the future. After utilising the proceeds of the Issue, our total consolidated borrowings will not exceed 40.00% of the total value of our consolidated assets, in accordance with the SEBI InvIT Regulations. For details on utilisation of proceeds of the Issue, see '***Use of Proceeds***' on page 70.

Active asset management

We intend to continue to manage our road assets through the services of the Project Manager and the Investment Manager. The Project Manager is responsible for providing the Project SPVs management-related services and routine O&M services pursuant to the provisions of the Project Management Agreement.

The Project Manager will also assist in managing project operating expenses. The roads sector is a highly competitive sector that is capital intensive and requires significant expenditure. Our ability to manage the costs associated with the InvIT Assets is critical to maintaining the Project SPVs' profit margins.

The Project Manager will also coordinate with the NHAI and local authorities to make sure that the new requirements of such agencies, to the extent reasonable, are complied with within each project timeline.

As part of our operations and maintenance systems and processes, the Investment Manager intends to work with the Project Manager to employ both preventive and corrective measures in order to optimise the long-term performance of each project, to minimize downtime or defects with respect to the InvIT Assets.

Expand the portfolio of road assets

The Investment Manager intends to expand our initial portfolio by identifying and acquiring additional road projects that meet our investment objective in accordance with the provisions of the Amended and Restated Trust Deed. For more details, see "***Overview of the InvIT***" on page 89.

The Investment Manager will be selective with respect to new projects it acquires in the future and will rely on the relevant policies of the InvIT to make investment decisions in road projects.

We propose to enter into the ROFO Agreement with GRIL, pursuant to which GRIL proposes to grant a right of first offer to us to acquire certain of its road assets. For details, see "***Business - ROFO Assets***" and "***Related Party Transactions – ROFO Agreement***" on pages 155 and 226, respectively.

In addition, the Investment Manager believes that certain acquisition opportunities may be available in the industry. The Investment Manager intends to take advantage of these opportunities by sourcing and acquiring assets from such third parties on a case-by-case basis in accordance with the SEBI InvIT Regulations, the concessions and other road project related agreements and policies. For more information about these policies, see "***Corporate Governance - Policies adopted in relation to the InvIT***" on page 218.

THE ISSUE

The following summarises the terms of the Issue. This summary should be read in conjunction with, and is qualified in its entirety by, the detailed information appearing elsewhere in this Draft Offer Document.

Issue	Initial public offer by way of issue of up to [●] Units aggregating up to ₹20,000.00 million
Less	
Sponsor Contribution	Up to [●] Units of the InvIT for a cash consideration of ₹ [●] million
Accordingly	
Net Issue	Up to [●] Units aggregating up to ₹[●] million
Of which	
Strategic Investor Portion	Up to [●] Units aggregating up to ₹[●] million, subject to a maximum of 25% of the Net Issue
Net Issue (excluding Strategic Investor Portion)	
Of which	
Institutional Investor Portion (not more than 75% of the Net Issue)*	Not more than [●] Units
Non-Institutional Investor Portion (not less than 25% of the Net Issue)	Not less than [●] Units
Floor Price	₹[●]
Cap Price	₹[●]
Issue Price	₹[●]
Minimum Bid Size	₹[●]
Bid/Issue Opening Date**	[●]
Bid/Issue Closing Date	[●]
Trust	Bharat Highways InvIT
Sponsor	Lokesh Builders Private Limited
Trustee	IDBI Trusteeship Services Limited
Investment Manager	GR Highways Investment Manager Private Limited
Project Manager	Lokesh Builders Private Limited
Authority for this Issue	This Issue was authorised, and approved by the IM Board on September 16, 2022
Tenure of the InvIT	The InvIT shall stand settled until it comes to an end or is wound up in accordance with the Amended and Restated Trust Deed and applicable law. For details, see '***Parties to the InvIT***' on page 103.
Units issued and outstanding as of the date of this Draft Offer Document	As of the date of this Draft Offer Document, there are no issued and outstanding Units
Units issued and outstanding immediately after this Issue	[●] Units
Details of commitments received from Strategic Investors, if any	[●]***
Sponsor Units	Up to [●] Units Pursuant to the Commitment Letter, the Sponsor will subscribe to [●] Units of the InvIT for a cash consideration of ₹ [●] million to ensure that the aggregate unitholding of the Sponsor amounts to 15% of the total post-issue unit capital of the InvIT in order to comply with the sponsor lock-in requirements under Regulation 12(3) of the SEBI InvIT Regulations. For details, see '***Formation Transactions in relation to the InvIT – Sponsor Contribution***' on page 101 The Units to be held by the Sponsor will be allotted to the Sponsor simultaneously with the Allotment, pursuant to the Issue. Such Units held by the Sponsor shall rank *pari passu*, with and have the same rights as, the Units to be Allotted.
Distribution	See '***Distribution***' on page 229
Taxation	For statement of possible tax consideration / benefits available to the InvIT and its Unitholders under applicable laws in India, see '***Statement of Tax Benefits'*** on page 75
Use of Proceeds	See '***Use of Proceeds***' on page 70
Option to retain oversubscription	Up to 25% of the Issue Size in accordance with the SEBI InvIT Regulations. For details, see '***Use of Proceeds - Retention of oversubscription in the Issue, if any*** ' on page 74
Listing	Prior to this Issue, there has been no market for the Units. The Units

	are proposed to be listed on the Stock Exchanges. In-principle approval for listing of the Units has been received from BSE and NSE on [●] and [●], respectively. The Investment Manager shall apply to the Stock Exchanges for the final listing and trading approval, after the Allotment and the credit of the Units to the demat accounts of the Allottees
Designated Stock Exchange	[●]
Closing Date	The date on which Allotment of the Units pursuant to this Issue shall be made, i.e., on or about [●]
Ranking	The Units being issued shall rank *pari passu* in all respects, including rights in respect of distribution. See *'**Rights of Unitholders'*** on page 232
Lock-in and Rights of Unitholders	For details, see the section '***Information Concerning the Units***' on page 67 and '***Rights of Unitholders***' on page 232.
Risk Factors	Prior to making an investment decision, Bidders should carefully consider the matters discussed in the section '***Risk Factors***' on page 16

**The Investment Manager may, in consultation with the Lead Managers, consider participation by Anchor Investors in the Net Issue for up to 60% of the Institutional Investor Portion in accordance with the SEBI InvIT Regulation and SEBI Guidelines.*
***The Anchor Investor Bidding Date shall be one Working Day prior to the Bid/Issue Opening Date.*
****Each Strategic Investor proposing to invest in the Net Issue shall enter into a strategic investor unit subscription agreement with the Investment Manager (on behalf of the InvIT) prior to filing of the Offer Document with SEBI and the Stock Exchanges.*

Allocation in all categories, except the Anchor Investor Portion and the Strategic Investor Portion, if any, shall be made on a proportionate basis. In case of under-subscription in any category, the unsubscribed portion in either category may be Allotted to investors in the other category at the discretion of the Investment Manager, in consultation with the Lead Managers and the Designated Stock Exchange,

The Issue is being made through the Book Building Process, wherein not more than 75% of the Net Issue (excluding the Strategic Investor Portion) shall be available for allocation to Institutional Investors on a proportionate basis, provided that the Investment Manager, in consultation with the Lead Managers, may allocate up to 60% of the Institutional Investor Portion to Anchor Investors on a discretionary basis in accordance with the SEBI InvIT Regulations and SEBI Guidelines. Further, not less than 25% of the Net Issue (excluding Strategic Investor Portion) shall be available for allocation on a proportionate basis to Non-Institutional Investors, subject to valid Bids being received at or above the Issue Price.

The Units will be allotted only in dematerialized form, in accordance with the SEBI InvIT Regulations. Upon listing of the Units on the Stock Exchange, the Units shall be traded only on the dematerialized segment of the Stock Exchanges.

In accordance with the SEBI InvIT Regulations and SEBI Guidelines, no Unitholder shall enjoy preferential voting or any other rights over another Unitholder. Further, there shall not be multiple classes of Units of the InvIT, unless permitted by applicable law.

For further information in relation to the Issue, see '***Issue Procedure***' on page 345.

GENERAL INFORMATION

The InvIT has been settled by G R Infraprojects Limited, as Associate of the Sponsor (the erstwhile sponsor and the Settlor), as an irrevocable trust under the provisions of the Trusts Act in Gurugram, India pursuant to the Original Trust Deed on June 16, 2022. The InvIT has been registered with the SEBI as an infrastructure investment trust under Regulation 3(1) of the SEBI InvIT Regulations on August 3, 2022, having registration number IN/InvIT/22-23/0023. Pursuant to the Amended and Restated Trust Deed dated December 8, 2022, Lokesh Builders Private Limited was inducted as the new sponsor of the InvIT, replacing G R Infraprojects Limited.

For further details on the background of the InvIT and description of the Project SPVs, see '***Overview of the InvIT***', '***Formation Transactions in relation to the InvIT***' and '***Business***' on pages 89, 91 and 138, respectively.

Principal place of business, registered office and correspondence address of the InvIT:

Bharat Highways InvIT
Novus Tower, Second Floor, Plot No. 18
Sector 18, Gurugram
Haryana 122 015, India
Tel: +91 85888 55586
E-mail: cs@bharatinvit.com
SEBI registration number: IN/InvIT/22-23/0023
Date of registration with the SEBI: August 3, 2022

Contact Person and Compliance Officer

Mohnish Dutta has been designated by the Investment Manager as the Compliance Officer with respect to the InvIT and is the relevant contact person with respect to the InvIT. His contact details are as follows:

Mohnish Dutta
Novus Tower, Second Floor, Plot No. 18
Sector 18, Gurugram
Haryana 122 015, India
Tel: +91 85888 55586
E-mail: cs@bharatinvit.com

Bidders can contact the Compliance Officer or the Registrar to the Issue in case of any pre-Issue or post-Issue related problems such as non-receipt letter of Allotment, non-credit of Allotted Units in the respective beneficiary account and non-receipt of refunds by electronic mode.

Sponsor and Project Manager

Lokesh Builders Private Limited

Registered office: 80, Shahi Complex
Hiran Magri, Sector No. 11
Udaipur, Rajasthan, 313 002, India

Correspondence address: GR House, Hiran Magri
Sector No. 11, Udaipur
Rajasthan, 313002, India
Tel: + 91 294 248 7370
Email: info@lokeshbuild.com

Contact person of the Sponsor

Sachin Kumar Agarwal, a director of the Sponsor, is the contact person of the Sponsor. His contact details are as follows:

Sachin Kumar Agarwal
80, Shahi Complex
Hiran Magri, Sector No. 11
Udaipur, Rajasthan, 313002, India

Tel: +91 124 643 5000
Email: sachin@lokeshbuild.com

Trustee

IDBI Trusteeship Services Limited
Asian Building, Ground Floor
17, R Kamani Marg, Ballard Estate
Mumbai – 400 001, India
Tel: +91 22 4080 7000
Email: itsl@idbitrustee.com
Contact Person: Gaurav Mody
SEBI registration number: IND000000460

Investment Manager

GR Highways Investment Manager Private Limited
Second Floor, Novus Tower, Plot No. 18
Sector 18, Gurugram
Haryana – 122 015, India
Tel: + 91 294 248 7370
Email: amit@bharatinvit.com
Contact person: Amit Kumar Singh

Other parties involved in the InvIT and the Issue

Statutory Auditor of the InvIT

SRBC & Co LLP
Chartered Accountants
Firm registration number: 324982E/E300003

Valuer

S. Sundararaman
5B, "A" Block, 5th Floor
Mena Kampala Arcade, New#18 & 20,
Thiagaraya Road, T Nagar
Chennai – 600017, India
Tel: +91 44281 54192
E-mail: chennaissr@gmail.com
IBBI Registration Number: IBBI/RV/06/2018/10238

Lead Managers to the Issue

ICICI Securities Limited
ICICI Venture House,
Appasaheb Marathe Marg
Prabhadevi, Mumbai – 400 025
Maharashtra, India
Tel: +91 22 6807 7100
Email: bharat.invit@icicisecurities.com
Website: www.icicisecurities.com
Investor Grievance E-mail: customercare@icicisecurities.com
Contact person: Sumit Singh and Rupesh Khant
SEBI Registration No: INM000011179

Axis Capital Limited
Axis House, 1st Floor,
C 2 Wadia International Centre
Pandurang Budhkar Marg, Worli

Mumbai 400 025
Maharashtra, India
Tel: +91 22 4325 2183
Fax: +91 22 4325 0000
Email: bharat.invit@axiscap.in
Website: www.axiscapital.co.in
Investor Grievance E-mail: complaints@axiscap.in
Contact person: Pavan Naik and Akash Agarwal
SEBI Registration No: INM000012029

HDFC Bank Limited
Investment Banking Group
Unit No. 401 & 402, 4th Floor
Tower B, Peninsula Business
Park, Lower Parel
Mumbai 400 013
Maharashtra, India
Tel: +91 22 3395 8233
Email: bharat.invit@hdfcbank.com
Website: www.hdfcbank.com
Investor Grievance E-mail: investor.redressal@hdfcbank.com
Contact person: Kunal Thakkar / Dhruv Bhavsar
SEBI Registration No: INM000011252

IIFL Securities Limited
10th Floor, IIFL Centre
Kamala City, Senapati Bapat Marg
Lower Parel (West), Mumbai – 400 013
Maharashtra, India
Tel: +91 22 4646 4728
Email: bharat.invit@iiflcap.com
Website: www.iiflcap.com
Investor Grievance E-mail: ig.ib@iiflcap.com
Contact person: Pawan Kumar Jain/ Dhruv Bhagwat
SEBI Registration No: INM000010940

Escrow Collection Bank, Public Offer Account Bank, Sponsor Bank and Refund Bank

[●]
Address: [●]
Tel: [●]

Syndicate Members

[●]
Address: [●]
Tel: [●]

Inter-se Allocation of Responsibilities

The following table sets forth the inter-se allocation of responsibilities for various activities amongst the Lead Managers for this Issue:

Sr. No.	Activity	Responsibility	Co-ordination
1.	Assist the Investment Manager in selecting the initial portfolio of the InvIT, capital structuring, with the relative components and formalities such as type of instruments, etc.	Lead Managers	I-Sec
2.	Due diligence of the InvIT's operations/management/ business plans/legal, etc., Sponsor's / Investment Manager's / Project Manager's experience, the proposed formation transactions, the proposed and future assets arrangements, any other related party transactions (including any name licensing or other	Lead Managers	I-Sec

Sr. No.	Activity	Responsibility	Co-ordination
	arrangements), drafting and design of offer documents and of statutory advertisement including memorandum containing salient features of the Issue documents. The Lead Managers shall ensure compliance with stipulated requirements and completion of prescribed formalities with the Stock Exchanges and the SEBI.		
3.	Drafting and approval of all publicity material other than statutory advertisement as mentioned above including corporate advertisement, brochure, etc.	Lead Managers	HDFC Bank
4.	Appointment of Registrar to the Issue, printers, advertising agency, bankers to the Issue and other intermediaries	Lead Managers	I-Sec
5.	Finalising road show marketing presentation, FAQs and the anchor minutes	Lead Managers	Axis
6.	International institutional marketing of the Issue	Lead Managers	Axis
7.	Domestic Institutional Marketing of the Issue which will cover, inter alia: • Formulating overall institutional marketing strategy; • Finalising the list and division of investors for one-on-one meetings, institutional allocation; and • Finalizing road show schedule and investor meeting schedules	Lead Managers	I-Sec
8.	Non-institutional marketing of the Issue	Lead Managers	IIFL and HDFC Bank
9.	Coordination with stock exchanges for book building software and submitting 1% deposit	Lead Managers	HDFC Bank
10.	Finalizing of pricing and allocation in consultation with the Investment Manager	Lead Managers	I-Sec
11.	Assisting the Investment Manager in ensuring the completion of the formation transactions and the allotment of Units in consideration thereof	Lead Managers	IIFL
12.	Post bidding activities including management of Escrow Account, coordinate non-institutional and institutional allocation, coordination with Registrar and banks, intimation of allocation and dispatch of refund to Bidders, etc. The post Issue activities of the Issue will involve essential follow up steps, which include finalization of basis of allotment, trading and dealing instruments and dispatch of certificates and demat delivery of Units, with the various agencies connected with the work such as Registrar to the Issue, Banker to the Issue and the bank handling refund business.	Lead Managers	IIFL

Legal Counsel to the InvIT, the Investment Manager and the Sponsor

Shardul Amarchand Mangaldas & Co.
24th Floor, Express Towers
Nariman Point
Mumbai 400 021
Maharashtra, India
Tel: +91 22 4933 5555

Shardul Amarchand Mangaldas & Co.
Prestige Sterling Square
Madras Bank Road, Off Lavelle Road
Bengaluru 560 001
Karnataka, India
Tel: +91 80 6674 9999

Legal Counsel to the Lead Managers as to Indian Law

J. Sagar Associates
Vakils House, 18 Sprott Road
Ballard Estate
Mumbai – 400 001
Maharashtra, India
Tel: +91 22 4341 8600

International Legal Counsel to the Lead Managers as to United States Federal Securities Law

Linklaters Singapore Pte. Ltd.
One George Street #17-01
Singapore 049 145
Tel: +65 6692 5700

Technical Consultant

FP Project Management (formerly known as Frischmann Prabhu (India) Private Limited)
315, Balgovind Wadi
New Prabhadevi Road
Prabhadevi, Mumbai,
Maharashtra – 400 025, India
Contact Person: Mr. Shailendra Ambedkar
Tel: +91 22 6660 3901
E-mail: pfmumbai@fpindia.com/ sambekar@fpindia.com
Website: www.fpindia.com

Registrar and Unit Transfer Agent

Kfin Technologies Limited
Selenium Tower- B, Plot 31 & 32
Financial District, Nanakramguda
Serilingampally, Hyderabad 500 032
Telangana, India
Tel: +91 40 6716 2222/1800 309 4001
Email: bharathighways.invit@kfintech.com
SEBI registration number: INR000000221
Contact person: M Murali Krishna
Website: www.kfintech.com
Investor Grievance Email: einward.ris@kfintech.com

Credit Rating

The InvIT has received rating of 'Provisional CRISIL AAA'/Stable (Reaffirmed) from Crisil Ratings Limited, and 'Provisional IND AAA'/Stable from India Ratings & Research Private Limited (Fitch Group), for its long term bank facilities aggregating to ₹30,000 million, the rationale for which are available on their respective websites.

Self-Certified Syndicate Banks

The list of SCSBs notified by SEBI for the ASBA process is available at http://www.sebi.gov.in/sebiweb/other/OtherAction.do?doRecognised=yes, or at such other website as may be prescribed by SEBI from time to time. For a list of the SCSB branches named by the respective SCSBs to receive ASBA Forms from the Designated Intermediary, please refer to the above-mentioned link.

Registered Brokers

The list of the Registered Brokers, including details such as postal address, telephone number and e-mail address, is provided on the websites of the Stock Exchanges at https://www.bseindia.com/ and https://www.nseindia.com, as updated from time to time.

Registrar and Unit Transfer Agents

The list of the RTAs eligible to accept ASBA Forms at the Designated RTA Locations, including details such as address, telephone number and e-mail address, is provided on the websites of the Stock Exchanges at https://www.bseindia.com/Static/PublicIssues/RtaDp.aspx and http://www.nseindia.com/products/content/equities/ipos/asba_procedures.htm, respectively, as updated from time to time.

Collecting Depository Participants

The list of the CDPs eligible to accept ASBA Forms at the Designated CDP Locations, including details such as name and contact details, is provided on the websites of the Stock Exchanges at https://www.bseindia.com/Static/PublicIssues/RtaDp.aspx and http://www.nseindia.com/products/content/equities/ipos/asba_procedures.htm, respectively, as updated from time to time.

INFORMATION CONCERNING THE UNITS

Unitholding of the InvIT

Particulars	Number of Units*
Units issued and outstanding prior to this Issue	[●]
Units issued and outstanding after this Issue	[●]

**To be determined on finalisation of the Issue Price and updated in the Final Offer Document prior to filing with SEBI and the Stock Exchanges.*

Unitholders holding more than 5% of the Units

Sr. No.	Name of Unit Holders	Pre- Issue*		Post- Issue*	
		Number of Units	Percentage of holding (%)	Number of Units	Percentage of holding (%)
1.	The Sponsor	[●]	[●]	[●]	[●]
2.	GRIL	[●]	[●]	[●]	[●]
3.	[●]	[●]	[●]	[●]	[●]

**To be determined on finalisation of the Issue Price and updated in the Final Offer Document prior to filing with SEBI and the Stock Exchanges.*

Unitholding of the Sponsor, Investment Manager, Project Manager and Trustee

The Sponsor has agreed contribute such amount towards subscription of such number of Units, prior to the Bid/ Issue Opening Date, which shall be equivalent to at least 15% of the total Units of the InvIT on a post-Issue basis, to comply with the requirement under Regulation 12(3) of the SEBI InvIT Regulations. For details, see '***Formation Transactions in relation to the InvIT – Sponsor Contribution***' on page 101. The Trustee and the Investment Manager do not hold any Units and shall not acquire any Units in this Issue.

Unitholding of the directors of the Investment Manager

As on the date of this Draft Offer Document, none of the directors of the Investment Manager hold any Units or propose to hold any Units.

Sponsor lock-in

In terms of the SEBI InvIT Regulations, the Sponsor shall hold at least 15% of Units on a post-Issue basis, aggregating up to [●] Units, which shall be locked-in for a period of three years from the date of listing of the Units, subject to the conditions specified in the SEBI InvIT Regulations. Further, the unitholding of the Sponsor, exceeding 15% on a post-Issue basis, aggregating up to [●] Units, shall be locked-in for a period of not less than one year from the date of listing of the Units.

Anchor Investor lock-in

Any Units Allotted to Anchor Investors in the Issue shall be locked-in for a period of 30 days from the date of Allotment.

Strategic Investor lock-in

The Units Allotted to Strategic Investors in the Issue shall be locked-in for a period of one year from the date of Allotment.

Other lock-in requirements

Any pre-Issue unitholding in the InvIT held by any unitholders other than the Sponsor will be locked in for a period of one year in accordance with the SEBI InvIT Regulations.

BASIS FOR ISSUE PRICE

The Issue Price will be determined by the Investment Manager, in consultation with the Lead Managers, on the basis of assessment of market demand for the Units offered through the Book Building Process and on the basis of quantitative and qualitative factors as described below.

Bidders are requested to also refer to the sections '***Risk Factors***', '***Business***', and '***Special Purpose Combined Financial Statements***' on pages 16, 138 and 241, respectively, to make an informed investment decision.

The Price Band is ₹ [●] to ₹ [●].

Based on the evaluation of the qualitative and quantitative factors listed below, the enterprise value and equity value at the Floor Price and the Cap Price is as follows:

Qualitative Factors

We believe that some of the qualitative factors which form the basis for computing the Issue Price are as follows:

- Sizeable portfolio of stable revenue generating assets with no construction risk and long-term predictable cash flows;
- Geographically diversified road asset portfolio and revenue base;
- Consistent track records in operating and maintaining projects in the roads sector in India;
- Attractive industry sector with strong underlying fundamentals and favourable government policies;
- Growth opportunities and rights to expand portfolio of assets through our relationship with the Sponsor and
- Skilled and experienced management team with industry experience with a focus on corporate governance.

For further details, see '***Business***' on page 138.

Quantitative Factors

Some of the information presented below is based on the Special Purpose Combined Financial Statements. For details, see '***Special Purpose Combined Financial Statements***' on page 241.

Some of the quantitative factors which may form the basis for computing the Issue Price are as follows:

1. Valuation provided by the Valuer

The Valuer has used the discounted cash flow method to determine the value of the InvIT Assets. The assumptions on which the value of the InvIT Assets is based have been disclosed in the section "***Valuation Report***" attached as Annexure I to this Draft Offer Document. For further details, see the "***Valuation Report***" attached as Annexure I to this Draft Offer Document.

2. Enterprise Value / Cash flows from operations ratio in relation to Issue Price:

Particulars	Amount (*in ₹ million*)	EV/Cash flow from operations (*in ₹*)		
		At Floor Price	At Cap Price	At Issue Price
Cash flows from operations for the financial year ended March 31, 2022	(3,980.93)*	[●]	[●]	[●]
Projected cash flows from operations for the financial year ending March 31, 2023	4,733.03**	[●]	[●]	[●]
Projected cash flows from operations for the financial year ending March 31, 2024	9,583.25**	[●]	[●]	[●]
Projected cash flows from	9,420.48**	[●]	[●]	[●]

Particulars	Amount (*in ₹ million*)	EV/Cash flow from operations (*in ₹*)		
		At Floor Price	At Cap Price	At Issue Price
operations for the financial year ending March 31, 2025				

[*]Cash flow from operations for the financial year ended March 31, 2022, in the above table is derived from the Special Purpose Combined Financial Statements.

*[**]Derived from the Projections of Revenue from Operations and Cash Flow from Operating Activities prepared by the Investment Manager. For details of the projections and notes thereto, see '**Projections of Revenue from Operations and Cash Flow from Operating Activities**' on page 367. Also see '**Risk Factors**' on page 16.*

3. Price / Net Asset Value per Unit ratio in relation to Issue Price:

Particulars	Amount (₹)	Price / Net Asset Value per Unit (*in ₹*)		
		At Floor Price	At Cap Price	At Issue Price
Net Asset Value per Unit as of March 31, 2022[(1)]	[●][*]	[●]	[●]	[●]
Net Asset Value per Unit as of June 30, 2022[(2)]	[●][*]	[●]	[●]	[●]

**The number of Units that InvIT will issue is not presently ascertainable. Hence, the disclosures in respect of number of Units and Net Asset Value per Unit have not been provided as on date of this Draft Offer Document.*

[(1)]Net Asset Value per unit has been calculated based on Net Assets at Fair Value as at March 31, 2022 of ₹ [●] million.

[(2)]Net Asset Value per unit has been calculated based on Net Assets at Fair Value as at June 30, 2022 of ₹ [●] million.

4. Comparison with Industry Peers

Particulars	NAV per Unit (₹)[*]	Premium / (Discount to NAV)%[**]
IRB InvIT Fund	100.49	(34.75)%

**NAV as of September 30, 2022*

[**]Calculated as Unit Price as of December 5, 2022, as quoted on NSE / NAV as of September 30, 2022

USE OF PROCEEDS

The Issue Proceeds (including the Sponsor Contribution) will be ₹20,000.00 million, of which the Net Proceeds (as defined below) will be ₹[●] million. The Net Proceeds will be utilized by the InvIT towards the following objects:

a) Providing loans to the Project SPVs for repayment/ pre-payment, in part or in full, of their respective outstanding loans (including any accrued interest and prepayment penalty); and

b) General purposes.

Net Proceeds

The details of the proceeds from the Issue, which shall include the Sponsor Contribution, are summarised in the following table:

Particulars	Amount (in ₹ million)
Issue Proceeds (including the Sponsor Contribution)	20,000.00
(Less) Issue expenses	[•]
Net Proceeds (including the Sponsor Contribution)	[•]

***** *Issue expenses are estimates and are subject to change.*

Requirements of Funds

The Net Proceeds are proposed to be utilized in accordance with the details provided in the following table:

(in ₹ million)

Particulars	Amount
Providing loans to the Project SPVs for repayment/ pre-payment, in part or in full, of their respective outstanding loans (including any accrued interest and prepayment penalty)	[•]
General purposes	[•]
Total	**[•]**

The Investment Manager believes that the pre-payment or scheduled repayment of the loans availed by the Project SPVs will (i) help reduce the outstanding indebtedness of the InvIT, on a consolidated basis; and (ii) assist the InvIT in maintaining a favourable debt-equity ratio, which will enable the InvIT to raise further resources in the future to fund potential business development opportunities and plans to grow and expand its business in the future thereby enabling the InvIT to meet its commitment towards distributions to Unitholders.

The fund requirements mentioned above, and the proposed deployment are based on the estimates of the Investment Manager and have not been appraised by any bank, financial institution or any other external agency. The fund requirements may vary due to factors beyond the Investment Manager's control, such as market conditions, competitive environment and interest/ exchange rate fluctuations. Consequently, the fund requirements are subject to revisions in the future at the discretion of the Investment Manager. Further, deployment of the Net Proceeds during Financial Year 2024 and Financial Year 2025 depends on factors such as the actual timing of the completion of the Issue and receipt of Net Proceeds. To the extent the Investment Manager is unable to successfully deploy any portion of the Net Proceeds during the remainder of Financial Year 2024 and Financial Year 2025, the Investment Manager shall deploy the Net Proceeds in subsequent Financial Years in accordance with applicable law. In the event of any shortfall of funds for the activities proposed to be financed out of the Issue Proceeds as stated above, the Investment Manager may re-allocate the Issue Proceeds to the activities where such shortfall has arisen, subject to compliance with applicable law.

Details of Utilization of the Proceeds

The details of utilization of the Issue Proceeds are set forth herein below:

a) Providing loans to the Project SPVs for repayment/ pre-payment, in part or in full, of their respective outstanding loans (including any accrued interest and prepayment penalty)

As of November 30, 2022, the Project SPVs had total outstanding external borrowing of ₹38,889.30 million. The InvIT proposes to utilize an aggregate amount of ₹[●] million from the Net Proceeds to provide InvIT On-lending Loan I (*as defined below*) which shall be utilised by the Project SPVs towards repayment/ pre-payment, in part or in full, of certain outstanding loans including any interest accrued and prepayment penalty thereon. The selection

and extent of loans proposed to be prepaid and/ or repaid from the Project SPVs' outstanding loans mentioned below, as the case may be, will be based on various commercial considerations including, amongst others, the interest rate of the relevant loan, prepayment charges, the amount of the loan outstanding and the remaining tenor of the loan.

The below table provides the details of the borrowings of the Project SPVs proposed to be repaid or prepaid:

Name of the Project SPV and the borrowings availed	Name of lender	Outstanding amount as on November 30, 2022 (*in ₹ million*)
GASHPL		
Non-convertible debentures (NCD)	Axis Trustee Services Limited (as debenture trustee)	1,485.35
Rupee term loan	HDFC Bank Limited^	1,544.02
Add: Interest accrued from NCD	Axis Trustee Services Limited (as debenture trustee)	9.58
Total (A)		**3,038.95**
GDDHPL		
Rupee term loan	Punjab National Bank	1,321.83
Rupee term loan	Union Bank of India	1,347.50
Rupee term loan	Indian Bank	1,329.80
Total (B)		**3,999.13**
GDHPL		
Non-convertible debentures (NCD)	Axis Trustee Services Limited (as debenture trustee)	2,591.77
Rupee term loan	HDFC Bank Limited^	1,456.05
Rupee term loan	Punjab National Bank	1,938.31
Rupee term loan	State Bank of India	1,456.07
Add: Interest accrued from NCD	Axis Trustee Services Limited (as debenture trustee)	-
Total C		**7,442.20**
GPEL		
Rupee term loan	HDFC Bank Limited^	1,882.75
Rupee term loan	Axis Bank Limited^	1,570.87
Total (D)		**3,453.62**
GSSHPL		
Rupee term loan	HDFC Bank Limited^	1,697.15
Rupee term loan	Kotak Mahindra Bank Limited	1,285.68
Rupee term loan	RBL Bank Limited	727.35
Total (E)		3,710.18
PDEPL		
Rupee term loan	State Bank of India	5,526.54
Total (F)		**5,526.54**
VSEPL		
Rupee term loan	HDFC Bank Limited^	2,616.39
Rupee term loan	HDFC Bank Limited^	494.20
Total (G)		**3,110.59**
Total (A+B+C+D+E+F+G)		**30,281.22**

*^We may utilize the Net Proceeds towards repayment/prepayment of loans availed from Axis Bank Limited and HDFC Bank Limited, either in full or in part. HDFC Bank Limited is a Lead Manager to the Issue and Axis Bank Limited which is an affiliate of Axis Capital Limited one of the Lead Managers to the Issue. For further details, please refer to "**Risk Factors - A portion of the Net Proceeds may be utilized for repayment or pre-payment of loans taken from Axis Bank Limited and HDFC Bank Limited, which are affiliates of the Lead Managers**" on page 25.*

For further details, see '***Financial Indebtedness and Deferred Payments***' on page 312.

The Project SPVs will repay or pre-pay, in part or in full, any of the outstanding loans, as described in the table above in any combination that it deems fit. The pre-payment or repayment of term loans, in full or in part, availed by the Project SPVs as set out above shall be based on various factors, including, (i) any conditions attached to the loans restricting our ability to pre-pay or repay the loans, in full or in part, and the time taken to fulfil any such requirements; (ii) levy of any pre-payment penalties; (iii) provisions of any laws, rules, regulations and contracts governing such borrowings; and (iv) other commercial considerations, including, the interest rate on the loan facility, the amount of the loan outstanding and the remaining tenor of the loan.

Indicative terms of the InvIT funding

The Investment Manager, acting on behalf of the InvIT, proposes to provide (i) unsecured rupee term loans of an estimated amount of ₹[●] million from the Net Proceeds to the Project SPVs ("**InvIT On-lending Loan I**"); and (ii) secured rupee term loans of an estimated amount of ₹[●] million from the InvIT Rupee Term Loan ("**InvIT On-lending Loan II**" and together with InvIT On-lending Loan I, the "**InvIT Loans**"), which shall be utilised by the Project SPVs, in accordance with the indicative terms set out below. For further details on principal terms of the InvIT Rupee Term Loans, see '***Financial Indebtedness and Deferred Payments***' on page 312.

The below mentioned terms of the agreement to be entered between the InvIT and the Project SPVs in relation to the InvIT Loans, have been approved by the board of directors of the Investment Manager on December 15, 2022 and the InvIT will enter into such agreements with each of the Project SPVs, prior to filing of the Offer Document with SEBI and Stock Exchanges ("**On-lending Agreement**").

Term	Description
Purpose	The InvIT Loans to be provided to the relevant Project SPV will be utilised for the purpose of repayment/prepayment of existing loans and facilities (including principal amounts, interest thereon and any other fees or charges payable in connection thereto) by such Project SPVs from their respective senior lenders, as may be permitted under the SEBI InvIT Regulations and any other purpose as may be agreed between relevant Project SPV and the InvIT as specified in the relevant disbursement request submitted by the relevant Project SPV.
Interest	InvIT On-lending Loan I: 14.00% per annum. InvIT On-lending Loan II: 13.75% per annum. The rate of interest may be revised by the InvIT and the relevant Project SPV on an annual basis or such other interval as may be agreed between the parties. The interest shall be payable on the last day of every month or as may be decided between the InvIT and the relevant Project SPVs.
Security	InvIT On-lending Loan I: The InvIT On-lending Loan I shall be unsecured. InvIT On-lending Loan II: The InvIT On-lending Loan II shall be secured by a fixed charge over: a) all cash flows deposited in the relevant escrow account of the respective Project SPVs established pursuant to the escrow agreement executed inter alia among the relevant Project SPVs, its lenders' representative, the escrow bank and the NHAI in terms of the concession agreement / senior financing facility documentation; and b) the relevant escrow account of such Project SPVs and all amounts standing to the credit of such account, which shall at all times be subordinated to the security interest created in favour of the existing senior lenders of the respective Project SPVs.
Tenure and Repayment	Repayable in accordance with the On-lending Agreement to be entered into with each Project SPV.
Events of default	The occurrence of the certain events, after the expiry of the cure period of 30 days (unless specified otherwise) shall result in an event of default under the On-lending Agreement, including: a) **Non-performance:** The relevant Project SPV defaults or commits a material breach in the performance of any condition, obligation or agreement (other than a default covered under any other provisions of clauses for payment default) under any financing document and the same is not cured in the opinion of the InvIT within a period of 30 days; b) **Cross-default:** An event of default (howsoever defined or described) occurs and is continuing under the senior debts of the relevant Project SPV, as defined in the debt documentation or under the financing documents executed or entered by the InvIT; c) **Security:** The security required to be created under the terms of the On-lending Agreement is not created and perfected within the timelines stipulated or the occurrence of any material event or circumstance that is

Term	Description
	prejudicial to or materially imperils or materially depreciates the security created or to be created, etc. Upon the occurrence of any of the events above, which has not been waived or cured and which is continuing, the InvIT may, upon the delivery of seven business days' notice, accelerate the relevant facility and declare all or part of amounts outstanding under such facilities (including any interest accrued thereupon) due and payable, whereupon such amounts will become due and payable immediately by the relevant Project SPV. In the event the InvIT does not accelerate the repayment of the debt, the relevant Project SPV is required to continue to perform all its obligations under the relevant debt documentation and any such amounts would continue to accrue until repayment is made by the relevant Project SPV, when it has adequate resources to do so.
Governing law	The On-lending Agreement will be governed by the laws of India.
Others	The relevant Project SPV shall mandatorily repay the facility in full or in part, without payment of any prepayment premium from the proceeds (to the extent indicated below, net of all taxes, costs and expenses incurred in claiming/recovering such amounts) from any event as mentioned below: a) any proceeds from the sale / disposal of any material project assets (other than the proceeds from sale / disposal in the normal course of business to the extent of ₹ 10 million in a financial year); b) any expiration payment received in connection with any clearance under any project agreement, to the extent of the expiration payment; c) any insurance proceeds received pursuant to claims made, to the extent not applied to repair, renovate, restore or reinstate the project assets; d) the proceeds resulting from the expropriation or other takeover event by any governmental authority of the project assets of the relevant Project SPV, to the extent of the proceeds received; e) the proceeds, resulting from an arbitral or judicial award, in connection with any project agreement; f) all proceeds of any termination payments (as defined in the concession agreement entered into between the Project SPV and NHAI)); and g) all proceeds of buy-out payments received from the NHAI under the relevant concession agreement or other project agreements.

b) General purposes

Subject to the SEBI InvIT Regulations, the Investment Manager (on behalf of the InvIT) proposes to deploy the balance Net Proceeds, aggregating to ₹[●] million, towards general purposes, which shall not exceed 10% of the Issue Proceeds. The general purposes for which the Investment Manager (on behalf of the InvIT) proposes to utilize the Net Proceeds include meeting expenses incurred in the ordinary course of business, meeting any exigencies that the InvIT may face, or any other purposes as may be approved by the Investment Manager from time to time, subject to compliance with necessary provisions of the SEBI InvIT Regulations. Further, the Investment Manager (on behalf of the InvIT), will have flexibility in utilizing surplus amounts, if any in the next Financial Year.

c) Issue expenses

The total expenses of the Issue are estimated to be approximately ₹[●] million. The Issue expenses consist of fee and commissions payable to the Lead Managers, fee payable to legal counsel, fee payable to Escrow Collection Banks and Registrar to the Issue, printing and stationery expenses, and all other incidental and miscellaneous expenses for listing the Units on the Stock Exchanges. All Issue expenses shall be borne by the InvIT in accordance with applicable law and the expenses incurred by the Sponsor, GRIL (an Associate of the Sponsor, in connection with the establishment and registration of the InvIT) or the Investment Manager (on behalf of the InvIT) shall be reimbursed by the InvIT. The break-up for the Issue expenses is as follows:

(In ₹ million)

Activity	Estimated expenses*	As a % of the total estimated Issue expenses*	As a % of the total Issue Size*
Fee and commission to advisors to this Issue	[●]	[●]	[●]

Activity	Estimated expenses*	As a % of the total estimated Issue expenses*	As a % of the total Issue Size*
Fee payable to others	[●]	[●]	[●]
Total estimated Issue expenses	[●]	[●]	[●]

* *To be determined upon finalisation of the Issue Price and updated in the Final Offer Document prior to filing with SEBI and the Stock Exchanges.*

In the event the actual Issue expenses differ from the estimated Issue expenses, the Investment Manager will have the flexibility to utilize such a difference, subject to applicable law.

Selling Commissions

Selling commission on the Non-Institutional Investor Portion which are procured by Members of the Syndicate (including their Sub-syndicate Members), SCSBs, RTAs and CDPs would be as set forth:

Non-Institutional Investor Portion	[●]% of the amount Allotted* (plus applicable tax) on applications below ₹ [●] million [●]% of the amount Allotted* (plus applicable tax) on applications of ₹ [●] million and above

** Amount Allotted is the product of the number of Units Allotted and the Issue Price.*

No processing fees shall be payable to the SCSBs on the applications directly procured by them. Any additional amounts to be paid by the InvIT shall be, as mutually agreed upon the Lead Managers, their affiliate Syndicate Members and the Investment Manager (on behalf of the InvIT) prior to the Bid/ Issue Opening Date.

ASBA Processing Fees to SCSBs

Processing fees payable to the SCSBs on the Non-Institutional Investor Portion which are procured by the Members of the Syndicate/ Sub-syndicate/ Registered Brokers/ RTAs/ CDPs and submitted to SCSBs for blocking would be as set forth:

Non-Institutional Investor Portion	₹ [●] per valid application* (plus applicable tax)

**Based on valid Applications*

SCSBs will be entitled to a processing fee of ₹ [●] (plus applicable taxes), per valid ASBA Form, for processing ASBA Forms procured by Members of the Syndicate, Sub-Syndicate Members, Registered Brokers, RTAs or CDPs from Non-Institutional Bidders submitted to the SCSBs.

Registered Brokers

Selling commission payable to the Registered Brokers on the Non-Institutional Investor Portion, which are directly procured by the Registered Brokers and submitted to SCSBs for processing, would be as set forth:

Non-Institutional Investor Portion	₹ [●] per valid application* (plus applicable tax)

**Amount of selling commission payable to Registered Brokers shall be determined on the basis of applications which have been considered eligible for the purpose of Allotment.*

Retention of oversubscription in the Issue, if any

The Investment Manager, in consultation with the Lead Managers, reserves the right to retain oversubscription of up to 25% of the Issue size in accordance with the SEBI InvIT Regulations. In the event that the Investment Manager, in consultation with the BRLMs, exercises the aforesaid right, the proceeds from the Allotment pursuant to such oversubscription shall be utilized in a manner that is proportional to the proposed utilisation of the Net Proceeds and towards the same objects. However, in compliance with the SEBI InvIT Regulations, proceeds from the Allotment pursuant to such oversubscription shall not be utilized towards general purposes.

STATEMENT OF TAX BENEFITS

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STATEMENT OF POSSIBLE TAX BENEFITS AVAILABLE TO BHARAT HIGHWAYS InvIT AND ITS UNITHOLDERS UNDER THE APPLICABLE LAWS IN INDIA

To
The Board of Directors
GR Highways Investment Manager Private Limited
(As the Investment Manager of Bharat Highways InvIT)
Novus Tower, Second Floor,
Plot No. 18, Sector 18,
Gurugram – 122 015, Haryana.

Dear Sirs,

Sub: Statement of possible tax benefits available to Bharat Highways InvIT and its unitholders under the Indian direct tax laws

We hereby confirm that the enclosed Annexure, prepared by GR Highways Investment Manager Private Limited (the "**Investment Manager**") states the possible tax benefits available to Bharat Highways InvIT (the "**Trust**") and its unitholders under the Income-tax Act, 1961 ('**the Act**') as amended by the Finance Act, 2022 read with the Income tax Rules, 1962, i.e. applicable for the Financial Year 2022-23 relevant to the assessment year 2023-24 (referred to as '**the Direct Tax Law**'). Several of these benefits are dependent on the Trust or its unitholders fulfilling the conditions prescribed under the relevant provisions of the Direct Tax Law. Hence, the ability of the Trust and/or its unitholders to derive the tax benefits is dependent upon their fulfilling such conditions, which based on the business imperatives the Trust faces in the future, the Trust or its unitholders may or may not choose to fulfil.

The benefits discussed in the enclosed Annexure are not exhaustive and the preparation of the contents stated in the Annexure is the responsibility of the Investment Manager. We are informed that this statement is only intended to provide general information to the investors and is neither designed nor intended to be a substitute for professional tax advice. In view of the individual nature of the tax consequences and the changing Direct Tax Laws, each investor is advised to consult his or her own tax consultant with respect to the specific tax implications arising out of their participation in the proposed issue of unit through Initial Public issue by the Trust in accordance with the provisions of SEBI (Infrastructure Investment Trusts) Regulations, 2014, as amended and the guidelines and circulars issued thereunder (the "**Offering**"). We are neither suggesting nor advising the investors to invest in the Offering relying on this statement.

We do not express any opinion or provide any assurance as to whether:

- The Trust or its unitholders will obtain/continue to obtain these tax benefits in future;
- the conditions prescribed for availing the tax benefits have been/would be met with; and
- the revenue authorities/courts will concur with the views expressed herein.

We assume no obligation to update the Annexure on any events subsequent to this date, which may have a material effect on the discussions herein.

The contents of the enclosed Annexure are based on information, explanations and representations obtained from the Trust and the Investment Manager and on the basis of our understanding of the business activities and operations of the Trust.

This statement is prepared solely for the purpose of inclusion in the Draft Offer Document, Offer Document and Final Offer Document in connection with the Offering, and is not to be used, referred to or distributed for any other purpose.

For **S R B C & CO LLP**
Chartered Accountants
ICAI Firm Registration Number: 324982E/E300003

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per Sukrut Mehta
Partner
Membership Number: 101974
UDIN: 22101974BFNGTX2236
Place of Signature: Ahmedabad
Date: December 15, 2022

ANNEXURE TO POSSIBLE TAX BENEFITS AVAILABLE TO BHARAT HIGHWAYS INVIT AND ITS UNITHOLDERS UNDER THE APPLICABLE LAWS IN INDIA

The information provided below sets out the possible tax benefits available to the unitholders in a summary manner only and is not a complete analysis or listing of all potential tax consequences of purchase, ownership and disposal of equity shares or units, under the Tax Laws presently in force in India. It is not exhaustive or comprehensive analysis and is not intended to be a substitute for professional tax advice.

Unitholders should Consult their own tax advisors concerning the India tax implications and consequences of purchasing, owning and disposing of units, including Tax implication on any distribution by/receipts from Bharat Highways InvIT, in their particulars situation.

1. Tax benefits available to Bharat Highways InvIT under the Income-tax Act, 1961 ('the Act')

The following benefits are available to Bharat Highways InvIT (hereinafter referred to as 'the Trust' or 'InvIT') after fulfilling conditions as per the applicable provisions of the Act and the guidelines prescribed by the Securities and Exchange Board of India ('SEBI') i.e., Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014, as amended from time to time ('SEBI Regulations').

1.1 Tax benefits in the hands of the Trust in respect of interest income and dividend income received/ receivable from the underlying Special Purpose Vehicle(s) ('SPVs'):

Interest and dividend received or receivable by the Trust from the SPV Group (being domestic Indian companies) shall be exempt from tax in case of receipt from special purpose vehicle as defined under section 10(23FC) of the Act. In this regard, the expression "special purpose vehicle" as per explanation to section 10(23FC) means an Indian company in which the business trust holds controlling interest and any specific percentage of shareholding or interest, as may be required by the regulations under which such trust is granted registration.

Further, in view of the provisions of section 14A of the Act, any expenditure incurred in relation to earning the above exempt income shall not be tax deductible. In view of the same, the Trust has to identify the expenses which are attributable to interest and dividend income, which is claimed as exempt under section 10(23FC) of the Act. In case, the Tax Authorities are not satisfied by the disallowance considered by the Trust, the quantum of disallowance shall be computed in accordance with the provisions of section 14A read with Rule 8D of the Income-tax Rules, 1962 ('the Rules').

As per section 57 of the Act, no deduction shall be allowable against the dividend income (which is taxable in the hands of the Trust) other than deduction on account of interest expense incurred wholly and exclusively for the purpose of earning such dividend and such interest expense shall not exceed 20% of the dividend income included in the total income for that year, without deduction under section 57 of the Act.

In addition, section 194A(3)(xi) does not require a SPV to deduct tax at source ('TDS') in respect of interest paid or payable to the Trust, provided such interest is in relation to interest other than 'interest on securities'.

Clause (ix) of proviso to section 193 provides that no TDS is required to be deducted in respect of any interest payable on any security issued by a company, where such security is in dematerialised form and is listed on a recognised stock exchange in India in accordance with the Securities Contracts (Regulation) Act, 1956 (42 of 1956) and the rules made thereunder. Further, as per the provisions of section 193 of the Act, every Indian company shall withhold taxes at rates in force prescribed under the relevant Finance Act i.e., 10 percent for FY 2022-23, while making payment of any interest on unlisted securities. Accordingly, SPVs will be required to withhold taxes where interest is paid or payable on unlisted securities. The procedural provisions regarding exemption from TDS in relation to such interest on securities paid or payable by SPV to business trust are absent. Accordingly, where SPVs withhold taxes on interest on securities paid or payable to the Trust, the Trust shall be eligible to claim a refund for the same.

In addition, second proviso to section 194 provides that no TDS is required to be deducted by a SPV in respect of dividend paid to the Trust.

1.2 Section 10(34A) of the Act - Income from buy back of shares:

The provisions of section 115QA mandate domestic companies (SPVs) to pay an additional tax at the rate of 20% (plus applicable surcharge and cess) on buy-back of shares. Further, income arising from buy-back of unlisted shares shall not be taxable as per section 10(34A) of the Act in the hands of the shareholders. Accordingly, in case income arises in hands of the Trust from buy-back of unlisted shares undertaken by the SPV Group then such income shall be exempt in the hands of the Trust.

Also, in view of the provisions of section 14A of the Act, any expenditure incurred in relation to earning the above exempt income shall not be tax deductible in the hands of the trust. In case the Tax Authorities are not satisfied by the disallowance considered by the Trust, the quantum of disallowance shall be computed in accordance with the provisions of section 14A read with Rule 8D of the Rules.

1.3 Section 115UA(2) read with section 111A and section 112 of the Act:

Subject to the provisions of section 111A and section 112 of the Act, the total chargeable income of a business trust shall be taxable at maximum marginal rate ('MMR') as per Section 115UA(2) of the Act. MMR is defined under section 2(29) of the Act to mean the rate of income-tax (including surcharge on income-tax, if any) applicable in relation to the highest slab of income as per the relevant Finance Act.

Further, section 112A is not explicitly mentioned in section 115UA(2) and hence an ambiguity exists on the tax rate to be applicable on the gains referred to in section 112A of the Act earned by the Trust. Since specific carve out has not been provided under the provisions of section 115UA of the Act for section 112A of the Act, long term capital gains on account of sale of listed securities which is taxable @ 10% under section 112A (subject to certain conditions) of the Act may be taxable at MMR in the hands of business trust.

In accordance with Section 2(29AA) of the Act, the following assets on meeting the respective period of holding shall be classified as long-term capital asset otherwise the same shall be classified as short-term capital asset:

Sr. No.	Type of asset	Period of Holding
1.	Security (other than a unit) listed on a recognized stock exchange in India or unit of the Unit Trust of India or unit of an equity-oriented fund or zero-coupon bond	> 12 months
2.	Shares of a company not being listed on a recognized stock exchange or an immovable property being land or building or both	> 24 months
3.	Other assets including a unit of a mutual fund other than equity oriented mutual fund or unit of a business trust	> 36 months

As per section 50CA of the Act, where the consideration on transfer of unquoted shares of a company, is less than the fair market value of such share determined in such manner as may be prescribed, the value so determined shall for the purpose of section 48 of the Act, be deemed to the full value of consideration.

As per the provisions of section 111A of the Act, any income arising from transfer of short-term capital asset being an equity share in a company or a unit of an equity-oriented fund or a unit of a eligible business trust, transacted through a recognized stock exchange and subject to Securities Transaction Tax ('STT'), will be taxable at a concessional rate of 15% (plus applicable surcharge and cess if any).

However, as per second proviso to section 111A, the condition that the transaction is chargeable to STT is not required if the transaction is undertaken on a recognized stock exchange located in any International Financial Services Centre (IFSC) and where the consideration for such transaction is paid or payable in foreign currency.

As per the provisions of section 112(1)(d) of the Act, gains arising on the transfer of long-term capital assets shall be chargeable to tax in the hands of the Trust at the rate of 20% (plus applicable surcharge and cess). As per proviso to section 112 where tax payable in respect of any income arising from the transfer of a long-term capital asset, being listed securities (other than a unit) or zero coupon bond, exceeds ten per cent of the amount of capital gains before giving effect to the provisions of the second proviso to section 48, then, such excess shall be ignored for the purpose of computing the tax payable by the taxpayer.

As per section 70 read with section 74 of the Act, short term capital loss arising during a year is allowed to be set-off against short term capital gains as well as long term capital gains. Balance loss, if any, shall be carried forward and set-off against any capital gains arising during subsequent eight assessment years.

Also, as per section 70 and 74 of the Act, long term capital loss arising during a year is allowed to be set-off only against long term capital gains. Balance loss, if any, shall be carried forward and set-off against long term capital gains arising during subsequent eight assessment years.

Further, as per Section 71 of the Act, short term/ long term capital loss for the year cannot be set-off against income under any other head other than capital gains for the same year.

2. Tax benefits available to unit holders of Bharat Highway InvIT under the Act

Following tax benefit is specifically available to the unitholders of the Trust subject to the fulfillment of the conditions specified in the Act and SEBI Regulations:

2.1 ***Section 10(23FD) of the Act - Tax exemption in respect of income distributed by the Trust:***

As per the provisions of section 115UA(1) of the Act, the income distributed by the Trust shall be deemed to be of the same nature and in the same proportion in the hands of the unit holder as if such income was received by or accrued to InvIT. Therefore, income taxable in the hands of unit holders shall be taxed in the same manner and nature as it would have been taxed in the hands of InvIT.

As per the provisions of section 10(23FD), any income referred to in section 115UA(1) of the Act and distributed by the business trust shall not be included in the total income of the unit- holders except for the following income:

- Interest referred to in section 10(23FC); and
- Specified dividend i.e., dividend income received in cases where SPV has exercised the option under Section 115BAA of the Act.

Subject to fulfilment / compliance with certain conditions, SPV have an option to choose a concessional tax rate of 22 percent (plus applicable surcharge cess) under section 115BAA of the Act. In case, SPV has exercised the option under section 115BAA of the Act, any dividend distributed by the Trust out of the dividend paid by such SPV shall be taxable in the hands of unitholder at applicable tax rate for resident unitholders and at the rate of 20% (plus applicable surcharge and cess) for non-resident unitholders as per section 115A of the Act. In other cases, the dividend distributed by Trust out of the dividend paid by SPV which has not exercised the option under section 115BAA of the Act, shall be exempt in the hands of unitholders under section 10(23FD) of the Act.

Further, as per clause (iiac) of section 115A (1) of the Act read with section 194LBA of the Act, income in the nature of interest referred in section 10(23FC) shall be taxable in the hands of non-resident unitholders at the rate of 5% (subject to section 206AA of the Act). The interest income would be taxable for resident unitholders at applicable tax rates.

In view of the provisions of section 14A of the Act, any expenditure incurred in relation to earning the above exempt income shall not be tax deductible. In case the Tax Authorities are not satisfied by the disallowance considered by the Trust, the quantum of disallowance shall be computed in accordance with the provisions of section 14A read with Rule 8D of the Rules.

As per section 57 of the Act, no deduction shall be allowable against the dividend income (which is taxable in the hands of the Trust) other than deduction on account of interest expense incurred wholly and exclusively for the purpose of earning such dividend and such interest expense shall not exceed 20% of the dividend income included in the total income for that year, without deduction under section 57 of the Act.

2.2 ***General benefit available to all unit holders of the Trust:***

2.2.1 ***For resident and non-resident (other than FPI/FII) Unit-holder:***

Long-term capital gains:

Income arising from transfer of units of the Trust, which is not undertaken on a recognized stock exchange and not subject to STT, shall be chargeable to tax at the rate of 20%, with indexation benefit (plus applicable surcharge and cess) under section 112 of the Act if the said units are long term capital assets. As per section 112A, where the long-term capital asset is in the nature of unit of a business trust where STT been paid on transfer and quantum of gains exceeds INR 0.1 Million, the same may be taxable under section 112A of the Act at the rate of 10% (plus applicable surcharge and cess).

The determinative period of holding for such units to qualify as long term capital asset is more than 36 months. Thus, where period of holding of such units is up to 36 months, the same shall qualify as short term capital asset.

In case of a Unit-holder being a resident individual or HUF, where the total taxable income as reduced by long-term capital gains taxable is below the basic exemption limit, such long-term capital gains will be reduced to the extent of the shortfall and only the balance long-term capital gains will be subjected to such tax in accordance with the proviso to sub-section (1) of section 112 and proviso to sub-section (2) of section 112A of the Act.

Short-term capital gains:

Short-term capital gains arising on transfer of units of the Trust, which is not undertaken on a recognized stock exchange and which is not subject to STT, shall be chargeable to tax at applicable tax rates prescribed under the relevant Finance Act. Short-term capital gains arising on transfer of the units of the Trust will be chargeable to tax at the rate of 15% (plus applicable surcharge and cess) as per the provisions of section 111A of the Act provided such transaction is subject to securities transaction tax.

In case of a resident unit holder being an individual or HUF, where the total taxable income as reduced by short-term capital gains is below the basic exemption limit, the short-term capital gains will be reduced to the extent of the shortfall and only the balance short-term capital gains will be subjected to such tax in accordance with the proviso to sub-section (1) of section 111A of the Act.

Set-off of capital losses:

Short Term Capital Loss computed for the given year is allowed to be set-off against Short Term/ Long Term Capital Gains computed for the said year under section 70 of the Act. Balance loss, if any, as per section 74 of the Act, shall be carried forward and set-off against any capital gains arising during subsequent eight assessment years. Also, as per section 70 and 74 of the Act, long term capital loss arising during a year is allowed to be set-off only against long term capital gains. Balance loss, if any, shall be carried forward and set-off against long term capital gains arising during subsequent eight assessment years.

Further, as per Section 71 of the Act, short term/ long term capital loss for the year cannot be set-off against income under any other head other than capital gains for the same year.

Applicability of Minimum Alternate Tax (MAT) / Alternate Minimum Tax (AMT):

Where Unitholder is a 'domestic company':

In case the domestic company has opted for concessional tax regime under section 115BAA or 115BAB, then MAT provisions are not applicable to such domestic company. In case of domestic companies that are liable to pay MAT under provisions of Section 115JB of the Act, the gains arising, if any, on sale of units of InvIT are to be included as part of book profits for the purpose of computing MAT liability. MAT paid by such companies should be available as credit for set-off against future tax liability.

Where Unitholder is a person 'other than company':

In case of unitholders, other than companies, that are liable to AMT under provisions of Section 115JC of the Act, the gains arising, if any, on sale of units of InvIT are to be included as part of adjusted total income for the purpose of computing AMT liability. AMT paid by such unitholders should be available as credit for set-off against future tax liability, provided they do not opt to be governed by the concessional tax rates under section 115BAC or 115BAD of the Act.

Further, as per explanation 4 to section 115JB(2), the provisions of section 115JB shall not be applicable to a foreign company if the foreign company is a resident of a country having DTAA with India and such foreign company does not have a permanent establishment within the definition of the term in the relevant DTAA, or the foreign company is a resident of a country which does not have a DTAA with India and such foreign company is not required to seek registration under section 592 of the Companies Act 1956 or section 380 of the Companies Act 2013.

2.2.2 ***For unit-holders who are Foreign Portfolio Investors ('FPIs')/ Foreign Institutional Investors ('FIIs'):***

In case of Foreign Institutional Investor or Foreign Portfolio Investor registered under SEBI (Foreign Portfolio Investors) Regulations 2014 ('FII/FPI'), as per section 2(14) of the Act, shares/ securities (other than those held as stock in trade) which were invested in accordance with the regulations made under the Securities and Exchange Board of India Act, 1992 shall be deemed to be capital assets. Accordingly, any income from such transfer shall be deemed to be in the nature of capital gain**.**

Long-term capital gains:

Income arising on transfer of units of the Trust, which is not undertaken on a recognized stock exchange and not subject to STT, shall be chargeable to tax at 10%, without indexation benefit (plus applicable surcharge and cess) in accordance with section 115AD of the Act, if the said units qualify as long term capital assets. Further, as per section 115AD, in case of income arising from the transfer of a long-term capital asset referred to in section 112A, income-tax at the rate of ten per cent (plus applicable surcharge and cess) shall be calculated on such income exceeding INR 0.1m. The determinative period of holding for such units to qualify as long term capital asset is more than 36 months. Thus, for a period of holding of units up to 36 months, such units shall qualify as short term capital asset.

Short-term capital gain:

As per section 115AD, short-term capital gains arising on transfer of the units of the Trust will be chargeable to tax at the rate of 15% (plus applicable surcharge and cess) as per the provisions of section 111A of the Act. Short-term capital gains arising from transfer of units of the Trust, which is not undertaken on a recognized stock exchange and which is not subject to STT, shall be chargeable to tax @30% (plus applicable surcharge and cess) in accordance with section 115AD of the Act.

Set-off of capital losses:

Short Term Capital Loss computed for the given year is allowed to be set-off against Short Term/ Long Term Capital Gains computed for the said year under section 70 and 74 of the Act. Balance loss, if any, shall be carried forward and set-off against any capital gains arising during subsequent eight assessment years. Also, as per section 70 and 74 of the Act, long term capital loss arising during a year is allowed to be set-off only

against long term capital gains. Balance loss, if any, shall be carried forward and set-off against long term capital gains arising during subsequent eight assessment years.

Further, as per Section 71 of the Act, short term/ long term capital loss for the year cannot be set-off against income under any other head other than capital gains for the same year.

Applicability of Minimum Alternate Tax:

As per the Explanation 4 to section 115JB, provisions of Minimum Alternate Tax shall not be applicable to any foreign company if:

(i) Such foreign company is a resident of country with which India has a DTAA and such foreign company does not have a permanent establishment in India; or

(ii) Such foreign company is a resident of country with which India does not have a DTAA and such foreign company is not required to seek registration under any law for the time being in force relating to companies.

Accordingly, provisions of MAT shall not apply to FPIs/ FIIs in case the above conditions hold true.

2.2.3 ***For unitholders who are Mutual Funds:***

Under section 10(23D) of the IT Act, any income earned by a Mutual Fund registered under the Securities and Exchange Board of India Act, 1992, or a Mutual Fund set up by a public sector bank or a public financial institution, or a Mutual Fund authorized by the Reserve Bank of India would be exempt from Income-tax, subject to such conditions as the Central Government may by notification in the Official Gazette specify in this behalf.

As per section 196 of the IT Act, the business trust is not required to withhold tax on interest or dividend payment or any other payment to Mutual Fund set up under section 10(23D) of the IT Act.

2.2.4 ***Benefits under Double Taxation Avoidance Agreement (DTAA):***

Under the provisions of section 90(2) of the Act, a non-resident will be governed by the provisions of the DTAA between India and the country of tax residence of the non-resident and the provisions of the Act apply to the extent they are more beneficial to the assessee.

Further, no assurance can be provided that the treaty benefits should be available to the offshore unit holder or the terms of the tax treaty will not be subject to amendment or reinterpretation in the future. Also, the non-resident investor will have to furnish a certificate of his being a tax resident in a country outside India and such other document as prescribed under the provision of section 90(4) to obtain the benefit of the applicable DTAA. Further, non-resident may also be required to furnish a suitable declaration stating that such non-resident does not have a fixed base/ permanent establishment in India.

As per the provisions of section 90(2) of the Act, the provisions of the Act would prevail over the provisions of the DTAA to the extent they are more beneficial to the non-resident.

3. Tax Deduction at Source (TDS)[1]

3.1 ***Section 194LBA - Certain Income from Units of InvIT:***

As per section 194LBA of the Act, where the Trust distributes any income to its unit-holders, it is liable to deduct taxes at the time of credit of such payment to the account of the payee or at the time of payment thereof in cash or by the issue of a cheque or draft or by any other mode, whichever is earlier on the component of the distribution in the following manner:

[1] *TDS rates mentioned in the given document may be subject to any concessions introduced/ allowed by the Government under any policy, press release, etc. Also, the same may also be subject to lower/ Nil withholding tax certificates which may be furnished by the unitholders*

Nature of income	Rate of TDS	
	Resident	Non-resident
Interest Income in the nature referred to in section 10(23FC)(a)	10%	5% (plus applicable surcharge and cess)
Dividend Income (only in cases where SPV opts for section 115BAA)	10%	10% (plus applicable surcharge and cess)

As per section 194LBA(2A), if the SPV has not exercised the option of Section 115BAA of the Act, then no TDS is required to be deducted on the distribution of dividend by the Trust.

3.2 ***Other provision for tax deduction:***

No income tax is deductible at source from income by way of capital gains arising to a resident unitholder under the present provisions of the Act.

As per the provisions of Section 195 read with section 90 of the Act, any income on transfer of units of the Trust by non-residents may be subject to withholding of tax at the rate under the domestic tax laws or under the DTAA, whichever is more beneficial to the assessee (other than FPIs/ FIIs who are subject to provisions of section 196D(2) of the Act).

Further, section 196D of the Act provide that in case of a payee, being FPIs/ FIIs of country with which India has entered into DTAA, tax shall be deducted on income other than capital gains and interest income covered under section 194LD of the Act at the rate of 20% or the DTAA rates, whichever is lower, subject to the FPI/ FII furnishing a Tax Residency Certificate (referred to in Section 90(4) of the Act) to the payer.

Further, as per sub-section (2) of section 196D of the Act, no tax is to be deducted from any income, in the nature of capital gains arising to a FPI or FII from the transfer of units.

Further, any distribution made by the Trust to Category I and Category II Alternative Investment Funds regulated under the Securities and Exchange Board of India (Alternative Investment Fund) Regulations, 2012, made under the Securities and Exchange Board of India Act, 1992 or under the International Financial Services Centres Authority Act, 2019 (for payments of the nature specified in section 10(23FBA) of the Act as per Notification No 51 / 2015 issued by Central Board of Direct Taxes) unitholders should not be subject to any withholding tax.

4. Other applicable provisions

4.1 Section 94(7) of the Act (dividend stripping):

Vide Finance Act, 2022, the applicability of section 94(7) of the Act (dividend stripping) has been extended to the units of Trust as well (that with effect from Financial Year 2022-23) which provides that where:

(i) any person buys or acquires any securities or unit within a period of three months prior to the record date (Record date means a date fixed to entitle the holder of such securities or units to receive dividend, income, or additional securities or unit without consideration, as the case may be); and
(ii) such person sells or transfers such securities within three months after such record date or such units within a period of nine months after such record date;and
(iii) the dividend or income on such securities or unit received or receivable by such person is exempt.

then, the loss, if any, arising from the sale and purchase of securities and units to the extent of dividend or income received or receivable on such securities or unit, shall be ignored for computing income chargeable to tax.

4.2 Section 94(8) of the IT Act (bonus stripping):

Vide Finance Act, 2022, the applicability of section 94(8) of the Act (bonus stripping) has been extended to the units of Trust as well (that with effect from Financial Year 2022-23) which provides that where:

(i) any person buys or acquires any securities or units within a period of three months prior to the record date (Record date means a date fixed to entitles the holder of such securities or units to receive dividend, income, or additional securities or unit without consideration, as the case may be); and

(ii) such person is allotted additional securities or units without any payment on the basis of holding of such securities or units on such record date; and

(iii) such person sells or transfers all or any of the securities or units within a period of nine months after the record date, while continuing to hold all or any of the additional securities or units referred in clause (ii) above,

then, the loss, if any, arising from the sale and purchase of all or any of the securities or units shall be ignored for computing income chargeable to tax and notwithstanding anything contained in any other provision of the Act, the amount of loss so ignored shall be deemed to be the cost of purchase or acquisition of such additional securities or units referred to in clause (ii) above as are held on the date of such sale or transfer.

4.3 Transaction not regarded as transfer under section 47(xvii) of the Act:

According to section 47(xvii) of the Act, any transfer of a capital asset, being share of a special purpose vehicle to a business trust in exchange of units allotted by that trust to the transferor shall not be regarded as transfer and accordingly not be liable to capital gains tax.

According to section 49(2AC) of the Act, the cost of units acquired in lieu of shares in SPV shall be deemed to be cost of acquisition of shares in SPV.

Further, as per clause (hc) of Explanation 1 of section 2(42A), for ascertaining the period of holding of such units, the period of holding of shares in SPV shall also be included.

Any notional gain or loss arising on transfer of shares of SPV to business trust in exchange of units allotted by the trust as referred under section 47(xvii) are to be excluded while calculating book profits for the purpose of MAT under section 115JB. Similarly, any notional gain or loss arising upon change in carrying amount of the units held by Unitholder are to be excluded in calculating book profits for the levy of MAT under section 115JB (clause (iie)/(fc) to explanation 1 to section 115JB).

Further, actual gain or loss on disposal of units held by the Unitholder as referred to in section 47 (xvii) are considered for the purpose of normal provisions of the Act and MAT under section 115JB by taking into account the cost of the shares exchanged with units referred to in the said clause or the carrying amount of the shares at the time of exchange where such shares are carried at a value other than the cost through statement of profit and loss, as the case may be (clause (iif)/(k) to explanation 1 to section 115JB).

However, if the Unitholder opts for concessional tax regime under section 115BAA / 115BAB then provisions of MAT under section 115JB shall not be applicable for the Unitholder and it shall forego its entire MAT credit available, if any, at the time of exercising concessional tax-regime.

5. General tax rates and provisions

5.1 The characterization of gains/ losses, arising from sale / transfer of units, as capital gains or business income would depend on the nature of holding in the hands of the unit holder and various other factors.

5.2 Where the gains arising on the transfer of the units of the Trust are included in the business income of an assessee assessable under the head "Profits and Gains from Business or Profession" and on which securities transaction tax has been charged, such securities transaction tax shall be a deductible expense from business income as per the provisions of section 36(1)(xv) of the Act.

5.3 The income-tax rates specified in this note are as applicable for the financial year 2022-23 (relevant to assessment year 2023-24), and are exclusive of surcharge and cess, if any. Rate of surcharge and cess are provided below:

Surcharge:

Domestic companies (other than companies who have opted for concessional tax regime under section 115BAA and 115BAB of the Act):

(i) If the total income does not exceed INR 10 million – Nil
(ii) If the total income exceeds INR 10 million but does not exceed INR 100 million - 7 %
(iii) If the total income exceeds INR 100 million - 12 %

Domestic companies (for companies who have opted for concessional tax regime under section 115BAA and 115BAB of the Act):

(i) At the rate of 10% on total income.

Foreign companies:
(i) If the total income does not exceed INR 10 million - Nil
(ii) If the total income exceeds INR 10 million but does not exceed INR 100 million – 2%
(iii) If the total income exceeds INR 100 million – 5%

For firms:

(i) If the total income does not exceed INR 10 million – Nil
(ii) If the total income exceeds INR 10 million - 12 %

For individuals, HUF, AOP and BOI:
(i) If the total income does not exceed INR 5 million - Nil
(ii) If the total income exceeds INR 5 million but does not exceed INR 10 million – 10%
(iii)If the total income exceeds INR 10 million but does not exceed INR 20 million – 15%
(iv)If the total income (excluding dividend income or income under the provision of section 111A, section 112 and section 112A of the Act) exceeds INR 20 million but does not exceed INR 50 million – 25%
(v) If the total income (excluding dividend income or income under the provision of section 111A, section 112 and section 112A of the Act) exceeds INR 50 million – 37%
(vi)If total income is above 20 million (including dividend income or income under the provision of section 111A, section 112 and section 112A of the Act) but is not covered under (iv) and (v) above – 15%

However, the applicable surcharge does not exceed 15% in case of dividend income or income under the provision of section 111A and section 112A of the Act included in such total income.

Further, vide Finance Act, 2022, the surcharge on long term capital gains under section 112 of the Act arising from transfer of long-term capital assets (including units of Trust) shall also be capped at 15%. Also, in case of an association of persons consisting of only companies as its members, the rate of surcharge on the amount of Income-tax shall not exceed 15%.

The above surcharge is subject to marginal tax benefit as per the Act.

Cess:

In all cases, Cess will be levied at the rate of 4 per cent of income-tax and surcharge.

5.4 The stated benefits will be available only to the sole/ first named holder in case the units are held by joint holders.

5.5 In respect of non-residents, the tax rates and the consequent taxation mentioned above shall be further subject to any benefits available under the applicable DTAA, if any, between India and the country in which the non-resident has fiscal domicile. Further, it is pertinent to meet the terms and condition viz. Principal purpose test, beneficial ownership test etc. as enacted in DTAAs entered into by India with various countries based on Multilateral Convention to implement tax treaty related measures to prevent Base Erosion and Profit Shifting ('MLI').

5.6 The tax implications/ benefits stated in this document are subject to General Anti Avoidance Rules ('GAAR') provisions under the Act. GAAR may be invoked by the Indian income-tax authorities in case arrangements are found to be impermissible avoidance arrangements. Further, in case GAAR provisions are invoked, the onus to prove that the main purpose of an arrangement was not to obtain any tax benefit is on the taxpayer. Also, any resident or non-resident may approach the Authority for Advance Rulings to determine whether an arrangement can be regarded as an impermissible avoidance arrangement.

5.7 This statement does not discuss any tax consequences in the country outside India of an investment in the units of trust. The unit holders / investors in the country outside India are advised to consult their own professional advisors regarding possible Income tax consequences that apply to them.

5.8 This statement is not exhaustive and is intended only to provide general information to the Trust and its investors / unitholders and is neither designed nor intended to be substituted for professional tax advice. In view of the individual nature of tax consequences, each investor is advised to consult his/her own tax advisor with respect to specific tax consequences of his/her participation in the scheme.

5.9 No assurance is given that the revenue authorities/courts will concur with the views expressed herein. Our views are based on the existing provisions of law and its interpretation, which are subject to changes from time to time. We do not assume responsibility to update the views consequent to such changes. We shall not be liable to any claims, liabilities or expenses relating to this assignment, except to the extent of fees relating to this assignment, as finally judicially determined to have resulted primarily from bad faith or intentional misconduct. We will not be liable to any other person in respect of this statement.

5.10 This statement of possible direct tax benefits enumerated above is as per the Act as amended by the Finance Act, 2022 applicable for financial year ending 31 March 2023 relevant to the assessment year 2023-24. The above statement of possible Direct-tax Benefits sets out the possible tax benefits available to the Trust and its unitholders under the current tax laws presently in force in India. Several of these benefits available are dependent on the Trust or its unitholders fulfilling the conditions prescribed under the relevant tax laws.

5.11 These special tax benefits are dependent on the Trust or its unitholders fulfilling the conditions prescribed under the relevant provisions of Act Hence, the ability of the Trust or its unitholders to derive the tax benefits is dependent upon fulfilling such conditions, which based on the business imperatives, the Trust or its unitholders may or may not choose to fulfil.

5.12 The statement is prepared on the basis of information available with the Trust and there is no assurance that:

(i) the Trust or its unitholders will continue to obtain these benefits in future;
(ii) the conditions prescribed for availing the benefits have been/ would be met with; and
(iii) the revenue authorities/courts will concur with the view expressed herein.

The above views are based on the existing provisions of law and its interpretation, which are subject to change from time to time.

5.13 The information provided above sets out the possible tax benefits available to the unit holders in a summary manner only and is not a complete analysis or listing of all potential tax consequences of the purchase, ownership and disposal of equity shares and units, under the current tax laws presently in force in India. It is not exhaustive or comprehensive and is not intended to be a substitute for professional advice. Investors are advised to consult their own tax advisor with respect to the tax implications arising on account of any investment in equity shares or units (including tax implications on account of any distributions by/ receipts

from the Trust), particularly in view of the fact that certain recently enacted legislation may not have a direct legal precedent or may have a different interpretation impacting the benefits, which an investor can avail.

For and on behalf of Board of Directors of
GR Highways Investment Manager Private Limited
(as an Investment Manager to Bharat Highways InvIT)

Ajendra Kumar Agarwal
Director
DIN: 01147897
Place : Gurugram
Date : December 15, 2022

OVERVIEW OF THE INVIT

The following overview is qualified in its entirety by, and is subject to, the more detailed information contained in, or referred to elsewhere in this Draft Offer Document. Statements contained in this summary that are not historical facts may be forward looking statements. Such statements are based on certain assumptions and are subject to certain risks, uncertainties and assumptions that could cause actual results of the InvIT to differ materially from those forecasted or projected in this Draft Offer Document. Under no circumstances should the inclusion of such information herein be regarded as a representation, warranty or prediction of the accuracy of the underlying assumptions by the InvIT or the Parties to the InvIT or the Lead Managers or any other person that these results will be achieved or are likely to be achieved.

Structure and description of the InvIT

The InvIT has been settled by G R Infraprojects Limited (the Settlor), an Associate of the Sponsor, as an irrevocable trust under the provisions of the Trusts Act in Gurugram, Haryana, India pursuant to the Original Trust Deed. The InvIT has been registered with the SEBI as an infrastructure investment trust under the SEBI InvIT Regulations on August 3, 2022, having registration number IN/InvIT/22-23/0023. G R Infraprojects Limited (the Settlor), an Associate of the Sponsor, has irrevocably transferred to the Trust an amount of ₹10,000 towards the initial corpus of the InvIT, with an intention to settle and establish the InvIT.

For details of the principal place of business and contact person of the Sponsor, see *'**General Information**'* on page 61.

Further, GR Highways Investment Manager Private Limited has been appointed as the Investment Manager, and Lokesh Builders Private Limited has been appointed as the Project Manager. For further details, see '***General Information***' and '***Parties to the InvIT***' on pages 61 and 103, respectively.

Investment Objectives

The object and purpose of the InvIT, as described in the Amended and Restated Trust Deed, is to carry on the activity of an infrastructure investment trust as permissible under the SEBI InvIT Regulations to raise funds through the InvIT, to make investments in accordance with the SEBI InvIT Regulations and the investment objectives and investment strategy and to carry on the activities as may be required for operating the InvIT, including incidental and ancillary matters thereto. The objective and purpose of the InvIT includes the following:

(a) to raise funds in accordance with applicable law, for the purpose of attaining the object and purpose of the InvIT as set out above;

(b) to make investments or re-investments in accordance with the InvIT Documents and applicable law, including investments in government securities, money market instruments, liquid mutual funds or cash equivalents, in the manner and to the extent permitted under the SEBI InvIT Regulations;

(c) to park amounts held by the InvIT pending investment or distribution, or as a reserve of the InvIT's anticipated obligations, as permitted under the SEBI InvIT Regulations;

(d) to make distributions to the Unitholders in the manner prescribed in the Amended and Restated Trust Deed;

(e) to do all other things necessary and conducive to the attainment of the investment objectives of the InvIT, through agents or other delegates (including the Investment Manager); and

(f) to carry on generally such other activities as may be permitted under applicable laws.

For further details in relation to the business and investment strategy of the InvIT, see '***Business***' on page 138.

The InvIT is required to make distributions to the Unitholders in accordance with the SEBI InvIT Regulations and the Distribution Policy. For details in relation to the distribution policy of the InvIT, see '***Distributions***' on page 229.

Fees and expenses

The expenses in relation to the InvIT, other than such expenses incurred in relation to the operations of the Project SPVs would broadly include fee payable to: (i) the Trustee; (ii) the Investment Manager; (iii) the Project Manager; (iv) the Auditors, (v) the Valuer; and (vi) other intermediaries and consultants.

The estimated recurring expenses on an annual basis (exclusive of out of pocket expenses, taxes and escalations) including but not limited to, are as follows:

Payable by the InvIT	**Estimated Expenses** *(In ₹ million)*
Fee payable to the Trustee	0.50
Fee payable to the Valuer	2.50
Fee payable to the Auditor	3.50
Fee payable to the Investment Manager	1. up to 1.50% of the aggregate cash flow of the InvIT on an annual (pro-rata) basis; and 2. incentive based fee of up to 0.50% of the enterprise value of the assets acquired by the InvIT. Investment Manager fees will be subject to an escalation of upto 10% on a year-on-year basis. For the purpose of (a) above, cash flow of the InvIT shall include (i) interest paid by the Project SPVs on the InvIT Loan; (ii) repayment of principal amount of the InvIT Loan by the Project SPVs; (iii) dividend paid by the Project SPVs; and (iv) any capital reduction undertaken by the Project SPVs. Further, 'InvIT Loan' shall mean any secured or unsecured loans provided by the InvIT to the SPVs, including any loan provided by the InvIT by way of subscription of debt securities issued by the SPVs. For the purpose of (b) above, enterprise value of the assets acquired shall mean the enterprise value of the assets acquired as calculated by an independent valuer.
Fee payable to the Project Manager	Fee shall be 0.5% of the annual O&M expenses incurred by all Project SPVs on a yearly basis.
Fee payable to the Registrar	0.78
Fee payable to the Stock Exchange and Depositories	Stock Exchange: 3.00 Depositories (NSDL and CDSL): 0.50
Fee payable to credit rating agencies	2.60

Issue expenses

The total expenses of the Issue are estimated to be approximately ₹ [●] which will be borne by the InvIT and the expenses incurred by the Sponsor, GRIL (in connection with the establishment and registration of the InvIT) or the Investment Manager (on behalf of the InvIT) will be reimbursed by the InvIT. For details in relation to the Issue expenses, see '***Use of Proceeds***' on page 70.

Set-up costs

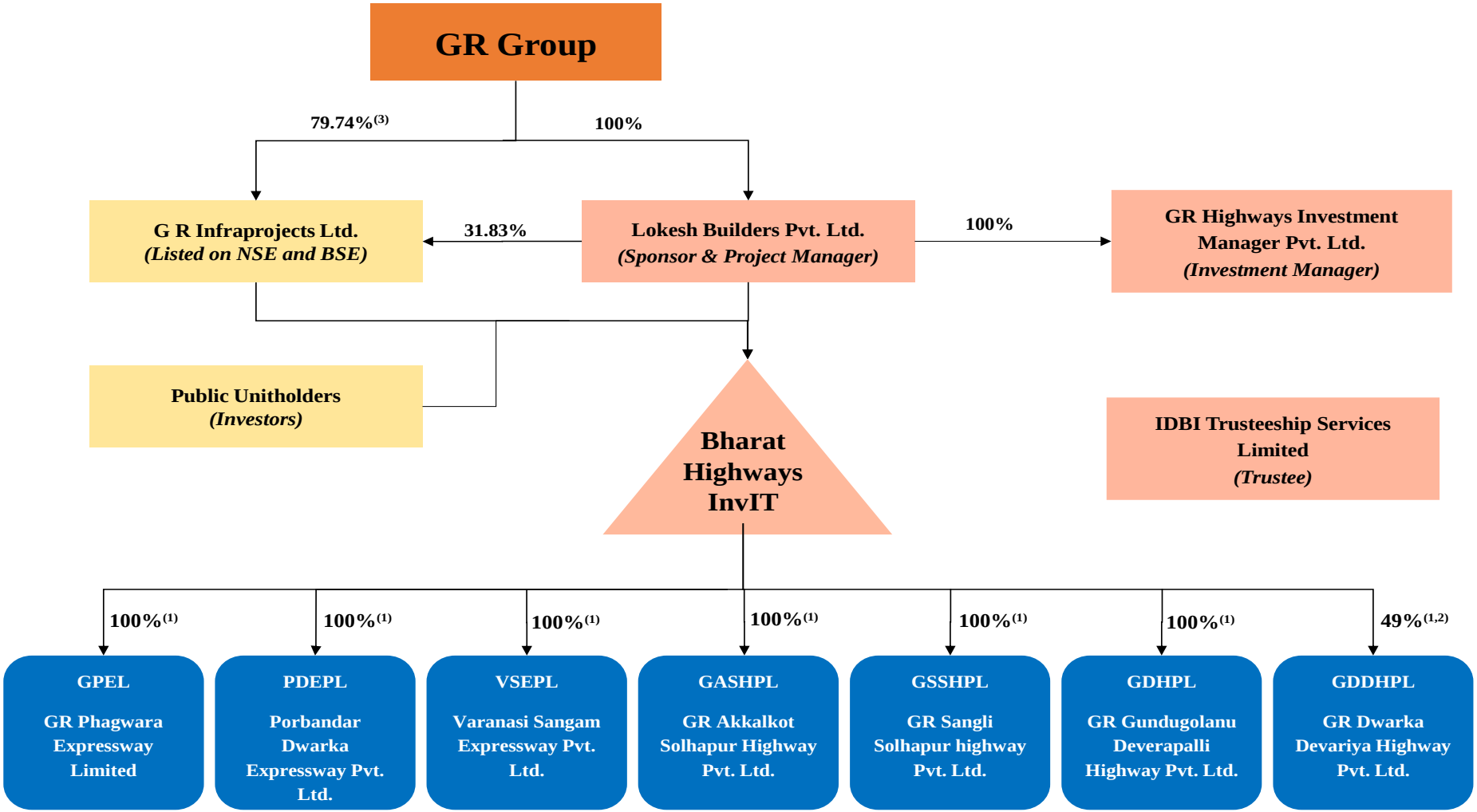
In connection with the establishment and registration of the InvIT, the Sponsor and GRIL (the Settlor and an Associate of the Sponsor) have incurred/ may incur approximately ₹[●] in expenses which forms part of the Issue expenses. Such expenses will be reimbursed by the InvIT to the Sponsor and GRIL.

FORMATION TRANSACTIONS IN RELATION TO THE INVIT

Proposed holding structure of the Project SPVs

Pursuant to the completion of the transactions as contemplated under the respective Share Purchase Agreement, the InvIT intends to acquire 100% of the equity shares of the Project SPVs, except for GDDHPL, wherein 49% equity shareholding of GDDHPL is proposed to be acquired by the InvIT pursuant to the respective Share Purchase Agreement. GDDHPL is currently an under-construction project and does not exceed 10% of the value of the InvIT Assets, and the transfer of 49% of the equity shares of GDDHPL will be in compliance with Regulation 18(5) of the SEBI InvIT Regulations. Subject to necessary approvals including the NHAI approval, the InvIT proposes to acquire the remaining 51% equity shareholding of the GDDHPL upon the completion of at least six months after the receipt of provisional COD certificate by GDDHPL, in accordance with the circulars issued by the MoRTH.

The following diagram illustrates the proposed shareholding structure of the Project SPVs post the transfer of Project SPVs to the InvIT, pursuant to the Share Purchase Agreements and prior to the Allotment:



Notes: (1) Percentages (%) indicate InvIT's proposed shareholding in the respective Project SPVs
(2) 49% equity shareholding of GDDHPL is proposed to be transferred to the InvIT pursuant to the respective Share Purchase Agreement and the remaining 51% equity shareholding of GDDHPL will be transferred to the InvIT after the completion of at least six months after the receipt of provisional COD certificate by GDDHPL and upon receipt of the NHAI approval, in accordance with the circulars issued by the MoRTH
(3) As on September 30, 2022 and includes 31.83% shareholding of Lokesh Builders Private Limited in G R Infraprojects Limited.

Details of the Project SPVs

The corporate details of GPEL, PDEPL, GDHPL, GASHPL, VSEPL, GSSHPL and GDDHPL as of the date of this Draft Offer Document are provided below. For further details with respect to the Project SPVs, see '***Business***' on page 138.

1. GR Phagwara Expressway Limited

Corporate Information

GPEL was incorporated on September 21, 2016 as a public limited company under the Companies Act, 2013 pursuant to certificate of incorporation issued by the Registrar of Companies, Central Registration Centre. The registered office of GPEL is located at GR House, Hiran Magri, Sector – 11, Udaipur, Rajasthan 313 002, India. Its CIN is U45400RJ2016PLC056040. GPEL is a special purpose vehicle which was incorporated for the purpose of four laning of Phagwara to Rupnagar section of NH-344A from km. 0.00 (design chainage) to km. 80.820 (design chainage) in the state of Punjab in the hybrid annuity mode.

Capital Structure

The capital structure of GPEL as on date of this Draft Offer Document is as follows:

Particulars*	Amount (in ₹)
Authorised capital	203,000,000
Issued, subscribed and paid-up capital	203,000,000

**There shall be no change to capital structure of GPEL post the Issue.*

Shareholding Pattern

The equity shareholding pattern of GPEL as on date of this Draft Offer Document is as follows:

Sr. No.	Name of the shareholder	Number of equity shares of ₹10 each	Percentage of the Issued, subscribed and paid-up capital (%)
1.	GRIL	20,299,940	99.99
2.	Devki Nandan Agarwal#	10	Negligible
3.	Vinod Kumar Agarwal#	10	Negligible
4.	Mahendra Kumar Agarwal#	10	Negligible
5.	Ajendra Agarwal#	10	Negligible
6.	Purshottam Agarwal#	10	Negligible
7.	Vikas Agarwal#	10	Negligible
	Total	**20,300,000**	**100**

#Nominee of GRIL.

Pursuant to the completion of the transactions as contemplated under the respective Share Purchase Agreement, the InvIT and its nominee(s) shall acquire 100% of the issued, subscribed and paid-up capital of GPEL

2. Porbandar Dwarka Expressway Private Limited

Corporate Information

PDEPL was incorporated on June 9, 2017 as a private limited company under the Companies Act, 2013 pursuant to certificate of incorporation issued by the Registrar of Companies, Central Registration Centre. The registered office of PDEPL is located at GR House, Hiran Magri, Sector No. 11, Udaipur, Rajasthan 313 002, India. Its CIN is U45200RJ2017PTC058283. PDEPL is a special purpose vehicle which was incorporated for the purpose of four laning with paved shoulder of Porbandar – Dwarka section of NH-8E (ext.) from km 356.766 (design chainage km. 379.100) to km 473.000 (design chainage km 496.848) in the state of Gujarat on hybrid annuity mode.

Capital Structure

The capital structure of PDEPL as on date of this Draft Offer Document is as follows:

Particulars*	Amount (in ₹)
Authorised capital	420,000,000

Particulars*	Amount (in ₹)
Issued, subscribed and paid-up capital	420,000,000

**There shall be no change to capital structure of PDEPL post the Issue.*

Shareholding Pattern

The equity shareholding pattern of PDEPL as on date of this Draft Offer Document is as follows:

Sr. No.	Name of the shareholder	Number of equity Shares of ₹10 each	Percentage of the Issued, subscribed and paid-up capital (%)
1.	GRIL	41,999,990	99.99
2.	Vinod Kumar Agarwal#	10	Negligible
	Total	**42,000,000**	**100**

Nominee of GRIL

Pursuant to the completion of the transactions as contemplated under the respective Share Purchase Agreement, the InvIT and its nominee(s) shall acquire 100% of the issued, subscribed and paid-up capital of PDEPL.

3. GR Gundugolanu Devarapalli Highway Private Limited

Corporate Information

GDHPL was incorporated on March 28, 2018 as a private limited company under the Companies Act, 2012 pursuant to certificate of incorporation issued by the Registrar of Companies, Central Registration Centre The registered office of GDHPL is located at GR House, Hiran Magri, Sector 11, Udaipur, Rajasthan 313 002, India. Its CIN is U45206RJ2018PTC060749. GDHPL is a special purpose vehicle which was incorporated for the purpose of four laning of the Gundugolanu – Devarapalli – Kovvuru section of NH-16 from km. 15.320 (existing km. 15.700) to km. 85.204 (existing km. 81.400) in the state of Andhra Pradesh on hybrid annuity mode.

Capital Structure

The capital structure of GDHPL as on date of this Draft Offer Document is as follows:

Particulars*	Amount (in ₹)
Authorised capital	495,000,000
Issued, subscribed and paid-up capital	495,000,000

**There shall be no change to capital structure of GDHPL post the Issue.*

Shareholding Pattern

The equity shareholding pattern of GDHPL as on date of this Draft Offer Document is as follows:

Sr. No.	Name of the shareholder	Number of equity shares of ₹10 each	Percentage of the Issued, subscribed and paid-up capital (%)
1.	GRIL	49,499,990	99.99
2.	Vinod Kumar Agarwal#	10	Negligible
	Total	**49,500,000**	**100**

#Nominee of GRIL

Pursuant to the completion of the transactions as contemplated under the respective Share Purchase Agreement, the InvIT and its nominee(s) shall acquire 100% of the issued, subscribed and paid-up capital of GDHPL.

4. GR Akkalkot Solapur Highway Private Limited

Corporate Information

GASHPL was incorporated on April 26, 2018 as a private limited company under the Companies Act, 2013 pursuant to certificate of incorporation issued by the Registrar of Companies, Central Registration Centre. The registered office of GASHPL is located at GR House, Hiran Magri, Sector 11, Udaipur, Rajasthan 313 002, India. Its CIN is U45201RJ2018PTC061051. GASHPL is a special purpose vehicle which was incorporated for the purpose of four laning of Akkalkot – Solapur section of NH – 150E with paved shoulders from design chainage

km. 99.400 to km. 138.352 / existing chainage from km. 102.819 to km. 141.800 (design length 38.952 km.) including Akkalkot bypass (design length 7.350 km.) in the state of Maharashtra on hybrid annuity mode.

Capital Structure

The capital structure of GASHPL as on date of this Draft Offer Document is as follows:

Particulars*	Amount (in ₹)
Authorised capital	126,000,000
Issued, subscribed and paid-up capital	126,000,000

**There shall be no change to capital structure of GASHPL post the Issue.*

Shareholding Pattern

The equity shareholding pattern of GASHPL as on date of this Draft Offer Document is as follows:

Sr. No.	Name of the shareholder	Number of equity shares of ₹10 each	Percentage of the Issued, subscribed and paid-up capital (%)
1.	GRIL	12,599,990	99.99
2.	Vinod Kumar Agarwal#	10	Negligible
	Total	**12,600,000**	**100**

Nominee of GRIL.

Pursuant to the completion of the transactions as contemplated under the respective Share Purchase Agreement, the InvIT and its nominee(s) shall acquire 100% of the issued, subscribed and paid-up capital of GASHPL.

5. Varanasi Sangam Expressway Private Limited

Corporate Information

VSEPL was incorporated on April 17, 2017 as a private limited company under the Companies Act, 2013 pursuant to certificate of incorporation issued by the Registrar of Companies, Central Registration Centre The registered office of VSEPL is located at GR House, Hiran Magri, Sector No. 11, Udaipur, Rajasthan 313 002, India. Its CIN is U45500RJ2017PTC057753. VSEPL is a special purpose vehicle which was incorporated for the purpose of six laning of Handia to Varanasi section of NH-2 from km 713.146 to km 785.544 in the state of Uttar Pradesh on hybrid annuity mode.

Capital Structure

The capital structure of VSEPL as on date of this Draft Offer Document is as follows:

Particulars*	Amount (in ₹)
Authorised capital	389,000,000
Issued, subscribed and paid-up capital	388,900,000

**There shall be no change to capital structure of VSEPL post the Issue.*

Shareholding Pattern

The equity shareholding pattern of VSEPL as on date of this Draft Offer Document is as follows:

Sr. No.	Name of the shareholder	Number of equity shares of ₹10 each	Percentage of the Issued, subscribed and paid-up capital (%)
1.	GRIL	38,889,990	99.99
2.	Vinod Kumar Agarwal#	10	Negligible
	Total	**38,890,000**	**100**

Nominee of GRIL

Pursuant to the completion of the transactions as contemplated under the respective Share Purchase Agreement, the InvIT and its nominee(s) shall acquire 100% of the issued, subscribed and paid-up capital of VSEPL.

6. GR Sangli Solapur Highway Private Limited

Corporate Information

GSSHPL was incorporated on April 26, 2018 as a private limited company under the Companies Act, 2013 pursuant to certificate of incorporation issued by the Registrar of Companies, Central Registration Centre The registered office of GSSHPL is located at GR House, Hiran Magri, Sector 11, Udaipur, Rajasthan 313 002, India. Its CIN is U45309RJ2018PTC061049. GSSHPL is a special purpose vehicle which was incorporated for the purpose of four-laning of Sangli – Solapur (package- III: Watambare to Mangalwedha) section of NH-166 from existing chainage Km 272.394 to chainage km 314.969 (design chainage. Km. 276.000 to chainage km. 321.600) in the state of Maharashtra on hybrid annuity mode.

Capital Structure

The capital structure of GSSHPL as on date of this Draft Offer Document is as follows:

Particulars*	Amount (in Rs.)
Authorised capital	150,000,000
Issued, subscribed and paid-up capital	150,000,000

**There shall be no change to capital structure of GSSHPL post the Issue.*

Shareholding Pattern

The equity shareholding pattern of GSSHPL as on date of this Draft Offer Document is as follows:

Sr. No.	Name of the shareholder	Number of equity shares of Rs. 10 each	Percentage of the Issued, subscribed and paid-up capital (%)
1.	GRIL	14,999,990	99.99
2.	Vinod Kumar Agarwal#	10	Negligible
	Total	**15,000,000**	**100**

Nominee of GRIL

Pursuant to the completion of the transactions as contemplated under the respective Share Purchase Agreement, the InvIT and its nominee(s) shall acquire 100% of the issued, subscribed and paid-up capital of GSSHPL.

7. GR Dwarka Devariya Highway Private Limited

Corporate Information

GDDHPL was incorporated on March 26, 2019 as a private limited company under the Companies Act, 2013 pursuant to certificate of incorporation issued by the Registrar of Companies, Central Registration Centre The registered office of GDDHPL is located at GR House, Hiran Magri, Sector 11, Udaipur, Rajasthan 313 002, India. Its CIN is U45201RJ2019PTC064358. GDDHPL is a special purpose vehicle which was incorporated for the purpose of four laning of Dwarka (Kuranga) – Khambhaliya – Devariya section of NH 151A from km 203.500 to km 176.500 and from km 171.800 to km 125.000 (designed length 71.890 km) in the state of Gujarat on hybrid annuity mode .

Capital Structure

The capital structure of GDDHPL as on date of this Draft Offer Document is as follows:

Particulars*	Amount (in Rs.)
Authorised capital	310,000,000
Issued, subscribed and paid-up capital	95,000,000

**There shall be no change to capital structure of GDDHPL post the Issue.*

Shareholding Pattern

The equity shareholding pattern of GDDHPL as on date of this Draft Offer Document is as follows:

Sr. No.	Name of the shareholder	Number of equity shares of Rs. 10 each	Percentage of the Issued, subscribed and paid-up capital (%)
1.	GRIL	9,499,990	99.99
2.	Vinod Kumar Agarwal #	10	Negligible
	Total	**9,500,000**	**100**

Nominee of GRIL

Pursuant to the completion of the transactions as contemplated under the respective Share Purchase Agreement, the InvIT shall acquire 49% of the issued, subscribed and paid-up capital of GDDHPL. Subject to receipt of necessary approvals including the NHAI approval, the InvIT proposes to acquire the remaining 51% equity shareholding of the GDDHPL upon the completion of at least six months after the receipt of provisional COD certificate by GDDHPL, in accordance with the circulars issued by the MoRTH.

Break-up of the InvIT Assets in terms of Regulations 18 (5)(a) and 18(5)(b) of the SEBI InvIT Regulations

Acquisition of 100% shareholding of GPEL, PDEPL, GDHPL, GASHPL, GSSHPL and VSEPL by the InvIT shall be in compliance with Regulation 18(5)(a) of SEBI InvIT Regulations and acquisition of 49% shareholding of GDDHPL shall be in compliance with Regulation 18(5)(b) of SEBI InvIT Regulations.

Arrangements pertaining to InvIT Assets entered into with parties to the InvIT prior to the Issue

A. Acquisition of the Project SPVs by the InvIT

I. Share Purchase Agreements

The Share Purchase Agreements are proposed to be executed prior to filing the Offer Document and accordingly, consummation of such transactions contemplated under each of the Share Purchase Agreements will be undertaken prior to the Allotment of Units. As on the date of this Draft Offer Document, the Share Purchase Agreements are in draft and indicative form and have not been executed. For details of risks in relation to binding agreements not having been entered into with respect to the Formation Transactions, see "***Risk Factors – Our Investment Manager has not executed any binding agreements with respect to the Share Purchase Agreements, Assignment Agreements, Shared Services Agreement, Project Management Agreement, On-lending Agreements and the ROFO Agreement. Our Investment Manager's inability to consummate transactions in relation to these agreements will impact the Issue and its ability to complete the Issue within the anticipated time frame or at all***." on page 22. The InvIT (acting through the Trustee) and the Investment Manager, propose to enter into Share Purchase Agreements with GRIL and Project SPVs, for transfer of the entire shareholding held by GRIL in each of the Project SPVs to the InvIT, in exchange for Units. In consideration for the Share Purchase Agreements, the InvIT shall issue such Consideration Units (*as defined in the relevant Share Purchase Agreement*) as determined in accordance with the respective Share Purchase Agreement.

The key terms of the Share Purchase Agreements are proposed to be as follows:

Sale and Purchase: The InvIT (acting through the Trustee) shall acquire 100% of the issued, subscribed and paid-up share capital of the Project SPVs (except for GDDHPL, wherein 49% equity shareholding of GDDHPL is proposed to be acquired by the InvIT pursuant to the respective Share Purchase Agreement. GDDHPL is currently an under-construction project and does not exceed 10% of the value of the InvIT assets, and transfer of 49% of the equity shares of GDDHPL will be in compliance with Regulation 18(5) of the SEBI InvIT Regulations. Subject to necessary approvals, including the NHAI approval, the InvIT proposes to acquire the remaining 51% equity shareholding of GDDHPL upon after the completion of at least six months after the receipt of provisional COD certificate by GDDHPL, in accordance with the circulars issued by the MoRTH on a spot delivery basis, free and clear of any Encumbrances and together with all rights attaching thereto, such that the InvIT shall, upon transfer of the shares on the Closing Date, receive full legal and beneficial ownership of the shares and all rights thereto.

Conditions precedent: The acquisition of shares of the Project SPVs is subject to completion and satisfaction of certain conditions precedents by:

a) GRIL, which includes among others:

(i) evidence of shareholding and ownership of the shares by GRIL being provided, including certified true copies of the beneficial ownership statement of the Project SPV issued by the Project SPV's depository, as of the date of the Share Purchase Agreement and 15 working days

(or such other shorter period agreed) prior to the Closing Date;

(ii) receipt of no objection certificate under Section 281 of the Income-tax Act, 1961, in connection with the transfer of shares;

(iii) non-occurrence of any material adverse effect;

(iv) receipt of management certified financial statements; and

(v) each of concessioning authority and the lenders of the Project SPV shall have approved the transfer of the shares, in the manner envisaged under the terms of the Share Purchase Agreement, and GRIL and the Project SPV shall have satisfied all the conditions set out in such approvals.

The conditions precedents in (i) to (v) above, shall collectively be referred to as "**Seller Conditions Precedents**".

b) GRIL and Project SPVs, which includes:

(i) Transaction Documents (*as defined in the relevant Share Purchase Agreement*) has been executed in agreed form; and

(ii) amended articles of association of the Project SPV shall have been adopted between the parties on the Closing Date.

The conditions precedents in (i) and (ii) above, shall collectively be referred to as "**Joint Conditions Precedents**".

c) InvIT, which includes:

(i) corporate approvals necessary for the implementation and completion of the transactions contemplated including under the Transaction Documents has been obtained; and

(ii) the Issue as proposed by the InvIT has received the minimum subscription required under the SEBI InvIT Regulations, and there is no failure of the Issue under applicable law.

The conditions precedents in (i) and (ii) above shall collectively be referred to as "**InvIT Conditions Precedents**". Seller conditions Precedents, Joint Conditions Precedents and InvIT Conditions Precedents are collectively referred to as "**Conditions Precedents**".

Closing: The closing shall occur within 1 working day prior to Allotment (or such other shorter period agreed between the parties) upon satisfaction or waiver as the case may be, of the Conditions Precedents at the principal place of business of the InvIT. Or at such other time and place and/or on such other date as the parties may be mutually agreed in writing. The date on which the closing occurs shall be referred to as the "**Closing Date**". All transactions contemplated by the Share Purchase Agreement to be completed on or prior to the Closing Date shall be deemed to occur simultaneously and no transaction shall be consummated unless all such transactions are consummated simultaneously.

GRIL representations and warranties:

GRIL shall represent and warrant to the InvIT and the Investment Manager that the Seller Warranties (*as defined in the Share Purchase Agreement*) shall remain true and correct as at Closing Date. GRIL shall further represent that it is fully entitled and authorized to sell the shares in the manner and upon the terms and conditions contained in the Share Purchase Agreement. GRIL shall represent and warrant, among others, that:

(i) due incorporation and valid existence;

(ii) due authorization for the consummation of the Share Purchase Agreement;

(iii) GRIL is the legal and beneficial owner of the shares, free of all encumbrances and has the right to exercise all voting and other rights over such shares;

(iv) all the shares of the Project SPVs are in dematerialized form; the shares have not been and are not listed on any stock exchange; all consents for the transfer of the shares, have been obtained or will be obtained by before the Closing Date;

(v) except pursuant to the Transaction Documents, there are no agreements, arrangements, options, warrants, calls or other rights relating to the issuance, sale or purchase of any shares on the Closing Date;

(vi) the Project SPV has complete right, title, interest and exclusive possession to the InvIT Assets, free from encumbrance (except in respect of assets which are hired or leased) and it also has good and marketable title to the assets in its entirety (except in respect of assets which are hired or has leased).

Buyer's representations and warranties:

The InvIT shall represent and warrant, among others:

(i) due incorporation and valid existence;

(ii) due authorization for the consummation of the Share Purchase Agreement;

(iii) execution of the Share Purchase Agreement and transactions contemplated in the Share Purchase Agreement does not violate its charter documents, or material breach or constitute a material default of material contract or contravene applicable law; and

(iv) representations in relation to solvency.

Indemnity:

GRIL ("**Indemnifying Party**") will indemnify, defend and hold harmless any of the InvIT and the Investment Manager (each, an "**Indemnified Party**") promptly upon demand at any time and from time to time, from and against Losses (*as defined in the Share Purchase Agreement*) which relate to or arise from:

(i) actual or alleged breach of or inaccuracies or misrepresentations in any of the Seller Warranties or breach of any covenant of the GRIL herein; or

(ii) any pending or threatened claims against the Project SPVs from the period prior to and including the Closing Date.

Further, any obligation of the Indemnifying Party to indemnify or make any other payment to the Indemnified Party under the Share Purchase Agreement shall be subject to the limitations on liability set out in Share Purchase Agreement, including amongst other things:

(i) no Claim (as defined in the Share Purchase Agreement) arising out of or continuing from the prior concession period of the underlying Project(s) shall accrue on account of the Project SPV.

(ii) if any Claim is based upon a liability which is contingent only, the Indemnifying Party shall not be liable to pay unless and until such contingent liability gives rise to an obligation to make a payment.

(iii) the Indemnifying Party shall not be liable for any Claim if and to the extent it is attributable to, or the amount of such Claim is increased as a result of, any (i) change of Law or regulation or directive of a governmental authority or (ii) change in the rates of tax in force after the date of the Share Purchase Agreement.

(iv) aggregate liability of the GRIL shall not exceed certain thresholds set out in the Share Purchase Agreement;

(v) the Indemnified Party shall not be entitled to recover damages or obtain payment, reimbursement, restitution or indemnity more than once in respect of any one loss, breach or other set of circumstances which gives rise to more than one Claim;

Termination:

The Share Purchase Agreement shall be effective from the date of execution of the Share Purchase Agreement, and shall continue to be valid and in full force and effect unless terminated:

(i) By mutual consent of the parties in writing, prior to the CP Long Stop Date (*as defined in the Share Purchase Agreement*); or

(ii) At the option of the InvIT, with notice to the other parties, when any Material Adverse Effect (*as defined in the Share Purchase Agreement*) takes place.

II. Assignment Agreements

The InvIT (acting through the Trustee) and Investment Manager propose to enter into assignment agreements with GRIL and each of the Project SPVs in relation to assignment of outstanding unsecured loan along with the accrued interest, availed by the Project SPV from GRIL ("**GRIL Loans**"), to the InvIT ("**Assignment**"). In consideration of the Assignment, the InvIT shall issue such number of Units, which shall be calculated in accordance with the formula provided under the Assignment Agreement. For more details on GRIL Loans including the parties to such agreement, purpose, principal terms, and outstanding amount, as on November 30, 2022, see '***Financial Indebtedness and Deferred Payments***' on page 312. As on the date of this Draft Offer Document, the Assignment Agreements are in draft and indicative form and have not been executed. For details of risks in relation to binding agreements not having been entered into with respect to the Formation Transactions, see "***Risk Factors – Our Investment Manager has not executed any binding agreements with respect to the Share Purchase Agreements, Assignment Agreements, Shared Services Agreement, Project Management Agreement, On-lending Agreements and the ROFO Agreement. Our Investment Manager's inability to consummate transactions in relation to these agreements will impact the Issue and its ability to complete the Issue within the anticipated time frame or at all***." on page 22.

The key terms of the Assignment Agreements are proposed to be as follows:

Assignment of the GRIL Loans:

Subject to terms and conditions of the Assignment Agreement, GRIL shall assign and the InvIT shall assume all of GRIL's rights and obligations as a lender in relation to the GRIL Loans. The Project SPV and GRIL shall not perform any action or cause anything to be done which would have the effect of diluting any of the rights as a lender in relation to GRIL Loans, including, without limitation, change in the amount of the GRIL Loans.

Representations and Warranties:

Each party shall represent and warrant to the other party that, to the extent applicable to it, among others:

(i) due authorization and capacity to enter into the Assignment Agreement;

(ii) execution of the Assignment Agreement and transactions contemplated thereby does not (a) conflict with or result in any breach of any provision of its incorporation documents; (b) result in a default (or give rise to any right of termination, cancellation or acceleration or require any consent of any third party) under any of the terms, conditions or provisions of any note, bond, mortgage, indenture, license agreement, lease or other instrument or obligation to a party or any of its properties or assets, may be bound; (c) violate any applicable laws of India, order, writ, injunction, decree, statute, rule or regulation to which it is bound or in any of their properties or assets;

(iii) the representations, warranties, covenants and undertakings in the Assignment Agreement are as at the date of execution of the Assignment Agreement and as on Closing Date, true, accurate and complete in all respects; and

(iv) the Assignment Agreement constitutes a valid and binding obligation of party, which is enforceable against it.

Closing:

Closing shall simultaneously occur with the closing of the transactions contemplated in the Share Purchase Agreement. The date on which the closing occurs shall be referred to as the "Closing Date". On Closing Date, the InvIT shall pay the consideration by issuing consideration Units in the InvIT and shall show proof of issue instructions for the credit of the consideration Units (calculated in accordance with the Assignment Agreement) to GRIL.

Termination:

The Assignment Agreements shall become effective from the date of execution and shall be valid and in force unless terminated either by way of mutual agreement or automatically by virtue of termination of the Share Purchase Agreement in accordance with the provisions of the Share Purchase Agreement.

III. Sponsor Contribution

Pursuant to the letter agreement dated December 21, 2022 between the Investment Manager (on behalf of the InvIT) and the Sponsor ("**Commitment Letter**"), subject to certain conditions specified therein, the Sponsor has agreed contribute such amount towards subscription of such number of Units, at least two Working Days prior to the Bid/ Issue Opening Date (but after the announcement of the Price Band), which shall be equivalent to at least 15% of the total Units of the InvIT on a post-Issue basis, to comply with the requirement under Regulation 12(3) of the SEBI InvIT Regulations ("**Sponsor Contribution**").

While the Sponsor shall subscribe to the Units prior to the Bid/ Issue Closing Date, such Units shall be allotted to the Sponsor on the date of Allotment.

Subsequently, the Investment Manager (on behalf of the InvIT) shall utilize the Sponsor Contribution towards the objects of the Issue specified in the section titled "***Use of Proceeds***" on page 70.

Acquisition of future assets by the InvIT

IV. ROFO Agreement

The InvIT (acting through the Trustee) and Investment Manager propose to enter into a right of first offer agreement with GRIL to acquire 100% shareholding held by GRIL in the ROFO SPVs. The consideration for such acquisition will be as mutually agreed between the parties to the ROFO Agreement and which shall be on arm's length basis as decided by the IM Board and based on the valuation undertaken by the valuer and financial and legal due diligence undertaken by the Investment Manager at the time of such acquisition. As on the date of this Draft Offer Document, the ROFO Agreement is in draft and indicative form and has not been executed. For details of risks in relation to binding agreements not having been entered into with respect to the Formation Transactions, see "***Our Investment Manager has not executed any binding agreements with respect to the Share Purchase Agreements, Assignment Agreements, Shared Services Agreement, Project Management Agreement, On-lending Agreements and the ROFO Agreement. Our Investment Manager's inability to consummate transactions in relation to these agreements will impact the Issue and its ability to complete the Issue within the anticipated time frame or at all.***" on page 22.

The key terms of the ROFO Agreement are proposed to be as follows:

Effectiveness:

The ROFO Agreement shall become effective and binding on the parties thereto on and from the date on which the Units are listed and commence trading on the stock exchanges.

Scope and Applicability:

The ROFO Agreement shall be applicable only to the acquisition of ROFO SPVs by the InvIT. GRIL shall be free to sell or transfer any special purpose vehicle, which is not a ROFO SPV, to any third person without the requirement of compliance with the ROFO Agreement and other InvIT Documents. The ROFO Agreement shall not apply to the Project SPVs.

Acquisition process for the ROFO SPVs:

(i) Subject to, and in accordance with, the ROFO Agreement, the InvIT shall, at all times, purchase the entire 100% of the legal and beneficial interest of the ROFO Securities, except to the extent of any mandatory holding of shares or interest and rights in the ROFO Securities as per any act or regulations or circulars or guidelines of government or any regulatory authority or concession agreement.

(ii) In case GRIL determines in accordance with the prior approval of its board of directors, and its shareholders as may be required under applicable law, to sell its legal and beneficial interest in the ROFO Securities, it shall make an irrevocable invitation to offer to the InvIT, through the Trustee or the Investment Manager, for the acquisition of such ROFO Securities (the "**Invitation to Offer**"). The Invitation to Offer shall contain shall set out the non-binding offer to acquire the ROFO Securities and certain other information in relation to the offer, such as price and payment terms (the "**Seller ROFO Notice**"). GRIL shall not sell any ROFO Securities without first making a right of first offer to the InvIT.

(iii) In the event that the InvIT is interested in the acquisition of the ROFO Securities, the InvIT shall

communicate such interest in writing within a period of 30 days from the date of receipt by the InvIT of the Seller ROFO Notice. Within 180 days from such communication, the InvIT shall (a) provide its written acceptance to GRIL of the price indicated by GRIL in the Seller ROFO Notice; (b) make a counter-offer to GRIL, which GRIL may accept or reject. If the InvIT's counter-offer is rejected, the parties to the ROFO Agreement may further mutually agree on a negotiated price for the acquisition of the ROFO Securities; or (c) provide in writing that it does not wish to pursue the offer set out in the Seller ROFO Notice any further, along with its reasons in writing for not pursuing the offer, at which all negotiations between GRIL and the InvIT regarding the offer set out in the Seller ROFO Notice shall cease and GRIL shall be free to sell ROFO Securities to any third person.

Termination:

The ROFO Agreement shall only be terminated by the mutual consent of the parties thereto in writing, as may be authorized by their respective board of directors.

PARTIES TO THE INVIT

*The summaries of the key terms of certain material contracts and agreements included herein are not complete and are subject to, and are qualified in their entirety by reference to, the provisions of the respective material contracts and agreements. Copies of the material contracts and agreements described herein are available for inspection at the principal place of business of the InvIT. For further details, see '**Material Contracts and Documents for Inspection**' on page* 376.

A. The Sponsor – Lokesh Builders Private Limited

History and Certain Corporate Matters

Lokesh Builders Private Limited is the sponsor of the InvIT. The Sponsor was incorporated on September 12, 2001 under the Companies Act, 1956 as a private limited company, with the corporate identification number U45201RJ2001PTC017191. The Sponsor's registered office is situated at 80, Shahi Complex, Hiran Magri, Sector No. 11, Udaipur, Rajasthan 313 002, India. For further details, see '***General Information***' on page 61.

Background and Past Experience of Sponsor

The Sponsor is a private company, limited by shares, and an entity forming part of the GR Group. GRIL is the flagship entity of GR Group and is engaged in integrated road engineering, procurement and construction with an experience of over 25 years in design and construction of various road/highway projects across 16 states in India and more than 100 road construction projects executed since 2006. The GR Group carries out its operations through GRIL and other entities primarily in three categories: (i) civil construction activities, under which it provides EPC services; (ii) development of roads, highways on a BOT basis, including under annuity and HAM; and (iii) manufacturing activities, under which GRIL processes bitumen, manufactures thermoplastic road-marking paint, electric poles and road signage and fabricates and galvanizes metal crash barriers.

The Sponsor holds 31.83% (as of September 30, 2022) of the issued, subscribed and paid-up equity share capital of GRIL, and is an identified promoter of GRIL. The Sponsor complies with the eligibility requirements under the SEBI InvIT Regulations of ensuring a sound track record in development of infrastructure through its Associate, GRIL.

The Sponsor is authorized by its memorandum of association to, among other things, (i) purchase, acquire, get, convert, develop or construct land and buildings, deal in land, manage land and buildings; and (ii) carry on the business of contractors, general construction, builders; develop, construct, build, erect, demolish or do any other works in connection with any building, roads, etc and is currently engaged in the business of developing, improving, constructing, leasing and sub-leasing, repairing, maintaining real estate properties, and is exploring opportunities in the infrastructure sector.

The net worth of the Sponsor as on November 30, 2022, stood at ₹1,061.46 million. The Sponsor shall comply with the minimum net worth requirement set out in Regulation 4(2)(d)(ii) of the SEBI InvIT Regulations.

Other Confirmations

As of the date of this Draft Offer Document, the Sponsor is in compliance with the eligibility criteria provided under Regulation 4 of the SEBI InvIT Regulations and is a "fit and proper person" as prescribed under SEBI Intermediaries Regulations.

Further, neither the Sponsor nor any of the promoters or directors of the Sponsor: (i) are debarred from accessing the securities market by SEBI; (ii) are promoters, directors or persons in control of any other company or a sponsor, investment manager or trustee of any other infrastructure investment trust or an infrastructure investment trust which is debarred from accessing the capital market under any order or direction made by SEBI; (iii) are wilful defaulters or fraudulent borrowers; or (iv) are fugitive economic offenders.

Details of the Holding or the Proposed Holding by Sponsor in the InvIT

Pursuant to the Commitment Letter, subject to certain conditions specified therein, the Sponsor has agreed contribute such amount towards subscription of such number of Units, prior to the Bid/ Issue Opening Date (but after the announcement of the Price Band), which shall be equivalent to at least 15% of the total Units of the InvIT on a post-Issue basis, to comply with the requirement under Regulation 12(3) of the SEBI InvIT Regulations. Further, the Units held by the Sponsor will be subject to lock-in requirements in accordance with the SEBI InvIT

Regulations. For further details, see '***Formation Transactions in relation to the InvIT – Sponsor Contribution***' and '***Formation Transactions in relation to the InvIT – Acquisition of the Project SPVs by the InvIT***' on pages 101 and 97 respectively.

B. The Trustee – IDBI Trusteeship Services Limited

History and Certain Corporate Matters

IDBI Trusteeship Services Limited is the trustee of the Trust. It is a debenture trustee registered with SEBI under the Securities and Exchange Board of India (Debenture Trustee) Regulations, 1993 having registration number IND000000460 and its certificate of registration is renewed on February 14, 2017, which is valid until suspended or cancelled by SEBI. The Trustee was incorporated in India under the Companies Act, 1956 with corporate identification number U65991MH2001GOI131154. The Trustee was originally incorporated on March 8, 2001 at Mumbai, Maharashtra. The Trustee's registered office and principal place of business is situated at Asian Building, Ground Floor, 17, R. Kamani Marg, Ballard Estate, Mumbai 400 001, Maharashtra. For further details, see '***General Information***' on page 61.

Background of the Trustee

The Trustee is a trusteeship company which has been registered with SEBI. The Trustee is jointly promoted by IDBI Bank Limited, Life Insurance Corporation and General Insurance Corporation for providing corporate and other trusteeship services. The Trustee provides trusteeship services to corporates across diverse industries as well as domestic and foreign banks and financial institutions. The Trustee also acts as a security trustee and is involved in providing services in relation to security creation, compliance and holding security on behalf of lenders. The Trustee is also authorised to provide services inter alia as: (i) a facility agent for complex structured transactions; (ii) an escrow agent; (iii) a trustee to alternative investment funds and venture capital funds; (iv) custodian of documents as a safe-keeper; and (v) a trustee to real estate investment funds.

The Trustee confirms that it has maintained, and undertakes to ensure that it will at all times maintain, adequate infrastructure personnel and resources to perform its functions, duties and responsibilities with respect to the InvIT, in accordance with the Amended and Restated Trust Deed, the SEBI InvIT Regulations and other applicable law.

Other Confirmations

The Trustee is not an Associate of the Sponsor or the Investment Manager. Further, as of the date of this Draft Offer Document, the Trustee is in compliance with the eligibility criteria provided under Regulation 4 of the SEBI InvIT Regulations and is a "fit and proper person" as prescribed under SEBI Intermediaries Regulations.

Further, neither the Trustee nor any of the promoters or directors of the Trustee (i) are debarred from accessing the securities market by SEBI; (ii) are promoters, directors or persons in control of any other company or a sponsor, investment manager or trustee of any other infrastructure investment trust or an infrastructure investment trust which is debarred from accessing the capital market under any order or direction made by SEBI; (iii) are wilful defaulters or fraudulent borrowers; or (iv) are fugitive economic offenders.

Details of the Holding or the Proposed Holding by Trustee in the InvIT

Trustee does not propose to hold the Units of the InvIT.

Board of Directors of the Trustee

The board of directors of the Trustee is entrusted with the responsibility for the overall management of the Trustee. See below the details in relation of the board of directors of the Trustee:

Sr. No.	Name	DIN
1.	Padma Vinod Betai	00937921
2.	Samuel Joseph Jebaraj	02262530
3.	Pradeep Kumar Jain	07829987
4.	Jayashree Vijay Ranade	09320683
5.	Pradeep Kumar Malhotra	09817764

Brief biographies of the Directors of the Trustee

Please see below brief biographies of the Directors of the Trustee:

1. Padma Vinod Betai

Padma Vinod Betai is the managing director and chief executive officer on the board of directors of the Trustee.

2. Samuel Joseph Jebaraj

Samuel Joseph Jebaraj is a non-executive director on the board of directors of the Trustee.

3. Pradeep Kumar Jain

Pradeep Kumar Jain is a non-executive director on the board of directors of the Trustee.

4. Jayashree Vijay Ranade

Jayashree Vijay Ranade is a non-executive director on the board of directors of the Trustee.

5. Pradeep Kumar Malhotra

Pradeep Kumar Malhotra is an additional director on the board of directors of the Trustee.

Key Terms of the Amended and Restated Trust Deed

The Trustee has entered into the Amended and Restated Trust Deed, in terms of the SEBI InvIT Regulations, the key terms of which, are provided below:

1. *Powers of the Trustee*

The Trustee has been provided with various powers under the Amended and Restated Trust Deed in accordance with the Trusts Act and the SEBI InvIT Regulations, including but not limited to:

(a) The Trustee shall have the power to appoint the Investment Manager as the investment manager of the InvIT and shall have the power to delegate all or any of the powers of the Trustee, as set out in the Amended and Restated Trust Deed and as permitted under applicable law, to the Investment Manager. The Trustee shall have the power to execute the Investment Management Agreement with the Investment Manager, the Project Management Agreement with the Project Manager, or any other agreement or arrangement, from time to time, with the Investment Manager or any of its nominees.

(b) Without foregoing the general powers and duties, the Trustee is authorised and empowered on behalf of the InvIT either by itself (in consultation or upon the recommendation of the Investment Manager) or through the Investment Manager, to:

(i) make all decisions, concerning the investigation, selection, development, negotiation, structuring, restructuring, monitoring, divestment of investments of the InvIT (including any additions or accretions thereto) and the appointment of various advisors and service providers in connection with such investments;

(ii) direct and approve the formulation of investment policies and strategies for the InvIT and to direct and approve the investment of the funds of the InvIT, in accordance with the investment objectives;

(iii) manage, acquire, hold, sell, securitize, transfer, exchange, pledge and dispose of investments (including any additions or accretions thereto), and exercise all rights, powers, privileges and other incidents of ownership or possession with respect to investments;

(iv) institute, conduct, compromise, enforce, compound, defend, answer, oppose or abandon any legal proceedings, for or on behalf of or in the name of the InvIT or the

Trustee (in its capacity as the trustee of the InvIT), and to defend, compound or otherwise deal with any such proceedings against the InvIT or Trustee (in its capacity as the trustee of the InvIT) or its officers or concerning the affairs of the InvIT, and also to compound and allow time for payment or satisfaction of any equity due and of any claims or demands by or against the InvIT and to refer any differences to arbitration and observe and perform any awards thereof;

(v) appoint counsel or appear before the relevant authorities, submit information, seek clarifications from any governmental agency and complete, sign and submit any applications or documents for any approvals, permissions, or actions that may be necessary or desirable;

(vi) open, maintain and close bank accounts and draw cheques or other orders for the payment of money and open, maintain and close demat, brokerage, mutual fund and similar accounts; and

(vii) enter into, execute and/or terminate any investment pooling agreements, agreements related to strategic investments, co-investment agreements, and any and all documents and instruments of a similar nature in the name of the InvIT.

(c) The Trustee shall have the power, whether directly (in consultation or upon the recommendation of the Investment Manager) or through the Investment Manager where the Investment Manager has been so authorised by the Trustee under the Investment Management Agreement, to appoint, determine the remuneration of and enter into, execute, deliver, perform, modify or terminate all documents, agreements and instruments containing customary terms including contractual indemnities with valuers, auditors, registrar and transfer agents, merchant bankers, credit rating agencies, search agents, custodians, property consultants, brokers, legal, financial and tax consultants or any other intermediary or professional service provider or agent as may be required in connection with the activities of the InvIT in a timely manner and as per the provisions of the SEBI InvIT Regulations and other applicable law.

(d) The Trustee shall, as may be recommended by the Investment Manager, from time to time, in the interests of administrative and operational convenience, delegate to any committee or person, any powers and duties including management of the funds of the InvIT vested in it, provided, however, that the Trustee shall remain liable for all the acts of commission or omission of such person being the delegate (such liability as may be determined finally by a court of competent jurisdiction, whose decision is final and non-appealable) except in cases of gross negligence, misconduct, wilful default and fraud by such person or committee, as determined finally by a court of competent jurisdiction, whose decision is final and non-appealable. Any action taken by such committee or person in respect of the funds of the InvIT shall be construed as an act done by the Trustee.

(e) Subject to the provisions of the Amended and Restated Trust Deed and the SEBI InvIT Regulations, the Trustee shall, in consultation with, and on the recommendation of the Investment Manager, have the power to create such reserves in respect of the InvIT, as it may deem proper, in order to meet the expenses, liabilities (including potential tax liability) or contingent liabilities of the InvIT.

(f) The Trustee shall have the power to cause the offering of Units of the InvIT, cause any Offer Documents to be provided to the investors, and issue and allot Units to the Unitholders of the InvIT, which power shall be exercised by the Investment Manager in terms of the Investment Management Agreement.

(g) The Trustee shall in consultation with, and on the recommendation of the Investment Manager, have the power to incur and pay expenses (including any taxes or other statutory charges) out of the funds of the InvIT, on behalf of the InvIT, in accordance with the terms of the relevant documents. The Trustee shall also have the power to utilise any tax credits available to the InvIT, prior to making any such payment of taxes or expenses.

(h) Subject to applicable laws, the Trustee shall, on receipt of advice from the Investment Manager, have the power to borrow monies for the purpose of fulfilling the objectives of the InvIT

(through any mode, including by way of issuance of debt securities, subordinated debt, equity or other securities or instruments permitted under the SEBI InvIT Regulations or other applicable law) from any person or authority (whether government or otherwise, whether Indian or overseas) on such terms and conditions, and for such periods and purpose, as may be permitted under the SEBI InvIT Regulations and approved by the Unitholders, and offer such security as it may deem fit, for the purpose of making such borrowing. Further, the Trustee shall have the power to create charge, security interest and/or lien over any or all of the assets of the InvIT (both, present or future), to secure and/or guarantee the performance of any of the obligations of the Project SPVs, as it may deem fit.

(i) The Trustee shall have the power, apart from acting personally, to employ and pay at the expense of the InvIT, any agent in any jurisdiction, whether attorneys, solicitors, brokers, banks, trust companies or other agents, whether associated or connected in any way with the Trustee or not, without being responsible for the default of any agent if employed in good faith to transact any business including without limitation, the power to appoint agents to raise funds, or do any act required to be transacted or done in the execution of the trusts including the receipt and payment of moneys and the execution of documents.

(j) The Trustee may permit any property comprised in the InvIT, or any documents in relation thereto, to be, and remain, deposited with a custodian or with any person in India subject to such deposit being permissible under applicable law.

(k) In the event that any capital gains tax, income tax, stamp duty or other duties, fees, cess or other taxes (and any interest or penalty chargeable thereon), become payable in any jurisdiction, the Trustee may, on the recommendation of the Investment Manager, pay all such duties, fees, cess or other taxes (and any interest or penalty chargeable thereon), out of the funds of the InvIT in accordance with applicable law and the advice of tax consultants. The Trustee may, on the recommendation of the Investment Manager, file tax returns with the relevant governmental agencies, in accordance with applicable law and the advice of tax consultants.

(l) The Trustee shall have the power to take the opinion of legal and tax counsel in any jurisdiction concerning any disputes or differences arising under the Amended and Restated Trust Deed, in connection with any Investments or any matter incidental thereto and the fees of such counsel shall be paid out of the trust fund.

(m) The Trustee shall cause the Investment Manager to insure the InvIT Assets against any loss or damage from any peril, any assets and property forming part of the InvIT for any amount, as per the SEBI InvIT Regulations, and to pay the premiums out of the funds of the InvIT.

(n) The Trustee may maintain, or cause the Investment Manager or the registrar and transfer agent to maintain a register of the Units of the InvIT.

(o) Subject to restrictions contained in the InvIT Documents and applicable laws (including the limits and restrictions prescribed under the SEBI InvIT Regulations), Trustee may, in consultation with, and upon the recommendation of the Investment Manager, extend loans from the funds of the InvIT to the Project SPVs and also subscribe to debt securities or quasi debt securities or any similar kind of securities issued by the Project SPVs or any other person permitted under the applicable law from the funds of the InvIT.

(p) Subject to applicable laws, the Trustee may at any time, buyback the Units from the Unitholders.

(q) Subject to applicable laws, the Trustee shall have the right (to be exercised in consultation with the Investment Manager) (i) to pay interest, prepay or repay any and all debt raised from any person, in accordance with the terms therein and (ii) to redeem any debt securities or other securities, obligations or instruments in accordance with the terms thereof issued to persons in compliance with the SEBI InvIT Regulations and other applicable law.

(r) The Trustee may sell, rent or buy any property, or borrow property from or carry out any other transaction with the trustees of any other trust or the executors or administrators of any estate in execution of the InvIT. The Trustee shall ensure that no conflict of interest shall arise whilst conducting such activities.

(s) Other Powers of the Trustee:

The Trustee shall also have the following powers and authorities exercisable pursuant to the advice of the Investment Manager:

(i) to make and give receipts, releases and other discharges for moneys payable to the InvIT and for the claims and demands of the InvIT;

(ii) to enter into all such negotiations and contracts, and, execute and do all such acts, deeds and things for or on behalf of or in the name of the InvIT as the Trustee may consider expedient for or in relation to any of the matters or otherwise for the purposes of the InvIT;

(iii) to sign, seal, execute, deliver and register according to law all deeds, documents, and assurances in respect of the InvIT;

(iv) to take into their custody and/or control all the capital, assets, property of the InvIT and hold the same in trust for the Unit Holders in accordance with the Amended and Restated Trust Deed and the SEBI InvIT Regulations; and

(v) generally, to exercise all such powers as it may be required to exercise under the SEBI InvIT Regulations for the time being in force and do all such matters and things as may promote the InvIT or as may be incidental to or consequential upon the discharge of its functions and the exercise and enforcement of all or any of the powers and rights provided under the Amended and Restated Trust Deed.

2. *Duties of the Trustee*

The Trustee shall perform its duties as required under the Amended and Restated Trust Deed in accordance with the Trusts Act and the SEBI InvIT Regulations, including but not limited to:

(a) *Applications to Governmental Agencies*

The Trustee shall, with the assistance of the Investment Manager, in accordance with the Investment Management Agreement, make all necessary applications to such governmental agencies as may be required for the InvIT to carry on its activities.

(b) *Interests of the Unitholders*

(i) The Trustee shall at all times exercise due diligence in carrying out its duties and use best endeavours to carry on and conduct its business in a proper and efficient manner to protect the interests of the Unitholders and in accordance with the SEBI InvIT Regulations.

(ii) The Trustee shall periodically review the status of Unitholders' complaints and their redressal undertaken by the Investment Manager in accordance with the SEBI InvIT Regulations.

(c) *Receivables due to the InvIT*

The Trustee shall, through the Investment Manager, ensure prompt and proper collection of the receivables due to the InvIT in accordance with applicable law.

(d) *Transactions by certain Persons*

The Trustee shall ensure that all transactions executed by the Investment Manager and any service provider to whom the Trustee has delegated any powers or duties, are done in accordance with the Amended and Restated Trust Deed, the Investment Management Agreement, the SEBI InvIT Regulations and the agreement executed with such service provider.

(e) *Trust Fund*

(i) The Trustee shall hold the trust fund and all assets comprised thereunder, in trust for

the benefit of the Unitholders in accordance with the Amended and Restated Trust Deed and the SEBI InvIT Regulations.

(ii) The Trustee shall also be responsible for opening and operating bank accounts on behalf of the InvIT. It is hereby clarified that, to the extent the authority has been delegated to the Investment Manager in accordance with the Investment Management Agreement, the Investment Manager shall be responsible for undertaking such actions.

(iii) The Trustee shall ensure that the capital contribution received whether by way of (I) public issue of Units through an offer document; or (II) private placement through a placement memorandum, as the case may be, is kept in a separate bank account in the name of the InvIT and is only utilised for adjustment against allotment of Units or refund of money to the applicants in the manner set out in the SEBI InvIT Regulations, and the same will be utilised for the objectives stated in the offer document or the placement memorandum (as the case may be).

(f) *Books of Accounts and Records*

The Trustee shall maintain all the records that are required to be maintained pursuant to Regulation 26(2) of the SEBI InvIT Regulations or otherwise required under applicable law. The Trustee shall also ensure that the Investment Manager maintains the books of accounts of the InvIT in accordance with the Amended and Restated Trust Deed.

(g) *Statutory charges or levies payable by the InvIT*

The Trustee shall, in accordance with the applicable law and on receipt of advice from the Investment Manager, pay all taxes, duties and any other statutory charges or levies that may be payable by the InvIT on behalf of the Unitholders from the funds of the InvIT.

(h) *Reports to be filed by the InvIT*

The Trustee, either by itself or through the Investment Manager, shall from time to time file such reports and provide such information as may be required by the SEBI or Stock Exchanges (if applicable) or any other regulatory authority or as required under the SEBI InvIT Regulations and applicable law, with respect to the activities carried on by the InvIT.

(i) *Documents and information to be provided to the Unitholders*

The Trustee shall, through the Investment Manager, from time to time provide such documents and information to the Unitholders, as may be required by the SEBI, Stock Exchanges (if applicable) or other governmental agencies, with respect to the activities carried on by the InvIT. The Trustee shall comply with intimation requirements under the SEBI InvIT Regulations. The Trustee shall also immediately inform SEBI in case (i) the Investment Manager fails to submit to the Trustee the information or reports as specified under the SEBI InvIT Regulations, within the timelines set out under the SEBI InvIT Regulations; and (ii) any act which is detrimental to the interest of the Unitholders is noted.

(j) *Segregation of Assets & Liabilities*

The assets and liabilities of the InvIT shall at all times be segregated from the assets and liabilities of any other trusts managed by the Trustee. The assets held under the InvIT shall be held for the exclusive benefit of the Unitholders of the InvIT and such assets shall not be subject to the claims of any creditor or other person claiming under any other trust or fund administered by the Trustee or managed by the Investment Manager, as the case may be.

(k) *Attainment of objects of the InvIT*

The Trustee shall ensure that all acts, deeds and things are done with a view to attain the objects of the InvIT as set out in the Amended and Restated Trust Deed, and in compliance with applicable law and the InvIT Documents, in order to secure the best interests of the Unitholders.

(l) *Activities of the Investment Manager*

(i) The Trustee shall delegate all such powers to the Investment Manager as may be required by the Investment Manager to carry out its obligations under the Investment Management Agreement and under applicable law.

(ii) The Trustee shall oversee activities of the Investment Manager in the interest of the Unitholders, ensure that the Investment Manager complies with the SEBI InvIT Regulations and obtain a compliance certificate from the Investment Manager on a quarterly basis, in the form prescribed by SEBI, if any.

(iii) The Trustee shall ensure that the Investment Manager complies with all applicable reporting and disclosure requirements in accordance with the SEBI InvIT Regulations, and other applicable law and in case of any delay or discrepancy, require the Investment Manager to rectify such delay or discrepancy on an urgent basis.

(iv) The Trustee shall require the Investment Manager to set up such systems and procedures and submit such reports to the Trustee, as may be necessary for effective monitoring of the functioning of the InvIT.

(v) The Trustee shall ensure that the activity of the InvIT is being operated in accordance with the provisions of the Amended and Restated Trust Deed, the SEBI InvIT Regulations and the InvIT Document (as applicable), and in the event that any discrepancy is noted, the Trustee shall inform the same to the SEBI immediately in writing.

(vi) The Trustee shall review all documents, reports, records and information submitted by the Investment Manager to the Trustee in accordance with Regulation 10 of the SEBI InvIT Regulations.

(m) *Activities of the Project Manager*

(i) The Trustee shall delegate all such powers to the Project Manager as may be required by the Project Manager to carry out its obligations under the Project Management Agreement and under applicable law.

(ii) The Trustee shall oversee activities of the Project Manager in the interest of the Unitholders, ensure that the Project Manager complies with the SEBI InvIT Regulations and the Project Management Agreement and obtain a compliance certificate from the Project Manager on a quarterly basis, in the form prescribed by SEBI, if any.

(n) *Meetings of Unitholders*

(i) The Trustee shall ensure that the Investment Manager (i) convenes meetings of the Unitholders in accordance with the SEBI InvIT Regulations and (ii) shall oversee the voting by the Unitholders and declare the outcome of such meetings.

Provided that, where there is:

(1) a change or removal of the Investment Manager, or a change in control of the Investment Manager of the InvIT, the Trustee shall be responsible for convening and conducting of the meetings of the Unitholders, as provided in the SEBI InvIT Regulations and the InvIT Documents; and

(2) any issue pertaining to the Trustee, such as change in the Trustee, the Trustee shall not be involved in any manner in the conduct of the meetings of the Unitholders.

(ii) The Trustee shall ensure that the Investment Manager convenes meetings of the Unitholders at least once every year within requisite number of days from the end of a financial year (as prescribed by the SEBI InvIT Regulations) with the period between such meetings not exceeding such number of months.

(iii) The Trustee shall take up with SEBI or with the Stock Exchanges, any matter which has been approved in any meeting of Unitholders, if the matter requires such action.

(o) *Related Party Transactions*

The Trustee shall review and oversee the transactions carried on between the Investment Manager and its Associates and where the Investment Manager has advised that there may be a conflict of interest, the Trustee must obtain a certificate from a practising chartered accountant or a Valuer as applicable specifying that such transactions are on an arms' length basis.

(p) *Change and Change in Control of the Investment Manager*

The Trustee shall (i) obtain the prior approval of the Unitholders in accordance with the requirements of the SEBI InvIT Regulations for a proposed change in the Investment Manager or change in control of the Investment Manager; and (ii) to the extent applicable, obtain prior approval of the SEBI in the event of a proposed change in the Investment Manager or change in control of the Investment Manager.

(q) *Change and Change in Control of the Project Manager*

The Trustee (i) shall appoint a new project manager within the time period prescribed under the SEBI InvIT Regulations; and (ii) in case of a change in control of the Project Manager in a PPP project, it shall ensure that the written consent of the relevant concessioning authority is obtained in terms of the relevant concession agreement prior to such change, where applicable.

(r) *Suspension of Trustee's Registration*

The Trustee shall, promptly on occurrence, inform the Investment Manager and the Unitholders of a cancellation, revocation or suspension of its registration to act as a trustee under applicable law or a breach of the terms of such registration that will materially impair its ability to perform its obligations and exercise its powers.

(s) *Investment by Trustee*

The Trustee and its Associates shall not invest in Units of the InvIT.

(t) *Confidentiality*

The Trustee and its directors, officers, employees and agents shall at all times maintain confidentiality as regards the activities and assets of the InvIT and such other matter connected with them and the InvIT generally and shall not disclose any confidential information to any other person, other than the Investment Manager, or the Project Manager, unless such information is required to be disclosed to some regulatory authority, court or any other person under any order of court or any law in force in India.

(u) *Winding up of the InvIT*

The Trustee shall wind up the InvIT in accordance with the SEBI InvIT Regulations and applicable law. Upon winding up of the InvIT, the Trustee shall surrender the certificate of registration to SEBI.

(v) *General Duties*

Without limiting the foregoing general duties, the Trustee shall perform all the duties and obligations set out in the SEBI InvIT Regulations, including those applicable duties and obligations set out in Regulation 9 of the SEBI InvIT Regulations, as may be amended, modified or supplemented from time to time.

3. *Rights of the Trustee*

The Trustee shall have the following rights:

(a) The Trustee shall have the right to receive trusteeship fees from the funds of the InvIT for services to be rendered in relation to the administration and management of the InvIT.

(b) The Trustee may, in the discharge of its duties, act upon any advice obtained in writing from any qualified bankers, accountants, brokers, lawyers, professionals, consultants, or other experts acting as advisors to the Trustee.

(c) The Trustee may, on the recommendation of the Investment Manager, appoint any scheduled commercial bank to act as the banker to the InvIT, on the same terms and conditions extended by such a bank to similar customers.

(d) The Trustee shall be entitled to the reimbursement of all reasonable expenses incurred by the Trustee on behalf of the InvIT, including any direct or indirect tax or duty, which has become or may become leviable under applicable law.

(e) The Trustee acknowledges that no Unitholder (acting in its capacity as a Unitholder) shall be entitled to inspect or examine the InvIT's premises or properties (or documents relating thereto) without the prior permission of the Investment Manager. Further, no Unitholder (acting in its capacity as a Unitholder) shall be entitled to require discovery of any information with respect to any detail of the InvIT's activities or any matter which may be related to the conduct of the business of the InvIT and which information may, in the opinion of the Investment Manager adversely affect the interest of other Unitholders.

(f) The Trustee may accept as sufficient evidence for the value of any investment or for the cost price or sale price thereof or for any other fact within its competence, a certificate by a Valuer or any other professional appointed by the Investment Manager for the purpose

4. *Liabilities of the Trustee*

The liabilities of the Trustee in terms of the Amended and Restated Trust Deed are as follows:

(a) **Assets received by the Trustee**: The Trustee shall only be liable for such monies, stocks, funds, shares, securities, investment or property as the Trustee shall have actually received and shall not be liable or responsible for any banker, broker, custodian or other person in whose hands the same may be deposited or placed, nor for the deficiency or insufficiency in the value of the funds of the InvIT nor otherwise for any involuntary loss provided that the Trustee or such person shall have acted in good faith, without gross negligence and shall have used their best efforts in connection with such dealings and matters.

Any receipt signed by the Trustee for any monies, stocks, funds, shares, securities, investment or property, paid, delivered or transferred to the Trustee by virtue of the Amended and Restated Trust Deed or in exercise of the duties, functions and powers as Trustee, shall effectively discharge the Trustee or the person paying, delivering or transferring the same provided that the Trustee or such person shall have acted in good faith, without gross negligence and shall have used their best efforts in connection with such dealings and matters.

(b) **Acts done in good faith**: The Trustee shall not be under any liability on account of anything done or omitted to be done or suffered by the Trustee in good faith in accordance with, or in pursuance of any request or advice of the Investment Manager.

(c) **Authenticity of signature and seal***:* The Trustee shall not be responsible for the authenticity of any signature or of any seal affixed to any endorsement on any certificate or to any transfer or form of application endorsement or other document effecting the title to or transmission of interests in the InvIT or of any of the investments or be in any way liable for any forged or unauthorised signature on or any seal affixed to such endorsement transfer or other document or for acting upon or giving effect to any such forged or unauthorised signature or seal. The Trustee shall be entitled but not bound to require that the signature of any Unitholder to any document required to be signed by such Unitholder under or in connection with these presents, be verified to the reasonable satisfaction of the Trustee.

(d) **Depletion in the value of the InvIT Assets***:* The Trustee shall not be liable for any act or omission that may result in a loss to an Unitholder by way of depletion in the value of the funds

of the InvIT or otherwise, except in the event that such depletion is a result of fraud, gross negligence or misconduct on the part of the Trustee as determined by the court of competent jurisdiction or results from a breach by the Trustee of the Amended and Restated Trust Deed, as conclusively determined by a court of competent jurisdiction.

(e) **Indemnity**: It is hereby expressly provided that, in addition to the fees, distributions and expense reimbursements herein described, the InvIT Assets shall be utilized to indemnify and hold harmless the Trustee, the Sponsor and any of their respective officers, directors, shareholders, sponsors, partners, members, employees, advisors and agents ("**Indemnitees**") from and against any claims, losses, costs, damages, liabilities and expenses, including legal fees ("**Losses**") suffered or incurred by them by reason of their activities on behalf of the InvIT, unless such Losses resulted from fraud, gross negligence, wilful default or wilful misconduct or breach of any obligations or duties under applicable law by the relevant Indemnitee, as determined by a court of competent jurisdiction.

(f) **Obligations as per the Indian Trusts Act**: Nothing in the Amended and Restated Trust Deed exempts or indemnifies the Trustee against liability for: (i) breach of trust under the Indian Trusts Act, 1882; or (ii) fraud, gross negligence or misconduct as determined by the court of competent jurisdiction by the Trustee.

(g) **Acts or things required to be done by the Trustee under law***:* The Trustee shall not be liable to the Unitholders for doing or failing to do any act or thing which by reason of any provision of applicable law, or of any decree, order or judgment of any court, or by reason of any direction made by any person acting with or purporting to exercise the authority of any governmental agency, it is directed or requested to do or perform or to forbear from doing or performing. If, for any reason it becomes impossible or impracticable to carry out any act or thing under the provisions of the Amended and Restated Trust Deed, the Trustee shall not be under any obligation to perform such act or thing.

(h) **Suits, proceedings or claims against the Trust**: The Trustee shall not be under any obligation to institute, acknowledge the service of, appear in, prosecute or defend any action, suit, proceedings or claim (including tax proceedings) in respect of the provisions of the Amended and Restated Trust Deed or in respect of the assets of the InvIT or any part thereof or any corporate action which in its opinion, acting on advice of the Investment Manager would or might involve an expense or a liability, unless the Investment Manager shall so request in writing and the Trustee is satisfied that the value of the investment is sufficient to provide adequate indemnity against costs, claims, damages, expenses or demands to which it may be put as the trustee as a result thereof. The costs in relation to such action, suit, proceedings or claims (whether undertaken upon request of Investment Manager or otherwise) incurred by the Trustee in connection with or arising out of the InvIT, shall be borne by the InvIT.

(i) **Trustee to act as trustee of other trusts**: Nothing shall preclude the Trustee from acting as trustee of other trusts, alternate investment funds, venture capital funds, private equity funds, real estate investments trusts, infrastructure investment trusts, private trusts or customized fiduciary trusts separate and distinct from the InvIT, and retaining for its own use and benefit all remuneration, profits and advantages which it may derive therefrom, as permitted under applicable law.

(j) **Trustee to not risk its monies**: If the Trustee engages any external advisors or experts after having obtained the consent of the Investment Manager, to discharge its obligations, or undertakes any work (after having obtained the consent of the Investment Manager, in the interest of the Unitholders) which is not covered within the scope of work of the Trustee and such additional work is beyond the obligations of the Trustee under applicable law, the Trustee shall be entitled to recover such costs, charges and expenses which the Trustee may incur in this regard, from the funds of the InvIT. Further, it is clarified that, the Trustee will not be required to utilize funds held by the Trustee, for any other trust for which, IDBI Trusteeship Services Limited is appointed as a trustee.

5. *Provisions relating to Unitholders*

(a) The Unitholders shall be entitled to receive the Distributions made by the InvIT in the proportion

of their respective beneficial interest. The Beneficial Interest of each Unitholder shall be equal and limited to the proportion of the number of Units held by that Unitholder to the total number of Units issues by the InvIT as on a relevant date.

(b) No Unitholder shall have a right or authority to act for, or bind, the InvIT. Further, no Unitholder shall have a right to make decisions with respect to the InvIT, save and except to the extent provided in the Offer Documents and the SEBI InvIT Regulations. The approval of the Unitholders will be obtained in the manner and to the extent specified in the SEBI InvIT Regulations.

(c) The liability of each Unitholder towards the payment of any amount (that may arise in relation to the trust fund including any taxes, duties, fines, levies, liabilities, costs or expenses) shall be limited only to the extent of the capital contribution of such Unitholder and after such capital contribution shall have been paid in full by the Unitholder, the Unitholder shall not be obligated to make any further payments. For the avoidance of doubts, no Unitholder shall have any personal liability or obligation with respect to the InvIT.

(d) Each Unit allotted to the Unitholders shall have one vote for any decisions requiring a vote of Unitholders.

(e) No Unitholder shall enjoy superior voting or any other rights over another Unitholder.

(f) In no event shall a Unitholder have or acquire any rights against the Trustee and the Investment Manager except as expressly conferred on such Unitholder hereby or in the other InvIT Documents in accordance with the SEBI InvIT Regulations, nor shall the Trustee or the Investment Manager be bound to make payment to any Unitholder, except out of the funds held by it for the purpose under the provisions of the Amended and Restated Trust Deed.

(g) A Unitholder whose name and account details are entered in the depository register shall be the only person entitled to be recognized by the Trustee as having a right, title, interest in or to the Units registered in his name and the Trustee shall recognize such holder as an absolute owner. Provided that the Trustee shall be required to recognize and give effect to the terms of any voting arrangements, power of attorneys and proxies executed by Unitholders in respect of their Units, in respect of which the Trustee has been notified

(h) The Unitholders shall not give any directions to the Trustee, the Investment Manager or the Project Manager (whether in a meeting of Unitholders or otherwise) if it would require the Trustee, the Investment Manager or the Project Manager to do or omit doing anything which may result in:

(i) the InvIT or the Trustee, in its capacity as the trustee of the InvIT or the Investment Manager, in its capacity as the investment manager of the InvIT or the Project Manager, in its capacity as the project manager of the InvIT ceasing to comply with applicable law; or

(ii) interference with the exercise of any discretion expressly conferred on the Trustee by the Amended and Restated Trust Deed or the Investment Manager or the Project Manager by the Investment Management Agreement or the Project Management Agreement, respectively, or the determination of any matter which requires the agreement of the Trustee or the Investment Manager, provided that nothing shall limit the right of the Unitholder to require the due administration of the InvIT.

(i) The depository register shall (save in case of manifest error) be conclusive evidence of the number of Units held by each depositor and in the event of any discrepancy between the entries of the depository register and any statement issued by the depository, the entries in the depository register shall prevail unless the depositor proves to the satisfaction of the Trustee and the depository that the depository register is incorrect.

(j) The Unitholders shall have the right to call for certain matters to be subject to their consent, in accordance with the SEBI InvIT Regulations and applicable law.

(k) The Unitholders may transfer any of the Units to an investor where such investor accepts all the

rights and obligations of the transferor and the Trustee or the Investment Manager shall give effect to such transfer in accordance with applicable law.

(l) The Trustee shall and shall ensure that the Investment Manager obtains the consent of the Unitholders for the matters prescribed under the SEBI InvIT Regulations and/or the Offer Documents, in accordance with the provisions of the SEBI InvIT Regulations. For matters requiring approval under the Offer Documents and SEBI InvIT Regulations, consent or vote of the Unitholders, the approval, consent or vote shall be on the basis of the relevant threshold in terms of the beneficial interest held by the Unitholders.

6. *Indemnity*

In addition to the fees, distributions and expense reimbursements herein described, the InvIT Assets shall be utilized to indemnify and hold harmless the Trustee, the Sponsor and any of their respective officers, directors, shareholders, sponsors, partners, members, employees, advisors and agents ("**Indemnitees**") from and against any claims, losses, costs, damages, liabilities and expenses, including legal fees ("**Losses**") suffered or incurred by them by reason of their activities on behalf of the InvIT, unless such Losses resulted from fraud, gross negligence, wilful default or wilful misconduct or breach of any obligations or duties under applicable law by the relevant Indemnitee, as determined by a court of competent jurisdiction.

7. *Termination*

The InvIT is subject to automatic dissolution and early termination, without any further action of the Unitholders in accordance with and subject to the SEBI InvIT Regulations and applicable law:

(a) in the event of the InvIT becoming illegal;

(b) if it is impossible to continue with the InvIT or if the Trustee on advice of the Investment Manager deems it impracticable to continue the InvIT;

(c) if the Units of the InvIT are delisted from the Stock Exchanges;

(d) where SEBI has passed a direction for the winding up of the InvIT or if the InvIT is required to be wound up pursuant to the SEBI InvIT Regulations;

(e) in the event SEBI refuses to grant a certificate of registration to the InvIT, due to any reason whatsoever; or

(f) if the InvIT fails to make any offer of Units within the time period stipulated in the SEBI InvIT Regulations or any other time period as specified by SEBI (whichever is earlier), in which case the SEBI InvIT shall surrender its certificate to SEBI and cease to operate as an infrastructure investment trust, unless the period is extended by SEBI.

C. The Investment Manager – GR Highways Investment Manager Private Limited

History and Certain Corporate Matters

GR Highways Investment Manager Private Limited is the investment manager of the InvIT. The Investment Manager was incorporated in India as a private limited company on March 23, 2022 under the Companies Act, 2013 with corporate identification number U65999HR2022PTC102221. The Investment Manager's registered office and address for correspondence is Second Floor, Novus Tower, Plot No. 18, Sector 18, Gurugram, Haryana 122 015, India. For further details, see '***General Information***' on page 61.

Background and Past Experience of the Investment Manager

The Investment Manager has the infrastructure for acting as the manager, and to manage the assets and investments of the InvIT. The Investment Manager is a newly incorporated private limited company and will be relying on the experience/ expertise of its employees in the financial management, advisory and/or infrastructure development sector, to comply with the eligibility requirements under the SEBI InvIT Regulations. Accordingly, the Investment Manager is in compliance with the eligibility requirements prescribed under the SEBI InvIT Regulations.

The net worth of the Investment Manager as on July 20, 2022, stood at ₹149.10 million on a standalone basis. The Investment Manager shall (i) comply with the minimum net worth requirement set out in Regulation 4(2)(e)(i) of the SEBI InvIT Regulations.

The equity shareholding pattern of the Investment Manager is as follows:

S. No.	Name of the shareholder	No. of equity shares held	Percentage (%)
1.	The Sponsor	14,999,990	99.9
2.	Purushottam Agarwal[#]	10	0.1
Total		**15,000,000**	**100**

[#] *The Sponsor is the beneficial owner of these equity shares.*

Other Confirmations

The Investment Manager confirms that it has, and undertakes to ensure that it will at all times maintain, adequate infrastructure, personnel and resources to perform its functions, duties and responsibilities with respect to the management of the InvIT, in accordance with SEBI InvIT Regulations, the Investment Management Agreement and applicable law. None of the directors of the Investment Manager hold or propose to hold any Units in this Issue.

Further, as of the date of this Draft Offer Document, the Investment Manager is in compliance with the eligibility criteria provided under Regulation 4 of the SEBI InvIT Regulations and is a "fit and proper person" as prescribed under SEBI Intermediaries Regulations.

Further, neither the Investment Manager nor any of the promoters or directors of the Investment Manager: (i) are debarred from accessing the securities market by SEBI; (ii) are promoters, directors or persons in control of any other company or a sponsor, investment manager or trustee of any other infrastructure investment trust or an infrastructure investment trust which is debarred from accessing the capital market under any order or direction made by SEBI; (iii) are wilful defaulters or fraudulent borrowers; or (iv) are fugitive economic offenders.

Details of the Holding or the Proposed Holding by Investment Manager in the InvIT

The Investment Manager does not propose to hold any Units of the InvIT.

Brief biographies of the Directors of the Investment Manager

Please see below brief biographies of the Directors of the Investment Manager:

1. Ajendra Kumar Agarwal

Ajendra Kumar Agarwal is the chairman and a non-executive Director on the board of the Investment Manager. He is also the managing director on the board of directors and one of the promoters of GRIL. He holds a bachelor of engineering degree in civil engineering from the University of Jodhpur and has over 25 years of experience in the road construction industry. He is responsible for overseeing the overall functioning of GRIL, especially the operational and technical aspects, of GRIL. He heads the in-house design team and is actively involved in continuous value engineering using the latest specifications and methodologies. He is also the head of budgeting, planning and monitoring process which has leveraged the timely completion of the projects. He has been a director on the board of directors of GRIL since 2006.

2. Siba Narayan Nayak

Siba Narayan Nayak is a non-executive Director on the board of the Investment Manager. He has over 34 years of experience in public as well as private sectors, working across various functions including finance, accounts, resource mobilization and indirect taxation. He has specialized exposure in the infrastructure sector more particularly in roads, power and real estate. Presently, he is also working as President (Corporate Affairs and Development) in GRIL and is responsible for its diversification strategies into other business activities. Prior to joining GRIL, he worked with the NHAI. In his five years' tenure at NHAI as the chief general manager (financial analyst) he has handled several finance and project related activities. He has passed the final examinations of the Institute of Cost and Works Accountants of India and the Institute of Company Secretaries of India.

3. Raghav Chandra

Raghav Chandra is an additional independent director on the board of the Investment Manager. He holds a master's degree in public administration from Harvard University, United States of America. He is a former Indian Administrative Service officer from the batch of 1982. He has over 35 years of experience in areas including public administration, tribal affairs, industrial housing and urban infrastructure development. Prior to joining the Investment Manager, he has served in several positions including as the Secretary for the National Commission for Scheduled Tribes, Chairman of the National Highways Authority of India, Joint Secretary for the MoRTH, Principal Secretary for the Urban Administration & Development Department, Government of Madhya Pradesh, Additional Secretary for the Ministry of Agriculture, Government of India and principal secretary for the Technical Education and Training Department, Government of Madhya Pradesh. He has also served as an adjunct faculty in the Indian Institute of Corporate Affairs under the MCA.

4. Deepak Maheshwari

Deepak Maheshwari is additional independent director on the board of the Investment Manager. He holds a bachelor's degree in commerce from the University of Rajasthan. He is a certified associate of the Indian Institute of Bankers. He has over 40 years of experience in banking and finance. He is also on the board of directors of Axis Finance Limited. Prior to joining the Investment Manager, he has served as the chief credit officer at Axis Bank Limited and the group head (wholesale credit risk) at HDFC Bank Limited. In the past, he has been associated with the State Bank of India and has also been a director on the board of directors of Federal Bank Limited.

Brief profiles of the key personnel of the Investment Manager

Set out below are the details of the key personnel of the Investment Manager:

1. Amit Kumar Singh

Amit Kumar Singh is the chief executive officer of the Investment Manager. He has passed the final examination for a bachelor's degree in commerce from the University of Calcutta and has also passed the final examination of the Institute of Chartered Accountants of India. Prior to joining the Investment Manager, he had worked as the senior vice president in HDFC Bank Limited. In the past, he has also been associated with Industrial Development Bank of India Limited and Citicorp Finance (India) Limited.

2. Harshael Sawant

Harshael Sawant is the chief financial officer of the Investment Manager. He holds a bachelor's degree in mechanical engineering from the University of Mumbai and a post graduate diploma in management from S. P. Mandali's Prof. L. N. Welingkar Institute of Management Development & Research, Mumbai. Prior to joining the Investment Manager, he has been associated with L&T Financial Services Limited, HDFC Bank Limited, YES Bank Limited, SBI Capital Markets Limited, BOB Capital Markets Limited and IL&FS Transportation Networks Limited.

3. Mohnish Dutta

Mohnish Dutta is the company secretary of the Investment Manager. He is also the Compliance Officer. He holds a bachelor's of commerce degree from the University of Delhi and is also a member of the Institute of Company Secretaries of India. Prior to joining the Investment Manager, he has been associated with G R Infraprojects Limited and IEC Education Limited.

Key Terms of the Investment Management Agreement

The Investment Manager has entered into the Investment Management Agreement, in terms of the SEBI InvIT Regulations, the key terms of which, are provided below.

1. ***Powers of the Investment Manager***

The Investment Manager has been provided with various powers under the Investment Management Agreement in accordance with the SEBI InvIT Regulations, including but not limited to:

(a) **Power to manage and administer the InvIT and its Investments***:* The Investment Manager shall take all decisions in relation to the management and administration of the InvIT, the funds of the InvIT and the investments of the InvIT as may be incidental or necessary for the advancement or fulfilment of the objectives of the InvIT and investment strategy.

(b) **Power to make investment and divestment decisions**: The Investment Manager shall make investment decisions with respect to the InvIT and the funds of the InvIT including any investments or divestments, and in this regard is also empowered to do the following acts on behalf of the InvIT:

(i) acquire, hold, manage, trade and dispose of the InvIT Assets, shares, stocks, convertibles, debentures, bonds, equity, equity-related securities, debt or mezzanine securities of all kinds issued by any holding company or SPV (including loans convertible into equity), whether in physical or dematerialised form, including power to hypothecate, pledge or create encumbrances of any kind on such securities held by the InvIT in such holding company/ SPV to be used as collateral security for any borrowings by the InvIT;

(ii) make all decisions, concerning the investigation, selection, development, negotiation, structuring, restructuring, monitoring, divestment of investments (including any additions or accretions thereto);

(iii) manage, acquire, hold, sell, securitize, transfer, exchange, pledge and dispose of investments (including any additions or accretions thereto), and exercise all rights, powers, privileges and other incidents of ownership or possession with respect to investments;

(iv) to decide (a) the amounts to be invested in each new entity or any other asset, as permitted under the SEBI InvIT Regulations, that is to form part of the InvIT and the mode, manner, terms and conditions for making such investment; and (b) to realize such investments and the income therefrom, and distribute the same to the Unitholders or reinvest the same, as may be decided by the Investment Manager in compliance with the SEBI InvIT Regulations;

(v) keep the funds of the InvIT in deposits with banks or in such other instruments or form as permitted under the SEBI InvIT Regulations in the name of the InvIT;

(vi) collect and receive the profit, interest, repayment of principal of debt or debt-like or equity or equity-like mezzanine securities, dividend, return of capital of any type by the Project SPVs or of the InvIT Assets and any other income of the InvIT;

(vii) make investments, including investments in liquid mutual funds, government securities, money market instruments and cash equivalents, in the manner and to the extent permitted under the SEBI InvIT Regulations;

(viii) to give, provide and agree to provide to any Project SPV, financial assistance in the form of investment in the InvIT's debt securities or share capital of any class including ordinary, preference, participating, non-participating, voting, non-voting or other class, and in the form of investment in securities convertible into share capital; and

(ix) keep the capital and monies of the InvIT in deposit with banks or other institutions.

(c) **Objects of the InvIT**: The Investment Manager is hereby authorized to do all such other acts, deeds and things as may be incidental or necessary for the advancement or fulfillment of the objectives of InvIT, as set out in the Amended and Restated Trust Deed and the Offer Documents.

(d) **Power to issue and to accept subscription to Units of the InvIT**: The Investment Manager shall have the power to cause the issue and allotment of the Units, including specifically in accordance with the SEBI InvIT Regulations, to the extent applicable. The Investment Manager shall have the power to accept capital contribution for the InvIT and subscriptions to Units and undertake all related activities.

(e) **Power to apportion between income and capital**: The Investment Manager shall make such reserves out of the income or capital as it may deem proper and any directions of the Trustee in this behalf whether made in writing or implied from their acts shall, so far as the law may permit, be conclusive and binding. Any Distribution made from such reserves shall be in accordance with the SEBI InvIT Regulations.

(f) **Power to maintain register of Unitholders**: The Investment Manager shall cause the depository to maintain a register of Unitholders.

(g) **Power to make reserves**: Subject to the provisions of the SEBI InvIT Regulations (including particularly the requirements to make Distributions in accordance with Regulation 18(6) of the SEBI InvIT Regulations) and other applicable law, the Investment Manager shall, as it may deem proper make such reserves as may be required, from time to time.

(h) **Power to borrow***:* The Investment Manager may cause the InvIT to issue debentures, borrow monies (through any mode, including by way of issuance of debt securities, subordinated debt, equity or other securities or instruments permitted under the SEBI InvIT Regulations or other applicable law) from any person or authority (whether government or otherwise, whether Indian or overseas) on such terms and conditions, and for such periods and purpose, as may be permitted under the SEBI InvIT Regulations or to defer payments or raise funds in any other form as per applicable law, subject to the conditions laid down in the SEBI InvIT Regulations (including the requirement to procure approvals from the Unitholders, as may be required).

(i) **Power to exercise rights in respect of the funds of the InvIT**: Subject to and in compliance with any conditions laid down in the SEBI InvIT Regulations and other applicable law, the Investment Manager shall have the power to exercise all rights in relation to the shareholding of the InvIT in the Project SPVs and other assets or securities held by the InvIT, including voting rights, rights to appoint directors (in consultation with the Trustee), whether pursuant to securities held by the InvIT, or otherwise.

(j) **Power to appoint a Project Manager**: The Trustee, in consultation with the Investment Manager shall, on behalf of the InvIT, appoint the Project Manager to undertake, by itself or through appropriate agents, operations and management of the InvIT Assets in accordance with applicable law and shall, for this purpose, execute the Project Management Agreement with the Project Manager.

(k) **Power to appoint professional service providers, advisors, intermediaries and agents**:

(i) The Investment Manager, in consultation with the Trustee, shall have the power to appoint, determine the remuneration of and enter into, execute, deliver, perform, modify or terminate all documents and agreements, any contacts, agreements, including share purchase agreement, deed of right of first offer and refusal, escrow agreements, debt documentation, underwriting agreements and other documents, any investment pooling agreement, agreement relating to strategic investments, co-investment agreements and other any and all documents and instruments containing customary terms including contractual indemnities with, among others, Valuers, Auditors, registrar and transfer agents, merchant bankers, credit rating agencies, Custodians and any other intermediary or service provider or advisor or agent including any amendments or supplements thereto as may be required for managing the assets of the InvIT and as per the provisions of the SEBI InvIT Regulations and other applicable law.

(ii) The Investment Manager shall not be responsible for the default or violation by any such professional service provider, intermediary, advisor, or agent of their terms of service, if employed in good faith to transact any business identified in the arrangement with them.

(iii) All fees in relation to such professional service providers, intermediaries and agents shall be determined by the Investment Manager and shall be to the account of the InvIT, to be paid out of the funds of the InvIT or in such manner as may be permitted under applicable law. Provided however, the remuneration of the Valuer shall not be linked

to or based on the value of the assets underlying the funds of the InvIT being valued by the Valuer. The Investment Manager shall be entitled to rely on the information, data, opinions and reports provided by such professional service providers, intermediaries and agents.

(iv) The Investment Manager shall not appoint an Auditor, a Valuer and such other intermediaries, advisors or agents (as applicable) for consecutive periods greater than as permitted under the SEBI InvIT Regulations, without the consent of the Unitholders or the relevant governmental agencies, as may be required under the SEBI InvIT Regulations or other applicable law.

(l) **Power to appoint Custodians**: The Investment Manager may, in consultation with the Trustee, appoint any custodian in order to provide custodian services, oversee the activities of the custodian, and may permit any asset (and/ or any documents pertaining thereto, as applicable) forming part of the funds of the InvIT to be and remain deposited with a custodian, subject to such deposit as authorised by the Trustee and permissible under applicable law.

(m) **Power to pay fees and Taxes**: In the event of any fees or taxes (and any interest or penalty chargeable thereon) whatsoever becoming payable in any jurisdiction in respect of the InvIT or in respect of the documents issued or executed in pursuance of the Investment Management Agreement and the Amended and Restated Trust Deed in any circumstances whatsoever, the Investment Manager, shall have the power and duty to pay all such fees or taxes and any interest or penalty thereon as well as to create any reserves for future potential tax liability (and any such interest or penalty) out of the InvIT's income, in accordance with applicable law. The Investment Manager shall also have the power to file any income tax returns on behalf of the InvIT, and ensure compliance with income tax provisions, as may be required under applicable law.

(n) **Power to spend on behalf of the InvIT**: The Investment Manager shall have the power to pay the expenses of the InvIT that are required to be paid by the InvIT out of the funds of the InvIT.

(o) **Power to take counsel's opinion**: The Investment Manager shall have the power to take the opinion of legal/ tax counsel in any jurisdiction concerning any difference arising under this Agreement or any matter in any way relating to this Agreement or to its duties in connection with the Investment Management Agreement.

(p) **Power to re-invest**: The Investment Manager, may retain for reinvestment into a potential InvIT Asset or Project SPV, any proceeds received by the InvIT from any sale of any InvIT Assets or any Project SPV or any shares or interest in the Project SPV or the other investments held by the InvIT in accordance with the SEBI InvIT Regulations. In such circumstances, the Investment Manager shall not be required to distribute any amounts retained for re-investment to the Unitholders.

(q) **Power to effect compromises**: The Investment Manager shall have the power to:

(i) accept any property before the time at which it is transferable or payable;

(ii) accept any composition or any security movable or immovable for any equity or other property;

(iii) allow any time of payment of any equity; and

(iv) compromise, compound, abandon, submit to arbitration or otherwise pay and settle any equity account, claim or thing whatsoever relating to the InvIT.

(r) **Power to make policies***:* The Investment Manager may, make internal policies to generally evolve, formulate and adopt from time to time such policies and procedures as may be conducive for the effective administration and management of the InvIT and the attainment of the objectives of the InvIT. In particular, and without prejudice to the generality of such power, the Investment Manager may provide for all or any of the following matters namely:

(i) norms of investment by the InvIT in accordance with the objectives of the InvIT and

in accordance with the powers and authorities of the Trustee as set out in the Amended and Restated Trust Deed and those delegated to the Investment Manager;

(ii) matters relating to entrustment/ deposit or handing over of any documents, etc. pertaining to the investments in the Project SPVs or other assets, to one or more Custodians and the procedure relating to the holding thereof by the custodian;

(iii) such other administrative, procedural or other matters relating to the administration or management of the affairs of the InvIT thereof and which are not by the very nature required to be included or provided for in the Amended and Restated Trust Deed or the Investment Management Agreement;

(iv) procedure for seeking approval of the Unitholders in accordance and in compliance with the SEBI InvIT Regulations; and

(v) procedure for summoning and conducting of meetings of Unitholders.

(s) **Power to insure property***:* The Investment Manager shall arrange for and ensure that assets forming part of the funds of the InvIT are adequately insured. The Investment Manager shall (as applicable), out of the funds of the InvIT, pay the requisite premiums in relation to the insurances procured for the assets forming part of the funds of the InvIT directly held by the InvIT and shall ensure that the Project SPVs pay the requisite premiums in relation to the insurances procured for their respective assets.

(t) **Power to restrict right to inspect***:* The Trustee acknowledges that no Unitholder shall be entitled to inspect or examine the premises or properties of the InvIT without the prior written permission of the Investment Manager. Further, no Unitholder (acting in its capacity as a Unitholder) shall be entitled to require discovery of any information with respect to any detail of the activities of the InvIT or any matter which may be related to the conduct of the business of the InvIT.

(u) **Power to buyback Units*:*** The Investment Manager may facilitate the redemption of Units, return of capital to the Unitholders and/ or buyback of Units from the Unitholders by the InvIT in any manner in accordance with applicable law.

(v) **Other powers***:* The Investment Manager shall also have the following powers and authorities, subject to the provisions of the SEBI InvIT Regulations:

(i) to pay or satisfy or to compromise or compound upon such terms which the Investment Manager may deem expedient, any debt or damages owing to or claimed by or from the InvIT or for which the InvIT may or may be alleged to be liable in respect of the transactions done by the Investment Manager on behalf of the InvIT;

(ii) to make and give receipts, releases and other discharges for monies payable to the InvIT and for the claims and demands made or to be made by the InvIT;

(iii) to negotiate and execute contracts, and/ or terminate or modify such contracts and do all such acts, deeds and things for or on behalf of or in the name of the InvIT as the Investment Manager may consider expedient for managing the InvIT (including without limitation entering into agreements for acquisition of assets or entities that are to be included as Project SPVs under the InvIT, indemnity agreements, deed of right of first offer and refusal, escrow agreements, debt documentation, underwriting agreements, any investment pooling agreement, agreement relating to strategic investments, co-investment agreements, brand licensing agreements or such other agreements as may be required to be executed by the InvIT);

(iv) to vary, alter, postpone, extend or cancel the terms and conditions of agreements in relation to the investments, as entered into with the relevant parties, such as the Project SPVs;

(v) to ascertain, appropriate, declare and distribute or reinvest the surplus in the funds of the InvIT in compliance with the SEBI InvIT Regulations, to determine and allocate

income, profits, gains and expenses in respect of the InvIT to and amongst the Unitholders;

(vi) to open one or more bank accounts for the purposes of the InvIT, to deposit and withdraw money and fully operate the same;

(vii) to sign, seal, execute, deliver and register according to applicable law, all deeds, documents, and assurances in respect of the InvIT;

(viii) along with the Trustee, to initiate, prosecute and/ or defend any action or other proceedings in any court of law or through arbitration or conduct, compromise, enforce, compound, defend, answer, oppose or abandon any legal proceedings, for or on behalf of or in the name of the InvIT to defend, compound or otherwise deal with any such proceedings against the InvIT or its officers or concerning the affairs of the InvIT, and also to compound and allow time for payment or satisfaction of any equity due and of any claims or demands by or against the InvIT or in any other manner for recovery of debts or sums of money, for any claim, actions or suits in respect of and for or on behalf of InvIT, right, title or interest in the assets forming part of the funds of the InvIT or any other matter in connection therewith, and to discontinue or settle any of the above, as the Investment Manager shall in its best judgment or discretion deem fit;

(ix) appoint counsel or appear before the relevant authorities, submit information, seek clarifications from any governmental agency and complete, sign and submit any applications or documents for any approvals, permissions, or actions that may be necessary or desirable;

(x) to sign and verify all written statements, petitions, appeals, declarations, revisions and applications in connection with any proceedings and have the power to refer any claim to arbitration and to perform, observe and challenge the awards;

(xi) to issue statement of accounts to the Unitholders on behalf of the Trustee in accordance with applicable law, to submit Units for dematerialisation and to make all applications and execute all documents with the depositories and depository participants as may be necessary in this regard;

(xii) to retain and pay to the relevant governmental agencies, any amounts that the Trustee or the Investment Manager is required to, or may deem prudent to, withhold from the amounts to be distributed to the Unitholders;

(xiii) to open and operate demat accounts for the InvIT to hold the investments (where applicable);

(xiv) to set up such systems and procedures, and submit such reports, as may be required by the Trustee as necessary for effective monitoring of the functioning of the InvIT; and

(xv) to exercise all such powers as it may be required to exercise under the SEBI InvIT Regulations for the time being in force and do all such matters and things as may promote the objectives of the InvIT or as may be incidental to or consequential upon the discharge of its functions and the exercise and enforcement of all or any of the powers and rights under the Investment Management Agreement and the SEBI InvIT Regulations.

2. *Duties of the Investment Manager*

The Investment Manager shall perform its duties as required under the Investment Management Agreement in accordance with the SEBI InvIT Regulations, including but not limited to:

(a) **Duty to manage the InvIT***:* The Investment Manager shall coordinate with the Trustee, as may be necessary, with respect to the operations of the InvIT. The Investment Manager shall undertake the management of the InvIT Assets including all decisions in relation to the administration and operation of the InvIT and the funds of the InvIT as may be incidental and

necessary for the advancement or fulfilment of the objectives of the InvIT.

(b) **Duty to undertake valuation**: The Investment Manager shall have the InvIT Assets valued by an independent valuer and submit the same to the Trustee and Unitholders, either electronically or through physical copies, or to the extent applicable, to the Stock Exchanges in such form and within the timeframes as prescribed in the SEBI InvIT Regulations (including particularly Regulation 21 therein). The Investment Manager shall ensure that the computation and declaration of Net Asset Value of the InvIT is undertaken based on the valuation done by the Valuer and to the extent applicable, declared to the Stock Exchanges, in accordance with the SEBI InvIT Regulations.

(c) **Insurance**: The Investment Manager shall maintain adequate insurance coverage for the InvIT Assets comprised in the funds of the InvIT in accordance with the SEBI InvIT Regulations and shall ensure that assets (including the InvIT Assets) held by the Project SPVs are adequately insured.

(d) **Accounts, audit and reporting*:*** The Investment Manager shall maintain (for such periods as may be prescribed under the SEBI InvIT Regulations) proper books of accounts, documents and records with respect to the InvIT, in the manner set out in the Amended and Restated Trust Deed, to give a true, fair and accurate account of the investments, expenses, earnings, profits, etc. of the InvIT. The Investment Manager shall ensure that audit of the accounts of the InvIT by the Auditors is undertaken in accordance with the SEBI InvIT Regulations and its report is submitted to the Trustee and Unitholders either electronically or through physical copies, or to the extent applicable, to the Stock Exchanges in such form and within the time period specified in the SEBI InvIT Regulations.

(e) **Distributions**: The Investment Manager shall declare Distribution to Unitholders in accordance with Regulation 18 of the SEBI InvIT Regulations and the Offer Documents. The Investment Manager shall maintain a record (for such periods as may be prescribed by the SEBI InvIT Regulations) of the Distributions declared and made to the Unitholders.

(f) **Meeting of Unitholders**:

(i) The Investment Manager shall convene meetings of the Unitholders in accordance with the SEBI InvIT Regulations (including specifically Regulation 22 therein) and maintain records pertaining to the meetings in accordance with the SEBI InvIT Regulations (including specifically Regulation 26 therein).

(ii) The Investment Manager shall convene meetings of the Unitholders at least once every year within requisite number of days from the end of a financial year (as prescribed under the SEBI InvIT Regulations) with the period between such meetings not exceeding such number of months as prescribed under the SEBI InvIT Regulations.

(iii) The Investment Manager shall be responsible for all the activities pertaining to conducting of meeting of the Unitholders, subject to overseeing by the Trustee in all cases other than where the meetings are on issues pertaining to the Trustee. Provided that, for meetings on issues related to the Investment Manager, such as change, removal or change in control of the Investment Manager, the meetings shall be convened and conducted by the Trustee.

(g) **Change in control**: The Investment Manager shall intimate the Trustee prior to any change in control of the Investment Manager to enable the Trustee to seek approval from the Unitholders and SEBI (to the extent applicable) in this regard and shall ensure that no such change is given effect to until the approval of the Unitholders and SEBI has been obtained, and a new investment manager has been appointed in compliance with the provisions of the SEBI InvIT Regulations and applicable law.

(h) **Monitoring**: The Investment Manager will monitor the InvIT, including monitoring current and projected financial position of the InvIT and the funds of the InvIT including the Project SPVs. The Investment Manager shall place before its board of directors (and/or any committee(s) constituted by the board of directors), a report on the activity and performance of the InvIT, in

accordance with and in the manner and at the frequency prescribed in the SEBI InvIT Regulations. The Investment Manager shall designate an employee from the as the compliance officer for monitoring of compliance with the SEBI InvIT Regulations and any circulars or guidelines issued thereunder and intimating SEBI in case of any non-compliance.

(i) **Maintenance of records**: The Investment Manager shall maintain records pertaining to the activity of the InvIT in terms of the SEBI InvIT Regulations (including specifically Regulation 26 of the SEBI InvIT Regulations).

(j) **Duty in relation to the objectives of the InvIT*:*** The Investment Manager shall manage the InvIT in accordance with the SEBI InvIT Regulations and the objectives of the InvIT, and shall ensure that the investments made by the InvIT are in accordance with the applicable investment conditions stipulated in the SEBI InvIT Regulations, in accordance with the objectives of the InvIT and the investment strategy.

(k) **Activities of the Project Manager**: The Investment Manager shall oversee activities of the Project Manager with respect to compliance with the SEBI InvIT Regulations and the Project Management Agreement and shall obtain a compliance certificate from the Project Manager, in the form as may be specified under the SEBI InvIT Regulations, on a quarterly basis.

(l) **Conflict of Interest**: The Investment Manager shall review the transactions carried out between the Project Manager and its Associates and where the Project Manager has advised that there may be a conflict of interest, and shall obtain confirmation from a practicing chartered accountant or the Valuer, as applicable, that such transaction 's on arm's length basis.

(m) **Redressal of Complaints**: The Investment Manager shall ensure adequate and timely redressal of all Unitholders' grievances pertaining to the activities of the InvIT.

(n) **Submissions to Trustee**: The Investment Manager shall submit to the Trustee:

(i) quarterly reports on the activities of the InvIT, including receipts for all funds received by it and for all payments made, status of compliance with the SEBI InvIT Regulations, specifically, to the extent applicable, Regulations 18, 19 and 20 therein, performance report, status of development of under-construction projects, within the time periods specified under the SEBI InvIT Regulations;

(ii) valuation reports as required under the SEBI InvIT Regulations within the time period specified under the SEBI InvIT Regulations;

(iii) decision to acquire or sell or develop or bid for any asset or project or expand existing completed assets or projects along with rationale for the same;

(iv) details of complaints received from the Unitholders and their redressal of the complaints;

(v) details of any action which requires approval from the Unitholders as may be stipulated under the SEBI InvIT Regulations;

(vi) details of transactions it enters into with its Associates;

(vii) details of any breach of the investment conditions specified under the SEBI InvIT Regulations on account of market movements of the price of the Investments;

(viii) details of any borrowings exceeding such percentage of the value of the Trust Assets as may be prescribed by the SEBI InvIT Regulations on account of market movements of the price of the Investments;

(ix) details of any other material fact including change in its directors, change in its shareholding, any legal proceedings that may have a significant bearing on the activity of the InvIT, within the time period specified under the SEBI InvIT Regulations; and

(x) such other information, documents, reports and records as pertaining to the activities

of the InvIT, as may be reasonably necessary for the Trustee with respect to its responsibilities under the Amended and Restated Trust Deed or for effective monitoring of the functioning of the InvIT or the SEBI InvIT Regulations and as may be required by SEBI, or Stock Exchanges (as applicable) or any other governmental agency, with respect to the activities carried on by the InvIT.

In the event the Investment Manager fails to submit to the Trustee the foregoing information in a timely manner, the Trustee shall intimate SEBI of such failure.

(o) **Issue and Listing of Units**: The Investment Manager shall be responsible for all activities pertaining to the issue of the Units and listing of the Units (to the extent applicable), in accordance with the SEBI InvIT Regulations and other applicable law, including:

(i) preparation of the draft Offer Document or Placement Memorandum (as the case may be) in compliance with the provisions of the SEBI InvIT Regulations and other applicable law;

(ii) filing of the Placement Memorandum with SEBI and the Stock Exchanges, if so required, within the prescribed time period;

(iii) filing of the Offer Document with SEBI and the Stock Exchanges within the prescribed time period;

(iv) ensuring that the merchant bankers and all other service providers as may be appointed for listing of the Units, comply with the SEBI InvIT Regulations, as applicable;

(v) dealing with all matters up to allotment of Units to the Unitholders;

(vi) obtaining in-principle approvals, and final listing and trading approvals from the designated stock exchanges;

(vii) ensuring that the minimum Public holding of the Units of the InvIT, value of the assets of the InvIT and number of Unitholders forming part of the Public, is at all times after listing, in accordance with the SEBI InvIT Regulations; and

(viii) dealing with all matters relating to the issue of the Units and listing of the Units (to the extent applicable) as specified under the SEBI InvIT Regulations and any guidelines as may be issued by SEBI in this regard. The Investment Manager (together with the merchant bankers, if applicable) shall be responsible to ensure that all relevant provisions of the SEBI InvIT Regulations and other applicable law have been complied with and all statements and disclosures made in the Offer Document or Placement Memorandum (as the case may be) comply with the SEBI InvIT Regulations and other applicable law, contain material, true, correct, not misleading and adequate disclosures in order to enable the investors to make an informed decision, do not provide guaranteed returns to the investors, not be misleading and not contain any untrue statements or mis-statements and shall include such other disclosures as may be specified by SEBI.

(p) **Delisting of Units:** If the Units of the InvIT are listed, then in case of the occurrence of any event specified in Regulation 17(1) of the SEBI InvIT Regulations, the Investment Manager shall apply for delisting of Units of the InvIT to SEBI and the Stock Exchanges in accordance with the SEBI InvIT Regulations and other applicable law.

(q) **Submission of half yearly and annual report***:* The Investment Manager shall within the time period prescribed under the SEBI InvIT Regulations, submit half yearly, annual reports and valuation report to the Trustee and all the Unitholders electronically or by physical copies, and to the extent applicable, to the Stock Exchanges, in the manner required under applicable law.

(r) **Compliance Certificate**: The Investment Manager shall provide a compliance certificate to the Trustee on a quarterly basis in accordance with the SEBI InvIT Regulations.

(s) **Continuous disclosures to the Stock Exchanges:** To the extent applicable, the Investment Manager shall, in accordance with the requirements of the SEBI InvIT Regulations, and other applicable law, including any requirements prescribed by SEBI or the Stock Exchanges, from time to time, disclose to the Stock Exchanges any information having a bearing on the operation or performance of the InvIT, as well as price sensitive information and other information that is required in terms of the SEBI InvIT Regulations and applicable law (including particularly under Regulation 23(6) of the SEBI InvIT Regulations).

(t) **Title to the Trust Assets**: The Investment Manager shall ensure that the InvIT Assets have proper legal title, if applicable, and that all the material contracts entered into on behalf of the InvIT or the Project SPV are legal, valid, binding and enforceable by and on behalf of the InvIT or the Project SPV.

(u) **Related Party Transactions**:

(i) The Investment Manager (along with the Trustee) shall ensure that all Related Party Transactions in relation to the InvIT are on an arms-length basis as per the SEBI InvIT Regulations and are consistent with the objectives and investment strategy of the InvIT and shall be disclosed to the Unitholders and the Stock Exchange (if applicable) periodically in accordance with the SEBI InvIT Regulations and to the extent applicable, the listing agreement of the InvIT. Details of fees and commissions received by Related Parties are required to be disclosed to Unitholders and the Stock Exchange (if applicable), in accordance with the SEBI InvIT Regulations.

(ii) Transactions between the InvIT and another infrastructure investment trust which has a common investment manager or sponsor shall, under the SEBI InvIT Regulations, be deemed to be Related Party Transactions for each of the InvIT and the other infrastructure investment trust. Provided that this provision shall also apply if the investment managers or sponsors of the infrastructure investment trusts are different entities but are Associates.

(v) **Other Duties***:* The Investment Manager will also have the following duties and obligations:

(i) maintain regular interaction with the Trustee on the performance of the InvIT and providing the Trustee with any information in relation to the operations of the InvIT, as may be required;

(ii) keep the Unitholders updated on investment activities of the InvIT in compliance with the SEBI InvIT Regulations;

(iii) collecting all dividends, fees, property and other payments due and receivable by the InvIT, and declaring Distribution to the Unitholders in the manner set out in the Amended and Restated Trust Deed and in accordance with the SEBI InvIT Regulations;

(iv) ensure that no commission or rebate or any other remuneration or payment, by whatever name called, arising out of a transaction pertaining to the InvIT is collected by itself or its Associates, other than as specified in the Offer Documents or any other document as may be specified by SEBI for the purpose of the issue of units of an infrastructure investment trust;

(v) other than to the extent disclosed in the Offer Documents, ensure that the InvIT Assets of the InvIT or the Project SPVs have proper legal titles, if applicable, and that all the material contracts entered into on behalf of the InvIT or the Project SPVs are legal, valid, binding and enforceable by and on behalf of the InvIT or the Project SPVs, as applicable;

(vi) ensure that it has and continues to have adequate infrastructure and sufficient key personnel with adequate experience and qualification to undertake management of the InvIT;

(vii) undertake all the compliances including signing and verifying any tax returns that the

InvIT may be required to file under the applicable law;

(viii) ensure that all activities of management of the InvIT and the InvIT Assets and the activities of the intermediaries or agents or service providers appointed by the Investment Manager for such management are in accordance with the SEBI InvIT Regulations or any guidelines or circulars issued thereunder;

(ix) ensure that any possible conflict of interest involving its role as Investment Manager is reported to the Trustee;

(x) ensure that disclosures or reporting to the Unitholders, SEBI, the Trustee, and the Stock Exchanges, are in accordance with the SEBI InvIT Regulations, guidelines or circulars issued thereunder and any other applicable law;

(xi) provide SEBI, the Trustee, and the Stock Exchanges, such information as may be sought by SEBI or by the Trustee or Stock Exchanges, pertaining to the activities of the InvIT;

(xii) ensure the compliance with laws, as may be applicable, of the state or the local body with respect to the activity of the InvIT;

(xiii) in consultation with the Trustee, appoint the majority of the board of directors or the governing board of the Project SPVs, as applicable;

(xiv) ensure that the InvIT does not undertake lending to any person other than the Project SPV(s) in which the InvIT has invested in, subject to disclosures required to be made in accordance with the SEBI InvIT Regulations. Provided that, investment in debt securities shall not be considered as lending;

(xv) ensure that no scheme is launched under the InvIT;

(xvi) inform the Trustee in writing about any change in the representations and warranties provided by it under the Investment Management Agreement during the term of the agreement;

(xvii) ensure that it does not take or refrains from taking any measures, that will adversely impact the benefits available to the InvIT, including on account of being an infrastructure investment trust registered with SEBI;

(xviii) take any other actions reasonably incidental to any of the foregoing or necessary or convenient in order to fully effect or evidence any action or transaction contemplated under the Investment Management Agreement; and

(xix) fulfil any other duty, obligation and responsibility that may be required of the Investment Manager, in accordance with, and within the timelines prescribed under (if any) the provisions of the SEBI InvIT Regulations.

(w) The Investment Manager shall provide to the Trustee such assistance as may be required by the Trustee in fulfilling its obligation towards the InvIT under applicable law or as may be required by any regulatory authority with respect to the InvIT.

(x) The Investment Manager shall rectify any delay or discrepancy or non-compliance of reporting or disclosures requirements under the SEBI InvIT Regulations and applicable law on an urgent basis.

3. *Liabilities of the Investment Manager*

The liabilities of the Investment Manager in terms of the Investment Management Agreement are as follows:

(a) **Bona fide action by the Investment Manager***:* The Investment Manager shall not be liable on account of anything done or omitted to be done or suffered by the Investment Manager in

good faith. The Investment Manager shall not be liable in respect of any action taken or damage suffered by the Unitholders on reliance upon any notice, resolution, direction, consent, certificate, affidavit, statement, certificate of stock, plan of reorganization or (without being limited in any way by the foregoing) other paper or document believed to be genuine and in good faith and to have been passed, sealed or signed by appropriate governmental agencies or authorised persons (as the case may be).

(b) **Acts or things required to be done by the Investment Manager under law**: Notwithstanding anything to the contrary contained herein, the Investment Manager shall not incur any liability for any act or omission, as the case may be, which by reason of any:

(i) force majeure;

(ii) provision of applicable law or regulation made pursuant thereto;

(iii) decree, order or judgment of any court; or

(iv) request, announcement or similar action (whether of binding legal effect or not) which may be taken or made by any person or body acting with or purporting to exercise the authority of any governmental agency (whether legally or otherwise),

the Investment Manager has been directed or requested to do or perform or to forbear from doing or performing. In such event, if for any reason it becomes impossible or impracticable to carry out any of the provisions of this Agreement, the Investment Manager shall not be liable for the same. However, the Investment Manager shall duly inform the Trustee and the Unitholders of the same.

(c) **Assets received by the Investment Manager**: The Investment Manager shall only be liable or responsible for such monies, stocks, funds, shares, assets, investments, properties or securities as the Investment Manager shall have actually received and shall not be liable or responsible for any banker, broker, administrator, custodian or other person in whose hands the same may be deposited or placed, nor for the deficiency or insufficiency in the value of any investments of the InvIT nor otherwise for any involuntary loss. Any receipt signed by the Investment Manager for any monies, stocks, funds, shares, assets, securities, investments or properties, paid, delivered or transferred to the Investment Manager under or by virtue of the presents or in exercise of the duties, functions and powers of the Investment Manager shall effectively discharge the Investment Manager or the person(s) paying, delivering or transferring the same therefrom or from being bound to see to the application thereof, or being answerable for the loss or misapplication thereof, provided that the Investment Manager and such persons shall have acted in good faith, without negligence (to be finally determined by a court of competent jurisdiction) and shall have used their reasonable best efforts in connection with such dealings and matters.

(d) **Information regarding the InvIT/ Unitholders, etc**.*:* If the Investment Manager is required by any governmental agency or under the SEBI InvIT Regulations or any applicable law to provide information regarding the InvIT and/ or the Unitholders, the Investments and income therefrom and provisions of these presents and complies with such request in good faith, whether or not the request was in fact justified, the Investment Manager shall not be liable to the Unitholder or any of them or to any other party as a result of such compliance or in connection with such compliance. However, if so required under applicable law, the Investment Manager shall duly inform the Trustee and the Unitholders about the same.

(e) **Interest for Delayed Listing, Allotment or Refund:** If the Investment Manager fails to allot or list the Units or refund the money (as the case may be) within the time prescribed under the SEBI InvIT Regulations, then the Investment Manager shall pay interest to the Unitholders at the rate specified under the SEBI InvIT Regulations, till such allotment or listing or refund, and such interest shall not be recovered in the form of fees or any other form payable to the Investment Manager by the InvIT.

(f) **Distribution**: If the Distributions are not made within the period prescribed in the SEBI InvIT Regulations, the Investment Manger shall be liable to pay interest to the Unitholders at the rate

as may be prescribed in the SEBI InvIT Regulations or other applicable law, until the Distribution is made, and such interest shall not be recovered by the Investment Manager in the form of fees payable to the Investment Manager by the InvIT or in any other form.

(g) **Limited Liability**: The Investment Manager shall not be personally liable for any losses (including indirect or consequential losses), costs, damages or expenses incurred in any way arising from anything which the Investment Manager does or fails to do during the course of discharge of its duties as an Investment Manager to the InvIT.

4. *Indemnity*

The Investment Manager, its affiliates and their respective officers, Board of Directors, employees, advisors, and agents ("Indemnified Parties") shall be indemnified (by the Trustee), out of the funds of the InvIT against any claims, losses, costs, damages, liabilities, suits, proceedings, and expenses, including legal fees ("Losses") incurred by them by reason of their activities on behalf of the InvIT, unless such Losses resulted from Disabling Conduct of such Indemnified Parties.

The right of any Indemnified Party to indemnification shall be cumulative of, and in addition to, any and all rights to which such Indemnified Party may otherwise be entitled by contract or as a matter of law or equity and will extend to such Indemnified Party's successors, assigns and legal representatives.

5. *Termination*

The Investment Management Agreement shall be effective from the date of execution and shall terminate in accordance with the terms of the Investment Management Agreement. The appointment of the Investment Manager may be terminated by the Trustee or the Unitholders in accordance with the procedure specified under the SEBI InvIT Regulations.

The Investment Management Agreement (along with the appointment of the Investment Manager), may be terminated:

(a) by the Investment Manager, by delivery of a written notice to the Trustee at any time, subject to the approval of the Unitholders and SEBI (as applicable) in accordance with the SEBI InvIT Regulations; or

(b) by the Trustee, by delivery of a written notice to the Investment Manager,

(i) upon the bankruptcy of the Investment Manager; or

(ii) if winding up or liquidation proceedings are commenced against the Investment Manager; or

(iii) if a receiver is appointed to all or a substantial portion of the assets of the Investment Manager; or

(c) subject to receipt of approval from SEBI (if applicable), by the Trustee upon resolution of the Unitholders by requisite majority as specified in the SEBI InvIT Regulations, for removal of the Investment Manager (which resolution shall identify the grounds for removal), by delivery of a written notice to the Investment Manager (with a certified true copy of the Unitholder resolution). Further, Unitholders, other than any party related to the transactions and its Associates holding not less that such percentage by value as specified under the SEBI InvIT Regulations, may apply in writing to the Trustee for removal of the Investment Manager. With or promptly after such requisition for the meeting of the Unitholders for removal of the Investment Manager, the Trustee shall notify the Investment Manager of the meeting and the grounds on which the Investment Manager's removal is proposed. The Investment Manager will be given a reasonable opportunity to refute the grounds for removal and represent the same before a meeting of the Unitholders; or

(d) subject to receipt of approval from the Unitholders and SEBI (if applicable) in accordance with the SEBI InvIT Regulations, by the Trustee if it deems it necessary, by delivery of a written notice to the Investment Manager identifying grounds for removal. Prior to seeking approval from SEBI and the Unitholders as aforesaid, the Trustee shall give reasonable opportunity to

the Investment Manager (in any case with no less than a 90 (Ninety) day period calculated from the date of receipt of the aforesaid written notice by the Investment Manager) to refute the grounds for removal before the Trustee and the Unitholders at their meeting convened for this purpose.

D. The Project Manager – Lokesh Builders Private Limited

History and Certain Corporate Matters

Lokesh Builders Private Limited is the project manager in respect of the InvIT. For details, see **'– *The Sponsor – Lokesh Builders Private Limited – History and Certain Corporate Matters***' on page 103.

Background and Past Experience of the Project Manager

For details, see '**– *The Sponsor – Lokesh Builders Private Limited – Background and Past Experience of Sponsor***' on page 103.

Key terms of the Project Management Agreement

The Project Manager proposes to enter into the Project Management Agreement, in terms of the SEBI InvIT Regulations, prior to filing of the Offer Document, the key terms of which, are provided below:

1. *Scope of Services*

   The scope of services of the Project Manager are proposed to be as follows:

   (a) The Project Manager shall, either directly or through the appointment and supervision of appropriate agents, which may be persons directly employed or engaged by the Initial SPVs, undertake the operation, maintenance and management of InvIT Assets in accordance with the scope of services as set out in Project Management Agreement.

   (b) The Investment Manager may, from time to time, request the Project Manager to provide services other than those specifically referred to in the Project Management Agreement in relation to the Initial SPVs or InvIT Assets. The Project Manager shall provide such additional services on such terms and conditions and fees as may be mutually agreed between the Investment Manager and Project Manager in writing. Any additional services so agreed upon by the Investment Manager and Project Manager shall be deemed to be part of the services and the provisions of the Project Management Agreement shall apply *mutatis mutandis* to the provision of any specifically requested services.

2. *Functions, Duties and Responsibilities of the Project Manager*

   The functions, duties and responsibilities of the Project Manager in terms of the Project Management Agreement and the SEBI InvIT Regulations are proposed to be as follows:

   (a) The Project Manager shall undertake maintenance, operations and management of the InvIT Assets including develop, train and maintain a dedicated service team for providing the services either directly or through the appointment and supervision of agents. The Project Manager shall, either directly or through the appointment and supervision of agents, employ an adequate number of employees with adequate and appropriate experience to provide the services as stated in the Project Management Agreement.

   (b) The Project Manager shall, either directly or through agents, oversee the progress of development, approval status and other aspects of the InvIT Assets that may be under development or is to be established until its completion in accordance with any agreement that may be entered into in this regard, including the relevant concession agreements and discharge all obligations in respect of achieving timely completion of the InvIT Assets, wherever applicable, including the supervision of agents appointed for such purpose.

   (c) The Project Manager shall, either directly or through agents, discharge all obligations in respect of the maintenance, operation and management of the InvIT Assets which have achieved the commercial operations date in terms of the respective concession agreements including the

relevant provisions on operations and maintenance and the schedules therein, the Project Management Agreement and the SEBI InvIT Regulations and ensure compliance with the relevant provisions of the concession agreements in this regard. Further, the Project Manager shall liaise with the NHAI for the release of the annuity payments (in case of concession agreements under the hybrid annuity model) in accordance with the provisions of the relevant concession agreements.

(d) The Project Manager either directly or through the appointment and supervision of agents, shall ensure that the construction works forming part of the InvIT Assets which are incomplete and identified in the provisional certificate or completion certificate issued by the relevant independent engineer appointed by the NHAI for such InvIT Assets, are completed in accordance with the provisions of the relevant concession agreements. Further, in cases where the such balance works are incomplete and/ or delayed due to reasons attributable to the NHAI, the Project Manager shall ensure the completion of such works either directly or through the appointment and supervision of agents upon resolution of the issues by the NHAI and other regulatory authorities, as applicable.

(e) The Project Manager shall ensure that, for the purpose of provision of the services, all procurement of goods (including raw materials) and award of contracts, either directly or through agents, is undertaken in accordance with procedures established and within the budget determined by the Project Manager in consultation with the Investment Manager.

(f) The Project Manager acknowledges that the Trustee and the Investment Manager will oversee the activities undertaken by the Project Manager in accordance with the SEBI InvIT Regulations and the InvIT Documents and accordingly, the Project Manager shall extend complete co-ordination to enable the Trustee and the Investment Manager to perform such obligations in accordance with the SEBI InvIT Regulations and the InvIT Documents. The Project Manager shall provide compliance certificate(s), as may be specified, to the Investment Manager and the Trustee in accordance with the SEBI InvIT Regulations, in the form prescribed by SEBI, if any.

(g) The Project Manager shall at all times ensure that the transactions or arrangements entered into by the Project Manager with a related party are on an arm's-length basis and shall provide the Investment Manager with details of transactions carried out between itself and its associates and disclose any conflict of interest in such cases to the Investment Manager, in accordance with the SEBI InvIT Regulations.

(h) The Project Manager shall provide to the Trustee and the Investment Manager or to such other person as the Trustee and /or the Investment Manager may direct, all information that may be necessary for each of them to maintain the records of the InvIT and as may be required for making submissions to SEBI or any other governmental authority, including with respect to relevant approvals, consents and other documents required in relation to the InvIT Assets and the reporting requirements under the SEBI InvIT Regulations, in a proper and timely manner, and in the format prescribed (if any), as required by the Trustee and/ or the Investment Manager. Further, the Project Manager shall provide reasonable assistance to the Initial SPVs to apply for, obtain and maintain all necessary approvals (and renewals of the same) that each of the Initial SPVs is required to obtain from or file relevant applications for approvals with any governmental authority in connection with InvIT Assets or as may be required under any third party agreement entered into by the Initial SPVs.

(i) The Project Manager shall have full authority, to receive directions and instructions from each of the Initial SPVs and to take actions in relation to and ensure compliance with such directions and instructions and report back to each Initial SPV, the Trustee and the Investment Manager.

(j) The Project Manager shall promptly inform the parties to the Project Management Agreement in writing of any act, occurrence or event, which the Project Manager believes is reasonably likely to materially change the financial viability, quality or function of any InvIT Asset or materially change the budget determined by the Project Manager in consultation with the Investment Manager in relation to the operations and maintenance of the Initial SPVs.

(k) If any defects are found in the maintenance, materials and workmanship of the services provided under the Project Management Agreement by the Project Manager and/ or by its agents, the

Project Manager shall promptly, in consultation and agreement with the other parties to the Project Management Agreement regarding appropriate remedying of the defects, repair, replace or otherwise make good such defects as well as any damage caused by such defect at the cost of the Project Manager. It is clarified that the remedying of the defects, repair or replacement shall be undertaken by the Project Manager either directly or through the appointment and supervision of agents in accordance with the relevant concession agreements.

(l) The duties of Project Manager shall also include the following:

(i) exercising diligence and vigilance in carrying out its duties and protecting the commercial interests of the InvIT Assets;

(ii) keeping the Investment Manager informed on all matters which have a material bearing on the operations of the InvIT Assets;

(iii) liaising with the governmental authorities in respect of its obligations under the Project Management Agreement;

(iv) taking appropriate measures to mitigate the risks which may be encountered by the InvIT in respect of the InvIT Assets;

(v) keeping proper records for actions taken in respect of the InvIT Assets; and

(vi) complying with the instructions of the Investment Manager and the Trustee and the provisions of the SEBI InvIT Regulations.

(m) Notwithstanding anything to the contrary contained in the Project Management Agreement, nothing contained in the Project Management Agreement shall be construed to limit or restrict the performance of any duties or obligations of the Project Manager, Investment Manager or the Trustee contained in the SEBI InvIT Regulations and other applicable law.

(n) During the term of the Project Management Agreement, in the event the representations provided by the Project Manager, become untrue or incorrect or incomplete in any respect, the Project Manager shall, within a reasonable time upon becoming aware of such representation to be untrue or incorrect or incomplete, inform the Trustee and Investment Manager of such event.

3. *Indemnities*

The parties to the Project Management Agreement shall endeavour to fulfil their respective obligations in accordance with the terms and conditions set out in the Project Management Agreement and applicable law. In the event of failure or default by the Project Manager, the aggrieved party will be entitled to recover damages, including on account of any penalty or deduction in annuity payments levied by the NHAI, from the Project Manager and such damages shall be based on actual loss or actual damage incurred by such aggrieved party.

4. *Termination*

(a) The Project Management Agreement shall remain valid and effective for a period of 15 years, unless terminated by the parties to Project Management Agreement in accordance with the provisions thereto or extended by mutual consent expressed in writing by the such parties until the such time as the last of the concession agreements is in force or such other period as may be mutually agreed upon between the parties ("**Validity Period**").

(b) Prior to the expiry of its Validity Period, the Project Management Agreement may be terminated:

(i) by the Investment Manager after consultation with the Trustee by delivery of a written notice of 90 business days to the Project Manager, subject to appointment of new project manager in accordance with the Project Management Agreement and the SEBI InvIT Regulations; or

(ii) by the Investment Manager after consultation with the Trustee by delivery of a written

notice to the Project Manager at any time, upon breach of any of the terms, covenants, conditions or provisions of the Project Management Agreement by the Project Manager and a failure of the Project Manager to remedy the said breach within a period of 90 Business Days or such other period as may be mutually agreed to cure such breach; or

(iii) by any party by delivery of a written notice to the other party upon the bankruptcy of such other Party or if winding up or liquidation proceedings whether voluntary or involuntary are commenced or admitted against such other party (and such proceedings persist for a period of more than three month).

(c) Notwithstanding anything contained in the Project Management Agreement, the Trustee in consultation with the Investment Manager shall appoint a new project manager and execute a new project management agreement within three month from the termination of the Project Management Agreement in accordance with applicable law. The Trustee and Investment Manager shall also ensure that the new project manager stands substituted as a party in all documents to which the Project Manager was a party. The Project Manager shall remain in office until the appointment of a new project manager. The Project Manager shall continue to be liable for all its acts, omissions and commissions notwithstanding its termination until the appointment of a new project manager.

(d) The termination of the Project Management Agreement shall not affect the rights and obligations of the parties accrued prior to such termination.

(e) In case of early termination prior to the expiry of the Validity Period, the Project Manager shall be entitled to and the Trustee shall be liable to pay the fee accrued up to the date of termination to the Project Manager. The fee shall be paid to the Project Manager within a period of 30 business days from the date of receipt of demand in this regard from the Project Manager failing which the fee payable to the Project Manager under the Project Management Agreement, or any part thereof, which remains outstanding shall attract interest at the rate of nine per cent. Per annum on the outstanding amount.

(f) In case of termination under clause (b)(iii), the fee payable to the Project Manager accrued and outstanding up to the date of termination shall be treated as dues and the Project Manager shall be treated as a creditor for such amounts.

(g) Notwithstanding anything contained hereinabove, (i) in the event that the offer of the Units does not occur within the time period stipulated in the SEBI InvIT Regulations or such other date as may be mutually agreed to between the Parties, or (ii) in the event of cancellation of registration of the InvIT by SEBI, or (iii) winding up of the InvIT, then the Project Management Agreement shall automatically terminate without any liability to any party.

INDUSTRY OVERVIEW

The information contained in this section is derived from various government and other industry sources. Neither we nor any other person connected with the Issue has independently verified the third party and industry related information. Industry sources and publications generally state that the information contained therein has been obtained from sources generally believed to be reliable, but that their accuracy, completeness and underlying assumptions are not guaranteed and their reliability cannot be assured. Industry publications are also prepared on information as of specific dates and may no longer be current or reflect current trends. Accordingly, investment decisions should not be based on such information. All references to years refer to calendar years except as otherwise stated.

Overview of the Indian Economy

As per 2022 estimates, India has a population of approximately 1.38 billion, second only to China. India's GDP grew at a CAGR of 5.4%, growing to INR 147 trillion in Fiscal Year 2022 from INR 87 trillion in Fiscal Year 2012.

Fiscal Year 2021 was an aberration from this trajectory, primarily on account of the COVID-19 pandemic. At approximately INR 136 trillion in Fiscal Year 2021, India's GDP (in absolute terms) was below the Fiscal Year 2020 level of approximately INR 145 trillion. On account of the COVID-19 pandemic, India's GDP contracted in the first half of Fiscal Year 2021. However, the Indian economy rebounded in the second half of the Fiscal Year 2021. During Fiscal Year 2022, the Indian economy has shown further recovery with the GDP expanding 20.1% year-on-year in the first quarter of Fiscal Year 2022, 8.4% in the second quarter and 5.4% in the third quarter before slowing down to 4.1% in the fourth quarter *(Source: Ministry of Statistics and Programme Implementation, Government of India)*

India is also one of the world's fastest growing economies. The table given below sets forth a comparison between India's real GDP growth rate in the calendar years 2020 and 2021 and its expected real GDP growth rate during the calendar years 2022 and 2023, as compared to advanced economies, emerging markets and developing economies and the world.

(In percentage)

	Real GDP growth rate		Projected real GDP growth rate	
	2020	**2021**	**2022**	**2023**
India*	-6.6	8.7	7.4	6.1
Advanced Economies	-4.5	5.2	2.5	1.4
Emerging Markets and Developing Economies	-2.0	6.8	3.6	3.9
World	-3.1	6.1	3.2	2.9

(Source: IMF, WEO Report (July 2022))
**Data and forecasts are presented on fiscal year basis.*

As shown in the table above, India's growth rate is expected to outperform the advanced and developing economies. In the Fiscal Year 2022, India's real GDP grew at a rate of 8.7% and is expected to grow at a rate of 7.4% and 6.1% in the Fiscal Years 2023 and 2024 respectively.

Overview of the Infrastructure Sector in India

The development of the infrastructure sector has been a priority area for the Government and has witnessed enhanced public investment over the years. The infrastructure sector comprises of roads, railways, power, ports, telecommunication and civil aviation among others. The size and magnitude of major infrastructure development projects dictate substantial capital investment. Many reforms have been initiated in the infrastructure sector, resulting in a robust growth. The Government has introduced policy reforms which resulted in total FDI inflows of $ 26.21 billion in construction activities in infrastructure from the Fiscal Year 2001 to Fiscal Year 2022 *(Source: Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry*).

In the Fiscal Year 2020, the Government focused on enhancing expenditure in the infrastructure sector and has planned to invest more than ₹ 100 lakh crores in the infrastructure sector in the next five years as part of the National Infrastructure Pipeline ("**NIP**") announced in December 2019 *(Source: www.pib.gov.in)*. Out of the total expected capital expenditure of ₹ 111 lakh crore under the NIP, projects worth ₹ 44 lakh crore (40% of the NIP) are under implementation, projects worth ₹ 33 lakh crore (30% of the NIP) are at a conceptual stage and projects worth ₹ 22 lakh crore (20% of the NIP) are under development. Key infrastructure sectors such as energy, roads,

urban development and railways amount to 24%, 19%, 16% and 13% respectively and cumulatively amount to around 70% of the projected infrastructure investments under the NIP. *(Source: Economic Survey 2021-2022, Ministry of Finance, Government of India)*

Overview of the Road Sector in India

Road Network in India

India has the second largest road network in the world, spanning a total of 6.37 million km. *(Source: Annual Report 2021-22, Ministry of Road Transport and Highways, Government of India)* This road network primarily comprises national highways, expressways, state highways, major district roads, other district roads and village roads. Road network in India can be classified into the following categories:

- *National Highways* constitute the primary system of road transportation in India, which facilitates medium and long-distance inter-city passenger and freight traffic across the country.
- *State Highways* constitute the secondary system of road transportation in India, which facilitates the traffic across major centers within the states.
- *District Roads* primarily link and provide accessibility within the districts and provide the secondary function of linkage between the highways and rural roads.
- *Rural Roads* are a key component of rural development providing accessibility to the villages to meet their social needs as also act as the means to transport agriculture produce from village to nearby markets.

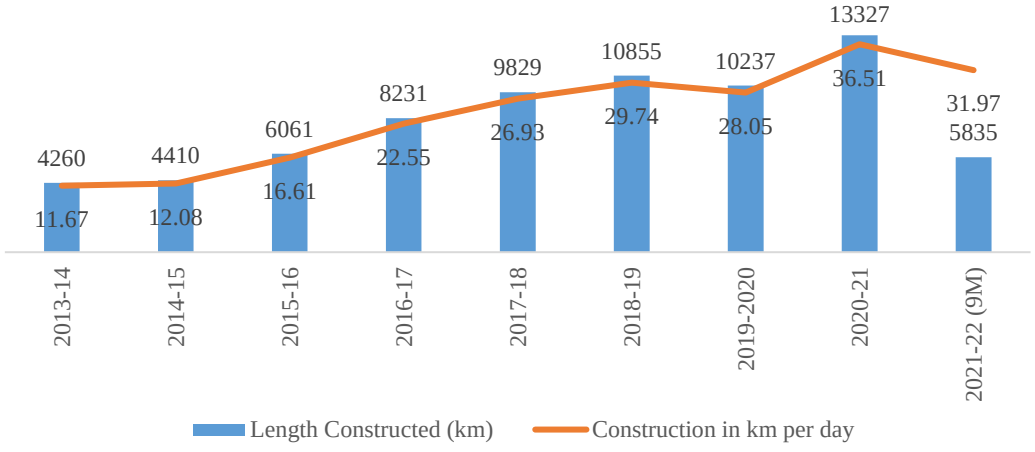
Road Network in India by Category (length in km)

Category	FY18	FY19	FY20	FY21	FY22
National Highways	126,500	132,500	132,995	136,440	140,995
State Highways	186,908	186,528	194,900	176,818	171,039
Other Roads	5,902,539	6,067,269	6,165,660	5,902,539	6,059,813
Total	**6,215,797**	**6,386,297**	**6,493,555**	**6,215,797**	**6,371,847**

(Source: Annual Report 2021-22, Ministry of Road Transport and Highways, Government of India)

Approximately 13,327 km of National Highways were constructed in 2020-21. In the last 7 years, the length of the National Highways has increased by more than 50% from 91,287 km in April 2014 to around 1,41,000 km by December 2021. Pace of construction of roads has increased from 28 km per day in Fiscal Year 2020 to 36.5 km per day in Fiscal Year 2021. The significant upturn in road construction in Fiscal Year 2021 is due to the increase in public expenditure by 29.5 percent as compared to the previous year, which is a reflection of the impetus given by the Government to the sector. More than 5,800 km of the National Highways were built from April 1, 2021 to December 31, 2021.

Road Construction in India



(Source: Economic Survey 2021-22, Ministry of Finance, Government of India)

In the Union Budget for Fiscal Year 2022-23, a total of ₹ 1,99,108 crores have been budgeted for the MoRTH, which is 52% higher than the revised estimates for Fiscal Year 2021-22.

Budget Allocation for MoRTH (in ₹ crore)

	Fiscal Year 2020-21 (Actual)	Fiscal Year 2021-22 (Revised estimate)	Fiscal Year 2022-23 (Budget estimate)	% change (Revised estimate over budget estimate)
Revenue Expenditure	9,964	9,898	11,364	15%
Capital Expenditure	89,195	1,21,251	1,87,744	55%
Total	**99,159**	**1,31,149**	**1,99,108**	**52%**

(Source: Demands for Grants 2022-23, MoRTH}

In Fiscal Year 2022-23, the MoRTH has been allocated approximately ₹ 68,000 crore more than the revised expenditure in Fiscal Year 2021-22. In absolute terms, this is the highest increase (from the revised estimates of Fiscal Year 2021-22) amongst all the ministries of the Government in Fiscal Year 2022-23.

Development and Maintenance of Roads and Highways

The Government has taken several initiatives for development of roads and highways in India.

Bharatmala Pariyojana

Bharatmala Pariyojana is an umbrella scheme, which supersedes the existing NHDP Phase-I of Bharatmala Pariyojana envisages to construct about 24,800 km of highways under the following categories: National Corridor (North-South, East-West and the Golden Quadrilateral), economic corridors, inter-corridor roads, feeder roads, international connectivity, border roads, coastal roads, port connectivity roads and expressways. The scheme will include the existing NHDP programme as well. *(Source: Annual Report 2021-22, MoRTH)*

The Government approved Phase-I of Bharatmala Pariyojana in October 2017 with an aggregate length of about 34,800 km (including the residual NHDP stretches of 10,000 km) at an estimated outlay of ~₹ 5.35 trillion. Phase-I will involve development of the following:

Scheme	Length (km)	Cost (in ₹ Crore)
Economic Corridors	9,000	1,20,000
Inter-Corridors & feeder roads	6,000	80,000
National Corridor Efficiency improvement	5,000	1,00,000
Border & International connectivity roads	2,000	25,000
Coastal & port connectivity roads	2,000	20,000
Expressways	800	40,000
Sub-total	**24,800**	**3,85,000**
Ongoing Projects (incl. NHDP)	10,000	1,50,000
Total	**34,800**	**5,35,000**

Source: MoRTH

Bharatmala Pariyojana envisages 60% projects on HAM, 10% projects on Build Operate Transfer (BOT) Toll model and 30% projects on EPC model respectively. As on December 31, 2021, a total of 604 road projects with an aggregate length of 20,965 km have been approved and awarded under Bharatmala Pariyojana (including 131 number of residual NHDP works of aggregate length of 5,529 kms) with a total capital cost of ₹ 6,41,713 crores. Out of the total approved 604 projects, 389 projects with an aggregate length of 11,710 kms have been approved on EPC mode, 209 projects with an aggregate length of 8,781 kms on HAM and 6 projects with an aggregate length of 473 kms on Build Operate Transfer (BOT) Toll model. The percentage of the projects approved on EPC, HAM and Build Operate Transfer (BOT) Toll models are 56%, 42% and 2% respectively. *(Source: Annual Report 2021-22, MoRTH)*

Financing of Road Projects in India under Public Private Partnership

The Public Private Partnership ("**PPP**") framework was introduced to increase the efficiency of infrastructure projects through a long-term collaboration between the public and private sectors. Discussed below are the frameworks which are widely used in order to execute and implement roads and highway projects by the NHAI:

- **Build Operate Transfer ("BOT"):**

  Under the BOT model, the authority/ government agency provides the concessionaire with the rights to build, operate and maintain a facility on public land for a fixed period, after which the assets are transferred back to the authority. Funding for the project is arranged by the concessionaire. The concessionaire charges toll from the users of the project and the concessionaire may either transfer the toll collected to the authority or may retain the entire amount as revenue. Contracts under the BOT model are further classified as under:

- **Build Operate Transfer (BOT) Toll:**

  Under this model, the concessionaire is responsible for the construction and maintenance of the project, after which the ownership of the project is transferred to the public authority. However, the toll collected is retained by the concessionaire and not transferred to the authority. Therefore, the concessionaire bears the revenue risk during the concession period. Toll charged under these contracts are regulated by NHAI.

- **Build Operate Transfer (BOT) Annuity:**

  Under this model, the concessionaire is responsible for construction and maintenance of the project during the concession period. The concessionaire collects the toll and transfers it to the authority. Variability in the toll gives rise to revenue risk, which is borne by the authority. However, the concessionaire generates revenue through fixed annuity payments received from the authority over the concession period. As this annuity payment is a cost to the authority, the contract is awarded to the lowest bidder.

- **Engineering, Procurement and Construction ("EPC"):** EPC contracts are fixed price contracts. The contractor undertakes the responsibility for investigation, design and construction of roads on the basis of specifications and performance standards provided by the authority. Based on the project parameters and specifications, the contractor draws up cost estimates and accordingly bids for the project, which is determined through competitive bidding process.

- **Toll Operate Transfer:** This is a new model introduced by the MoRTH for the maintenance of roads. The model involves leasing out of operational national highways for periods as long as 30 years to collect toll revenue in return for one-time upfront payment to the Government.

- **Hybrid Annuity Model ("HAM"):** HAM combines the features of EPC and BOT models. Under this model, the concessionaire receives 40% of the project cost from the authority during the construction period. The concessionaire is responsible for designing, building, financing (60% of the total project cost), operating and transferring the project. Under this model, toll is collected by the authority. The amount financed by the concessionaire is to be recovered from the authority through semi-annual payments. The bidding parameter for a contract under HAM is the lifecycle cost, which is the sum of the net present value ("**NPV**") of the project cost and the NPV of the O&M cost for the entire O&M period.

BUSINESS

Some of the information in this section, including information with respect to our plans, strengths, and strategies, contain forward-looking statements that involve risks and uncertainties. You should read "Forward Looking Statements" on page 14 for a discussion on the risks and uncertainties related to those statements and also "Risk Factors", "Special Purpose Combined Financial Statements", "Projections of Revenue from Operations and Cash Flow from Operating Activities" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" on pages 16, 241, 367 and 290, respectively, for a discussion of certain factors that may affect our business, financial condition or results of operations. Our actual results may differ materially from those expressed in or implied by these forward-looking statements.

Our fiscal year ends on March 31 of each year, and references to a particular Fiscal are to the twelve months ended March 31 of that year.

Unless otherwise stated or the context requires otherwise, the financial information included herein is based on our Special Purpose Combined Financial Statements included in this Draft Offer Document. For further details, see the section "Special Purpose Combined Financial Statements" on page 241. Unless otherwise stated or the context requires otherwise, references in this section to "we", "our" or "us" are to the InvIT along with the InvIT Assets. We have included various operational and financial performance indicators in this section, some of which may not have been derived from our Special Purpose Combined Financial Statements. The manner in which such operational and financial indicators are calculated and presented, and the assumptions and estimates used in such calculations, may vary from that used by other entities in the business similar to ours. Investors are accordingly cautioned against placing undue reliance on such information in making an investment decision and must evaluate such information in the context of the Special Purpose Combined Financial Statements.

Unless stated otherwise or the context otherwise requires, industry data used in this section has been obtained or derived from publicly available information as well as industry publications and sources, including from various government publications and websites. The data may have been re-classified by us for the purposes of presentation. Industry sources and publications generally state that the information contained therein has been obtained from sources generally believed to be reliable, but that their accuracy, completeness and underlying assumptions are not guaranteed, and their reliability cannot be assured. Industry sources and publications are also prepared based on information as of specific dates and may no longer be current or reflect current trends. Industry sources and publications may also base their information on estimates, projections, forecasts and assumptions that may prove to be incorrect. Investors must rely on their independent examination of, and should not place undue reliance on, or base their investment decision solely on this information.

Overview

We are an infrastructure investment trust established to acquire, manage and invest in a portfolio of infrastructure assets in India and to carry on the activities of an infrastructure investment trust, as permissible under the SEBI InvIT Regulations. We were settled by way of the Original Trust Deed, by GRIL (the Settlor), and registered as an infrastructure investment trust with SEBI on August 3, 2022 pursuant to the SEBI InvIT Regulations.

The Sponsor is a private company, limited by shares, and an entity forming part of the GR Group. GRIL is the flagship entity of GR Group and is engaged in integrated road engineering, procurement and construction with an experience of over 25 years in design and construction of various road/highway projects across 16 states in India and more than 100 road construction projects executed since 2006. The GR Group carries out its operations through GRIL and other entities primarily in three categories: (i) civil construction activities, under which it provides EPC services; (ii) development of roads, highways on a BOT basis, including under annuity and HAM; and (iii) manufacturing activities, under which GRIL processes bitumen, manufactures thermoplastic road-marking paint, electric poles and road signage and fabricates and galvanizes metal crash barriers.

The Sponsor holds 31.83% (as of September 30, 2022) of the issued, subscribed and paid-up equity share capital of GRIL, and is an identified promoter of GRIL. The Sponsor complies with the eligibility requirements under the SEBI InvIT Regulations of ensuring a sound track record in development of infrastructure through GRIL.

The Sponsor is authorized by its memorandum of association to, among other things, to (i) purchase, acquire, get, convert, develop or construct land and buildings, deal in land, manage land and buildings; and (ii) carry on the business of contractors, general construction, builders; develop, construct, build, erect, demolish or do any other works in connection with any building, roads, etc and is currently engaged in the business of developing, improving, constructing, leasing & sub-leasing, repairing, maintaining real estate properties, and is exploring

opportunities in the infrastructure sector.

Our initial portfolio assets consist of seven road assets, all operating on HAM basis, in the states of Punjab, Gujarat, Andhra Pradesh, Maharashtra and Uttar Pradesh. These roads are operated and maintained pursuant to concession rights granted by the NHAI and are owned and operated by the Project SPVs, which are currently wholly owned by GRIL (an Associate of the Sponsor). For more information about the InvIT Assets, see " **– *Details of the Project SPVs and the InvIT Assets***" on page 144.

In addition, the InvIT proposes to enter into a ROFO Agreement with GRIL, pursuant to which GRIL will grant a right of first offer to the InvIT to acquire certain other assets owned and developed by GRIL. For more details, see " **– *ROFO Assets*** *" and "****Formation Transactions in relation to the InvIT– Acquisition of future assets by the InvIT - ROFO Agreement***" on pages 155 and 101, respectively.

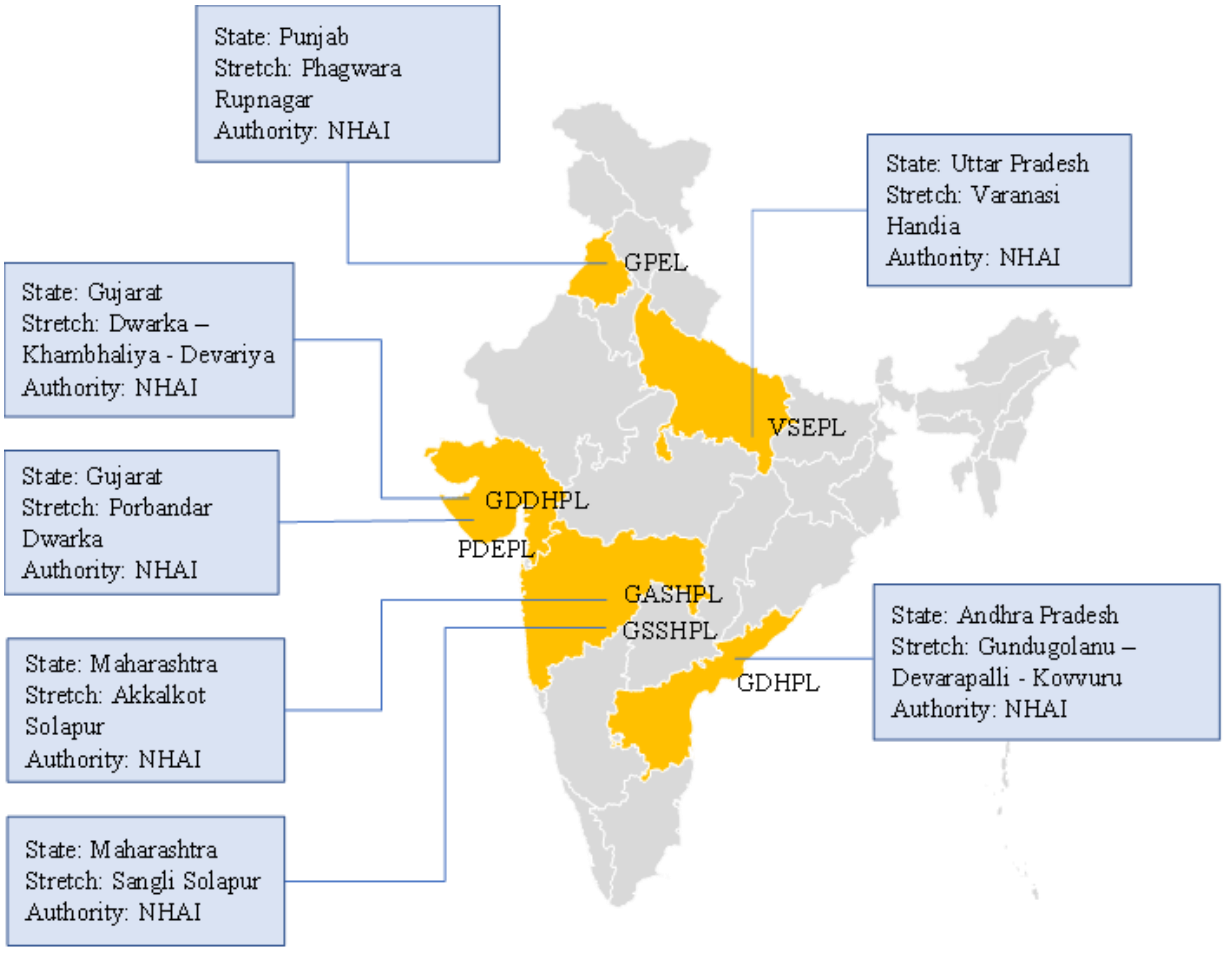
The Formation Transactions

Subject to the receipt of requisite approvals, the InvIT intends to acquire 100.00% of the equity shares in each of the Project SPVs from GRIL (an Associate of the Sponsor), except GDDHPL wherein the InvIT proposes to acquire 49% of the equity share capital. GDDHPL is currently an under-construction project and investment in acquisition of 49% of the shares of GDDHPL will not exceed 10 percent of the value of the InvIT Assets and will be in compliance with Regulation 18(5) of the SEBI InvIT Regulations. Subject to necessary approvals, including the NHAI approval, the InvIT proposes to acquire the remaining 51% equity shareholding of the GDDHPL after the completion of at least six months after the receipt of provisional COD certificate by GDDHPL, in accordance with the circulars issued by the MoRTH. As consideration for the acquisition of the equity shares of the Project SPVs, the InvIT will issue Units in accordance with the relevant Share Purchase Agreements to GRIL after the Bid/Issue Closing Date and prior to the Allotment in the Issue, i.e., the closing date pursuant to the Share Purchase Agreements. For more information about the Formation Transactions and key terms of the Share Purchase Agreements, see "***Formation Transactions in relation to the InvIT***" on page 91.

As of June 30, 2022, the following projects, which are owned, operated and maintained by the Project SPVs, comprise the InvIT Assets consisting of approximately 497.292 km of constructed and operational roads across five states in India:

Name of the InvIT Asset	GR Phagwara Expressway Limited ("GPEL")	Porbandar Dwarka Expressway Private Limited ("PDEPL")	GR Gundugolanu Devarapalli Highway Private Limited ("GDHPL")	GR Akkalkot Solapur Highway Private Limited ("GASHPL")	Varanasi Sangam Expressway Private Limited ("VSEPL")	GR Sangli Solapur Highway Private Limited ("GSSHPL")	GR Dwarka Devariya Highway Private Limited ("GDDHPL")
Brief Description	GPEL is a special purpose vehicle which was incorporated for the purpose of four laning of Phagwara to Rupnagar section of NH-344A from km. 0.00 (design chainage) to km. 80.820 (design chainage)	PDEPL is a special purpose vehicle which was incorporated for the purpose of four laning with paved shoulder of Porbandar – Dwarka section of NH-8E (Ext.) from km 356.766 (design chainage km. 379.100) to km 473.000 (Design Chainage km 496.848)	GDHPL is a special purpose vehicle which was incorporated for the purpose of four laning of the Gundugolanu – Devarapalli – Kovvuru section of NH-16 from km. 15.320 (existing km. 15.700) to km. 85.204 (existing km. 81.400)	GASHPL is a special purpose vehicle which was incorporated for the purpose of four laning of Akkalkot – Solapur section of NH – 150E with paved shoulders from design chainage km. 99.400 to km. 138.352 / existing chainage from km. 102.819 to km. 141.800 (design length 38.952 km.) including Akkalkot	VSEPL is a special purpose vehicle which was incorporated for the purpose of six laning of Handia to Varanasi section of NH-2 from km 713.146 to km 785.544	GSSHPL is a special purpose vehicle was incorporated for the purpose of four-laning of Sangli – Solapur (Package-III: Watambare to Mangalwedha) Section of NH-166 from existing Chainage Km 272.394 to Ch. Km 314.969 (Design Chainage km. 276.000 to	GDDHPL is a special purpose vehicle which was incorporated for the purpose of four laning of Dwarka (Kuranga) – Khambhaliya – Devariya section of NH 151A from km 203/500 to 176/500 and from km 171/800 to km 125/000 (designed length 71.890 km)

Name of the InvIT Asset	GR Phagwara Expressway Limited ("GPEL")	Porbandar Dwarka Expressway Private Limited ("PDEPL")	GR Gundugolanu Devarapalli Highway Private Limited ("GDHPL")	GR Akkalkot Solapur Highway Private Limited ("GASHPL")	Varanasi Sangam Expressway Private Limited ("VSEPL")	GR Sangli Solapur Highway Private Limited ("GSSHPL")	GR Dwarka Devariya Highway Private Limited ("GDDHPL")
				bypass (design length 7.350 km.)		Chainage km. 321.600)	
State	Punjab	Gujarat	Andhra Pradesh	Maharashtra	Uttar Pradesh	Maharashtra	Gujarat
Design length (in kms approx.)	80.820	117.748	69.884	38.952	72.398	45.600	71.890
Awarding Authority	NHAI	NHAI	NHAI	NHAI	NHAI	NHAI	NHAI
Date of signing of Concession Agreement	October 5, 2016	August 8, 2017	April 26, 2018	June 20, 2018	May 15, 2017	June 20, 2018	May 22, 2019
PCOD	February 25, 2020	April 18, 2020	July 10, 2021	March 31, 2021	November 2, 2020	June 28, 2021	August 2, 2022
Operations and maintenance period (in years)	15	15	15	15	15	15	15
Bid Project Cost (In ₹ millions)	13,670	16,000	18,270	8,070	24,470	9,570	11,010



All of the InvIT Assets are HAM projects awarded by NHAI. The total income of the SPV Group for the three month period ended June 30, 2022 and Financial Years ended March 31, 2022, 2021 and 2020 was ₹ 4,472.34 million, ₹ 16,001.80 million, ₹ 21,703.93 million and ₹ 30,927.27 million, respectively. For more information in relation to financial information of the Project SPVs, see **"*Management's Discussion and Analysis of Financial Condition and Results of Operations***" on page 290.

Our Investment Manager is GR Highways Investment Manager Private Limited. The Investment Manager was incorporated as a private limited company on March 23, 2022, and will be relying on the experience/ expertise of its employees in the financial management, advisory and/or infrastructure development sector, which cumulatively exceeds 30 years (with experience of each such employee exceeding five years) and complies with the eligibility requirements under the SEBI InvIT Regulations. Accordingly, the Investment Manager is in compliance with the eligibility requirements prescribed under the SEBI InvIT Regulations. For more information about the Investment Manager, see "***Parties to the InvIT – The Investment Manager – GR Highways Investment Manager Private Ltd***" on page 115.

The Trustee, the Investment Manager and the respective Project SPVs have appointed the Sponsor, Lokesh Builders Private Limited, to act as the Project Manager for each Project SPV. Given its experience in constructing, operating and maintaining road projects in accordance with the terms of concession agreements, the EPC work in relation of the Project SPVs will be undertaken by GRIL.

GRIL, through the Sponsor, has appointed IDBI Trusteeship Services Limited to act as the sole Trustee of the Trust. The Trustee is registered with SEBI as a debenture trustee under the Securities and Exchange Board of India (Debenture Trustees) Regulations, 1993 and is eligible to act as the trustee to the InvIT in accordance with the SEBI InvIT Regulations. For more information about the Trustee, see "***Parties to the InvIT – The Trustee – IDBI Trusteeship Services Limited***" on page 104.

In addition, the InvIT (acting through the Trustee) intends to enter into the debt financing agreements with the Project SPVs. For more information, see "***Use of Proceeds***" on page 70.

Competitive Strengths

We believe that our competitive strengths are as follows:

Sizeable portfolio of stable revenue generating assets with no construction risk and long-term predictable cash flows

We will own an initial portfolio consisting of seven InvIT Assets having an aggregate length of approximately 497.292 km located on national networks across five states in India. The projects are located on national highway networks that experience both commercial and passenger vehicular traffic. For a discussion of the historical financial performance of each of the InvIT Assets, see "***Management's Discussion and Analysis of Financial Condition and Results of Operations***" on page 290. In addition, each Project SPV has entered into a long-term Concession Agreement with the NHAI, with each agreement having a residual operations period of between 12.67 and 15 years as of June 30, 2022, thereby will be providing long-term cash flows to the InvIT. On a collective basis, the InvIT Assets had a weighted average (based on bid project cost) residual project life of approximately 13.56 years as of June 30, 2022.

Given that all our InvIT Assets are on HAM basis, our entire revenue is expected to continue in the future from annuities paid by the NHAI, which signifies the steady nature of income for the InvIT. In a HAM project, the concessioning authority shares a portion of the total project cost during the construction phase. As a mix of EPC and annuity models, HAM reduces the financial burden of a concessionaire during the project construction phase and provides an assured revenue in form of annuities, interest on reducing balance of completion cost (BCC) and O&M payments linked to inflation in the operational phase. Annuity payments eliminate the risk of income fluctuations resulting from changes in traffic volume. The following table sets forth the revenue from operations for each Project SPV for the periods indicated:

	For the three month period ended	For the Financial Year ended March 31,		
Project	**June 30, 2022**	**2022**	**2021**	**2020**
			(In ₹ millions)	
GR Phagwara Expressway Limited	240.50	849.07	1,774.18	4,097.66
Porbandar Dwarka Expressway Private Limited	420.56	880.76	2,541.79	5,694.97

Project	For the three month period ended June 30, 2022	For the Financial Year ended March 31, 2022	2021	2020
			(In ₹ millions)	
GR Gundugolanu Devarapalli Highway Private Limited	1,097.85	4,421.80	5,052.17	6,575.74
GR Akkalkot Solapur Highway Private Limited	319.20	1,474.15	2,756.96	3,135.94
Varanasi Sangam Expressway Private Limited	653.30	1,317.02	3,879.13	8,045.91
GR Sangli Solapur Highway Private Limited	311.47	2,112.35	3,221.05	3,179.81
GR Dwarka Devariya Highway Private Limited	1,827.36	4,685.37	2,314.38	10.47
Total	4,870.24	15,740.52	21,539.66	30,740.50

The data in the table above does not reflect the total annuity payment (including the interest on the balance annuity and O&M) from the NHAI as the financials are prepared under the Ind AS accounting.

Geographically diversified road asset portfolio and revenue base

The InvIT Assets consist of seven operational HAM assets located across five states of India. We believe that the geographic diversity of the InvIT Assets will play a major role in developing our experience and expertise, including our ability to evaluate, acquire, operate and maintain new projects.

The Concession Agreements of the Project SPVs are also temporally diverse and are expected to expire at different times. The residual terms of the operations period range between 12.67 years and 15 years as of June 30, 2022. We believe that our temporally and geographically diverse project portfolio and our expertise leveraged from existing projects provides us with an advantage in capitalizing on new opportunities available in the roads and highways sector. We believe that this diversification strengthens our business by reducing our reliance on any specific project and reducing the potential impact on our business of any economic slowdown or force majeure event or with respect to any particular project.

Consistent track records in operating and maintaining projects in the roads sector in India

We intend to leverage the experience and expertise of the Sponsor, though its Associate GRIL, to gain a competitive advantage within the road and highways industry. GRIL is an integrated road engineering, procurement and construction company with over 25 years of experience in design and construction and development of various state and national highways, bridges, culverts, flyovers, airport runways, tunnels and rail over bridges. Since 2006, GRIL has executed more than 100 road construction projects and developed a long-standing relationship with the NHAI, MoRTH and the Public Works Department and provides us the ability to leverage its parentage and long-term industry relationships with stakeholders.

Drawing upon the depth of experience of the GR Group and GRIL, will benefit us across all stages of project operations and acquisitions. Through the Sponsor, we will have the ability to leverage GRIL and GR Group's long-term industry relationships with stakeholders to gain cost efficient access to financing from institutions and capital markets.

The Sponsor will also act as the Project Manager of the InvIT. We will rely on the expertise and experience of GRIL for the EPC work in relation of the Project SPVs. GRIL has an established track record of efficient project management and execution experience, involving trained and skilled manpower, efficient deployment of equipment and an in-house integrated model. GRIL's in-house materials supply chain management ensures that key construction materials are timely delivered to our manufacturing facilities and construction sites, thereby enabling the Sponsor to manage the project management processes effectively and maintain key raw material inventory in an optimal manner. GRIL's project management team, working in conjunction with the design and engineering team, ensures operational efficiencies through overall supervision of the manufacturing and project execution process.

Some of GRIL's projects that completed earlier than what was stipulated, are set out below:

Project	Scheduled construction period (in days)	Completed earlier than scheduled (in days)	Gross Bonus received (₹ million)
Nagaur Mukundgarh Project	730	394	1,196.50
Porbandar Dwarka Project	1,095	299	535.81
Shillong Bypass Project	1,095	318	433.35
Hisar Dabwali Package 2	913	106	194.40
Hisar Dabwali Package 1	913	115	164.70
Faridkote – Kotakpura	730	90	154.28

Project	Scheduled construction period (in days)	Completed earlier than scheduled (in days)	Gross Bonus received (₹ million)
Project			
Jowai – Ratacherra Project	910	46	68.76
Phagwara Rupnagar Project	910	38	53.80

Attractive industry sector with strong underlying fundamentals and favorable government policies

The roads and highways sectors play an important role in the overall economy of India. The development of the infrastructure sector has been a priority area for the Government and has witnessed enhanced public investment over the years. In the Union Budget for Fiscal Year 2022-23, a total of ₹ 1,991,080.00 million have been budgeted for the MoRTH, which is 52% higher than the revised estimates for Fiscal Year 2021-22. Further, Phase I of Bharatmala Pariyojana envisages to construct about 24,800 km of highways under the following categories: National Corridor (North-South, East-West and the Golden Quadrilateral), economic corridors, inter-corridor roads, feeder roads, international connectivity, border roads, coastal roads, port connectivity roads and expressways. The scheme will include the existing NHDP programme as well. *(Source: Annual Report 2021-22, MoRTH)*. The Government approved Phase-I of Bharatmala Pariyojana in October 2017 with an aggregate length of about 34,800 km (including the residual NHDP stretches of 10,000 km) at an estimated outlay of ~₹ 5.35 trillion. We believe that the Government's focus on and sustained increases in budgetary allocations for the sector as well as the development of comprehensive infrastructure policies will be beneficial to our business in terms of bringing in more opportunities for acquisition of assets and/or continued robust pipeline of the Sponsor. For further details on the market opportunity and the roads and highways industry in India, see "***Industry Overview***" on page 134.

Growth opportunities and rights to expand portfolio of assets through our relationship with the Sponsor

Through the ROFO Agreement and our relationship with the Sponsor, we have a right of first offer to acquire certain assets of GRIL, an Associate of the Sponsor, including the projects currently owned by GRIL or which may be acquired or developed by GRIL or its existing or future subsidiaries. We believe that this access to future road assets of GRIL or its existing or future subsidiaries will be an important source of the InvIT's growth in the future.

Skilled and experienced management team with industry experience with a focus on corporate governance

We will be managed by qualified personnel of the Investment Manager who has a strong management team with extensive experience, in-depth understanding and a proven track record of performance in the road and highways sector. In addition, our InvIT Assets will be managed by qualified personnel of the Project Manager. The management team has an average of more than 33.50 years of experience in various sectors including in the road and highways sector and brings expertise in the areas of business strategy, operational and financial capabilities. We believe this will be key to the execution of our growth strategies. For further details, see "***Parties to the InvIT – The Investment Manager – GR Highways Investment Manager Private Limited***" and "***Parties to the InvIT – The Project Manager***" on pages 115 and 130, respectively. We believe that the experience and leadership of these teams will contribute to our growth and success and will enable our road assets to be operated and managed in an efficient manner. The IM Board has and will also adopt policies for corporate governance as may be required from time to time in accordance with applicable law and the SEBI InvIT Regulations. While the IM Board has adopted policies under the corporate governance framework of the InvIT, these policies will be effective from the completion date as defined under the respective Concession Agreements. For further details, see "***Corporate Governance***" on page 212.

Hedge against adverse interest rate movements

The NHAI hybrid annuity projects provide a natural hedge against the risk of adverse interest rate movement. In addition to the annuity payments due under the respective Concession Agreements during the operations period, NHAI is required to pay interest on the reducing balance of the completion cost (equivalent to 60% of the BPC) throughout the operation period at the rate of 3% above the average of one year MCLR of top five scheduled commercial banks.

Accordingly, any increase in the interest payable on loans with floating interest rates by the InvIT due to an increase in interest rates gets offset by the increased revenues as a result of increase in interest on reducing balance of completion cost.

Investment Strategy and Risk and Capital Management Strategy

Our principal business strategies are as set out below:

Institute and maintain capital management policies

The Investment Manager intends to pursue a strategy to maximise distributions to Unitholders while optimising our capital structure in order for us to retain enough flexibility to make acquisitions in the future. After utilising the proceeds of the Issue, our total consolidated borrowings will not exceed 40.00% of the total value of our consolidated assets, in accordance with the SEBI InvIT Regulations. For details on utilisation of proceeds of the Issue, see '***Use of Proceeds***' on page 70.

Active asset management

We intend to continue to manage our assets through the services of the Project Manager and the Investment Manager. The Project Manager is responsible for providing the Project SPVs management-related services and routine O&M services pursuant to the provisions of the Project Management Agreement.

The Project Manager will also assist in managing project operating expenses. The roads sector is a highly _competitive sector that is capital intensive and requires significant expenditure. Our ability to manage the costs associated with the InvIT Assets is critical to maintaining the Project SPVs' profit margins.

The Project Manager will also coordinate with the NHAI and local authorities to make sure that the new requirements of such agencies, to the extent reasonable, are complied with within each project timeline.

As part of our operations and maintenance systems and processes, the Investment Manager intends to work with the Project Manager to employ both preventive and corrective measures in order to optimise the long-term performance of each project, to minimize downtime or defects with respect to the InvIT Assets.

Expand the portfolio of road assets

The Investment Manager intends to expand our initial portfolio by identifying and acquiring additional road projects that meet our investment objective in accordance with the provisions of the Amended and Restated Trust Deed. For more details, see "***Overview of the InvIT***" on page 89.

The Investment Manager will be selective with respect to new projects it acquires in the future and will rely on the relevant policies of the InvIT to make investment decisions in road projects.

We propose to enter into the ROFO Agreement with GRIL, pursuant to which GRIL propose to grant a right of first offer to us to acquire certain of its road assets. For details, see " – ***ROFO Assets*****" and "*****Formation Transactions – Acquisition of future assets by the InvIT - ROFO Agreement***" on pages 155 and 101, respectively.

In addition, the Investment Manager believes that, certain acquisition opportunities may be available in the industry. The Investment Manager intends to take advantage of these opportunities by sourcing and acquiring assets from such third parties on a case-by-case basis in accordance with the SEBI InvIT Regulations, the concessions and other road project related agreements and policies.

Details of the Project SPVs and the InvIT Assets

The InvIT Assets consist of seven road assets, operating on HAM basis, in the states of Punjab, Gujarat, Andhra Pradesh, Maharashtra and Uttar Pradesh. The Project SPVs operate and maintain the InvIT Assets pursuant to concessions granted by NHAI.

The table below sets forth details of the Project SPVs:

Project	Design Length Kms	Location	State	Commencement of concession period / Appointed Date	End of concession period (excluding reduction or extension if any)	Residual Concession Period (in years) as on June 30, 2022	Bid Project Costs (In ₹ millions)	Number of Annuities received till the period ended June 30, 2022/Total Annuities to be paid in the Concession period
GR Phagwara Expressway Limited	80.820	NH-344A	Punjab	October 6, 2017	February 25, 2035	12.67	13,670.00	4/30
Porbandar Dwarka Expressway Private Limited	117.748	NH-8E	Gujarat	February 12, 2018	April 18, 2035	12.81	16,000.00	4/30
GR Gundugolanu Devarapalli Highway Private Limited	69.884	NH-16	Andhra Pradesh	October 22, 2018	July 10, 2036	14.04	18,270.00	1/30
GR Akkalkot Solapur Highway Private Limited	38.952	NH-150E	Maharashtra	December 14, 2018	March 31, 2036	13.76	8,070.00	2/30
Varanasi Sangam Expressway Private Limited	72.398	NH-2	Uttar Pradesh	December 5, 2017	November 2, 2035	13.35	24,470.00	3/30
GR Sangli Solapur Highway Private Limited	45.600	NH - 166	Maharashtra	December 31, 2018	June 28, 2036	14.02	9,570.00	2/30
GR Dwarka Devariya Highway Private Limited	71.890	NH-151A	Gujarat	February 8, 2020	August 2, 2037	15.10	11,010.00	0/30
Total	497.292						101,060.00	16/210

1. ***GR Phagwara Expressway Limited***

Concession agreement

On October 5, 2016, the NHAI and GPEL entered into a concession agreement. GPEL was engaged to augment the NH-344A in Punjab from km 0.000 (design chainage) to km 80.820 (design chainage) by four-laning of the highway on a HAM basis. The provisional certificate of completion for a stretch of 65.910 km was issued on February 25, 2020 and the completion certificate was issued on May 26, 2021. For details, see "***Summary of Concession Agreements***" on page 160.

The following map illustrates the location of GR Phagwara Expressway Limited and the corridor it covers:

Figure 1: GR Phagwara Expressway Limited



Concession period

The NHAI granted GPEL a concession for a period of 17.40 years for this project. The concession period commenced on October 6, 2017 and is expected to end on February 25, 2035 except for any extensions which may be granted. GPEL began receiving annuities with respect to this project on September 14, 2020.

Maintenance

GPEL is required to carry out the operation and maintenance of the project through GRIL, to ensure the safe, smooth and uninterrupted use of the project highway, including prevention of loss or damage during normal operating conditions, to minimize disruption in the event of accidents or other incidents affecting the safety and use of the project highway by providing a rapid and effective response and liaising with the emergency services of the state.

In operating and maintaining the project, GPEL is required to comply with detailed general and project-specific operating and maintenance requirements.

The following table sets forth GPEL's operation and maintenance costs during the periods indicated:

(in ₹ million)

	For the three month period ended	**For the Financial Year ended March 31,**		
	June 30, 2022	**2022**	**2021**	**2020**
Operation and maintenance expenditure[(1)]	22.36	115.78	109.13	-
Periodic maintenance[(2)]	NIL	NIL	NIL	NIL
Total expenditure	22.36	115.78	109.13	-

Notes:

(1) Operation and maintenance expenditure means O&M and other related expenses other than expenditure with respect to periodic maintenance, which is shown separately, including employee benefit expenses.

(2) Periodic maintenance means provision for periodic maintenance which is grouped under "Other Expenses & Finance Cost" pursuant to Ind AS.

Borrowings

As of June 30, 2022, the outstanding debt was ₹4,555.42 million. For more information, see "***Financial Indebtedness and Deferred Payments***" on page 312.

Structure of ownership of the project

For information about the proposed structure of ownership of the project by the InvIT, see "***Overview of the InvIT – Structure and Description of the InvIT***" on page 89.

2. ***Porbandar Dwarka Expressway Private Limited***

Concession agreement

On August 8, 2017, the NHAI and PDEPL entered into a concession agreement. PDEPL was engaged for the four laning with paved shoulder of the Porbandar-Dwarka section of the NH-8E (Ext.) from Km 356.766 (design chainage km 376.100) to Km 473.00 (design chainage km 496.848) in the state of Gujarat through a public-private partnership, on HAM basis. The concession period commenced on February 12, 2018. The provisional certificate of completion for a stretch of 100.977 km (of the total 117.748 km) was issued on May 8, 2020 and the completion certificate was issued on October 13, 2021. For details, see "***Summary of Concession Agreements***" on page 160.

Figure 2: Map of Porbandar Dwarka Expressway Private Limited



Concession period

The NHAI granted PDEPL a concession for a period of 17.20 years for this project. The concession period commenced on February 12, 2018 and is expected to expire on April 18, 2035 except for any extensions which may be granted. PDEPL began receiving annuities with respect to this project on October 17, 2020.

Maintenance

PDEPL is required to carry out the operation and maintenance of the project through GRIL, to ensure the safe, smooth and uninterrupted use of the project highway, including prevention of loss or damage during normal operating conditions, to minimize disruption in the event of accidents or other incidents affecting the safety and use of the project highway by providing a rapid and effective response and liaising with the emergency services of the state.

In operating and maintaining the project, PDEPL is required to comply with detailed general and project-specific operating and maintenance requirements. For further details, see "***Summary of Concession Agreements***" on page 160.

The following table sets forth the PDEPL's operation and maintenance costs during the periods indicated:

(in ₹ million)

	For the three month period ended	**For the Financial Year ended March 31,**		
	June 30, 2022	**2022**	**2021**	**2020**
Operation and maintenance expenditure[(1)]	23.61	93.46	97.03	-
Periodic maintenance[(2)]	NIL	NIL	NIL	NIL
Total expenditure	23.61	93.46	97.03	-

Notes:

(1) Operation and maintenance expenditure means O&M and other related expenses other than expenditure with respect to periodic maintenance, which is shown separately, including employee benefit expenses

(2) Periodic maintenance means provision for periodic maintenance which is grouped under "Other Expenses & Finance Cost" pursuant to Ind AS

Borrowings

As of June 30, 2022, the outstanding debt with respect to this project was ₹ 5,741.66 million. For more information, see "***Financial Indebtedness and Deferred Payments***" on page 312.

Structure of ownership of the project

For information about the proposed structure of ownership of the project by the InvIT, see "***Overview of the InvIT –Structure and Description of the InvIT***" on page 89.

3. ***GR Gundugolanu Devarapalli Highway Private Limited***

Concession agreement

On April 26, 2018, the NHAI and GDHPL entered into a concession agreement. GDHPL was engaged for the four laning of the Gundugolanu – Devarapalli – Kovvuru section of NH-16 from Km. 15.320 (existing Km. 15.700) to Km. 85.204 (existing Km. 81.400) in the state of Andhra Pradesh on HAM basis. The concession period commenced on October 22, 2018. The provisional certificate of completion for a stretch of 64 km. was issued on July 10, 2021 and the completion certificate was issued on September 30, 2022.

The following map illustrates the location of GDHPL and the corridor it covers:

Figure 3: Map of GR Gundugolanu Devarapalli Highway Private Limited



Concession period

The NHAI granted GDHPL a concession for a period of 17.70 years for this project. The concession period commenced on October 22, 2018 and is expected to expire on July 10, 2036 except for any extensions which may be granted. GDHPL began receiving annuities with respect to this project on January 20, 2022.

Maintenance

GDHPL is required to carry out the operation and maintenance of the project through GRIL, to ensure the safe, smooth and uninterrupted use of the project highway, including prevention of loss or damage during normal operating conditions, to minimize disruption in the event of accidents or other incidents affecting the safety and use of the project highway by providing a rapid and effective response and liaising with the emergency services of the state.

In operating and maintaining the project, GDHHPL is required to comply with detailed general and project-specific operating and maintenance standards. For further details, see "***Summary of Concession Agreements***" on page 160.

The following table sets forth the GDHPL's operation and maintenance costs for the periods indicated:

(in ₹ million)

	For the three month period ended	**For the Financial Year ended March 31,**		
	June 30, 2022	**2022**	**2021**	**2020**
Operation and maintenance expenditure[(1)]	26.00	81.69	-	-
Periodic maintenance[(2)]	NIL	NIL	NIL	NIL
Total expenditure	26.00	81.69	-	-

Notes:

(1) Operation and maintenance expenditure means O&M and other related expenses other than expenditure with respect to periodic maintenance, which is shown separately, including employee benefit expenses

(2) Periodic maintenance means provision for periodic maintenance which is grouped under "Other Expenses & Finance Cost" pursuant to Ind AS

Borrowing

As of June 30, 2022, the outstanding debt which comprises bank loans and interest payables with respect to this project was ₹ 7,654.64 million. For more information, see "***Financial Indebtedness and Deferred Payments***" on page 312.

Structure of ownership of the project

For information about the proposed structure of ownership of the project by the InvIT, see "***Overview of the InvIT –Structure and Description of the InvIT***" on page 89.

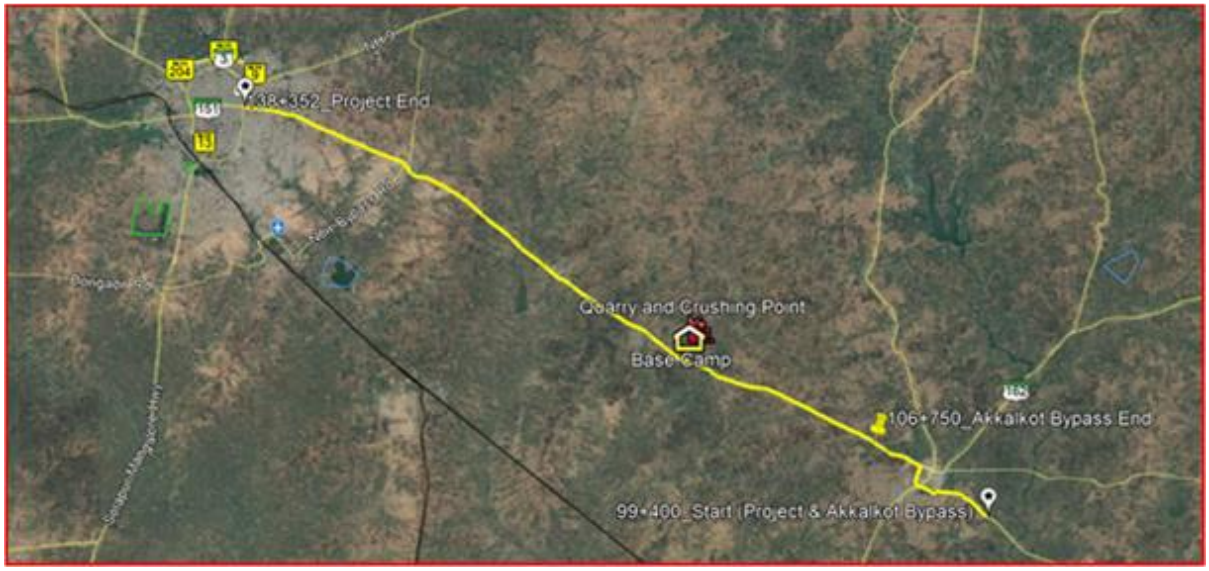
4. ***GR Akkalkot Solapur Highway Private Limited***

Concession agreement

On June 20, 2018, the NHAI and GASHPL entered into a concession agreement. GASHPL was engaged for the four laning of Akkalkot – Solapur section of NH - 150E with paved shoulders from design chainage km. 99.400 to km. 138.352 / existing chainage from km. 102.819 to km. 141.800 (design length 38.952 km.) including Akkalkot bypass (design length 7.350 km), on HAM basis. The concession period commenced on December 14, 2018. A provisional certificate of completion was issued on March 31, 2021.

The following map illustrates the location of GASHPL and the corridor it covers:

Figure 4: Map of the GR Akkalkot Highway Private Limited



Concession period

The NHAI granted GASHPL a concession for a period of 17.30 years for this project. The concession period commenced on December 14, 2018 and is expected to expire on March 31, 2036 except for any extensions which may be granted. GASHPL began receiving annuities with respect to this project on October 6, 2021.

Maintenance

GASHPL is required to carry out the operation and maintenance of the project through GRIL, to ensure the safe, smooth and uninterrupted use of the project highway, including prevention of loss or damage during normal operating conditions, to minimize disruption in the event of accidents or other incidents affecting the safety and use of the project highway by providing a rapid and effective response and liaising with the emergency services of the state.

In operating and maintaining the project, GASHPL is required to comply with detailed general and project-specific operating and maintenance standards. For further details, see "***Summary of Concession Agreements***" on page 160.

The following table sets forth GASHPL's operation and maintenance costs during the periods indicated:

(in ₹ million)

	For the three month period ended	For the Financial Year ended March 31,		
	June 30, 2022	**2022**	**2021**	**2020**
Operation and maintenance expenditure[(1)]	9.70	47.28	-	-
Periodic maintenance[(2)]	NIL	NIL	NIL	NIL
Total expenditure	9.70	47.28	-	-

Notes:

(1) Operation and maintenance expenditure means O&M and other related expenses other than expenditure with respect to periodic maintenance, which is shown separately, including employee benefit expenses

(2) Periodic maintenance means provision for periodic maintenance which is grouped under "Other Expenses & Finance Cost" pursuant to Ind AS

Borrowings

As of June 30, 2022, the outstanding debt which comprises bank loans and interest payables with respect to this project was ₹ 3,140.15 million. For more information, see "***Financial Indebtedness and Deferred Payments***" on page 312.

Structure of ownership of the project

For information about the proposed structure of ownership of the project by the InvIT, see "***Overview of the InvIT – Structure and Description of the InvIT***" on page 89.

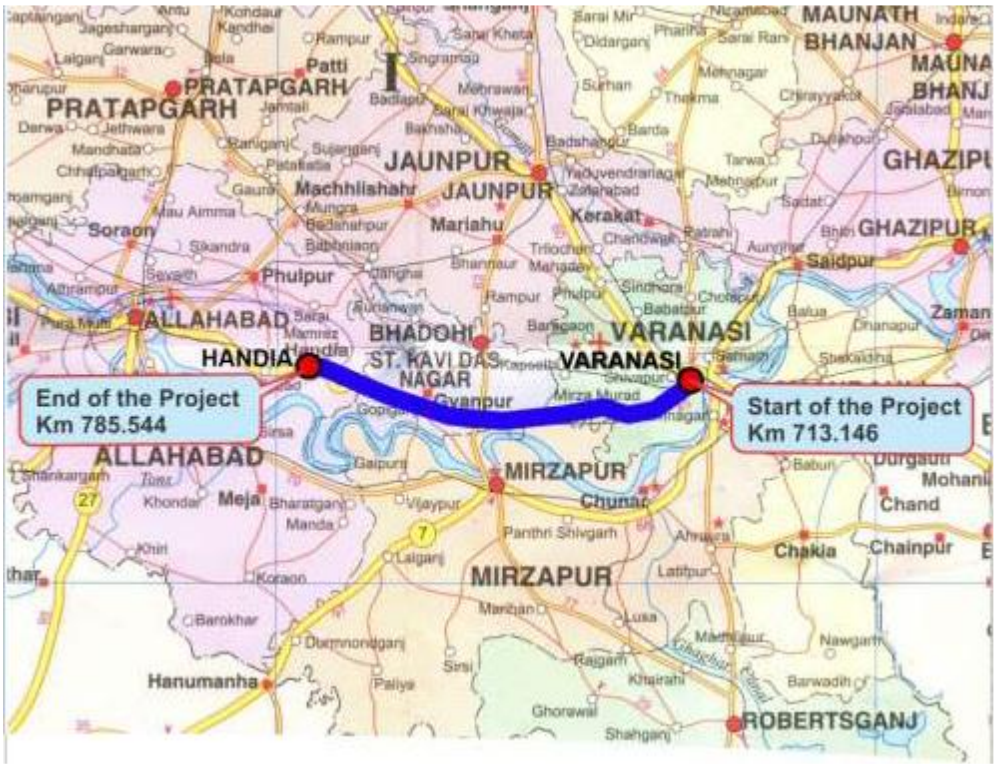
5. ***Varanasi Sangam Expressway Private Limited***

Concession agreement

On August 30, 2010, the NHAI and VSEPL entered into a concession agreement. VSEPL was engaged for the six laning of Handia to Varanasi section of NH-2 from km 713.146 to km 785.544 in the state of Uttar Pradesh, on HAM basis. The concession period commenced on December 5, 2017. A provisional certificate of completion was issued on November 2, 2020.

The following map illustrates the location of VSEPL and the corridor it covers:

Figure 5: Map of Varanasi Sangam Expressway Private Limited



Concession period

The NHAI granted VSEPL a concession for a period of 15 years for this project. The concession period commenced on December 5, 2017 and is expected to expire on November 2, 2035. VSEPL began receiving annuities with respect to this project on May 4, 2021.

Maintenance

VSEPL is required to carry out the operation and maintenance of the project through GRIL, to ensure the safe, smooth and uninterrupted use of the project highway, including prevention of loss or damage during normal operating conditions, to minimize disruption in the event of accidents or other incidents affecting the safety and use of the project highway by providing a rapid and effective response and liaising with the emergency services of the state. The following table sets forth the VSEPL's operation and maintenance costs during the periods indicated:

(in ₹ million)

	For the three month period ended	**For the Financial Year ended March 31,**		
	June 30, 2022	**2022**	**2021**	**2020**
Operation and maintenance expenditure[(1)]	18.69	120.71	-59.55	-
Periodic maintenance[(2)]	NIL	NIL	NIL	NIL
Total expenditure	18.69	120.71	-59.55	-

Notes:

(1) Operation and maintenance expenditure means O&M and other related expenses other than expenditure with respect to periodic maintenance, which is shown separately, including employee benefit expenses

(2) Periodic maintenance means provision for periodic maintenance which is grouped under "Other Expenses & Finance Cost" pursuant to Ind AS

Borrowings

As of June 30, 2022, the outstanding debt with respect to this project was ₹ 10,603.47 million. For more information, see "***Financial Indebtedness and Deferred Payments***" on page 312.

Structure of ownership of the project

For information about the proposed structure of ownership of the project by the InvIT, see "***Overview of the InvIT –Structure and Description of the InvIT***" on page 89.

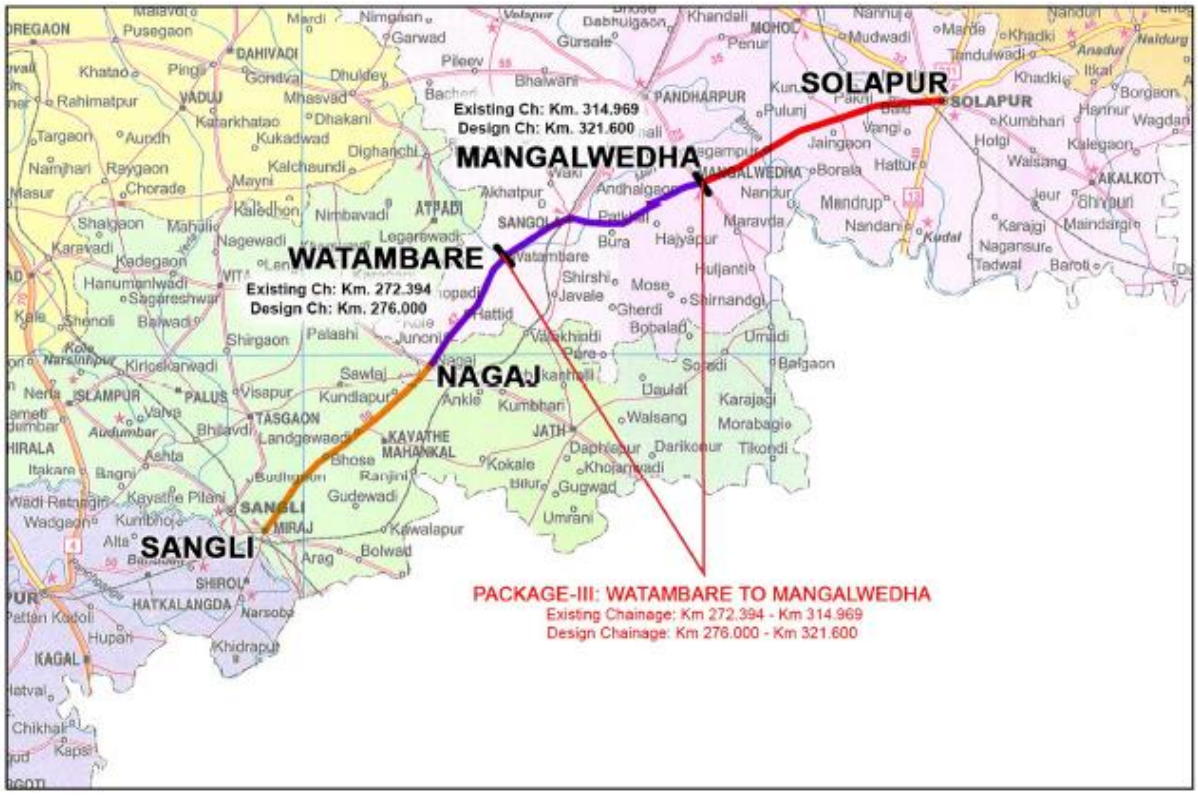
6. ***GR Sangli Solapur Highway Private Limited***

Concession agreement

On June 20, 2018, the NHAI and GSSHPL entered into a concession agreement. GSSHPL was engaged for the four-laning of Sangli – Solapur (Package- III: Watambare to Mangalwedha) Section of NH-166 from existing Ch. Km 272.394 to Ch. km 314.969 (Design Ch. km. 276.000 to Ch. km. 321.600), on HAM basis. The concession period commenced on December 31, 2018. A provisional certificate of completion was issued on June 28, 2021.

The following map illustrates the location of GSSHPL and the corridor it covers:

Figure 6: Map of GR Sangli Solapur Highway Private Limited



Concession period

The NHAI granted GSSHPL a concession for a period of 17.50 years for this project. The concession period commenced on December 31, 2018 and is expected to expire on June 28, 2036. GSSHPL began receiving annuities with respect to this project on January 6, 2022.

Maintenance

GSSHPL is required to carry out the operation and maintenance of the project through GRIL, to ensure the safe, smooth and uninterrupted use of the project highway, including prevention of loss or damage during normal operating conditions, to minimize disruption in the event of accidents or other incidents affecting the safety and use of the project highway by providing a rapid and effective response and liaising with the emergency services of the state. The following table sets forth GSSHPL's operation and maintenance costs during the periods indicated:

(in ₹ million)

	For the three month period ended	For the Financial Year ended March 31,		
	June 30, 2022	2022	2021	2020
Operation and maintenance expenditure[(1)]	14.23	42.11	-	-
Periodic maintenance[(2)]	NIL	NIL	NIL	NIL
Total expenditure	14.23	42.11	-	-

Notes:

(1) Operation and maintenance expenditure means O&M and other related expenses other than expenditure with respect to periodic maintenance, which is shown separately, including employee benefit expenses

(2) Periodic maintenance means provision for periodic maintenance which is grouped under "Other Expenses & Finance Cost" pursuant to Ind AS

Borrowings

As of June 30, 2022, the outstanding debt with respect to this project was ₹ 3,832.54 million. For more information, see "***Financial Indebtedness and Deferred Payments***" on page 312.

Structure of ownership of the project

For information about the proposed structure of ownership of the project by the InvIT, see "***Overview of the InvIT –Structure and Description of the InvIT***" on page 89.

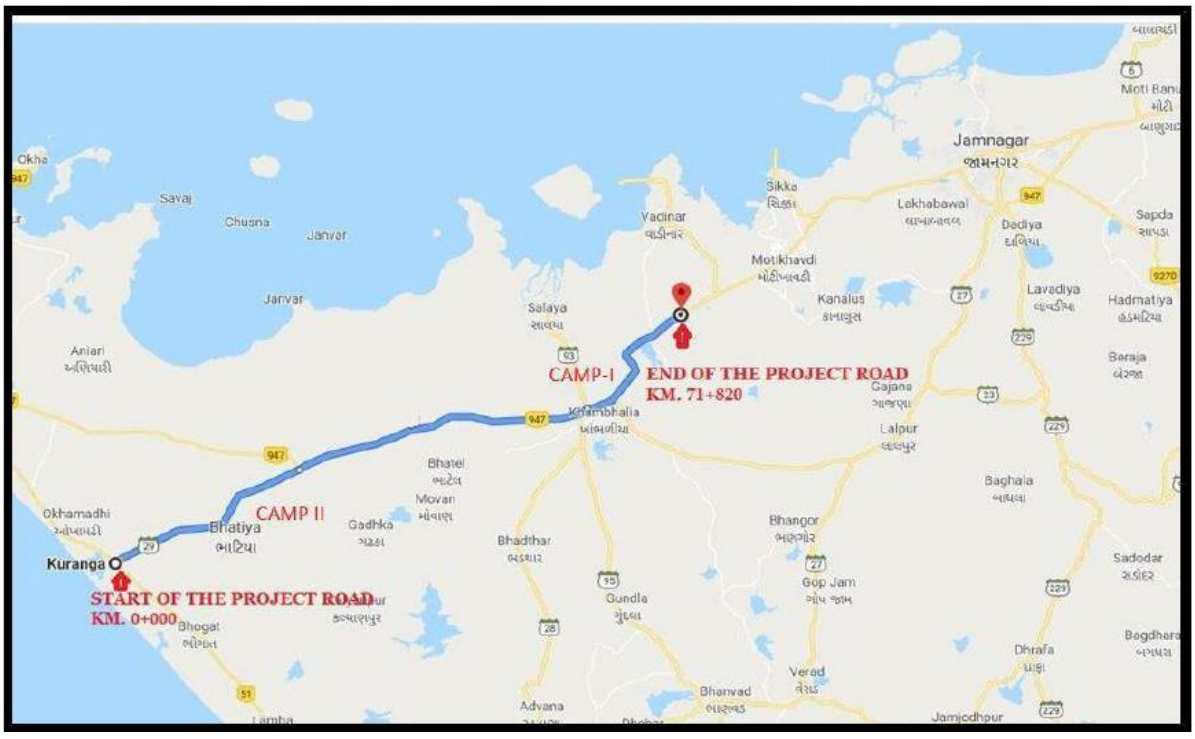
7. ***GR Dwarka Devariya Highway Private Limited***

Concession agreement

On May 22, 2019 the NHAI and GDDHPL entered into a concession agreement. GDDHPL was engaged for the four laning of Dwarka (Kuranga) – Khambhaliya – Devariya section of NH 151A in the state of Gujarat, on a HAM basis. GDDHPL is currently an under-construction project and has completed 90.19% construction as on August 31, 2022. The concession period commenced on February 8, 2020. A provisional certificate of completion was issued on August 2, 2022 and approvals and assessment from authorities including statutory assessment & environmental considerations have been obtained. For more details see "***Regulatory Approvals***" on page 332.

The following map illustrates the location of GDDHPL and the corridor it covers:

Figure 7: Map of GR Dwarka Devariya Highway Private Limited



Concession period

The NHAI granted GDDHPL a concession for a period of 17.50 years for this project. The concession period commenced on February 8, 2020 and is expected to expire on August 2, 2037. GDDHPL will begin receiving annuities with respect to this project in February 2023.

Maintenance

GDDHPL is required to carry out the operation and maintenance through GRIL, to ensure the safe, smooth and uninterrupted use of the project highway, including prevention of loss or damage during normal operating conditions, to minimize disruption in the event of accidents or other incidents affecting the safety and use of the project highway by providing a rapid and effective response and liaising with the emergency services of the state. The following table sets forth GDDHPL's operation and maintenance costs during the periods indicated:

(in ₹ million)

	For the three month period ended	For the Financial Year ended March 31,		
	June 30, 2022	**2022**	**2021**	**2020**
Operation and maintenance expenditure[(1)]	-	-	-	-
Periodic maintenance[(2)]	NIL	NIL	NIL	NIL
Total expenditure	-	-	-	-

Notes:

(1) Operation and maintenance expenditure means O&M and other related expenses other than expenditure with respect to periodic maintenance, which is shown separately, including employee benefit expenses

(2) Periodic maintenance means provision for periodic maintenance which is grouped under "Other Expenses & Finance Cost" pursuant to Ind AS

Borrowings

As of June 30, 2022, the outstanding debt with respect to this project was ₹ 3,150.52 million. For more information, see "***Financial Indebtedness and Deferred Payments***" on page 312.

Structure of ownership of the project

For information about the proposed structure of ownership of the project by the InvIT, see "***Overview of the InvIT –Structure and Description of the InvIT***" on page 89.

ROFO Assets

In addition to the InvIT Assets that will be transferred by GRIL to the InvIT pursuant to the Formation Transactions, GRIL also owns 14 additional road assets. Under the ROFO Agreement between GRIL and the InvIT (acting through the Trustee), GRIL shall provide to the InvIT with a right of first offer in relation to these additional road assets as well as any road assets that GRIL may acquire in the future, in each case so long as those road assets meet certain criteria specified in the InvIT Documents, including the ROFO Agreement and in compliance with the SEBI InvIT Regulations. For more information about these criteria and the ROFO Agreement, see "***Related Party Transactions – ROFO Agreement***" and "***Formation Transactions in relation to the InvIT"*** on pages 226 and 91, respectively.

The table below sets forth details of such projects:

Project	Location	State	Length	Commencement of concession period	Estimated end of concession period	Bid Project Costs (In ₹ millions)	Status
GR Aligarh Kanpur Highway Private Limited	NH-91	Uttar Pradesh	70.98	February 18, 2021	August 17, 2038	22,000.00	0/30
GR Ena Kim Expressway Private Limited	NH-8	Gujarat	36.93	December 11, 2021	December 11, 2038	21,870.00	0/30
GR Shirsad Masvan	NH-8	Maharashtra	27.12	February 8, 2022	February 8, 2039	27,470.00	0/30

Project	Location	State	Length	Commencement of concession period	Estimated end of concession period	Bid Project Costs (In ₹ millions)	Status
Expressway Private Limited							
GR Bilaspur Urga Highway Private Limited	NH-49	Chhattisgarh	70.20	March 25, 2022	March 24, 2039	15,270.00	0/30
GR Galgalia Bahadurganj Highway Private Limited	NH-327	Bihar	49.00	January 10, 2022	January 10, 2039	10,510.00	0/30
GR Bahadurganj Araria Highway Private Limited	NH-327	Bihar	44.98	January 10, 2022	January 10, 2039	10,817.00	0/30
GR Amritsar Bathinda Highway Private Limited	NH-703	Punjab	39.00	November 14, 2022	-November 14, 2039	9,270.00	0/30
GR Ludhiana Rupnagar Highway Private Limited	NH-205	Punjab	37.70	December 12, 2022	December 12, 2039	9,510.00	0/30
GR Bhimasar Bhuj Highway Private Limited	NH-341	Gujarat	65.48	Yet to be declared	-	10,850.00	0/30
GR Bamni Highway Private Limited	NH-930D	Maharashtra	32.98	Yet to be declared	-	8,370.00	0/30
GR Bandikui Jaipur Expressway Private Limited	-	Rajasthan	66.916	November 11, 2022	November 11, 2039	13,680.00	0/30
GR Govindpur Rajura Highway Private Limited	NH-353B	Maharashtra	56.18	October 17, 2022	October 17, 2039	9,070.00	0/30
GR Madanapalli Pileru Highway Private Limited	NH-71	Andhra Pradesh	55.90	Yet to be declared	-	15,770.00	0/30
GR Ujjain Badnawar Highway Private Limited	NH-752D	Madhya Pradesh	69.10	October 10, 2022	October 10, 2039	9,070.00	0/30

Operation and Maintenance Services

Our key business activity will be the operation and maintenance of the InvIT Assets pursuant to, and in accordance with, the provisions of the concessions and other road project related agreements. These provisions may require modifying, repairing or otherwise making improvements to the roads. In particular, each of the Concession

Agreements requires the Project SPVs to maintain the InvIT Assets in accordance with requisite standards during the concession period. The NHAI has used, and will likely to continue to use, independent engineers to carry out periodic tests jointly with us to assess the quality of the roads or bridges and their related maintenance.

The Project Manager, together with the Project SPVs, will manage the day-to-day operation and maintenance of the InvIT Assets. The Project Manager through appointment of qualified personnel, pursuant to the Project Management Agreements, shall provide project and contract management support, such as liaising with the NHAI and local authorities and ensuring that local administrative support is available for safety and risk mitigation. A Project SPV is generally responsible for carrying out operation and maintenance activities at its road during its concession period and the scope of a Project SPV's operation and maintenance activities is usually defined in the relevant Concession Agreement. Within the scope of such operation and maintenance obligations, the Project SPV may be required to undertake routine and periodic maintenance of project roads, maintain and comply with safety standards to ensure smooth and safe traffic movement, deploy adequate human resources for incident management, maintain proper medical and sanitary arrangements for personnel deployed at the site and prevent any unauthorized entry to and exit from the project as may be required. The Project Manager through appointment of qualified personnel shall provide management services in relation to the InvIT Assets including procurements, compliance at the Project SPV level and controlling expenses, leads contracts and claims management with the NHAI, hire and manage human resources and related standard operating procedures and other audits, change of scope and approval, liaises with local authorities, complies with instructions of the Investment Manager, the Trustee and provisions of the SEBI InvIT Regulations and provides access to the Trustee regarding data and information pertaining to the InvIT. For more information on the role of the Project Manager, see "***Parties to the InvIT – The Project Manager – Key terms of the Project Management Agreement***." on page 130.

Traffic control

The Project SPVs are required to carry out patrolling and regulate and maintain traffic order within the projects. Emergency telephone systems are provided in certain projects and emergency helpline numbers are provided at all projects where such systems and numbers are required by the relevant Concession Agreement. There are patrolling vehicles that move on the section of the project that it is assigned to, which will intervene to regulate traffic and carry out surveillance activities.

Traffic and motorway assistance services

Traffic assistance

The Project SPVs provide emergency assistance to motorists using the roads. The station patrolling vehicles such as tow cranes and ambulances on each road, which are deployed to patrol the roads daily. The Project SPVs deploy the number of vehicles as required by the NHAI.

If a vehicle breaks down or a traffic accident happens on our project highways, the control room receives and passes the information about such events to the patrol team. The patrolling manager then instructs a team of patrolling vehicles, ambulance or tow crane as necessary.

At the scene of a traffic accident or vehicle breakdown, our priority is to save human lives by applying first aid to any injured persons or transferring such persons to the nearest hospitals or nursing homes. The patrolling team clears the affected lanes to ensure smooth passage of traffic using the project and/or locally hired cranes. The control room records the entire activities and reports these to the NHAI in our monthly reports.

Assistance and recovery services

The O&M contractor for the Project SPVs maintains a fleet of vehicles, comprised of one patrol vehicle, an ambulance and a crane, to respond to unexpected conditions or situations on the InvIT Assets, such as the removal of obstructions or broken-down vehicles. Assistance and recovery services for immobilised vehicles are carried out using the fleet vehicles, which include, among others:

- highway patrolling vehicles: equipped with necessary equipment, that remain in contact with the control room, clear the road of obstructions and provide assistance to broken-down vehicles and passengers in distress;

- heavy recovery vehicles: equipped with configuration as specified under the Concession Agreements for handling heavy vehicle recoveries (up to 20 tonnes), including the clearing of disabled vehicles; and

- ambulance services: manned by trained paramedics and equipped with first aid and life-saving medical support systems to provide initial first aid and to transfer injured persons to nearby hospitals.

Safety Measures

Under the concession agreement, the concessionaires are obligated to abide by certain safety requirements, which include measures such as road signs, pavement marking, traffic control devices, roadside furniture, enforcement and emergency response. The concessionaires must abide by among others, applicable laws and applicable permits, the Manual for Safety in Road Design as issued by the MoRTH, relevant standards and guidelines of the Indian Roads Congress and good industry practice.

Management

We will be managed, by qualified personnel of the Investment Manager and the board of directors of the Investment Manager. For further details about the Investment Manager, see "***Parties to the InvIT – The Investment Manager – GR Highways Investment Manager Private Limited***" on page 115. In addition, the InvIT's projects will be managed by an experienced professional team engaged by the Project Manager. For further details about the Project Manager, see "***Parties to the InvIT – The Project Manager***" on page 130.

The majority of the directors on the board of each Project SPV shall be appointed by the Investment Manager, in consultation with the Trustee in accordance with the SEBI InvIT Regulations. Each Project SPV's board of directors will also form committees as may be required under the Companies Act, 2013 and rules notified thereunder.

Health, Safety and Environment

We believe that we are in compliance, in all material respects, with applicable health, safety and environmental regulations and other requirements in their operations and also maintain adequate employees' compensation, group medical insurance, group term life insurance, personal accident insurance policies and public liability insurance policies as well as other relevant policies as required under the Employees' State Insurance Scheme of India. Further, the Project Manager appointed by the Project SPVs for the InvIT Assets is principally responsible for ensuring that safety standards are met at the relevant project sites.

The InvIT has adopted certain standards for environmental and social sustainability and put in place policies and system in order comply with such standards. For more details, see "***Corporate Governance - Policies adopted in relation to the InvIT***" on page 218. However, there might be risks associated with the compliance of such standards by the InvIT Assets and the ROFO Assets. The InvIT might be required to undertake certain assessments and actions to show its commitment to employ its financial and human resources to mitigate any potential negative impact. The InvIT might incur additional expenses for meeting the standards and requirements of the policies including expenditure for livelihood restoration activities for people impacted by the InvIT Assets, adopting the bio-diversity action plan and appointing third party consultants.

Property

The Investment Manager's registered office is located at 2nd Floor, Novus Tower, Plot No. 18, Sector 18, Gurugram, Haryana – 122 015, and it proposes to conduct operations pertaining to the InvIT from such office.

Under the terms of the Concession Agreements, title to the roads and related infrastructure such as toll plazas and monitoring posts remains with the NHAI for the duration of the concession period. During the concession period, the Project SPVs are licensed to use the roads and the related infrastructure which constitute the concession assets. Upon the expiration of a concession period, each Project SPVs is required to transfer possession of its concession assets to the NHAI.

Insurance

The InvIT's operations are subject to hazards inherent in providing operation and maintenance services, such as risk of equipment failure, work accidents, fire, earthquake, flood and other force majeure events. This includes hazards that may cause injury and loss of life, damage and destruction of property, equipment and environmental damage. The Project SPVs' principal types of insurance coverage include fire and allied perils insurance, contractor all-risk for under construction projects, public liability for operation of roads, advance loss of profit, burglary insurance, and insurance for earthquake and acts of god. The Trustee confirms the amount of insurance that we presently maintain represents an adequate and appropriate level of coverage required to insure the InvIT's

business and operations and all the infrastructure assets held by the InvIT, and is in accordance with industry standards in India and will perform regular assessment on the adequacy of its insurance coverage on a yearly basis.

SUMMARY OF CONCESSION AGREEMENTS

*Set out below are summaries of the Concession Agreements entered into by the Project SPVs in relation to their respective businesses. The descriptions and summaries of the agreements below are indicative and are not and nor do they purport to be complete descriptions or summaries of all terms of such agreements. Certain terms used in this section have the meaning as assigned to such terms in the respective Concession Agreements. Copies of these Concession Agreements have been made available for inspection at the office of the InvIT at Gurugram, Haryana, India. For further details, see '**Material Contracts and Documents for Inspection**' on page 376.*

1. Concession agreement between GR Gundugolanu Devarapalli Highway Pvt. Ltd. and the NHAI dated April 26, 2018

GDHPL has entered into a concession agreement for the four-laning and augmentation of the existing road of the Gundugolanu-Devarapalli- Kovvuru section of NH-16 from km 15.320 (existing km 15.700) to km 85.204 (existing km 81.400) (having a design length of 69.884 km) in the State of Andhra Pradesh under Bharatmala Pariyojana on hybrid annuity mode (the "**GDHPL Concession Agreement**") for a construction period of 910 days from starting from October 22, 2018 ("**GDHPL Appointed Date**" and such period, the "**GDHPL Construction Period**") and a fixed operation period of 15 years from July 10, 2021 ("**GDHPL COD**" and such period, the "**GDHPL Operation Period**) or until such date on which the GDHPL Concession Agreement is terminated by a termination notice ("**GDHPL Termination Date**", and the period between the GDHPL Appointed Date and the GDHPL Termination Date, the "**GDHPL Concession Period**").

Certain Definitions

"**GDHPL Debt Due**" means the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date, i.e., the date on which the GDHPL Concession Agreement and the concession granted thereunder expires or is terminated:

(a) The principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principal**") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

(b) All accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in sub-clause (a) above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

(c) Any subordinate debt which is included in the financial package and disbursed by lenders for financing the total project cost;

Provided that if all or any part of the GDHPL Debt Due is convertible into equity at the option of senior lenders and/or GDHPL, it shall for the purposes of the GDHPL Concession Agreement be deemed to be GDHPL Debt Due even after such conversion and the principal thereof shall be dealt with as if such conversion had not been undertaken;

"**GDHPL Debt Service**" means the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements for and in respect of GDHPL Debt Due under the financing agreements;

"**GDHPL Project**" means the construction, operation, and maintenance of the GDHPL Project Highway in accordance with the provisions of the GDHPL Concession Agreement, and includes all works, services, and equipment relating to or in respect of the scope of the project in site comprising the existing road comprising GDHPL Project Highway and all GDHPL Project Assets, and its subsequent development and augmentation in accordance with the GDHPL Concession Agreement.

"**GDHPL Project Assets**" means all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road over bridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project

facilities situated on the site; (d) all rights of GDHPL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the GDHPL Project (as defined above);

"**GDHPL Project Highway**" means the site comprising the existing road comprising NH-16 from km. 15.320 (existing km. 15.700) to km. 85.204 (existing km. 81.400) and all GDHPL Project Assets, and its subsequent development and augmentation in accordance with the GDHPL Concession Agreement.

Grant of Concession

Subject to, and in accordance with the provisions of the GDHPL Concession Agreement applicable laws and applicable permits, the NHAI has granted to GDHPL, and GDHPL has accepted the concession, including the exclusive right, license, and authority to construct, operate and maintain the GDHPL Project during the GDHPL Concession Period.

Subject to, and in accordance with the provisions of the GDHPL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, GDHPL to:

(a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the GDHPL Concession Agreement;

(b) finance GDHPL Project and construct the GDHPL Project Highway;

(c) manage, operate, and maintain the GDHPL Project;

(d) perform and fulfil all of its obligations under and in accordance with the GDHPL Concession Agreement;

(e) save as otherwise expressly provided in the GDHPL Concession Agreement, bear and pay all costs, expenses and charges in connection with or incidental to the performance of the obligations of GDHPL under the GDHPL Concession Agreement;

(f) neither assign, transfer or sublet, or create any lien or encumbrance on the GDHPL Concession Agreement, or the concession granted, or on the whole or any part of the GDHPL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the GDHPL Concession Agreement or the agreement for the substitution of GDHPL entered into by GDHPL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Bid Project Cost

The cost of construction of the GDHPL Project, as on the bid date, which is due and payable by NHAI to GDHPL, shall be deemed to be ₹1,827.00 crores (the "**GDHPL Bid Project Cost**"). The GDHPL Bid Project Cost shall be revised from time to time in accordance with the GDHPL Concession Agreement to reflect the variation in price index (as defined in the concession agreement) occurring after the reference index date (as defined in the concession agreement) immediately preceding the bid date.

40% of the GDHPL Bid Project Cost, adjusted for the price index multiple, was due and payable to GDHPL in five equal instalments of 8% each during the GDHPL Construction Period in accordance with the GDHPL Concession Agreement. The remaining GDHPL Bid Project Cost, adjusted for the price index multiple, is due and payable in 30 biannual instalments commencing from the 180th day of GDHPL COD period in accordance with the GDHPL Concession Agreement.

Payment during Construction Period

Upon receipt of report from the independent engineer certifying the achievement of the payment milestones specified in the GDHPL Concession Agreement, the NHAI was due to disburse, within 15 days of the receipt of each such report, an instalment equal to 8% of the GDHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of that report in accordance with the payment milestone for release of payment during construction period as specified in the GDHPL Concession Agreement.

Annuity Payments During the Operation Period

The completion cost shall be the summation of A, B, C, D, E, and F below:

A. 10% of the GDHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 10% physical progress.

B. Another 20% of the GDHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 30% physical progress.

C. Another 20% of the GDHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 50% physical progress.

D. Another 25% of the GDHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 75% physical progress

E. Another 15% of the GDHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 90% physical progress,

F. Another 10% of the GDHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the GDHPL COD.

NHAI has paid a portion of the completion cost as payments during GDHPL Construction Period and the balance completion cost remaining is due and payable during the GDHPL Operation Period as given in the GDHPL Concession Agreement.

O&M Payments

The O&M expenses, which are borne by GDHPL, are reimbursed by the NHAI by way of a lump sum financial support in two equal biannual instalments shall be due and payable by the NHAI, in accordance with the GDHPL Concession Agreement. The O&M payments due and payable to GDHPL shall be paid in two equal biannual instalments and disbursed by the NHAI together with the corresponding instalments of annuity payments.

Escrow Account

GDHPL was required to, prior to the GDHPL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the GDHPL Concession Agreement read with the escrow agreement entered into amongst GDHPL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

GDHPL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

(a) all funds constituting the financial package;

(b) all revenues from or in respect of the GDHPL Project, including the proceeds of any deposits, capital receipts or insurance claims; and

(c) all payments by the NHAI, after deducting any outstanding payments.

Withdrawals during Concession Period

GDHPL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, *inter alia*, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in a month when due:

(a) all taxes due and payable by GDHPL for and in respect of the GDHPL Project;

(b) all payments relating to construction of the GDHPL Project, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

(c) O&M expenses, subject to the ceiling, if any, set forth in the financing agreements;

(d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the GDHPL Concession Agreement, and certified by the NHAI as due and payable to it;

(e) Any amount due and payable to the NHAI;

(f) monthly proportionate provision of GDHPL Debt Service due in an accounting year;

(g) all payments and damages certified by the NHAI as due and payable to it by GDHPL;

(h) monthly proportionate provision of GDHPL Debt Service payments due in an accounting year in respect of subordinated debt;

(i) any reserve requirements set forth in the financing agreements; and

(j) balance, if any, in accordance with the instructions of GDHPL.

GDHPL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the GDHPL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

(a) all taxes due and payable by GDHPL for and in respect of the GDHPL Project;

(b) percentage of the GDHPL Debt Due excluding the subordinated debt if required to be as per the terms of the GDHPL Concession Agreement;

(c) outstanding payments due to the NHAI;

(d) all payments and damages certified by the NHAI as due and payable to it by GDHPL;

(e) retention and payments relating to the liability for defects and deficiencies set forth in the GDHPL Concession Agreement;

(f) outstanding GDHPL Debt Service including balance of GDHPL Debt Due;

(g) outstanding subordinated debt;

(h) incurred or accrued O&M expenses;

(i) any other payments required to be made under the GDHPL Concession Agreement; and

(j) balance, if any, in accordance with the instructions of GDHPL.

No appropriations shall be made under this sub clause until a vesting certificate has been issued by the NHAI.

Change of Scope

NHAI may, notwithstanding anything to the contrary contained in the GDHPL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the GDHPL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the GDHPL Concession Agreement and the costs thereof shall be expended by GDHPL and reimbursed by the NHAI.

If GDHPL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 15 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the GDHPL Concession Agreement or inform GDHPL in writing of its reasons for not accepting such change of scope, which decision of the NHAI shall be final and binding.

Compensation for Breach of Agreement

In the event of GDHPL being in material breach or default of the GDHPL Concession Agreement, it shall pay to

the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the GDHPL Concession Agreement or for any consequential losses incurred by NHAI.

In the event of the NHAI being in material breach or default of the GDHPL Concession Agreement at any time after the GDHPL Appointed Date, it shall pay to GDHPL by way of compensation, all direct costs suffered or incurred by GDHPL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the GDHPL Concession Agreement. Compensation payable may include interest payments on debts, O&M expenses, any increase in capital costs on account of inflation and all other costs directly attributable to such material breach or default but shall not include loss of annuity payment, debt repayment obligations or other consequential losses, loss of profits, EPC contractor claims, and for determining such compensation, information contained in the financial package and financial model may be relied upon to the extent it is relevant.

Termination of the GDHPL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the GDHPL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and GDHPL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, GDHPL shall be deemed to be in default of the GDHPL Concession Agreement ("**GDHPL Default**"), unless the default has occurred solely as a result of any breach of the GDHPL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

(a) the performance security has been encashed and appropriated in accordance with the GDHPL Concession Agreement and GDHPL fails to replenish or provide fresh performance security within a cure period of 15 days;

(b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the GDHPL Concession Agreement, GDHPL fails to meet any condition precedent or cure the default, as the case may be, for which whole or part of the performance security was appropriated, within a cure period of 120 days;

(c) GDHPL does not achieve the latest outstanding project milestone due in accordance with the GDHPL Concession Agreement and continues to be in default for 120 days;

(d) GDHPL abandons or manifests intention to abandon the construction or operation of the GDHPL Project without the prior written consent of the NHAI;

(e) COD does not occur within the period specified in the GDHPL Concession Agreement;

(f) the punch list items have not been completed within the period set forth in the GDHPL Concession Agreement;

(g) GDHPL is in breach of the maintenance requirements or the safety requirements as the case may be;

(h) GDHPL has failed to make any payment to the NHAI within the period specified in the GDHPL Concession Agreement;

(i) an escrow default has occurred and GDHPL fails to cure the default within a cure period of 15 days;

(j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and GDHPL fails to cure the default within the cure period specified;

(k) a breach of the project agreements by GDHPL has caused a material adverse effect;

(l) GDHPL creates an encumbrance in breach of the GDHPL Concession Agreement;

(m) GDHPL repudiates the GDHPL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the GDHPL Concession Agreement;

(n) a change in ownership has occurred in breach of the GDHPL Concession Agreement;

(o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of GDHPL under any of the project agreements, or of (ii) all or part of the assets or undertaking of GDHPL, and such transfer causes a material adverse effect;

(p) an execution levied on any of the assets of GDHPL has caused a material adverse effect;

(q) GDHPL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for GDHPL or for the whole or material part of its assets that has a material bearing on the GDHPL Project;

(r) GDHPL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

(s) a resolution for winding up of GDHPL is passed, or any petition for winding up of GDHPL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or GDHPL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of GDHPL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of GDHPL under the GDHPL Concession Agreement and the project agreements; provided that:

(i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the GDHPL Concession Agreement and the project agreements;

(ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the GDHPL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of GDHPL as at the GDHPL Appointed Date; and

(iii) each of the project agreements remains in full force and effect;

(t) any representation or warranty of GDHPL which is, as of the date hereof, found to be materially false, incorrect or misleading or GDHPL is at any time hereafter found to be in breach thereof;

(u) GDHPL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

(v) GDHPL has failed to fulfil any obligation, for which failure termination has been specified in the GDHPL Concession Agreement; or

(w) GDHPL commits a default in complying with any other provision of the GDHPL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the GDHPL Concession Agreement, upon the occurrence of a GDHPL Default, the NHAI shall be entitled to terminate the GDHPL Concession Agreement by issuing a termination notice to GDHPL. Before issuing the termination notice, the NHAI shall, by notice, inform GDHPL of its intention to issue a termination notice and grant 15 days to GDHPL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the GDHPL Concession Agreement.

Termination by GDHPL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the GDHPL Concession Agreement, the NHAI shall be deemed to be in default of the GDHPL Concession Agreement ("**NHAI Default**"), unless the

default has occurred as a result of a breach of the GDHPL Concession Agreement by GDHPL, or due to force majeure. The default referred to herein shall include:

(a) NHAI commits a material default in complying with any of the provisions of the GDHPL Concession Agreement and such default has a material adverse effect on GDHPL;

(b) NHAI has failed to make any payment to GDHPL within the period specified in the GDHPL Concession Agreement;

(c) NHAI fails to provide, within 180 days from the appointed date, statutory clearances required for the construction of the GDHPL Project; or

(d) NHAI repudiates the GDHPL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the GDHPL Concession Agreement.

Without prejudice to any other rights or remedies which GDHPL may have under the GDHPL Concession Agreement, upon the occurrence of an NHAI Default, GDHPL shall, subject to the provisions of the Substitution Agreement, be entitled to terminate the GDHPL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, GDHPL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 15 days to the NHAI to make a representation, and may after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of a GDHPL Default during the operation period, the NHAI shall pay to GDHPL, by way of termination payment, an amount equal to 65% of the sum of annuity payments remaining unpaid for and in respect of the concession period, including interest thereon up to the transfer date.

Upon termination on account of a GDHPL Default during the GDHPL Construction Period, the termination payment shall be based on the payment milestone achieved which is in terms of the physical progress made by GDHPL in the project and the termination payment corresponding to the achieved payment milestone shall be as follows:

Payment Milestone	Termination Payment
1st Payment Milestone	NIL
2nd Payment Milestone	50% of GDHPL Debt Due or 5.25% of the GDHPL Bid Project Cost, whichever is lower.
3rd Payment Milestone	60% of GDHPL Debt Due or 11.70% of the GDHPL Bid Project Cost, whichever is lower.
4th Payment Milestone	70% of GDHPL Debt Due or 24% of the GDHPL Bid Project Cost, whichever is lower.
5th Payment Milestone	80% of GDHPL Debt Due or 32% of the GDHPL Bid Project Cost, whichever is lower.

Upon termination on account of an NHAI Default, the NHAI shall pay to GDHPL, by way of termination payment, an amount equal to:

(i) In case the termination occurs prior to GDHPL COD

(a) Debt due payment calculated as per the table below less insurance cover; provided that if any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of debt due. The debt due would be calculated as per the table below:

Payment Milestone	Basis of calculation for debt due payment
1st Payment Milestone	GDHPL Debt Due or 1.50% of the GDHPL Bid Project Cost, whichever is lower.
2nd Payment Milestone	GDHPL Debt Due or 10.50% of the GDHPL Bid Project Cost, whichever is lower.
3rd Payment Milestone	GDHPL Debt Due or 19.50% of the GDHPL Bid Project Cost, whichever is lower.
4th Payment Milestone	GDHPL Debt Due or 33.75% of the GDHPL Bid Project Cost, whichever is lower.

Payment Milestone	Basis of calculation for debt due payment
5th Payment Milestone	GDHPL Debt Due or 40.50% of the GDHPL Bid Project Cost, whichever is lower.

(b) 150% of the adjusted equity;

(ii) In case the termination occurs on or after GDHPL COD, the NHAI shall pay to GDHPL, by way of termination payment, an amount equal to sum of annuity payments remaining unpaid for and in respect of the concession period, including interest thereon up to the transfer date.

Termination payment shall become due and payable to GDHPL within 15 days of a demand being made by GDHPL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the daily average bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the GDHPL Concession Agreement shall constitute a full and final settlement of all claims of GDHPL on account of termination of the GDHPL Concession Agreement for any reason whatsoever and GDHPL shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Liability for Defect after Termination

GDHPL shall be responsible for all defects and deficiencies in the GDHPL Project for a period of 120 days after termination and shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the GDHPL Project as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf and in case of failure to do so, NHAI shall be entitled to get the same repaired and rectified at GDHPL's risk and cost so as to make the project conform to the maintenance requirements. All costs incurred by the NHAI shall be reimbursed by GDHPL to NHAI within 15 days of receipt of demand thereof, and in the event of default in reimbursing such costs, NHAI shall be entitled to recover the same from the funds retained in the Escrow Account or from the performance guarantee provided thereunder.

2. Concession agreement between GR Phagwara Expressway Ltd. and the NHAI dated October 5, 2016

GPEL has entered into a concession agreement for the four-laning and augmentation of the existing road of the Phagwara-Rupnagar section of NH-344A from km 0.00 to km 80.820 in the State of Punjab on hybrid annuity mode (the "**GPEL Concession Agreement**") for a construction period of 910 days from starting from October 6, 2017 ("**GPEL Appointed Date**" and such period, the "**GPEL Construction Period**") and a fixed operation period of 15 years from May 26, 2021 ("**GPEL COD**" and such period, the "**GPEL Operation Period**) or until such date on which the GPEL Concession Agreement is terminated by a termination notice ("**GPEL Termination Date**", and the period between the GPEL Appointed Date and the GPEL Termination Date, the "**GPEL Concession Period**").

Certain Definitions

"**GPEL Debt Due**" means the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date, i.e., the date on which the GPEL Concession Agreement and the concession granted thereunder expires or is terminated:

(a) The principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principal**") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

(b) All accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in sub-clause (a) above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

(c) Any subordinate debt which is included in the financial package and disbursed by lenders for financing the total project cost.

Provided that if all or any part of the GPEL Debt Due is convertible into equity at the option of senior lenders and/or GPEL, it shall for the purposes of the GPEL Concession Agreement be deemed to be GPEL Debt Due even after such conversion and the principal thereof shall be dealt with as if such conversion had not been undertaken;

"**GPEL Debt Service**" means the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements for and in respect of GPEL Debt Due under the financing agreements;

"**GPEL Project**" means the construction, operation, and maintenance of the GPEL Project Highway in accordance with the provisions of the GPEL Concession Agreement, and includes all works, services, and equipment relating to or in respect of the scope of the project in site comprising the existing road comprising GPEL Project Highway and all GPEL Project Assets, and its subsequent development and augmentation in accordance with the GPEL Concession Agreement;

"**GPEL Project Assets**" means all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road over bridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of GPEL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the GPEL Project (as defined above); and

"**GPEL Project Highway**" means the site comprising the existing road comprising NH-334A from km. 0.00 to km. 80.820 and all GPEL Project Assets, and its subsequent development and augmentation in accordance with the GPEL Concession Agreement.

Grant of Concession

Subject to, and in accordance with the provisions of the GPEL Concession Agreement, applicable laws and applicable permits, the NHAI has granted to GPEL, and GPEL has accepted the concession, including the exclusive right, license, and authority to construct, operate and maintain the GPEL Project during the GPEL Concession Period.

Subject to, and in accordance with the provisions of the GPEL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, GPEL to:

(a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the GPEL Concession Agreement;

(b) finance the GPEL Project and construct the GPEL Project Highway;

(c) manage, operate, and maintain the GPEL Project;

(d) perform and fulfil all of its obligations under and in accordance with the GPEL Concession Agreement;

(e) save as otherwise expressly provided in the GPEL Concession Agreement, bear and pay all costs, expenses and charges in connection with or incidental to the performance of the obligations of GPEL under the GPEL Concession Agreement;

(f) neither assign, transfer or sublet, or create any lien or encumbrance on the GPEL Concession Agreement, or the concession granted, or on the whole or any part of the GPEL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the GPEL Concession Agreement or the agreement for the substitution of GPEL entered into by GPEL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Bid Project Cost

The cost of construction of the GPEL Project, as on the bid date, which is due and payable by NHAI to GPEL, shall be deemed to be ₹1,367.00 crores (the "**GPEL Bid Project Cost**"). The GPEL Bid Project Cost shall be revised from time to time in accordance with the GPEL Concession Agreement to reflect the variation in price index (as defined in the concession agreement) occurring after the reference index date (as defined in the

concession agreement) immediately preceding the bid date.

40% of the GPEL Bid Project Cost, adjusted for the price index multiple, was due and payable, to GPEL in five equal instalments of 8% each during the GPEL Construction Period in accordance with the GPEL Concession Agreement. The remaining GPEL Bid Project Cost, adjusted for the price index multiple, is due and payable in 30 biannual instalments commencing from the 180th day of GPEL COD period in accordance with the GPEL Concession Agreement.

Payment during Construction Period

Upon receipt of report from the independent engineer certifying the achievement of the payment milestones specified in the GPEL Concession Agreement, the NHAI was due to disburse, within 15 days of the receipt of each such report, an instalment equal to 8% of the GPEL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of that report in accordance with the payment milestone for release of payment during construction period as specified in the GPEL Concession Agreement.

Annuity Payments During the Operation Period

The completion cost shall be the summation of A, B, C, D, E, and F below:

A. 20% of the GPEL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 20% physical progress.

B. Another 20% of the GPEL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 40% physical progress.

C. Another 20% of the GPEL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 60% physical progress.

D. Another 15% of the GPEL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 75% physical progress

E. Another 15% of the GPEL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 90% physical progress,

F. Another 10% of the GPEL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the GPEL COD.

NHAI has paid a portion of the completion cost as payments during GPEL Construction Period and the balance completion cost remaining is due and payable during the GPEL Operation Period as given in the GPEL Concession Agreement.

O&M Payments

The O&M expenses, which are borne by GPEL, are reimbursed by the NHAI by way of a lump sum financial support in two equal biannual instalments shall be due and payable by the NHAI, in accordance with the GPEL Concession Agreement. The O&M payments due and payable to GPEL shall be paid in two equal biannual instalments and disbursed by the NHAI together with the corresponding instalments of annuity payments. Any O&M expenses in excess of the O&M payments shall be borne solely by GPEL, save and except as expressly provided in the GPEL Concession Agreement.

Escrow Account

GPEL was required to, prior to the GPEL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the GPEL Concession Agreement read with the escrow agreement entered into amongst GPEL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

GPEL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

(a) all funds constituting the financial package;

(b) all revenues from or in respect of the GPEL Project, including the proceeds of any deposits, capital

receipts or insurance claims; and

(c) all payments by the NHAI, after deducting any outstanding payments.

Withdrawals during Concession Period

GPEL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, *inter alia*, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in the month when due:

(a) all taxes due and payable by GPEL for and in respect of the GPEL Project;

(b) any amount due on account of appropriation of the deemed performance security under the GPEL Concession Agreement;

(c) all payments relating to construction of the GPEL Project, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

(d) O&M expenses, subject to the ceiling, if any, set forth in the financing agreements;

(e) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the GPEL Concession Agreement, and certified by the NHAI as due and payable to it;

(f) Any amount due and payable to the NHAI other than payment of deemed performance security in accordance with the GPEL Concession Agreement;

(g) monthly proportionate provision of GPEL Debt Service due in an accounting year;

(h) all payments and damages certified by the NHAI as due and payable to it by GPEL;

(i) monthly proportionate provision of GPEL Debt Service payments due in an accounting year in respect of subordinated debt;

(j) any reserve requirements set forth in the financing agreements; and

(k) balance, if any, in accordance with the instructions of GPEL.

GPEL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the GPEL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

(a) all taxes due and payable by GPEL for and in respect of the GPEL Project;

(b) any amount due on account of appropriation of the deemed performance security under the GPEL Concession Agreement;

(c) percentage of the GPEL Debt Due excluding the subordinated debt if required to be as per the terms of the GPEL Concession Agreement;

(d) outstanding payments due to the NHAI;

(e) all payments and damages certified by the NHAI as due and payable to it by GPEL;

(f) retention and payments relating to the liability for defects and deficiencies set forth in the GPEL Concession Agreement;

(g) outstanding GPEL Debt Service including balance of GPEL Debt Due;

(h) outstanding subordinated debt;

(i) incurred or accrued O&M expenses;

(j) any other payments required to be made under the GPEL Concession Agreement; and

(k) balance, if any, in accordance with the instructions of GPEL.

No appropriations shall be made under this sub-clause until a vesting certificate has been issued by the NHAI.

Change of Scope

NHAI may, notwithstanding anything to the contrary contained in the GPEL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the GPEL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the GPEL Concession Agreement and the costs thereof shall be expended by GPEL and reimbursed by the NHAI.

If GPEL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 15 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the GPEL Concession Agreement, or inform GPEL in writing of its reasons for not accepting such change of scope, which decision of the NHAI shall be final and binding.

Compensation for Breach of Agreement

In the event of GPEL being in material breach or default of the GPEL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the GPEL Concession Agreement or for any consequential losses incurred by NHAI.

In the event of the NHAI being in material breach or default of the GPEL Concession Agreement at any time after the GPEL Appointed Date, it shall pay to GPEL by way of compensation, all direct costs suffered or incurred by GPEL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the GPEL Concession Agreement. Compensation payable may include interest payments on debts, O&M expenses, any increase in capital costs on account of inflation and all other costs directly attributable to such material breach or default but shall not include loss of annuity payment, debt repayment obligations or other consequential losses, loss of profits, EPC contractor claims, and for determining such compensation, information contained in the financial package and financial model may be relied upon to the extent it is relevant.

Termination of the GPEL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the GPEL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and GPEL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, GPEL shall be deemed to be in default of the GPEL Concession Agreement ("**GPEL Default**"), unless the default has occurred solely as a result of any breach of the GPEL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

(a) the performance security has been encashed and appropriated in accordance with the GPEL Concession Agreement and GPEL fails to replenish or provide fresh performance security within a cure period of 15 days;

(b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the GPEL Concession Agreement, GPEL fails to meet any condition precedent or cure the default, as the case may be, for which whole or part of the performance security was appropriated, within a cure period of 120 days;

(c) GPEL does not achieve the latest outstanding project milestone due in accordance with the GPEL Concession Agreement and continues to be in default for 120 days;

(d) GPEL abandons or manifests intention to abandon the construction or operation of the GPEL Project without the prior written consent of the NHAI;

(e) COD does not occur within the period specified in the GPEL Concession Agreement;

(f) the punch list items have not been completed within the period set forth in the GPEL Concession Agreement;

(g) GPEL is in breach of the maintenance requirements or the safety requirements as the case may be;

(h) GPEL has failed to make any payment to the NHAI within the period specified in the GPEL Concession Agreement;

(i) an escrow default has occurred and GPEL fails to cure the default within a cure period of 15 days;

(j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and GPEL fails to cure the default within the cure period specified;

(k) a breach of the project agreements by GPEL has caused a material adverse effect;

(l) GPEL creates an encumbrance in breach of the GPEL Concession Agreement;

(m) GPEL repudiates the GPEL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the GPEL Concession Agreement;

(n) a change in ownership has occurred in breach of the GPEL Concession Agreement;

(o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of GPEL under any of the project agreements, or of (ii) all or part of the assets or undertaking of GPEL, and such transfer causes a material adverse effect;

(p) an execution levied on any of the assets of GPEL has caused a material adverse effect;

(q) GPEL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for GPEL or for the whole or material part of its assets that has a material bearing on the GPEL Project;

(r) GPEL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

(s) a resolution for winding up of GPEL is passed, or any petition for winding up of GPEL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or GPEL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of GPEL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of GPEL under the GPEL Concession Agreement and the project agreements; provided that:

(i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the GPEL Concession Agreement and the project agreements;

(ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the GPEL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of GPEL as at the GPEL Appointed Date; and

(iii) each of the project agreements remains in full force and effect.

(t) any representation or warranty of GPEL which is, as of the date hereof, found to be materially false,

incorrect or misleading or GPEL is at any time hereafter found to be in breach thereof;

(u) GPEL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

(v) GPEL has failed to fulfil any obligation, for which failure termination has been specified in the GPEL Concession Agreement; or

(w) GPEL issues a termination notice in violation of the GPEL Concession Agreement.

(x) GPEL commits a default in complying with any other provision of the GPEL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the GPEL Concession Agreement, upon the occurrence of a GPEL Default, the NHAI shall be entitled to terminate the GPEL Concession Agreement by issuing a termination notice to GPEL. Before issuing the termination notice, the NHAI shall, by notice, inform GPEL of its intention to issue a termination notice and grant 15 days to GPEL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the GPEL Concession Agreement.

Termination by GPEL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the GPEL Concession Agreement, the NHAI shall be deemed to be in default of the GPEL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the GPEL Concession Agreement by GPEL, or due to force majeure. The default referred to herein shall include:

(a) NHAI commits a material default in complying with any of the provisions of the GPEL Concession Agreement and such default has a material adverse effect on GPEL;

(b) NHAI has failed to make any payment to GPEL within the period specified in the GPEL Concession Agreement;

(c) NHAI fails to provide, within 180 days from the appointed date, statutory clearances required for the construction of the GPEL Project; or

(d) NHAI repudiates the GPEL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the GPEL Concession Agreement.

Without prejudice to any other rights or remedies which GPEL may have under the GPEL Concession Agreement, upon the occurrence of an NHAI Default, GPEL shall, subject to the provisions of the Substitution Agreement, be entitled to terminate the GPEL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, GPEL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 15 days to the NHAI to make a representation, and may after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of a GPEL Default during the operation period, the NHAI shall pay to GPEL, by way of termination payment, an amount equal to 65% of the sum of annuity payments remaining unpaid for and in respect of the concession period, including interest thereon up to the transfer date.

Upon termination on account of a GPEL Default during the GPEL Construction Period, the termination payment shall be based on the payment milestone achieved which is in terms of the physical progress made by GPEL in the project and the termination payment corresponding to the achieved payment milestone shall be as follows:

Payment Milestone	Termination Payment
1st Payment Milestone	NIL
2nd Payment Milestone	50% of GPEL Debt Due or 9% of the GPEL Bid Project Cost, whichever is lower.
3rd Payment Milestone	60% of GPEL Debt Due or 16% of the GPEL Bid Project Cost, whichever is lower.

Payment Milestone	Termination Payment
4th Payment Milestone	70% of GPEL Debt Due or 24% of the GPEL Bid Project Cost, whichever is lower.
5th Payment Milestone	80% of GPEL Debt Due or 32% of the GPEL Bid Project Cost, whichever is lower.

Upon termination on account of an NHAI Default, the NHAI shall pay to GPEL, by way of termination payment, an amount equal to:

(i) In case the termination occurs prior to GPEL COD

(a) Debt due payment calculated as per the table below less insurance cover; provided that if any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of debt due. The debt due would be calculated as per the table below:

Payment Milestone	Basis of calculation for debt due payment
1st Payment Milestone	GPEL Debt Due or 9% of the GPEL Bid Project Cost, whichever is lower.
2nd Payment Milestone	GPEL Debt Due or 18% of the GPEL Bid Project Cost, whichever is lower.
3rd Payment Milestone	GPEL Debt Due or 27% of the GPEL Bid Project Cost, whichever is lower.
4th Payment Milestone	GPEL Debt Due or 33.75% of the GPEL Bid Project Cost, whichever is lower.
5th Payment Milestone	GPEL Debt Due or 40.50% of the GPEL Bid Project Cost, whichever is lower.

(b) 150% of the adjusted equity;

(ii) In case the termination occurs on or after GPEL COD, the NHAI shall pay to GPEL, by way of termination payment, an amount equal to sum of annuity payments remaining unpaid for and in respect of the concession period, including interest thereon up to the transfer date.

Termination payment shall become due and payable to GPEL within 15 days of a demand being made by GPEL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the daily average bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the GPEL Concession Agreement shall constitute a full and final settlement of all claims of GPEL on account of termination of the GPEL Concession Agreement for any reason whatsoever and GPEL shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Liability for Defect after Termination

GPEL shall be responsible for all defects and deficiencies in the GPEL Project for a period of 120 days after termination and shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the GPEL Project as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf and in case of failure to do so, NHAI shall be entitled to get the same repaired and rectified at GPEL's risk and cost so as to make the project conform to the maintenance requirements. All costs incurred by the NHAI shall be reimbursed by GPEL to NHAI within 15 days of receipt of demand thereof, and in the event of default in reimbursing such costs, NHAI shall be entitled to recover the same from the funds retained in the Escrow Account or from the performance guarantee provided thereunder.

3. Concession agreement between Porbandar Dwarka Expressway Pvt. Ltd. and the NHAI dated August 8, 2017

PDEPL has entered into a concession agreement for the four-laning and augmentation of the existing road of the Porbandar-Dwarka section of NH-8E (Ext.) from km 356.766 (design chainage km 379.100) to km 473.000 (design chainage km 496.848) in the State of Gujarat on hybrid annuity mode (the "**PDEPL Concession Agreement**") for a construction period of 1095 days from starting from February 12, 2018 ("**PDEPL Appointed Date**" and such period, the "**PDEPL Construction Period**") and a fixed operation period of 15 years from

October 13, 2021 ("**PDEPL COD**" and such period, the "**PDEPL Operation Period**) or until such date on which the PDEPL Concession Agreement is terminated by a termination notice ("**PDEPL Termination Date**", and the period between the PDEPL Appointed Date and the PDEPL Termination Date, the "**PDEPL Concession Period**").

Certain Definitions

"**PDEPL Debt Due**" means the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date, i.e., the date on which the PDEPL Concession Agreement and the concession granted thereunder expires or is terminated:

(a) The principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principal**") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

(b) All accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in sub-clause (a) above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

(c) Any subordinate debt which is included in the financial package and disbursed by lenders for financing the total project cost.

Provided that if all or any part of the PDEPL Debt Due is convertible into equity at the option of senior lenders and/or PDEPL, it shall for the purposes of the PDEPL Concession Agreement be deemed to be PDEPL Debt Due even after such conversion and the principal thereof shall be dealt with as if such conversion had not been undertaken.

"**PDEPL Debt Service**" means the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements for and in respect of PDEPL Debt Due under the financing agreements;

"**PDEPL Project**" means the construction, operation, and maintenance of the PDEPL Project Highway in accordance with the provisions of the PDEPL Concession Agreement, and includes all works, services, and equipment relating to or in respect of the scope of the project in site comprising the existing road comprising PDEPL Project Highway and all PDEPL Project Assets, and its subsequent development and augmentation in accordance with the PDEPL Concession Agreement.

"**PDEPL Project Assets**" means all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road over bridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of PDEPL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the PDEPL Project;

"**PDEPL Project Highway**" means the site comprising the existing road comprising NH-8E from km. 356.766 (design chainage km 379.100) to km 473.000 (design chainage km 496.848) and all PDEPL Project Assets, and its subsequent development and augmentation in accordance with the PDEPL Concession Agreement.

Grant of Concession

Subject to, and in accordance with the provisions of the PDEPL Concession Agreement, applicable laws and applicable permits, the NHAI has granted to PDEPL, and PDEPL has accepted the concession, including the exclusive right, license, and authority to construct, operate and maintain the PDEPL Project during the PDEPL Concession Period.

Subject to, and in accordance with the provisions of the PDEPL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, PDEPL to:

(a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the PDEPL Concession Agreement;

(b) finance the PDEPL Project and construct the PDEPL Project Highway;

(c) manage, operate, and maintain the PDEPL Project;

(d) perform and fulfil all of its obligations under and in accordance with the PDEPL Concession Agreement;

(e) save as otherwise expressly provided in the PDEPL Concession Agreement, bear and pay all costs, expenses and charges in connection with or incidental to the performance of the obligations of PDEPL under the PDEPL Concession Agreement;

(f) neither assign, transfer or sublet, or create any lien or encumbrance on the PDEPL Concession Agreement, or the concession granted, or on the whole or any part of the PDEPL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the PDEPL Concession Agreement or the agreement for the substitution of PDEPL entered into by PDEPL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Bid Project Cost

The cost of construction of the PDEPL Project, as on the bid date, which is due and payable by NHAI to PDEPL, shall be deemed to be ₹1,600.00 crores (the "**PDEPL Bid Project Cost**"). The PDEPL Bid Project Cost shall be revised from time to time in accordance with the PDEPL Concession Agreement to reflect the variation in price index (as defined in the concession agreement) occurring after the reference index date (as defined in the concession agreement) immediately preceding the bid date.

40% of the PDEPL Bid Project Cost, adjusted for the price index multiple, was due and payable, to PDEPL in five equal instalments of 8% each during the PDEPL Construction Period in accordance with the PDEPL Concession Agreement. The remaining PDEPL Bid Project Cost, adjusted for the price index multiple, shall be due and payable in 30 biannual instalments commencing from the 180th day of PDEPL COD period in accordance with the PDEPL Concession Agreement.

Payment during Construction Period

Upon receipt of report from the independent engineer certifying the achievement of the below mentioned payment milestones, the NHAI was due to disburse, within 15 days of the receipt of each such report, an instalment equal to 8% of the PDEPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of that report in accordance with the payment milestone for release of payment during construction period as specified in the PDEPL Concession Agreement.

Annuity Payments During the Operation Period

The completion cost shall be the summation of A, B, C, D, E, and F below:

A. 10% of the PDEPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 10% physical progress.

B. Another 20% of the PDEPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 30% physical progress.

C. Another 20% of the PDEPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 50% physical progress.

D. Another 25% of the PDEPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 75% physical progress

E. Another 15% of the PDEPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 90% physical progress,

F. Another 10% of the PDEPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the PDEPL COD.

NHAI has paid a portion of the completion cost as payments during PDEPL Construction Period and the balance completion cost remaining shall be due and payable during the PDEPL Operation Period as given in the PDEPL Concession Agreement.

O&M Payments

The O&M expenses, which are borne by PDEPL, are reimbursed by the NHAI by way of a lump sum financial support in two equal biannual instalments shall be due and payable by the NHAI, in accordance with the PDEPL Concession Agreement. The O&M payments due and payable to PDEPL shall be paid in two equal biannual instalments and disbursed by the NHAI together with the corresponding instalments of annuity payments. Any O&M expenses in excess of the O&M payments shall be borne solely by PDEPL, save and except as expressly provided in the PDEPL Concession Agreement.

Escrow Account

PDEPL was required to, prior to the PDEPL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the PDEPL Concession Agreement read with the escrow agreement entered into amongst PDEPL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

PDEPL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

(a) all funds constituting the financial package;

(b) all revenues from or in respect of the PDEPL Project, including the proceeds of any deposits, capital receipts or insurance claims; and

(c) all payments by the NHAI, after deducting any outstanding payments.

Withdrawals during Concession Period

PDEPL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, *inter alia*, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in the month when due:

(a) all taxes due and payable by PDEPL for and in respect of the PDEPL Project

(b) all payments relating to construction of the PDEPL Project, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

(c) O&M expenses, subject to the ceiling, if any, set forth in the financing agreements;

(d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the PDEPL Concession Agreement, and certified by the NHAI as due and payable to it;

(e) Any amount due and payable to the NHAI;

(f) monthly proportionate provision of PDEPL Debt Service due in an accounting year;

(g) all payments and damages certified by the NHAI as due and payable to it by PDEPL;

(h) monthly proportionate provision of PDEPL Debt Service payments due in an accounting year in respect of subordinated debt;

(i) any reserve requirements set forth in the financing agreements; and

(j) balance, if any, in accordance with the instructions of PDEPL.

PDEPL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the PDEPL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

(a) all taxes due and payable by PDEPL for and in respect of the PDEPL Project;

(b) percentage of the PDEPL Debt Due excluding the subordinated debt if required to be as per the terms of the PDEPL Concession Agreement;

(c) outstanding payments due to the NHAI;

(d) all payments and damages certified by the NHAI as due and payable to it by PDEPL;

(e) retention and payments relating to the liability for defects and deficiencies set forth in the PDEPL Concession Agreement;

(f) outstanding PDEPL Debt Service including balance of PDEPL Debt Due;

(g) outstanding subordinated debt;

(h) incurred or accrued O&M expenses;

(i) any other payments required to be made under the PDEPL Concession Agreement; and

(j) balance, if any, in accordance with the instructions of PDEPL.

No appropriations shall be made under this sub-clause until a vesting certificate has been issued by the NHAI.

Change of Scope

NHAI may, notwithstanding anything to the contrary contained in the PDEPL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the PDEPL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the PDEPL Concession Agreement and the costs thereof shall be expended by PDEPL and reimbursed by the NHAI.

If PDEPL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 15 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the PDEPL Concession Agreement or inform PDEPL in writing of its reasons for not accepting such change of scope, which decision of the NHAI shall be final and binding.

Compensation for Breach of Agreement

In the event of PDEPL being in material breach or default of the PDEPL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the PDEPL Concession Agreement or for any consequential losses incurred by NHAI.

In the event of the NHAI being in material breach or default of the PDEPL Concession Agreement at any time after the PDEPL Appointed Date, it shall pay to PDEPL by way of compensation, all direct costs suffered or incurred by PDEPL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the PDEPL Concession Agreement. Compensation payable may include interest payments on debts, O&M expenses, any increase in capital costs on account of inflation and all other costs directly attributable to such material breach or default but shall not include loss of annuity payment, debt repayment obligations or other consequential losses, loss of profits, EPC contractor claims, and for determining such compensation, information contained in the financial package and financial model may be relied upon to the extent it is relevant.

Termination of the PDEPL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the PDEPL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and PDEPL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, PDEPL shall be deemed to be in default of the PDEPL Concession Agreement ("**PDEPL Default**"), unless the default has occurred solely as a result of any breach of the PDEPL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

(a) the performance security has been encashed and appropriated in accordance with the PDEPL Concession Agreement and PDEPL fails to replenish or provide fresh performance security within a cure period of 15 days;

(b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the PDEPL Concession Agreement, PDEPL fails to meet any condition precedent or cure the default, as the case may be, for which whole or part of the performance security was appropriated, within a cure period of 120 days;

(c) PDEPL does not achieve the latest outstanding project milestone due in accordance with the PDEPL Concession Agreement and continues to be in default for 120 days;

(d) PDEPL abandons or manifests intention to abandon the construction or operation of the PDEPL Project without the prior written consent of the NHAI;

(e) COD does not occur within the period specified in the PDEPL Concession Agreement;

(f) the punch list items have not been completed within the period set forth in the PDEPL Concession Agreement;

(g) PDEPL is in breach of the maintenance requirements or the safety requirements as the case may be;

(h) PDEPL has failed to make any payment to the NHAI within the period specified in the PDEPL Concession Agreement;

(i) an escrow default has occurred and PDEPL fails to cure the default within a cure period of 15 days;

(j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and PDEPL fails to cure the default within the cure period specified;

(k) a breach of the project agreements by PDEPL has caused a material adverse effect;

(l) PDEPL creates an encumbrance in breach of the PDEPL Concession Agreement;

(m) PDEPL repudiates the PDEPL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the PDEPL Concession Agreement;

(n) a change in ownership has occurred in breach of the PDEPL Concession Agreement;

(o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of PDEPL under any of the project agreements, or of (ii) all or part of the assets or undertaking of PDEPL, and such transfer causes a material adverse effect;

(p) an execution levied on any of the assets of PDEPL has caused a material adverse effect;

(q) PDEPL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for PDEPL or for the whole or material part of its assets that has a material bearing on the PDEPL Project;

(r) PDEPL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

(s) a resolution for winding up of PDEPL is passed, or any petition for winding up of PDEPL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or PDEPL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of PDEPL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of PDEPL under the PDEPL Concession Agreement and the project agreements; provided that:

(i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the PDEPL Concession Agreement and the project agreements;

(ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the PDEPL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of PDEPL as at the PDEPL Appointed Date; and

(iii) each of the project agreements remains in full force and effect;

(t) any representation or warranty of PDEPL which is, as of the date hereof, found to be materially false, incorrect or misleading or PDEPL is at any time hereafter found to be in breach thereof;

(u) PDEPL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

(v) PDEPL has failed to fulfil any obligation, for which failure termination has been specified in the PDEPL Concession Agreement; or

(w) PDEPL issues a termination notice in violation of the PDEPL Concession Agreement.

(x) PDEPL commits a default in complying with any other provision of the PDEPL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the PDEPL Concession Agreement, upon the occurrence of a PDEPL Default, the NHAI shall be entitled to terminate the PDEPL Concession Agreement by issuing a termination notice to PDEPL. Before issuing the termination notice, the NHAI shall, by notice, inform PDEPL of its intention to issue a termination notice and grant 15 days to PDEPL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the PDEPL Concession Agreement.

Termination by PDEPL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the PDEPL Concession Agreement, the NHAI shall be deemed to be in default of the PDEPL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the PDEPL Concession Agreement by PDEPL, or due to force majeure. The default referred to herein shall include:

(a) NHAI commits a material default in complying with any of the provisions of the PDEPL Concession Agreement and such default has a material adverse effect on PDEPL;

(b) NHAI has failed to make any payment to PDEPL within the period specified in the PDEPL Concession Agreement;

(c) NHAI fails to provide, within 180 days from the appointed date, statutory clearances required for the construction of the PDEPL Project; or

(d) NHAI repudiates the PDEPL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the PDEPL Concession Agreement.

Without prejudice to any other rights or remedies which PDEPL may have under the PDEPL Concession

Agreement, upon the occurrence of an NHAI Default, PDEPL shall, subject to the provisions of the Substitution Agreement, be entitled to terminate the PDEPL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, PDEPL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 15 days to the NHAI to make a representation, and may after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of a PDEPL Default during the operation period, the NHAI shall pay to PDEPL, by way of termination payment, an amount equal to 65% of the sum of annuity payments remaining unpaid for and in respect of the concession period, including interest thereon up to the transfer date.

Upon termination on account of a PDEPL Default during the PDEPL Construction Period, the termination payment shall be based on the payment milestone achieved which is in terms of the physical progress made by PDEPL in the project and the termination payment corresponding to the achieved payment milestone shall be as follows:

Payment Milestone	Termination Payment
1st Payment Milestone	NIL
2nd Payment Milestone	50% of PDEPL Debt Due or 5.25% of the PDEPL Bid Project Cost, whichever is lower.
3rd Payment Milestone	60% of PDEPL Debt Due or 11.70% of the PDEPL Bid Project Cost, whichever is lower.
4th Payment Milestone	70% of PDEPL Debt Due or 24% of the PDEPL Bid Project Cost, whichever is lower.
5th Payment Milestone	80% of PDEPL Debt Due or 32% of the PDEPL Bid Project Cost, whichever is lower.

Upon termination on account of an NHAI Default, the NHAI shall pay to PDEPL, by way of termination payment, an amount equal to:

(i) In case the termination occurs prior to PDEPL COD

(a) Debt due payment calculated as per the table below less insurance cover; provided that if any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of debt due. The debt due would be calculated as per the table below:

Payment Milestone	Basis of calculation for debt due payment
1st Payment Milestone	PDEPL Debt Due or 1.50% of the PDEPL Bid Project Cost, whichever is lower.
2nd Payment Milestone	PDEPL Debt Due or 10.50% of the PDEPL Bid Project Cost, whichever is lower.
3rd Payment Milestone	PDEPL Debt Due or 19.50% of the PDEPL Bid Project Cost, whichever is lower.
4th Payment Milestone	PDEPL Debt Due or 33.75% of the PDEPL Bid Project Cost, whichever is lower.
5th Payment Milestone	PDEPL Debt Due or 40.50% of the PDEPL Bid Project Cost, whichever is lower.

(b) 150% of the adjusted equity;

(ii) In case the termination occurs on or after PDEPL COD, the NHAI shall pay to PDEPL, by way of termination payment, an amount equal to sum of annuity payments remaining unpaid for and in respect of the concession period, including interest thereon up to the transfer date.

Termination payment shall become due and payable to PDEPL within 15 days of a demand being made by PDEPL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the daily average bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the PDEPL Concession Agreement shall constitute a full and final settlement of all claims of PDEPL on account of termination of the PDEPL Concession Agreement for any reason whatsoever and PDEPL shall not have

any further right or claim under any law, treaty, convention, contract or otherwise.

Liability for Defect after Termination

PDEPL shall be responsible for all defects and deficiencies in the PDEPL Project for a period of 120 days after termination and shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the PDEPL Project as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf and in case of failure to do so, NHAI shall be entitled to get the same repaired and rectified at PDEPL's risk and cost so as to make the project conform to the maintenance requirements. All costs incurred by the NHAI shall be reimbursed by PDEPL to NHAI within 15 days of receipt of demand thereof, and in the event of default in reimbursing such costs, NHAI shall be entitled to recover the same from the funds retained in the Escrow Account or from the performance guarantee provided thereunder.

4. Concession agreement between GR Akkalkot Solapur Highway Pvt. Ltd. and the NHAI dated June 20, 2018

GASHPL has entered into a concession agreement for the four-laning and augmentation of the existing road of the Akkalkot - Solapur section of NH-150E from km 99.400 (existing chainage km 102.819) to km 138.352 (existing chainage km 141.800) (having a design length of 7.350 km) in the State of Maharashtra on hybrid annuity mode (the "**GASHPL Concession Agreement**") for a construction period of 730 days from starting from December 14, 2018 ("**GASHPL Appointed Date**" and such period, the "**GASHPL Construction Period**") and a fixed operation period of 15 years from March 31, 2021 ("**GASHPL COD**" and such period, the "**GASHPL Operation Period**) or until such date on which the GASHPL Concession Agreement is terminated by a termination notice ("**GASHPL Termination Date**", and the period between the GASHPL Appointed Date and the GASHPL Termination Date, the "**GASHPL Concession Period**").

Certain Definitions

"**GASHPL Debt Due**" means the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date, i.e., the date on which the GASHPL Concession Agreement and the concession granted thereunder expires or is terminated:

(a) The principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principal**") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

(b) All accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in sub-clause (a) above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

(c) Any subordinate debt which is included in the financial package and disbursed by lenders for financing the total project cost.

Provided that if all or any part of the GASHPL Debt Due is convertible into equity at the option of senior lenders and/or GASHPL, it shall for the purposes of the GASHPL Concession Agreement be deemed to be GASHPL Debt Due even after such conversion and the principal thereof shall be dealt with as if such conversion had not been undertaken;

"**GASHPL Debt Service**" means the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements for and in respect of GASHPL Debt Due under the financing agreements;

"**GASHPL Project**" means the construction, operation, and maintenance of the GASHPL Project Highway in accordance with the provisions of the GASHPL Concession Agreement, and includes all works, services, and equipment relating to or in respect of the scope of the project in site comprising the existing road comprising GASHPL Project Highway and all GASHPL Project Assets, and its subsequent development and augmentation in accordance with the GASHPL Concession Agreement;

"**GASHPL Project Assets**" means all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road over bridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of GASHPL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the GASHPL Project; and

"**GASHPL Project Highway**" means the site comprising the existing road comprising NH-150E from Km. 99.400 (Existing Km. 102.819) to Km. 138.352 (Existing Km. 141.800) and all GASHPL Project Assets, and its subsequent development and augmentation in accordance with the GASHPL Concession Agreement.

Grant of Concession

Subject to, and in accordance with the provisions of the GASHPL Concession Agreement, applicable laws and applicable permits, the NHAI has granted to GASHPL, and GASHPL has accepted the concession, including the exclusive right, license, and authority to construct, operate and maintain the GASHPL Project during the GASHPL Concession Period.

Subject to, and in accordance with the provisions of the GASHPL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, GASHPL to:

(a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the GASHPL Concession Agreement;

(b) finance the GASHPL Project and construct the GASHPL Project Highway;

(c) manage, operate, and maintain the GASHPL Project;

(d) perform and fulfil all of its obligations under and in accordance with the GASHPL Concession Agreement;

(e) save as otherwise expressly provided in the GASHPL Concession Agreement, bear and pay all costs, expenses and charges in connection with or incidental to the performance of the obligations of GASHPL under the GASHPL Concession Agreement;

(f) neither assign, transfer or sublet, or create any lien or encumbrance on the GASHPL Concession Agreement, or the concession granted, or on the whole or any part of the GASHPL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the GASHPL Concession Agreement or the agreement for the substitution of GASHPL entered into by GASHPL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Bid Project Cost

The cost of construction of the GASHPL Project, as on the bid date, which is due and payable by NHAI to GASHPL, shall be deemed to be ₹807.00 crores (the "**GASHPL Bid Project Cost**"). The GASHPL Bid Project Cost shall be revised from time to time in accordance with the GASHPL Concession Agreement to reflect the variation in price index (as defined in the concession agreement) occurring after the reference index date (as defined in the concession agreement) immediately preceding the bid date.

40% of the GASHPL Bid Project Cost, adjusted for the price index multiple, was due and payable to GASHPL in five equal instalments of 8% each during the GASHPL Construction Period in accordance with the GASHPL Concession Agreement. The remaining GASHPL Bid Project Cost, adjusted for the price index multiple, is due and payable in 30 biannual instalments commencing from the 180th day of GASHPL COD period in accordance with the GASHPL Concession Agreement.

Payment during Construction Period

Upon receipt of report from the independent engineer certifying the achievement of the below mentioned payment milestones, the NHAI shall disburse, within 15 days of the receipt of each such report, an instalment equal to 8% of the GASHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date

preceding the date of that report in accordance with the payment milestone for release of payment during construction period as specified in the GASHPL Concession Agreement.

Annuity Payments During the Operation Period

The completion cost shall be the summation of A, B, C, D, E, and F below:

A. 10% of the GASHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 10% physical progress.

B. Another 20% of the GASHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 30% physical progress.

C. Another 20% of the GASHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 50% physical progress.

D. Another 25% of the GASHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 75% physical progress

E. Another 15% of the GASHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 90% physical progress,

F. Another 10% of the GASHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the GASHPL COD.

NHAI has paid a portion of the completion cost as payments during GASHPL Construction Period and the balance completion cost remaining shall be due and payable during the GASHPL Operation Period as given in the GASHPL Concession Agreement.

O&M Payments

The O&M expenses, which are borne by GASHPL, are reimbursed by the NHAI by way of a lump sum financial support in two equal biannual instalments shall be due and payable by the NHAI, in accordance with the GASHPL Concession Agreement. The O&M payments due and payable to GASHPL shall be paid in two equal biannual instalments and disbursed by the NHAI together with the corresponding instalments of annuity payments. Any O&M expenses in excess of the O&M payments shall be borne solely by GASHPL, save and except as expressly provided in the GASHPL Concession Agreement.

Escrow Account

GASHPL was required to, prior to the GASHPL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the GASHPL Concession Agreement read with the escrow agreement entered into amongst GASHPL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

GASHPL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

(a) all funds constituting the financial package;

(b) all revenues from or in respect of the GASHPL Project, including the proceeds of any deposits, capital receipts or insurance claims; and

(c) all payments by the NHAI, after deducting any outstanding payments.

Withdrawals during Concession Period

GASHPL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, *inter alia*, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in the month when due:

(a) all taxes due and payable by GASHPL for and in respect of the GASHPL Project;

(b) all payments relating to construction of the GASHPL Project, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

(c) O&M expenses, subject to the ceiling, if any, set forth in the financing agreements;

(d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the GASHPL Concession Agreement, and certified by the NHAI as due and payable to it;

(e) Any amount due and payable to the NHAI;

(f) monthly proportionate provision of GASHPL Debt Service due in an accounting year;

(g) all payments and damages certified by the NHAI as due and payable to it by GASHPL;

(h) monthly proportionate provision of GASHPL Debt Service payments due in an accounting year in respect of subordinated debt;

(i) any reserve requirements set forth in the financing agreements; and

(j) balance, if any, in accordance with the instructions of GASHPL.

GASHPL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the GASHPL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

(a) all taxes due and payable by GASHPL for and in respect of the GASHPL Project;

(b) percentage of the GASHPL Debt Due excluding the subordinated debt if required to be as per the terms of the GASHPL Concession Agreement;

(c) outstanding payments due to the NHAI;

(d) all payments and damages certified by the NHAI as due and payable to it by GASHPL;

(e) retention and payments relating to the liability for defects and deficiencies set forth in the GASHPL Concession Agreement;

(f) outstanding GASHPL Debt Service including balance of GASHPL Debt Due;

(g) outstanding subordinated debt;

(h) incurred or accrued O&M expenses;

(i) any other payments required to be made under the GASHPL Concession Agreement; and

(j) balance, if any, in accordance with the instructions of GASHPL.

No appropriations shall be made under this sub-clause until a vesting certificate has been issued by the NHAI.

Change of Scope

NHAI may, notwithstanding anything to the contrary contained in the GASHPL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the GASHPL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the GASHPL Concession Agreement and the costs thereof shall be expended by GASHPL and reimbursed by the NHAI.

If GASHPL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall,

within 15 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the GASHPL Concession Agreement, or inform GASHPL in writing of its reasons for not accepting such change of scope, which decision of the NHAI shall be final and binding.

Compensation for Breach of Agreement

In the event of GASHPL being in material breach or default of the GASHPL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the GASHPL Concession Agreement or for any consequential losses incurred by NHAI.

In the event of the NHAI being in material breach or default of the GASHPL Concession Agreement at any time after the GASHPL Appointed Date, it shall pay to GASHPL by way of compensation, all direct costs suffered or incurred by GASHPL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the GASHPL Concession Agreement. Compensation payable may include interest payments on debts, O&M expenses, any increase in capital costs on account of inflation and all other costs directly attributable to such material breach or default but shall not include loss of annuity payment, debt repayment obligations or other consequential losses, loss of profits, EPC contractor claims, and for determining such compensation, information contained in the financial package and financial model may be relied upon to the extent it is relevant.

Termination of the GASHPL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the GASHPL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and GASHPL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, GASHPL shall be deemed to be in default of the GASHPL Concession Agreement ("**GASHPL Default**"), unless the default has occurred solely as a result of any breach of the GASHPL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

(a) the performance security has been encashed and appropriated in accordance with the GASHPL Concession Agreement and GASHPL fails to replenish or provide fresh performance security within a cure period of 15 days;

(b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the GASHPL Concession Agreement, GASHPL fails to meet any condition precedent or cure the default, as the case may be, for which whole or part of the performance security was appropriated, within a cure period of 120 days;

(c) GASHPL does not achieve the latest outstanding project milestone due in accordance with the GASHPL Concession Agreement and continues to be in default for 120 days;

(d) GASHPL abandons or manifests intention to abandon the construction or operation of the GASHPL Project without the prior written consent of the NHAI;

(e) COD does not occur within the period specified in the GASHPL Concession Agreement;

(f) the punch list items have not been completed within the period set forth in the GASHPL Concession Agreement;

(g) GASHPL is in breach of the maintenance requirements or the safety requirements as the case may be;

(h) GASHPL has failed to make any payment to the NHAI within the period specified in the GASHPL Concession Agreement;

(i) an escrow default has occurred and GASHPL fails to cure the default within a cure period of 15 days;

(j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and GASHPL fails to cure the default within the cure period specified;

(k) a breach of the project agreements by GASHPL has caused a material adverse effect;

(l) GASHPL creates an encumbrance in breach of the GASHPL Concession Agreement;

(m) GASHPL repudiates the GASHPL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the GASHPL Concession Agreement;

(n) a change in ownership has occurred in breach of the GASHPL Concession Agreement;

(o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of GASHPL under any of the project agreements, or of (ii) all or part of the assets or undertaking of GASHPL, and such transfer causes a material adverse effect;

(p) an execution levied on any of the assets of GASHPL has caused a material adverse effect;

(q) GASHPL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for GASHPL or for the whole or material part of its assets that has a material bearing on the GASHPL Project;

(r) GASHPL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

(s) a resolution for winding up of GASHPL is passed, or any petition for winding up of GASHPL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or GASHPL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of GASHPL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of GASHPL under the GASHPL Concession Agreement and the project agreements; provided that:

    (i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the GASHPL Concession Agreement and the project agreements;

    (ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the GASHPL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of GASHPL as at the GASHPL Appointed Date; and

    (iii) each of the project agreements remains in full force and effect.

(t) any representation or warranty of GASHPL which is, as of the date hereof, found to be materially false, incorrect or misleading or GASHPL is at any time hereafter found to be in breach thereof;

(u) GASHPL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

(v) GASHPL has failed to fulfil any obligation, for which failure termination has been specified in the GASHPL Concession Agreement; or

(w) GASHPL issues a termination notice in violation of the GASHPL Concession Agreement.

(x) GASHPL commits a default in complying with any other provision of the GASHPL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the GASHPL Concession Agreement, upon the occurrence of a GASHPL Default, the NHAI shall be entitled to terminate the GASHPL Concession Agreement by issuing a termination notice to GASHPL. Before issuing the termination notice, the

NHAI shall, by notice, inform GASHPL of its intention to issue a termination notice and grant 15 days to GASHPL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the GASHPL Concession Agreement.

Termination by GASHPL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the GASHPL Concession Agreement, the NHAI shall be deemed to be in default of the GASHPL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the GASHPL Concession Agreement by GASHPL, or due to force majeure. The default referred to herein shall include:

(a) NHAI commits a material default in complying with any of the provisions of the GASHPL Concession Agreement and such default has a material adverse effect on GASHPL;

(b) NHAI has failed to make any payment to GASHPL within the period specified in the GASHPL Concession Agreement;

(c) NHAI fails to provide, within 180 days from the appointed date, statutory clearances required for the construction of the GASHPL Project; or

(d) NHAI repudiates the GASHPL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the GASHPL Concession Agreement.

Without prejudice to any other rights or remedies which GASHPL may have under the GASHPL Concession Agreement, upon the occurrence of an NHAI Default, GASHPL shall, subject to the provisions of the Substitution Agreement, be entitled to terminate the GASHPL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, GASHPL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 15 days to the NHAI to make a representation, and may after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of a GASHPL Default during the operation period, the NHAI shall pay to GASHPL, by way of termination payment, an amount equal to 65% of the sum of annuity payments remaining unpaid for and in respect of the concession period, including interest thereon up to the transfer date.

Upon termination on account of a GASHPL Default during the GASHPL Construction Period, the termination payment shall be based on the payment milestone achieved which is in terms of the physical progress made by GASHPL in the project and the termination payment corresponding to the achieved payment milestone shall be as follows:

Payment Milestone	Termination Payment
1st Payment Milestone	NIL
2nd Payment Milestone	50% of GASHPL Debt Due or 5.25% of the GASHPL Bid Project Cost, whichever is lower.
3rd Payment Milestone	60% of GASHPL Debt Due or 11.70% of the GASHPL Bid Project Cost, whichever is lower.
4th Payment Milestone	70% of GASHPL Debt Due or 24% of the GASHPL Bid Project Cost, whichever is lower.
5th Payment Milestone	80% of GASHPL Debt Due or 32% of the GASHPL Bid Project Cost, whichever is lower.

Upon termination on account of an NHAI Default, the NHAI shall pay to GASHPL, by way of termination payment, an amount equal to:

(i) In case the termination occurs prior to GASHPL COD

(a) Debt due payment calculated as per the table below less insurance cover; provided that if any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of debt due. The debt due would be calculated as per the table below:

Payment Milestone	Basis of calculation for debt due payment
1st Payment Milestone	GASHPL Debt Due or 1.50% of the GASHPL Bid Project Cost, whichever is lower.
2nd Payment Milestone	GASHPL Debt Due or 10.50% of the GASHPL Bid Project Cost, whichever is lower.
3rd Payment Milestone	GASHPL Debt Due or 19.50% of the GASHPL Bid Project Cost, whichever is lower.
4th Payment Milestone	GASHPL Debt Due or 33.75% of the GASHPL Bid Project Cost, whichever is lower.
5th Payment Milestone	GASHPL Debt Due or 40.50% of the GASHPL Bid Project Cost, whichever is lower.

(b) 150% of the adjusted equity;

(ii) In case the termination occurs on or after GASHPL COD, the NHAI shall pay to GASHPL, by way of termination payment, an amount equal to sum of annuity payments remaining unpaid for and in respect of the concession period, including interest thereon up to the transfer date.

Termination payment shall become due and payable to GASHPL within 15 days of a demand being made by GASHPL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the daily average bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the GASHPL Concession Agreement shall constitute a full and final settlement of all claims of GASHPL on account of termination of the GASHPL Concession Agreement for any reason whatsoever and GASHPL shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Liability for Defect after Termination

GASHPL shall be responsible for all defects and deficiencies in the GASHPL Project for a period of 120 days after termination and shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the GASHPL Project as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf and in case of failure to do so, NHAI shall be entitled to get the same repaired and rectified at GASHPL's risk and cost so as to make the project conform to the maintenance requirements. All costs incurred by the NHAI shall be reimbursed by GASHPL to NHAI within 15 days of receipt of demand thereof, and in the event of default in reimbursing such costs, NHAI shall be entitled to recover the same from the funds retained in the Escrow Account or from the performance guarantee provided thereunder.

5. Concession agreement between Varanasi Sangam Expressway Pvt. Ltd. and the NHAI dated May 15, 2017

VSEPL has entered into a concession agreement for the six-laning and augmentation of the existing road of the Handia-Varanasi section of NH-2 from km 713.146 to km 785.544 in the State of Uttar Pradesh under NHDP Phase - V on hybrid annuity mode (the "**VSEPL Concession Agreement**") for a construction period of 910 days from starting from December 5, 2017 ("**VSEPL Appointed Date**" and such period, the "**VSEPL Construction Period**") and a fixed operation period of 15 years from November 2, 2020 ("**VSEPL COD**" and such period, the "**VSEPL Operation Period**) or until such date on which the VSEPL Concession Agreement is terminated by a termination notice ("**VSEPL Termination Date**", and the period between the VSEPL Appointed Date and the VSEPL Termination Date, the "**VSEPL Concession Period**").

Certain Definitions

"**VSEPL Debt Due**" means the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date, i.e., the date on which the VSEPL Concession Agreement and the concession granted thereunder expires or is terminated:

(a) The principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principal**") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

(b) All accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in sub-clause (a) above until the transfer date but excluding (i) any interest, fees

or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

(c) Any subordinate debt which is included in the financial package and disbursed by lenders for financing the total project cost;

Provided that if all or any part of the VSEPL Debt Due is convertible into equity at the option of senior lenders and/or VSEPL, it shall for the purposes of the VSEPL Concession Agreement be deemed to be VSEPL Debt Due even after such conversion and the principal thereof shall be dealt with as if such conversion had not been undertaken;

"**VSEPL Debt Service**" means the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements for and in respect of VSEPL Debt Due under the financing agreements;

"**VSEPL Project**" means the construction, operation, and maintenance of the VSEPL Project Highway in accordance with the provisions of the VSEPL Concession Agreement, and includes all works, services, and equipment relating to or in respect of the scope of the project in site comprising the existing road comprising VSEPL Project Highway and all VSEPL Project Assets, and its subsequent development and augmentation in accordance with the VSEPL Concession Agreement.

"**VSEPL Project Assets**" means all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road over bridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of VSEPL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the VSEPL Project;

"**VSEPL Project Highway**" means the site comprising the existing road comprising NH-2 from km. 713.146 to km 785.544 and all VSEPL Project Assets, and its subsequent development and augmentation in accordance with the VSEPL Concession Agreement.

Grant of Concession

Subject to, and in accordance with the provisions of the VSEPL Concession Agreement, applicable laws and applicable permits, the NHAI has granted to VSEPL, and VSEPL has accepted the concession, including the exclusive right, license, and authority to construct, operate and maintain the VSEPL Project during the VSEPL Concession Period.

Subject to, and in accordance with the provisions of the VSEPL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, VSEPL to:

(a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the VSEPL Concession Agreement;

(b) finance the VSEPL Project and construct the VSEPL Project Highway;

(c) manage, operate, and maintain the VSEPL Project;

(d) perform and fulfil all of its obligations under and in accordance with the VSEPL Concession Agreement;

(e) save as otherwise expressly provided in the VSEPL Concession Agreement, bear and pay all costs, expenses and charges in connection with or incidental to the performance of the obligations of VSEPL under the VSEPL Concession Agreement;

(f) neither assign, transfer or sublet, or create any lien or encumbrance on the VSEPL Concession Agreement, or the concession granted, or on the whole or any part of the VSEPL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the VSEPL

Concession Agreement or the agreement for the substitution of VSEPL entered into by VSEPL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Bid Project Cost

The cost of construction of the VSEPL Project, as on the bid date, which is due and payable by NHAI to VSEPL, shall be deemed to be ₹2,447.00 crores (the "**VSEPL Bid Project Cost**"). The VSEPL Bid Project Cost shall be revised from time to time in accordance with the VSEPL Concession Agreement to reflect the variation in price index (as defined in the concession agreement) occurring after the reference index date (as defined in the concession agreement) immediately preceding the bid date.

40% of the VSEPL Bid Project Cost, adjusted for the price index multiple, was due and payable, to VSEPL in five equal instalments of 8% each during the VSEPL Construction Period in accordance with the VSEPL Concession Agreement. The remaining VSEPL Bid Project Cost, adjusted for the price index multiple, is due and payable in 30 biannual instalments commencing from the 180th day of VSEPL COD period in accordance with the VSEPL Concession Agreement.

Payment during Construction Period

Upon receipt of report from the independent engineer certifying the achievement of the below mentioned payment milestones, the NHAI shall disburse, within 15 days of the receipt of each such report, an instalment equal to 8% of the VSEPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of that report in accordance with the payment milestone for release of payment during construction period as specified in the VSEPL Concession Agreement.

Annuity Payments During the Operation Period

The completion cost shall be the summation of A, B, C, D, E, and F below:

A. 10% of the VSEPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 10% physical progress.

B. Another 20% of the VSEPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 30% physical progress.

C. Another 20% of the VSEPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 50% physical progress.

D. Another 25% of the VSEPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 75% physical progress

E. Another 15% of the VSEPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 90% physical progress,

F. Another 10% of the VSEPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the VSEPL COD.

NHAI has paid a portion of the completion cost as payments during VSEPL Construction Period and the balance completion cost remaining shall be due and payable during the VSEPL Operation Period as given in the VSEPL Concession Agreement.

O&M Payments

The O&M expenses, which are borne by VSEPL, are reimbursed by the NHAI by way of a lump sum financial support in two equal biannual instalments shall be due and payable by the NHAI, in accordance with the VSEPL Concession Agreement. The O&M payments due and payable to VSEPL shall be paid in two equal biannual instalments and disbursed by the NHAI together with the corresponding instalments of annuity payments. Any O&M expenses in excess of the O&M payments shall be borne solely by VSEPL, save and except as expressly provided in the VSEPL Concession Agreement.

Escrow Account

VSEPL was required to, prior to the VSEPL Appointed Date, open and establish an escrow account (the "**Escrow**

Account") with a bank (the "**Escrow Bank**") in accordance with the VSEPL Concession Agreement read with the escrow agreement entered into amongst VSEPL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

VSEPL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

(a) all funds constituting the financial package;

(b) all revenues from or in respect of the VSEPL Project, including the proceeds of any deposits, capital receipts or insurance claims; and

(c) all payments by the NHAI, after deducting any outstanding payments.

Withdrawals during Concession Period

VSEPL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, *inter alia*, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in the month when due:

(a) all taxes due and payable by VSEPL for and in respect of the VSEPL Project

(b) all payments relating to construction of the VSEPL Project, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

(c) O&M expenses, subject to the ceiling, if any, set forth in the financing agreements;

(d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the VSEPL Concession Agreement, and certified by the NHAI as due and payable to it;

(e) Any amount due and payable to the NHAI;

(f) monthly proportionate provision of VSEPL Debt Service due in an accounting year;

(g) all payments and damages certified by the NHAI as due and payable to it by VSEPL;

(h) monthly proportionate provision of VSEPL Debt Service payments due in an accounting year in respect of subordinated debt;

(i) any reserve requirements set forth in the financing agreements; and

(j) balance, if any, in accordance with the instructions of VSEPL.

VSEPL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the VSEPL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

(a) all taxes due and payable by VSEPL for and in respect of the VSEPL Project;

(b) percentage of the VSEPL Debt Due excluding the subordinated debt if required to be as per the terms of the VSEPL Concession Agreement;

(c) outstanding payments due to the NHAI;

(d) all payments and damages certified by the NHAI as due and payable to it by VSEPL;

(e) retention and payments relating to the liability for defects and deficiencies set forth in the VSEPL Concession Agreement;

(f) outstanding VSEPL Debt Service including balance of VSEPL Debt Due;

(g) outstanding subordinated debt;

(h) incurred or accrued O&M expenses;

(i) any other payments required to be made under the VSEPL Concession Agreement; and

(j) balance, if any, in accordance with the instructions of VSEPL.

No appropriations shall be made until a vesting certificate has been issued by the NHAI.

Change of Scope

NHAI may, notwithstanding anything to the contrary contained in the VSEPL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the VSEPL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the VSEPL Concession Agreement and the costs thereof shall be expended by VSEPL and reimbursed by the NHAI.

If VSEPL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 15 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the VSEPL Concession Agreement, or inform VSEPL in writing of its reasons for not accepting such change of scope, which decision of the NHAI shall be final and binding.

Compensation for Breach of Agreement

In the event of VSEPL being in material breach or default of the VSEPL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the VSEPL Concession Agreement or for any consequential losses incurred by NHAI.

In the event of the NHAI being in material breach or default of the VSEPL Concession Agreement at any time after the VSEPL Appointed Date, it shall pay to VSEPL by way of compensation, all direct costs suffered or incurred by VSEPL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the VSEPL Concession Agreement. Compensation payable may include interest payments on debts, O&M expenses, any increase in capital costs on account of inflation and all other costs directly attributable to such material breach or default but shall not include loss of annuity payment, debt repayment obligations or other consequential losses, loss of profits, EPC contractor claims, and for determining such compensation, information contained in the financial package and financial model may be relied upon to the extent it is relevant.

Termination of the VSEPL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the VSEPL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and VSEPL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, VSEPL shall be deemed to be in default of the VSEPL Concession Agreement ("**VSEPL Default**"), unless the default has occurred solely as a result of any breach of the VSEPL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

(a) the performance security has been encashed and appropriated in accordance with the VSEPL Concession Agreement and VSEPL fails to replenish or provide fresh performance security within a cure period of 15 days;

(b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the

VSEPL Concession Agreement, VSEPL fails to meet any condition precedent or cure the default, as the case may be, for which whole or part of the performance security was appropriated, within a cure period of 120 days;

(c) VSEPL does not achieve the latest outstanding project milestone due in accordance with the VSEPL Concession Agreement and continues to be in default for 120 days;

(d) VSEPL abandons or manifests intention to abandon the construction or operation of the VSEPL Project without the prior written consent of the NHAI;

(e) COD does not occur within the period specified in the VSEPL Concession Agreement;

(f) the punch list items have not been completed within the period set forth in the VSEPL Concession Agreement;

(g) VSEPL is in breach of the maintenance requirements or the safety requirements as the case may be;

(h) VSEPL has failed to make any payment to the NHAI within the period specified in the VSEPL Concession Agreement;

(i) an escrow default has occurred and VSEPL fails to cure the default within a cure period of 15 days;

(j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and VSEPL fails to cure the default within the cure period specified;

(k) a breach of the project agreements by VSEPL has caused a material adverse effect;

(l) VSEPL creates an encumbrance in breach of the VSEPL Concession Agreement;

(m) VSEPL repudiates the VSEPL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the VSEPL Concession Agreement;

(n) a change in ownership has occurred in breach of the VSEPL Concession Agreement;

(o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of VSEPL under any of the project agreements, or of (ii) all or part of the assets or undertaking of VSEPL, and such transfer causes a material adverse effect;

(p) an execution levied on any of the assets of VSEPL has caused a material adverse effect;

(q) VSEPL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for VSEPL or for the whole or material part of its assets that has a material bearing on the VSEPL Project;

(r) VSEPL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

(s) a resolution for winding up of VSEPL is passed, or any petition for winding up of VSEPL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or VSEPL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of VSEPL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of VSEPL under the VSEPL Concession Agreement and the project agreements; provided that:

(i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the VSEPL Concession Agreement and the project agreements;

(ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the VSEPL Concession Agreement and the project agreements and has a creditworthiness

at least as good as that of VSEPL as at the VSEPL Appointed Date; and

(iii) each of the project agreements remains in full force and effect;

(t) any representation or warranty of VSEPL which is, as of the date hereof, found to be materially false, incorrect or misleading or VSEPL is at any time hereafter found to be in breach thereof;

(u) VSEPL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

(v) VSEPL has failed to fulfil any obligation, for which failure termination has been specified in the VSEPL Concession Agreement; or

(w) VSEPL issues a termination notice in violation of the VSEPL Concession Agreement.

(x) VSEPL commits a default in complying with any other provision of the VSEPL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the VSEPL Concession Agreement, upon the occurrence of a VSEPL Default, the NHAI shall be entitled to terminate the VSEPL Concession Agreement by issuing a termination notice to VSEPL. Before issuing the termination notice, the NHAI shall, by notice, inform VSEPL of its intention to issue a termination notice and grant 15 days to VSEPL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the VSEPL Concession Agreement.

Termination by VSEPL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the VSEPL Concession Agreement, the NHAI shall be deemed to be in default of the VSEPL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the VSEPL Concession Agreement by VSEPL, or due to force majeure. The default referred to herein shall include:

(a) NHAI commits a material default in complying with any of the provisions of the VSEPL Concession Agreement and such default has a material adverse effect on VSEPL;

(b) NHAI has failed to make any payment to VSEPL within the period specified in the VSEPL Concession Agreement;

(c) NHAI fails to provide, within 180 days from the appointed date, statutory clearances required for the construction of the VSEPL Project; or

(d) NHAI repudiates the VSEPL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the VSEPL Concession Agreement.

Without prejudice to any other rights or remedies which VSEPL may have under the VSEPL Concession Agreement, upon the occurrence of an NHAI Default, VSEPL shall, subject to the provisions of the Substitution Agreement, be entitled to terminate the VSEPL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, VSEPL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 15 days to the NHAI to make a representation, and may after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of a VSEPL Default during the operation period, the NHAI shall pay to VSEPL, by way of termination payment, an amount equal to 65% of the sum of annuity payments remaining unpaid for and in respect of the concession period, including interest thereon up to the transfer date.

Upon termination on account of a VSEPL Default during the VSEPL Construction Period, the termination payment shall be based on the payment milestone achieved which is in terms of the physical progress made by VSEPL in the project and the termination payment corresponding to the achieved payment milestone shall be as

follows:

Payment Milestone	Termination Payment
1st Payment Milestone	NIL
2nd Payment Milestone	50% of VSEPL Debt Due or 5.25% of the VSEPL Bid Project Cost, whichever is lower.
3rd Payment Milestone	60% of VSEPL Debt Due or 11.70% of the VSEPL Bid Project Cost, whichever is lower.
4th Payment Milestone	70% of VSEPL Debt Due or 24% of the VSEPL Bid Project Cost, whichever is lower.
5th Payment Milestone	80% of VSEPL Debt Due or 32% of the VSEPL Bid Project Cost, whichever is lower.

Upon termination on account of an NHAI Default, the NHAI shall pay to VSEPL, by way of termination payment, an amount equal to:

(i) In case the termination occurs prior to VSEPL COD

(a) Debt due payment calculated as per the table below less insurance cover; provided that if any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of debt due. The debt due would be calculated as per the table below:

Payment Milestone	Basis of calculation for debt due payment
1st Payment Milestone	VSEPL Debt Due or 1.50% of the VSEPL Bid Project Cost, whichever is lower.
2nd Payment Milestone	VSEPL Debt Due or 10.50% of the VSEPL Bid Project Cost, whichever is lower.
3rd Payment Milestone	VSEPL Debt Due or 19.50% of the VSEPL Bid Project Cost, whichever is lower.
4th Payment Milestone	VSEPL Debt Due or 33.75% of the VSEPL Bid Project Cost, whichever is lower.
5th Payment Milestone	VSEPL Debt Due or 40.50% of the VSEPL Bid Project Cost, whichever is lower.

(b) 150% of the adjusted equity;

(ii) In case the termination occurs on or after VSEPL COD, the NHAI shall pay to VSEPL, by way of termination payment, an amount equal to sum of annuity payments remaining unpaid for and in respect of the concession period, including interest thereon up to the transfer date.

Termination payment shall become due and payable to VSEPL within 15 days of a demand being made by VSEPL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the daily average bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the VSEPL Concession Agreement shall constitute a full and final settlement of all claims of VSEPL on account of termination of the VSEPL Concession Agreement for any reason whatsoever and VSEPL shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Liability for Defect after Termination

VSEPL shall be responsible for all defects and deficiencies in the VSEPL Project for a period of 120 days after termination and shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the VSEPL Project as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf and in case of failure to do so, NHAI shall be entitled to get the same repaired and rectified at VSEPL's risk and cost so as to make the project conform to the maintenance requirements. All costs incurred by the NHAI shall be reimbursed by VSEPL to NHAI within 15 days of receipt of demand thereof, and in the event of default in reimbursing such costs, NHAI shall be entitled to recover the same from the funds retained in the Escrow Account or from the performance guarantee provided thereunder.

6. Concession agreement between GR Sangli Solapur Highway Pvt. Ltd. and the NHAI dated June 20, 2018

GSSHPL has entered into a concession agreement for the four-laning and augmentation of the existing road of the Sangli-Solapur section of NH-166 from km 276.00 (existing km 272.394) to km 321.600 (existing km 314.969) of length 45.600 km in the State of Maharashtra on hybrid annuity mode (the "**GSSHPL Concession Agreement**") for a construction period of 730 days starting from December 31, 2018 ("**GSSHPL Appointed Date**" and such period, the "**GSSHPL Construction Period**") and a fixed operation period of 15 years from June 28, 2021 ("**GSSHPL COD**" and such period, the "**GSSHPL Operation Period**) or until such date on which the GSSHPL Concession Agreement is terminated by a termination notice ("**GSSHPL Termination Date**", and the period between the GSSHPL Appointed Date and the GSSHPL Termination Date, the "**GSSHPL Concession Period**").

Certain Definitions

"**GSSHPL Debt Due**" means the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date, i.e., the date on which the GSSHPL Concession Agreement and the concession granted thereunder expires or is terminated:

(a) The principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principal**") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

(b) All accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in sub-clause (a) above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

(c) Any subordinate debt which is included in the financial package and disbursed by lenders for financing the total project cost;

Provided that if all or any part of the GSSHPL Debt Due is convertible into equity at the option of senior lenders and/or GSSHPL, it shall for the purposes of the GSSHPL Concession Agreement be deemed to be GSSHPL Debt Due even after such conversion and the principal thereof shall be dealt with as if such conversion had not been undertaken;

"**GSSHPL Debt Service**" means the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements for and in respect of GSSHPL Debt Due under the financing agreements;

"**GSSHPL Project**" means the construction, operation, and maintenance of the GSSHPL Project Highway in accordance with the provisions of the GSSHPL Concession Agreement, and includes all works, services, and equipment relating to or in respect of the scope of the project in site comprising the existing road comprising GSSHPL Project Highway and all GSSHPL Project Assets, and its subsequent development and augmentation in accordance with the GSSHPL Concession Agreement;

"**GSSHPL Project Assets**" means all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road over bridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of GSSHPL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the GSSHPL Project; and

"**GSSHPL Project Highway**" means the site comprising the existing road comprising NH-166 from km. 276.00 (existing km 272.394) to km 321.600 (existing km 314.969) of length 45.600 km and all GSSHPL Project Assets, and its subsequent development and augmentation in accordance with the GSSHPL Concession Agreement.

Grant of Concession

Subject to, and in accordance with the provisions of the GSSHPL Concession Agreement, applicable laws and applicable permits, the NHAI has granted to GSSHPL, and GSSHPL has accepted the concession, including the exclusive right, license, and authority to construct, operate and maintain the GSSHPL Project during the GSSHPL Concession Period.

Subject to, and in accordance with the provisions of the GSSHPL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, GSSHPL to:

(a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the GSSHPL Concession Agreement;

(b) finance the GSSHPL Project and construct the GSSHPL Project Highway;

(c) manage, operate, and maintain the GSSHPL Project;

(d) perform and fulfil all of its obligations under and in accordance with the GSSHPL Concession Agreement;

(e) save as otherwise expressly provided in the GSSHPL Concession Agreement, bear and pay all costs, expenses and charges in connection with or incidental to the performance of the obligations of GSSHPL under the GSSHPL Concession Agreement;

(f) neither assign, transfer or sublet, or create any lien or encumbrance on the GSSHPL Concession Agreement, or the concession granted, or on the whole or any part of the GSSHPL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the GSSHPL Concession Agreement or the agreement for the substitution of GSSHPL entered into by GSSHPL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Bid Project Cost

The cost of construction of the GSSHPL Project, as on the bid date, which is due and payable by NHAI to GSSHPL, shall be deemed to be ₹957.00 crores (the "**GSSHPL Bid Project Cost**"). The GSSHPL Bid Project Cost shall be revised from time to time in accordance with the GSSHPL Concession Agreement to reflect the variation in price index (as defined in the concession agreement) occurring after the reference index date (as defined in the concession agreement) immediately preceding the bid date.

40% of the GSSHPL Bid Project Cost, adjusted for the price index multiple, was due and payable, to GSSHPL in five equal instalments of 8% each during the GSSHPL Construction Period in accordance with the GSSHPL Concession Agreement. The remaining GSSHPL Bid Project Cost, adjusted for the price index multiple, is due and payable in 30 biannual instalments commencing from the 180th day of GSSHPL COD period in accordance with the GSSHPL Concession Agreement.

Payment during Construction Period

Upon receipt of report from the independent engineer certifying the achievement of the below mentioned payment milestones, the NHAI was due to disburse, within 15 days of the receipt of each such report, an instalment equal to 8% of the GSSHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of that report in accordance with the payment milestone for release of payment during construction period as specified in the GSSHPL Concession Agreement.

Annuity Payments During the Operation Period

The completion cost shall be the summation of A, B, C, D, E, and F below:

A. 10% of the GSSHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 10% physical progress.

B. Another 20% of the GSSHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 30% physical progress.

C. Another 20% of the GSSHPL Bid Project Cost adjusted for the price index multiple as applicable on the

reference index date preceding the date of report confirming 50% physical progress.

D. Another 25% of the GSSHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 75% physical progress

E. Another 15% of the GSSHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 90% physical progress,

F. Another 10% of the GSSHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the GSSHPL COD.

NHAI has paid a portion of the completion cost as payments during GSSHPL Construction Period and the balance completion cost remaining is due and payable during the GSSHPL Operation Period as given in the GSSHPL Concession Agreement.

O&M Payments

The O&M expenses, which are borne by GSSHPL, are reimbursed by the NHAI by way of a lump sum financial support in two equal biannual instalments shall be due and payable by the NHAI, in accordance with the GSSHPL Concession Agreement. The O&M payments due and payable to GSSHPL shall be paid in two equal biannual instalments and disbursed by the NHAI together with the corresponding instalments of annuity payments. Any O&M expenses in excess of the O&M payments shall be borne solely by GSSHPL, save and except as expressly provided in the GSSHPL Concession Agreement.

Escrow Account

GSSHPL was required to, prior to the GSSHPL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the GSSHPL Concession Agreement read with the escrow agreement entered into amongst GSSHPL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

GSSHPL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

(a) all funds constituting the financial package;

(b) all revenues from or in respect of the GSSHPL Project, including the proceeds of any deposits, capital receipts or insurance claims; and

(c) all payments by the NHAI, after deducting any outstanding payments.

Withdrawals during Concession Period

GSSHPL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, *inter alia*, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in the month when due:

(a) all taxes due and payable by GSSHPL for and in respect of the GSSHPL Project

(b) all payments relating to construction of the GSSHPL Project, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

(c) O&M expenses, subject to the ceiling, if any, set forth in the financing agreements;

(d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the GSSHPL Concession Agreement, and certified by the NHAI as due and payable to it;

(e) Any amount due and payable to the NHAI;

(f) monthly proportionate provision of GSSHPL Debt Service due in an accounting year;

(g) all payments and damages certified by the NHAI as due and payable to it by GSSHPL;

(h) monthly proportionate provision of GSSHPL Debt Service payments due in an accounting year in respect of subordinated debt;

(i) any reserve requirements set forth in the financing agreements; and

(j) balance, if any, in accordance with the instructions of GSSHPL.

GSSHPL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the GSSHPL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

(a) all taxes due and payable by GSSHPL for and in respect of the GSSHPL Project;

(b) percentage of the GSSHPL Debt Due excluding the subordinated debt if required to be as per the terms of the GSSHPL Concession Agreement;

(c) outstanding payments due to the NHAI;

(d) all payments and damages certified by the NHAI as due and payable to it by GSSHPL;

(e) retention and payments relating to the liability for defects and deficiencies set forth in the GSSHPL Concession Agreement;

(f) outstanding GSSHPL Debt Service including balance of GSSHPL Debt Due;

(g) outstanding subordinated debt;

(h) incurred or accrued O&M expenses;

(i) any other payments required to be made under the GSSHPL Concession Agreement; and

(j) balance, if any, in accordance with the instructions of GSSHPL.

No appropriations shall be made under this sub-clause until a vesting certificate has been issued by the NHAI.

Change of Scope

NHAI may, notwithstanding anything to the contrary contained in the GSSHPL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the GSSHPL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the GSSHPL Concession Agreement and the costs thereof shall be expended by GSSHPL and reimbursed by the NHAI.

If GSSHPL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 15 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the GSSHPL Concession Agreement, or inform GSSHPL in writing of its reasons for not accepting such change of scope, which decision of the NHAI shall be final and binding.

Compensation for Breach of Agreement

In the event of GSSHPL being in material breach or default of the GSSHPL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the GSSHPL Concession Agreement or for any consequential losses incurred by NHAI.

In the event of the NHAI being in material breach or default of the GSSHPL Concession Agreement at any time after the GSSHPL Appointed Date, it shall pay to GSSHPL by way of compensation, all direct costs suffered or incurred by GSSHPL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the GSSHPL Concession Agreement. Compensation payable may include interest payments on debts, O&M expenses, any increase in capital costs on account of inflation and all other costs directly attributable to such material breach or default but shall not include loss of annuity payment, debt repayment obligations or other consequential losses, loss of profits, EPC contractor claims, and for determining such compensation, information contained in the financial package and financial model may be relied upon to the extent it is relevant.

Termination of the GSSHPL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the GSSHPL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and GSSHPL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, GSSHPL shall be deemed to be in default of the GSSHPL Concession Agreement ("**GSSHPL Default**"), unless the default has occurred solely as a result of any breach of the GSSHPL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

(a) the performance security has been encashed and appropriated in accordance with the GSSHPL Concession Agreement and GSSHPL fails to replenish or provide fresh performance security within a cure period of 15 days;

(b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the GSSHPL Concession Agreement, GSSHPL fails to meet any condition precedent or cure the default, as the case may be, for which whole or part of the performance security was appropriated, within a cure period of 120 days;

(c) GSSHPL does not achieve the latest outstanding project milestone due in accordance with the GSSHPL Concession Agreement and continues to be in default for 120 days;

(d) GSSHPL abandons or manifests intention to abandon the construction or operation of the GSSHPL Project without the prior written consent of the NHAI;

(e) COD does not occur within the period specified in the GSSHPL Concession Agreement;

(f) the punch list items have not been completed within the period set forth in the GSSHPL Concession Agreement;

(g) GSSHPL is in breach of the maintenance requirements or the safety requirements as the case may be;

(h) GSSHPL has failed to make any payment to the NHAI within the period specified in the GSSHPL Concession Agreement;

(i) an escrow default has occurred and GSSHPL fails to cure the default within a cure period of 15 days;

(j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and GSSHPL fails to cure the default within the cure period specified;

(k) a breach of the project agreements by GSSHPL has caused a material adverse effect;

(l) GSSHPL creates an encumbrance in breach of the GSSHPL Concession Agreement;

(m) GSSHPL repudiates the GSSHPL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the GSSHPL Concession Agreement;

(n) a change in ownership has occurred in breach of the GSSHPL Concession Agreement;

(o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of GSSHPL under any of the

project agreements, or of (ii) all or part of the assets or undertaking of GSSHPL, and such transfer causes a material adverse effect;

(p) an execution levied on any of the assets of GSSHPL has caused a material adverse effect;

(q) GSSHPL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for GSSHPL or for the whole or material part of its assets that has a material bearing on the GSSHPL Project;

(r) GSSHPL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

(s) a resolution for winding up of GSSHPL is passed, or any petition for winding up of GSSHPL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or GSSHPL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of GSSHPL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of GSSHPL under the GSSHPL Concession Agreement and the project agreements; provided that:

(i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the GSSHPL Concession Agreement and the project agreements;

(ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the GSSHPL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of GSSHPL as at the GSSHPL Appointed Date; and

(iii) each of the project agreements remains in full force and effect.

(t) any representation or warranty of GSSHPL which is, as of the date hereof, found to be materially false, incorrect or misleading or GSSHPL is at any time hereafter found to be in breach thereof;

(u) GSSHPL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

(v) GSSHPL has failed to fulfil any obligation, for which failure termination has been specified in the GSSHPL Concession Agreement; or

(w) GSSHPL issues a termination notice in violation of the GSSHPL Concession Agreement.

(x) GSSHPL commits a default in complying with any other provision of the GSSHPL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the GSSHPL Concession Agreement, upon the occurrence of a GSSHPL Default, the NHAI shall be entitled to terminate the GSSHPL Concession Agreement by issuing a termination notice to GSSHPL. Before issuing the termination notice, the NHAI shall, by notice, inform GSSHPL of its intention to issue a termination notice and grant 15 days to GSSHPL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the GSSHPL Concession Agreement.

Termination by GSSHPL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the GSSHPL Concession Agreement, the NHAI shall be deemed to be in default of the GSSHPL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the GSSHPL Concession Agreement by GSSHPL, or due to force majeure. The default referred to herein shall include:

(a) NHAI commits a material default in complying with any of the provisions of the GSSHPL Concession

Agreement and such default has a material adverse effect on GSSHPL;

(b) NHAI has failed to make any payment to GSSHPL within the period specified in the GSSHPL Concession Agreement;

(c) NHAI fails to provide, within 180 days from the appointed date, statutory clearances required for the construction of the GSSHPL Project; or

(d) NHAI repudiates the GSSHPL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the GSSHPL Concession Agreement.

Without prejudice to any other rights or remedies which GSSHPL may have under the GSSHPL Concession Agreement, upon the occurrence of an NHAI Default, GSSHPL shall, subject to the provisions of the Substitution Agreement, be entitled to terminate the GSSHPL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, GSSHPL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 15 days to the NHAI to make a representation, and may after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of a GSSHPL Default during the operation period, the NHAI shall pay to GSSHPL, by way of termination payment, an amount equal to 65% of the sum of annuity payments remaining unpaid for and in respect of the concession period, including interest thereon up to the transfer date.

Upon termination on account of a GSSHPL Default during the GSSHPL Construction Period, the termination payment shall be based on the payment milestone achieved which is in terms of the physical progress made by GSSHPL in the project and the termination payment corresponding to the achieved payment milestone shall be as follows:

Payment Milestone	Termination Payment
1st Payment Milestone	NIL
2nd Payment Milestone	50% of GSSHPL Debt Due or 5.25% of the GSSHPL Bid Project Cost, whichever is lower.
3rd Payment Milestone	60% of GSSHPL Debt Due or 11.70% of the GSSHPL Bid Project Cost, whichever is lower.
4th Payment Milestone	70% of GSSHPL Debt Due or 24% of the GSSHPL Bid Project Cost, whichever is lower.
5th Payment Milestone	80% of GSSHPL Debt Due or 32% of the GSSHPL Bid Project Cost, whichever is lower.

Upon termination on account of an NHAI Default, the NHAI shall pay to GSSHPL, by way of termination payment, an amount equal to:

(i) In case the termination occurs prior to GSSHPL COD

(a) Debt due payment calculated as per the table below less insurance cover; provided that if any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of debt due. The debt due would be calculated as per the table below:

Payment Milestone	Basis of calculation for debt due payment
1st Payment Milestone	GSSHPL Debt Due or 1.50% of the GSSHPL Bid Project Cost, whichever is lower.
2nd Payment Milestone	GSSHPL Debt Due or 10.50% of the GSSHPL Bid Project Cost, whichever is lower.
3rd Payment Milestone	GSSHPL Debt Due or 19.50% of the GSSHPL Bid Project Cost, whichever is lower.
4th Payment Milestone	GSSHPL Debt Due or 33.75% of the GSSHPL Bid Project Cost, whichever is lower.
5th Payment Milestone	GSSHPL Debt Due or 40.50% of the GSSHPL Bid Project Cost, whichever is lower.

(b) 150% of the adjusted equity;

(ii) In case the termination occurs on or after GSSHPL COD, the NHAI shall pay to GSSHPL, by way of termination payment, an amount equal to sum of annuity payments remaining unpaid for and in respect of the concession period, including interest thereon up to the transfer date.

Termination payment shall become due and payable to GSSHPL within 15 days of a demand being made by GSSHPL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the daily average bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the GSSHPL Concession Agreement shall constitute a full and final settlement of all claims of GSSHPL on account of termination of the GSSHPL Concession Agreement for any reason whatsoever and GSSHPL shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Liability for Defect after Termination

GSSHPL shall be responsible for all defects and deficiencies in the GSSHPL Project for a period of 120 days after termination and shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the GSSHPL Project as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf and in case of failure to do so, NHAI shall be entitled to get the same repaired and rectified at GSSHPL's risk and cost so as to make the project conform to the maintenance requirements. All costs incurred by the NHAI shall be reimbursed by GSSHPL to NHAI within 15 days of receipt of demand thereof, and in the event of default in reimbursing such costs, NHAI shall be entitled to recover the same from the funds retained in the Escrow Account or from the performance guarantee provided thereunder.

7. Concession agreement between GR Dwarka Devariya Highway Pvt. Ltd. and the NHAI dated May 22, 2019

GDDHPL has entered into a concession agreement for the four-laning and augmentation of the existing road of the Dwarka (Kuranga)-Khambhaliya section of NH-151A from km 203/500 to 176/500 and from km 171/800 to km 125/000 of designed length 71.890 km in the State of Gujarat under Bharatmala Pariyojana on hybrid annuity mode (the "**GDDHPL Concession Agreement**") for a construction period of 912 days from starting from February 8, 2020 ("**GDDHPL Appointed Date**" and such period, the "**GDDHPL Construction Period**") and a fixed operation period of 15 years from August 2, 2022 ("**GDDHPL COD**" and such period, the "**GDDHPL Operation Period**) or until such date on which the GDDHPL Concession Agreement is terminated by a termination notice ("**GDDHPL Termination Date**", and the period between the GDDHPL Appointed Date and the GDDHPL Termination Date, the "**GDDHPL Concession Period**").

Certain Definitions

"**GDDHPL Debt Due**" means the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date, i.e., the date on which the GDDHPL Concession Agreement and the concession granted thereunder expires or is terminated:

(a) The principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principal**") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

(b) All accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in sub-clause (a) above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

(c) Any subordinated debt which is included in the financial package and disbursed by lenders for financing the total project cost;

Provided that if all or any part of the GDDHPL Debt Due is convertible into equity at the option of senior lenders and/or GDDHPL, it shall for the purposes of the GDDHPL Concession Agreement be deemed to be GDDHPL Debt Due even after such conversion and the principal thereof shall be dealt with as if such conversion had not been undertaken;

"**GDDHPL Debt Service**" means the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements for and in respect of GDDHPL Debt Due under the financing agreements;

"**GDDHPL Project**" means the construction, operation, and maintenance of the GDDHPL Project Highway in accordance with the provisions of the GDDHPL Concession Agreement, and includes all works, services, and equipment relating to or in respect of the scope of the project in site comprising the existing road comprising GDDHPL Project Highway and all GDDHPL Project Assets, and its subsequent development and augmentation in accordance with the GDDHPL Concession Agreement;

"**GDDHPL Project Assets**" means all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road over bridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of GDDHPL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the GDDHPL Project (as defined above); and

"**GDDHPL Project Highway**" means the site comprising the existing road comprising NH-151A from km. 203/500 to 176/500 and from km 171/800 to km 125/000 of designed length 71.890 km and all GDDHPL Project Assets, and its subsequent development and augmentation in accordance with the GDDHPL Concession Agreement.

Grant of Concession

Subject to, and in accordance with the provisions of the GDDHPL Concession Agreement, applicable laws and applicable permits, the NHAI has granted to GDDHPL, and GDDHPL has accepted the concession, including the exclusive right, license, and authority to construct, operate and maintain the GDDHPL Project during the GDDHPL Concession Period.

Subject to, and in accordance with the provisions of the GDDHPL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, GDDHPL to:

(a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the GDDHPL Concession Agreement;

(b) finance the GDDHPL Project and construct the GDDHPL Project Highway;

(c) manage, operate, and maintain the GDDHPL Project;

(d) perform and fulfil all of its obligations under and in accordance with the GDDHPL Concession Agreement;

(e) save as otherwise expressly provided in the GDDHPL Concession Agreement, bear and pay all costs, expenses and charges in connection with or incidental to the performance of the obligations of GDDHPL under the GDDHPL Concession Agreement;

(f) neither assign, transfer or sublet, or create any lien or encumbrance on the GDDHPL Concession Agreement, or the concession granted, or on the whole or any part of the GDDHPL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the GDDHPL Concession Agreement or the agreement for the substitution of GDDHPL entered into by GDDHPL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Bid Project Cost

The cost of construction of the GDDHPL Project, as on the bid date, which is due and payable by NHAI to GDDHPL, shall be deemed to be ₹1,101.00 crores (the "**GDDHPL Bid Project Cost**"). The GDDHPL Bid Project Cost shall be revised from time to time in accordance with the GDDHPL Concession Agreement to reflect the variation in price index (as defined in the concession agreement) occurring after the reference index date (as defined in the concession agreement) immediately preceding the bid date.

40% of the GDDHPL Bid Project Cost, adjusted for the price index multiple, was due and payable, to GDDHPL in five equal instalments of 8% each during the GDDHPL Construction Period in accordance with the GDDHPL Concession Agreement. The remaining GDDHPL Bid Project Cost, adjusted for the price index multiple, is due and payable in 30 biannual instalments commencing from the 180th day of GDDHPL COD period in accordance with the GDDHPL Concession Agreement.

Payment during Construction Period

Upon receipt of report from the independent engineer certifying the achievement of the below mentioned payment milestones, the NHAI shall disburse, within 15 days of the receipt of each such report, an instalment equal to 8% of the GDDHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of that report in accordance with the payment milestone for release of payment during construction period as specified in the GDDHPL Concession Agreement.

Annuity Payments During the Operation Period

The completion cost shall be the summation of A, B, C, D, E, and F below:

A. 10% of the GDDHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 10% physical progress.

B. Another 20% of the GDDHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 30% physical progress.

C. Another 20% of the GDDHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 50% physical progress.

D. Another 25% of the GDDHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 75% physical progress

E. Another 15% of the GDDHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the date of report confirming 90% physical progress,

F. Another 10% of the GDDHPL Bid Project Cost adjusted for the price index multiple as applicable on the reference index date preceding the GDDHPL COD.

NHAI has paid a portion of the completion cost as payments during GDDHPL Construction Period and the balance completion cost remaining shall be due and payable during the GDDHPL Operation Period as given in the GDDHPL Concession Agreement.

O&M Payments

The O&M expenses, which are borne by GDDHPL, are reimbursed by the NHAI by way of a lump sum financial support in two equal biannual instalments shall be due and payable by the NHAI, in accordance with the GDDHPL Concession Agreement. The O&M payments due and payable to GDDHPL shall be paid in two equal biannual instalments and disbursed by the NHAI together with the corresponding instalments of annuity payments. Any O&M expenses in excess of the O&M payments shall be borne solely by GDDHPL, save and except as expressly provided in the GDDHPL Concession Agreement.

Escrow Account

GDDHPL was required to, prior to the GDDHPL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the GDDHPL Concession Agreement read with the escrow agreement entered into amongst GDDHPL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

GDDHPL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

(a) all funds constituting the financial package;

(b) all revenues from or in respect of the GDDHPL Project, including the proceeds of any deposits, capital receipts or insurance claims; and

(c) all payments by the NHAI, after deducting any outstanding payments.

Withdrawals during Concession Period

GDDHPL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, *inter alia*, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in the month when due:

(a) all taxes due and payable by GDDHPL for and in respect of the GDDHPL Project

(b) all payments relating to construction of the GDDHPL Project, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

(c) O&M expenses, subject to the ceiling, if any, set forth in the financing agreements;

(d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the GDDHPL Concession Agreement, and certified by the NHAI as due and payable to it;

(e) Any amount due and payable to the NHAI;

(f) monthly proportionate provision of GDDHPL Debt Service due in an accounting year;

(g) all payments and damages certified by the NHAI as due and payable to it by GDDHPL;

(h) monthly proportionate provision of GDDHPL Debt Service payments due in an accounting year in respect of subordinated debt;

(i) any reserve requirements set forth in the financing agreements; and

(j) balance, if any, in accordance with the instructions of GDDHPL.

GDDHPL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the GDDHPL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

(a) all taxes due and payable by GDDHPL for and in respect of the GDDHPL Project;

(b) percentage of the GDDHPL Debt Due excluding the subordinated debt if required to be as per the terms of the GDDHPL Concession Agreement;

(c) outstanding payments due to the NHAI;

(d) all payments and damages certified by the NHAI as due and payable to it by GDDHPL;

(e) retention and payments relating to the liability for defects and deficiencies set forth in the GDDHPL Concession Agreement;

(f) outstanding GDDHPL Debt Service including balance of GDDHPL Debt Due;

(g) outstanding subordinated debt;

(h) incurred or accrued O&M expenses;

(i) any other payments required to be made under the GDDHPL Concession Agreement; and

(j) balance, if any, in accordance with the instructions of GDDHPL.

No appropriations shall be made under this sub-clause until a vesting certificate has been issued by the NHAI.

Change of Scope

NHAI may, notwithstanding anything to the contrary contained in the GDDHPL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the GDDHPL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the GDDHPL Concession Agreement and the costs thereof shall be expended by GDDHPL and reimbursed by the NHAI.

If GDDHPL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 15 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the GDDHPL Concession Agreement, or inform GDDHPL in writing of its reasons for not accepting such change of scope, which decision of the NHAI shall be final and binding.

Compensation for Breach of Agreement

In the event of GDDHPL being in material breach or default of the GDDHPL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the GDDHPL Concession Agreement or for any consequential losses incurred by NHAI.

In the event of the NHAI being in material breach or default of the GDDHPL Concession Agreement at any time after the GDDHPL Appointed Date, it shall pay to GDDHPL by way of compensation, all direct costs suffered or incurred by GDDHPL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the GDDHPL Concession Agreement. Compensation payable may include interest payments on debts, O&M expenses, any increase in capital costs on account of inflation and all other costs directly attributable to such material breach or default but shall not include loss of annuity payment, debt repayment obligations or other consequential losses, loss of profits, EPC contractor claims, and for determining such compensation, information contained in the financial package and financial model may be relied upon to the extent it is relevant.

Termination of the GDDHPL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the GDDHPL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and GDDHPL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, GDDHPL shall be deemed to be in default of the GDDHPL Concession Agreement ("**GDDHPL Default**"), unless the default has occurred solely as a result of any breach of the GDDHPL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

(a) the performance security has been encashed and appropriated in accordance with the GDDHPL Concession Agreement and GDDHPL fails to replenish or provide fresh performance security within a cure period of 15 days;

(b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the GDDHPL Concession Agreement, GDDHPL fails to meet any condition precedent or cure the default, as the case may be, for which whole or part of the performance security was appropriated, within a cure period of 120 days;

(c) GDDHPL does not achieve the latest outstanding project milestone due in accordance with the GDDHPL Concession Agreement and continues to be in default for 120 days;

(d) GDDHPL abandons or manifests intention to abandon the construction or operation of the GDDHPL Project without the prior written consent of the NHAI;

(e) COD does not occur within the period specified in the GDDHPL Concession Agreement;

(f) the punch list items have not been completed within the period set forth in the GDDHPL Concession Agreement;

(g) GDDHPL is in breach of the maintenance requirements or the safety requirements as the case may be;

(h) GDDHPL has failed to make any payment to the NHAI within the period specified in the GDDHPL Concession Agreement;

(i) an escrow default has occurred and GDDHPL fails to cure the default within a cure period of 15 days;

(j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and GDDHPL fails to cure the default within the cure period specified;

(k) a breach of the project agreements by GDDHPL has caused a material adverse effect;

(l) GDDHPL creates an encumbrance in breach of the GDDHPL Concession Agreement;

(m) GDDHPL repudiates the GDDHPL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the GDDHPL Concession Agreement;

(n) a change in ownership has occurred in breach of the GDDHPL Concession Agreement;

(o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of GDDHPL under any of the project agreements, or of (ii) all or part of the assets or undertaking of GDDHPL, and such transfer causes a material adverse effect;

(p) an execution levied on any of the assets of GDDHPL has caused a material adverse effect;

(q) GDDHPL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for GDDHPL or for the whole or material part of its assets that has a material bearing on the GDDHPL Project;

(r) GDDHPL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

(s) a resolution for winding up of GDDHPL is passed, or any petition for winding up of GDDHPL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or GDDHPL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of GDDHPL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of GDDHPL under the GDDHPL Concession Agreement and the project agreements; provided that:

    (i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the GDDHPL Concession Agreement and the project agreements;

    (ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the GDDHPL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of GDDHPL as at the GDDHPL Appointed Date; and

    (iii) each of the project agreements remains in full force and effect.

(t) any representation or warranty of GDDHPL which is, as of the date hereof, found to be materially false, incorrect or misleading or GDDHPL is at any time hereafter found to be in breach thereof;

(u) GDDHPL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

(v) GDDHPL has failed to fulfil any obligation, for which failure termination has been specified in the

GDDHPL Concession Agreement; or

(w) GDDHPL issues a termination notice in violation of the GDDHPL Concession Agreement.

(x) GDDHPL commits a default in complying with any other provision of the GDDHPL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the GDDHPL Concession Agreement, upon the occurrence of a GDDHPL Default, the NHAI shall be entitled to terminate the GDDHPL Concession Agreement by issuing a termination notice to GDDHPL. Before issuing the termination notice, the NHAI shall, by notice, inform GDDHPL of its intention to issue a termination notice and grant 15 days to GDDHPL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the GDDHPL Concession Agreement.

Termination by GDDHPL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the GDDHPL Concession Agreement, the NHAI shall be deemed to be in default of the GDDHPL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the GDDHPL Concession Agreement by GDDHPL, or due to force majeure. The default referred to herein shall include:

(a) NHAI commits a material default in complying with any of the provisions of the GDDHPL Concession Agreement and such default has a material adverse effect on GDDHPL;

(b) NHAI has failed to make any payment to GDDHPL within the period specified in the GDDHPL Concession Agreement;

(c) NHAI fails to provide, within 180 days from the appointed date, statutory clearances required for the construction of the GDDHPL Project; or

(d) NHAI repudiates the GDDHPL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the GDDHPL Concession Agreement.

Without prejudice to any other rights or remedies which GDDHPL may have under the GDDHPL Concession Agreement, upon the occurrence of an NHAI Default, GDDHPL shall, subject to the provisions of the Substitution Agreement, be entitled to terminate the GDDHPL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, GDDHPL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 15 days to the NHAI to make a representation, and may after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of a GDDHPL Default during the operation period, the NHAI shall pay to GDDHPL, by way of termination payment, an amount equal to 65% of the sum of annuity payments remaining unpaid for and in respect of the concession period, including interest thereon up to the transfer date.

Upon termination on account of a GDDHPL Default during the GDDHPL Construction Period, the termination payment shall be based on the payment milestone achieved which is in terms of the physical progress made by GDDHPL in the project and the termination payment corresponding to the achieved payment milestone shall be as follows:

Payment Milestone	Termination Payment
1st Payment Milestone	NIL
2nd Payment Milestone	50% of GDDHPL Debt Due or 5.25% of the GDDHPL Bid Project Cost, whichever is lower.
3rd Payment Milestone	60% of GDDHPL Debt Due or 11.70% of the GDDHPL Bid Project Cost, whichever is lower.
4th Payment Milestone	70% of GDDHPL Debt Due or 24% of the GDDHPL Bid Project Cost, whichever is lower.
5th Payment Milestone	80% of GDDHPL Debt Due or 32% of the GDDHPL Bid Project Cost, whichever is lower.

Upon termination on account of an NHAI Default, the NHAI shall pay to GDDHPL, by way of termination payment, an amount equal to:

(i) In case the termination occurs prior to GDDHPL COD

(a) Debt due payment calculated as per the table below less insurance cover; provided that if any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of debt due. The debt due would be calculated as per the table below:

Payment Milestone	Basis of calculation for debt due payment
1st Payment Milestone	GDDHPL Debt Due or 1.50% of the GDDHPL Bid Project Cost, whichever is lower.
2nd Payment Milestone	GDDHPL Debt Due or 10.50% of the GDDHPL Bid Project Cost, whichever is lower.
3rd Payment Milestone	GDDHPL Debt Due or 19.50% of the GDDHPL Bid Project Cost, whichever is lower.
4th Payment Milestone	GDDHPL Debt Due or 33.75% of the GDDHPL Bid Project Cost, whichever is lower.
5th Payment Milestone	GDDHPL Debt Due or 40.50% of the GDDHPL Bid Project Cost, whichever is lower.

(b) 150% of the adjusted equity;

(ii) In case the termination occurs on or after GDDHPL COD, the NHAI shall pay to GDDHPL, by way of termination payment, an amount equal to sum of annuity payments remaining unpaid for and in respect of the concession period, including interest thereon up to the transfer date.

Termination payment shall become due and payable to GDDHPL within 15 days of a demand being made by GDDHPL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the daily average bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the GDDHPL Concession Agreement shall constitute a full and final settlement of all claims of GDDHPL on account of termination of the GDDHPL Concession Agreement for any reason whatsoever and GDDHPL shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Liability for Defect after Termination

GDDHPL shall be responsible for all defects and deficiencies in the GDDHPL Project for a period of 120 days after termination and shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the GDDHPL Project as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf and in case of failure to do so, NHAI shall be entitled to get the same repaired and rectified at GDDHPL's risk and cost so as to make the project conform to the maintenance requirements. All costs incurred by the NHAI shall be reimbursed by GDDHPL to NHAI within 15 days of receipt of demand thereof, and in the event of default in reimbursing such costs, NHAI shall be entitled to recover the same from the funds retained in the Escrow Account or from the performance guarantee provided thereunder.

CORPORATE GOVERNANCE

The section below is a summary of the corporate governance framework in relation to the InvIT, implemented by or to be implemented by the Investment Manager, as applicable and as specified in this section.

The Investment Manager

GR Highways Investment Manager Private Limited is the investment manager of the InvIT. For further details on the background of the Investment Manager, see '***Parties to the InvIT – The Investment Manager***' on page 115.

The IM Board

Composition of the IM Board

As on date of this Draft Offer Document, not less than 50% of the board of directors of the Investment Manager comprises of independent directors and are not directors or members of the governing board of the Investment Manager of another infrastructure investment trust registered under the SEBI InvIT Regulations.

The IM Board comprises:

Sr. No.	Name	DIN	Designation
1.	Ajendra Kumar Agarwal	01147897	Non - Executive Director
2.	Siba Narayan Nayak	01832348	Non - Executive Director
3.	Raghav Chandra	00057760	Independent Director
4.	Deepak Maheshwari	08163253	Independent Director

Committees of the IM Board

InvIT Offer Committee

The IM Board has constituted the InvIT Offer Committee pursuant to a resolution dated September 16, 2022 and operation and functioning of the InvIT Offer Committee would be under the strict supervision of the IM Board. The InvIT Offer Committee consists of the following members:

1. Ajendra Kumar Agarwal *(Chairman)*; and

2. Siba Narayan Nayak *(Member)*

The terms of reference of the InvIT Committee include the following:

(i) To make applications, seek clarifications and seek exemption where necessary, from Securities and Exchange Board of India, stock exchanges, Registrar of Companies or to such statutory and governmental authorities or entities as may be required and accept on behalf of the IM Board such conditions and modifications as may be prescribed or imposed by any of them while granting such approvals, consents, permissions and sanctions as may be required with respect to the Issue;

(ii) To authorise any director or directors of the Investment Manager or other officer or officers of the Investment Manager, including by the grant of power of attorney, to do such acts, deeds and things as such authorized person in his/ her/ its absolute discretion may deem necessary or desirable in connection with the issue and allotment and transfer of Units;

(iii) To give or authorise the giving by concerned persons on behalf of the Investment Manager of such declarations, affidavits, certificates, consents and authorities as may be required from time to time;

(iv) To seek, if required, the consent of the lenders, parties with whom each of InvIT and GR Phagwara Expressway Limited, Porbandar Dwarka Expressway Private Limited, GR Gundugolanu Devarapalli Highway Private Limited, GR Akkalkot Solapur Highway Private Limited, Varanasi Sangam Expressway Private Limited, GR Sangli Solapur Highway Private Limited and GR Dwarka Devariya Highway Private Limited have entered into various commercial and other agreements, all concerned government and regulatory authorities in India or outside India, including NHAI, and any other consents that may be required in connection with the Issue;

(v) To approve and file, where applicable, the Draft Offer Document, the Offer Document and the Final Offer Document, the preliminary and final international wrap (including any notices, amendments, addenda, corrigenda or supplements thereto), as finalized in consultation with the Lead Managers, in accordance with all applicable law, rules, regulations and guidelines, to be filed with the SEBI and the Stock Exchanges and such other authorities, as may be applicable, and to make necessary amendments or alterations, therein with respect to the Issue;

(vi) To decide on the timing, pricing and all the terms and conditions with respect to the Issue, including the determination of the minimum subscription for the Issue, allotment, any rounding off in the event of over subscription as permitted under applicable law in consultation with the Lead Managers, etc. and to accept any amendments, modifications, variations or alterations thereto;

(vii) To appoint and enter into arrangements with the trustee, sponsors, book running lead managers, legal counsel and any other agencies or persons or intermediaries with respect to the Issue and to negotiate and finalise the terms of their appointment;

(viii) To negotiate, finalise and settle and to execute where applicable and deliver or arrange the delivery of the Draft Offer Document, Offer Document and Final Offer Document, the preliminary and final international wraps (including any notices, amendments, addenda, corrigenda or supplements thereto), the agreements and all other documents, deeds, agreements and instruments and any notices, supplements and corrigenda thereto, as may be required or desirable with respect to the Issue;

(ix) To open with the bankers to the Issue such accounts as may be required by the regulations issued by SEBI and to authorise one or more officers of the Investment Manager to execute all documents/ deeds as may be necessary in this regard;

(x) To authorize and approve, the incurring of expenditure and payment of fees, commission, remuneration and expenses in connection with the Issue;

(xi) To issue all documents and authorise one or more officers of the Investment Manager to sign all or any of the abovementioned documents;

(xii) To seek the listing of the Units on any Indian stock exchanges, submitting the listing application to such stock exchanges and taking all actions as may be necessary in connection with obtaining such listing and trading approval;

(xiii) To appoint the registrar and other intermediaries to the Issue, in accordance with the SEBI InvIT Regulations and other statutory and/ or regulatory requirements;

(xiv) To enter into agreements with, and remunerate the lead managers, syndicate members, bankers to the Issue, the registrar to the Issue, underwriters, guarantors, escrow agents, accountants, auditors, legal counsel, depositories, custodians, credit rating agencies, monitoring agencies, advertising agencies, advertising agencies, and all other agencies or persons as may be involved in or concerned with the Issue, by the way of commission, brokerage, fees or the like;

(xv) To issue advertisements and/or notices as it may deem fit and proper in accordance with applicable law in consultation with the relevant intermediaries appointed for the Issue;

(xvi) To authorise the maintenance of a register of unitholders of the Units;

(xvii) To accept and appropriate the proceeds of the Issue;

(xviii) To finalize the allotment of Units on the basis of the applications received including the basis of the allotment;

(xix) To review the investment decisions with respect to the underlying assets or projects of the InvIT from the Sponsor including any further investments or divestments to ensure protection of the interest of unitholders;

(xx) Approving any proposal in relation to acquisition of assets, further issue of units including in relation to acquisition or assets;

(xxi) To enter into debt financing documentation, debenture subscription agreements, share purchase agreements and other agreements in connection with the Issue with the InvIT Assets;

(xxii) To oversee activities of the project manager in accordance with the SEBI InvIT Regulations and the project implementation and management agreement;

(xxiii) Authorizing and empowering certain individuals for and on behalf of the Investment Manager, to execute and deliver, on a several basis, any agreements and arrangements as well as amendments or supplements thereto that the authorised officer considers necessary, desirable or advisable, in connection with the Issue, including, without limitation, engagement letter(s), memoranda of understanding, the listing agreements, the registrar's agreement, the depositories agreements, the offer agreement with the lead managers (and other entities as appropriate), the underwriting agreement, the syndicate agreement, the escrow agreement, confirmation of allocation notes, the advertisement agency agreement, unit subscription agreement and any agreement or document in connection with the Issue, with, and to make payments to or remunerate by way of fees, commission, brokerage or the like, the book running lead managers, lead managers, syndicate members, bankers to the Issue, registrar to the Issue, managers, underwriters, guarantors, escrow agents, accountants, auditors, legal counsel, depositories, trustees, custodians, credit rating agencies, monitoring agencies, advertising agencies, and all such persons or agencies as may be involved in or concerned with the Issue, if any; and any such agreements or documents so executed and delivered and acts and things done by any such authorized officer shall be conclusive evidence of the authority of the authorized officer and the Investment Manager in so doing;

(xxiv) To submit undertakings/certificates or provide clarifications to the Securities and Exchange Board of India, Registrar of Companies and the relevant stock exchange(s) where the Units are to be listed;

(xxv) To do all such acts and deeds as may be required to issue units of the InvIT in dematerialised form and to sign agreements and/or such other documents as may be required with the National Securities Depository Limited the Central Depository Services (India) Limited and such other agencies, as may be required in this connection;

(xxvi) To settle all questions, difficulties or doubts that may arise in regard to the Issue including such issues or allotment and matters incidental thereto as it may, deem fit and to delegate such of its powers as may be deemed necessary to the officials of the Investment Manager; and

(xxvii) To do all such acts, deeds, matters and things and execute all such other document/s, application/s, agreement/s, undertaking/s, deed/s, affidavits, declarations and certificates, etc., deemed necessary or desirable for such purpose of with respect to the Issue.

Audit Committee:

The IM Board has constituted the Audit Committee pursuant to a resolution dated September 16, 2022. The Audit Committee consists of the following members:

1. Deepak Maheswari *(Chairman)*;

2. Raghav Chandra *(Member)*; and

3. Siba Narayan Nayak *(Member)*

The terms of reference of the Audit Committee include the following:

(i) Provide recommendations to the IM Board regarding any proposed distributions;

(ii) Overseeing the InvIT's financial reporting process and disclosure of its financial information to ensure that its financial statements are correct, sufficient and credible;

(iii) Giving recommendations to the IM Board regarding appointment, re-appointment and replacement, remuneration and terms of appointment of the statutory auditor of the InvIT and the audit fee, subject to the approval of the unitholders;

(iv) Approving payments to statutory auditors of the InvIT for any other services rendered by such statutory auditors;

(v) Reviewing the annual financial statements and auditor's report thereon of the InvIT, before submission to the IM Board for approval, with particular reference to:

- changes, if any, in accounting policies and practices and reasons for such change;
- major accounting entries involving estimates based on the exercise of judgment by management;
- significant adjustments made in the financial statements arising out of audit findings;
- compliance with listing and other legal requirements relating to financial statements;
- disclosure of any related party transactions; and
- qualifications/modified opinions in the draft audit report.

(vi) Reviewing, with the management, all periodic financial statements, including but not limited to half-yearly and annual financial statements of the InvIT before submission to the IM Board for approval;

(vii) Reviewing, with the management, the statement of uses/application of funds raised through an issue of units by the InvIT (public issue, rights issue, preferential issue, etc.) and the statement of funds utilised for purposes other than those stated in the offer documents/ notice, and making appropriate recommendations to the IM Board for follow-up action;

(viii) Reviewing and monitoring the independence and performance of the statutory auditor of the InvIT, and effectiveness of audit process;

(ix) Approval or any subsequent modifications of transactions of the InvIT with related parties;

(x) Reviewing loans and investments of the InvIT;

(xi) Reviewing valuation reports required to be prepared under applicable law, periodically, and as required, under applicable law;

(xii) Evaluating internal financial controls and risk management systems of the InvIT;

(xiii) Reviewing, with the management, the performance of statutory and internal auditors of the InvIT, and adequacy of the internal control systems, as necessary;

(xiv) Reviewing the adequacy of internal audit function, if any, of the InvIT including the structure of the internal audit department, staffing and seniority of the official heading the department, reporting structure coverage and frequency of internal audit;

(xv) Discussing with the internal auditors of the InvIT of any significant findings and follow up thereon;

(xvi) Reviewing the findings of any internal investigations with respect to the InvIT into matters where there is suspected fraud or irregularity or a failure of internal control systems of a material nature and reporting the matter to the IM Board;

(xvii) Reviewing the procedures put in place by the Investment Manager for managing any conflict that may arise between the interests of the unitholders, the parties to the InvIT and the interests of the Investment Manager, including related party transactions, the indemnification of expenses or liabilities incurred by the Investment Manager, and the setting of fees or charges payable out of the InvIT 's assets;

(xviii) Discussing with statutory auditors and valuers prior to commencement of the audit or valuation, respectively, about the nature and scope, as well as post-audit/ valuation discussion to ascertain any area of concern;

(xix) Reviewing and monitoring the independence and performance of the valuer of the InvIT;

(xx) Monitoring the end use of Net Proceeds;

(xxi) Giving recommendations to the IM Board regarding appointment, re-appointment and replacement, remuneration and terms of appointment of the valuer of the InvIT;

(xxii) Evaluating any defaults or delay in payment of distributions to the unitholders or dividends by the SPVs to the InvIT and payments to any creditors of the InvIT or the SPVs, and recommending remedial measures;

(xxiii) Reviewing the management's discussion and analysis of factors affecting the financial condition and results of operations;

(xxiv) Reviewing the statement of all related party transactions, submitted by the management;

(xxv) Reviewing the Management letters/ letters of internal control weaknesses issued by the statutory auditors of the InvIT;

(xxvi) Reviewing the functioning of the whistle blower mechanism;

(xxvii) Approval of appointment of chief financial officer/finance head after assessing the qualifications, experience and background, etc. of the candidate;

(xxviii) Reviewing the utilization of loans and/ or advances from/investment by the InvIT in the SPVs exceeding ₹1,000 million or 10% of the asset size of the SPV, whichever is lower including existing loans / advances / investments;

(xxix) Approving any management information systems or interim financial statements to be submitted by the InvIT to any Unitholder or regulatory or statutory authority;

(xxx) Approving any reports required to be issued to the Unitholders under the SEBI InvIT Regulations;

(xxxi) Approving any transaction involving a conflict of interest;

(xxxii) Formulating any policy for the Investment Manager as necessary, with respect to its functions, as specified above; and

(xxxiii) Performing such other activities as may be delegated by the IM Board and/ or are statutorily prescribed under any law to be attended to by the Audit Committee

Nomination and Remuneration Committee:

The IM Board has constituted the Nomination and Remuneration Committee pursuant to a resolution dated September 16, 2022. The Nomination and Remuneration Committee consists of the following members:

1. Raghav Chandra *(Chairman)*;

2. Deepak Maheswari *(Member)*; and

3. Ajendra Kumar Agarwal *(Member)*

The terms of reference of the Nomination and Remuneration Committee include the following:

(i) Formulation of the criteria for determining qualifications, positive attributes and independence of a member and recommend to the IM Board a policy relating to, the remuneration of the members, key managerial personnel and other employees;

(ii) Formulation of criteria for evaluation of performance of independent members and the IM Board;

(iii) Devising a policy on IM Board diversity;

(iv) Identifying persons who are qualified to become members and who may be appointed in senior management in accordance with the criteria laid down and recommend to the IM Board their appointment and removal and evaluation of members' performance;

(v) Determining whether to extend or continue the term of appointment of the independent member, on the basis of the report of performance evaluation of independent members;

(vi) Ensuring that the level and composition of remuneration is reasonable and sufficient to attract, retain and motivate members of the quality required to run the Investment Manager successfully;

(vii) Endeavour to appoint key employees to replace any key employee within three months and recommend to the IM Board;

(viii) the policy for nomination of directors on the board of directors of the SPVs (including qualification and experience requirements, compensation model, performance parameters, process for appointment and removal);

(ix) Carrying out any other function as prescribed under applicable law;

(x) Recommend to the IM Board, all remuneration, in whatever form, payable to senior management; and

(xi) Performing such other activities as may be delegated by the IM Board or are statutorily prescribed under any law to be attended by the Nomination and Remuneration Committee.

Stakeholders' Relationship Committee:

The IM Board has constituted the Stakeholders' Relationship Committee pursuant to a resolution dated September 16, 2022. The Stakeholders' Relationship Committee consists of the following members:

1. Ajendra Kumar Agarwal *(Chairman)*;

2. Deepak Maheswari *(Member)*; and

3. Raghav Chandra *(Member)*.

The terms of reference of the Stakeholders' Relationship Committee include the following:

(i) Resolve the grievances of the Unitholders, including complaints related to the transfer/transmission of units, non-receipt of annual report, non-receipt of declared distributions, issue of new/duplicate certificates, general meetings, etc.;

(ii) Review of measures taken for effective exercise of voting rights by Unitholders;

(iii) Review of any litigation related to Unitholders' grievances;

(iv) Update unitholders on acquisition/ sale of assets by the InvIT and any change in the capital structure of the SPVs;

(v) Reporting specific material litigation related to unitholders' grievances to the IM Board;

(vi) procedure for summoning and conducting meetings of the Unitholders or for seeking the vote of the Unitholders either by calling a meeting or through postal ballot or otherwise;

(vii) any issue, in the ordinary course of business, which in the opinion of the Sponsor, the Trustee or the Investment Manager, is material and requires the approval of the Unitholders under the SEBI InvIT Regulations;

(viii) any matter on which SEBI or the designated stock exchange requires the approval of Unitholders in accordance with the SEBI InvIT Regulations;

(ix) such other administrative, procedural or other matters relating to the administration or management of the affairs of the InvIT;

(x) Approve report on investor grievances, if any, to be submitted to the Trustee by the Manager; and

(xi) Performing such other activities as may be delegated by the IM Board and/ or are statutorily prescribed under any law to be attended to by the Stakeholders' Relationship Committee.

Policies adopted in relation to the InvIT

The IM Board will adopt policies for corporate governance as may be required from time to time in accordance with applicable law and the SEBI InvIT Regulations. The IM Board has adopted the following policies under the corporate governance framework of the InvIT, however all these policies will be effective from the Completion Date:

Distribution Policy

The IM Board has adopted the distribution policy pursuant to a resolution of dated December 15, 2022, in relation to the InvIT. The distribution policy provides a structure for distribution of the net distributable cash flows of the Project SPVs to the InvIT and the InvIT to the Unitholders. For details of the Distribution Policy, see '***Distribution***' on page 229.

Code of Conduct ("Code")

The IM Board has adopted the Code pursuant to a resolution dated September 16, 2022, in relation to the InvIT and conduct of the InvIT and the Parties to the InvIT. The policy provides for principles and procedures for the Sponsor, the Investment Manager, the Project Manager, the Trustee and their respective employees, as may be applicable, for ensuring interest of the Unitholders and proper conduct and carrying out of the business and affairs of the InvIT in accordance with applicable law. The key principles of the Code are set out below:

1. the InvIT and the Parties to the InvIT shall conduct all affairs of the InvIT in the interest of all the Unitholders;

2. the InvIT and the Parties to the InvIT shall make adequate, accurate, explicit and timely disclosure of relevant material information to all Unitholders, the stock exchanges and the Securities and Exchange Board of India in accordance with the SEBI InvIT Regulations and as may be specified by the stock exchanges from time to time;

3. the InvIT and the Parties to the InvIT shall try to avoid conflicts of interest, as far as possible, in managing the affairs of the InvIT and keep the interest of all Unitholders paramount in all matters. In case such events cannot be avoided, it shall be ensured that appropriate disclosures are made to the unitholders of the InvIT and they are fairly treated;

4. the InvIT and Parties to the InvIT shall ensure that fees charged by them with respect to activity of InvIT shall be fair and reasonable;

5. the Investment Manager to the InvIT shall carry out the business of the InvIT and invest in accordance with the investment objectives (as disclosed in the draft offer document and offer document, as applicable) and take investment decisions solely in the interest of Unitholders;

6. the InvIT, the Parties to the InvIT and any third party appointed by the investment manager to the InvIT shall not use any unethical means to sell, market or induce any person to buy units of the InvIT and where a third party appointed by the Investment Manager fails to comply with this condition, the investment manager shall be held liable for the same;

7. the InvIT and the Parties to the InvIT shall maintain high standards of integrity and fairness in all their dealings and in the conduct of their business;

8. the InvIT and the Parties to the InvIT shall render at all times high standards of service, exercise due diligence, ensure proper care and exercise independent professional judgment; and

9. the InvIT and the Parties to the InvIT shall not make any exaggerated statement, whether oral or written, either about their qualifications or capabilities or experience.

Borrowing Policy

The Investment Manager shall ensure that all funds borrowed in relation to the InvIT are in compliance with the SEBI InvIT Regulations. Accordingly, the Investment Manager, has adopted the Borrowing Policy on December 15, 2022. The key terms of the Borrowing Policy include, *inter alia*:

1. Subject to the SEBI InvIT Regulations and the InvIT Documents, the aggregate consolidated borrowings and deferred payments of the InvIT, and the Project SPV, net of cash and cash equivalents shall not exceed 70.00% of the value of the InvIT assets.

2. If the aggregate consolidated borrowings and deferred payments of the InvIT, and the Project SPV, net of cash and cash equivalents exceed 25.00% of the value of the InvIT assets, for any further borrowing:

   (a) credit rating shall be obtained from a credit rating agency registered with the SEBI; and

   (b) approval of Unitholders shall be obtained in the manner as specified in the SEBI InvIT Regulations.

3. If the conditions specified above are breached on account of market movements of the price of the underlying assets or securities, the Investment Manager shall inform the same to the Trustee and ensure that the conditions are satisfied within six months of such breach.

4. The InvIT may raise debt and avail borrowings and deferred payments from time to time, including through issuance of debt securities and availing loans from banks and financial institutions in accordance with applicable law (including the SEBI InvIT Regulations). The InvIT may issue debt securities in the manner specified by the SEBI, and in accordance with applicable law. In the event the aggregate consolidated borrowings and deferred payments (net of cash and cash equivalents) of the InvIT, any holding company and the Project SPVs, exceed any thresholds prescribed under the SEBI InvIT Regulations in this regard, any further borrowings by the InvIT shall be availed in accordance with the requirements prescribed under the SEBI InvIT Regulations, including any approval from Unitholders under Regulation 22 of the SEBI InvIT Regulations.

5. The Investment Manager shall ensure that if the value of funds borrowed from related parties in a financial year, exceeds 5% of the total consolidated borrowings of the InvIT, any holding company and the Project SPV, approval from the Unitholders shall be obtained prior to entering into any such subsequent transaction with any related party, in accordance with Regulation 22 of the SEBI InvIT Regulations.

6. The InvIT shall be permitted to borrow monies through any permitted means, by any instrument, in Indian or foreign currency, as permitted by applicable law, including as prescribed by the Reserve Bank of India. The Investment Manager and the Trustee (both on behalf of the InvIT) shall be permitted to borrow monies in relation to the InvIT, subject to the approval of its board of directors and such other committee of the board of directors of the Investment Manager as may be constituted in this regard.

7. The InvIT also has the power to create, mortgage or secure any of its assets or provide guarantees in order to borrow funds. However, the Investment Manager shall not be allowed to create any obligation which would allow the liabilities to extend beyond the assets held by the InvIT.

8. In addition to the above, any borrowing by any holding company or the Project SPV, incorporated under the Companies Act, 1956 or the Companies Act, 2013, will be in accordance with the conditions prescribed therein.

9. Any variation of this Policy shall be only with the approval of the Unitholders of the InvIT and in accordance with the SEBI InvIT Regulations.

Appointment of Auditor and Valuer Policy

The IM Board has adopted the Appointment of Auditor and Valuer Policy pursuant to a resolution dated December 15, 2022, in relation to the InvIT. The policy provides a framework for ensuring compliance by the InvIT in the appointment of its auditor, and the auditing standards to be followed, and the appointment of its valuer, in accordance with applicable law as applicable to an investment infrastructure trust, including the SEBI InvIT Regulations. For key principles of the appointment of Auditor and Valuer, see, '***Other Parties Involved in the InvIT***' on page 236.

The IM Board has adopted the UPSI Policy pursuant to a resolution dated December 15, 2022 which provides a framework for ensuring compliance with applicable law, including the SEBI InvIT Regulations prohibiting insider trading and governing disclosure of material, unpublished price sensitive information.

The IM Board has also adopted the policy for determining materiality of information for periodic disclosures pursuant to a resolution dated December 15, 2022 which aims to outline process and procedures for determining materiality of information in relation to periodic disclosures required to be made on the website of the InvIT, to the stock exchanges and to all stakeholders at large, in relation to the InvIT.

For details of the Related Party Transactions Policy, see '***Related Party Transactions***' on page 224.

Representatives on the board of directors of each Project SPV

The Investment Manager, in consultation with the Trustee, shall appoint majority of the board of directors of the Project SPVs, in accordance with the SEBI InvIT Regulations.

REGULATIONS AND POLICIES IN INDIA

The following description is a summary of certain key statutes, bills, regulations, notifications, memorandums, circulars and policies which are applicable to the InvIT and the business undertaken by the InvIT. The information detailed in this chapter is based on the current provisions of key statutes, bills, regulations, notifications, memorandums, circulars and policies which are subject to amendments, changes and / or modifications. Such information has been obtained from sources available in the public domain. The regulations set out below are indicative and may not be exhaustive. They are only intended to provide general information to the investors and are neither designed nor intended to substitute for professional legal advice.

For details of government approvals obtained by the InvIT, see 'Regulatory Approvals' on page 332.

Highways-related laws

National Highways Act, 1956

The Central Government is responsible for the development and maintenance of 'National Highways' and may delegate any function relating to development of 'National Highways' to the relevant state government in whose jurisdiction the 'National Highway' falls, or to any officer or authority subordinate to the central or the concerned state government.

The Central Government may also enter into an agreement with any person (being, either an individual, a partnership firm, a company, a joint venture, a consortium or any other form of legal entity, Indian or foreign, capable of financing from own resources or funds raised from financial institutions, banks or open market) in relation to the development and maintenance of the whole or any part of a 'National Highway'. Such agreement may provide for designing and building a project and operating and maintaining it, collecting fees from users during an agreed period, which period together with construction period is usually referred to as the 'concession period'. Upon expiry of the 'concession period', the right of the person to collect fees at such rates as notified by the Central Government and his obligation to operate and maintain the project ceases and the facility stands transferred to the central government.

Under the National Highways Act, 1956 (the "**NH Act**"), the Central Government is vested with the power to declare a highway as a national highway and also to acquire land for this purpose. The Central Government may, by notification, declare its intention to acquire any land throughout the country, for public purpose when it is satisfied that such land is required to be acquired for the building, maintenance, management and operation of a national highway or part thereof. The NH Act prescribes the procedure for such land acquisition which inter alia includes declaration of the intention to acquire, entering and inspecting such land, hearing of objections, declaration of acquisition and the mode of and power to take possession. The NH Act also provides for payment of compensation to owners and any other person whose right of enjoyment or ownership in that land has been affected.

National Highways Authority of India Act, 1988

The National Highways Authority of India Act, 1988 (the "**NHAI Act**") provides for the constitution of an authority for the development, maintenance and management of National Highways and for the matters connected therewith or incidental thereto. Pursuant to the same, the National Highways Authority of India ("**NHAI**"), was constituted as an autonomous body in 1989 and operationalised in 1995. Under the NHAI Act, Central Government carries out development and maintenance of the national highways system, through NHAI. The NHAI has the power to acquire any land to discharge its functions and such acquired land will be deemed to be land needed for a 'public purpose' along with the power to enter into and perform any contract necessary for the discharge of its functions under the NHAI Act.

The NHAI Act prescribes a limit in relation to the value of the contracts that may be entered into by NHAI. However, the NHAI may enter into contracts exceeding the value so specified, on obtaining prior approval of the Central Government. The NHAI Act provides that the contracts for acquisition, sale or lease of immovable property on behalf of the NHAI cannot exceed a term of 30 years unless previously approved by the Central Government.

National Highways Development Project

The Government of India, under the Central Road Fund Act, 2000 created a dedicated fund for National Highways Development Project ("**NHDP**") which is required to be utilized for the development and maintenance of national

highways (the "Fund"). Certain sources for financing of NHDP are through securitization of cess as well as involving the private sector and encouraging Public Private Partnership (PPP). The NHDP is also being financed through long-term external loans from the World Bank, the Asian Development Bank and the Japan Bank for International Cooperation as well as through tolling of roads for different projects undertaken by NHAI.

Private Participation in NHDP

In an effort to attract private sector participation in the NHDP, the NHAI has formulated model concession agreements where a private entity, i.e., the concessionaire, is awarded a concession (in the form of a bundle of licenses), through an international competitive bidding process, to build, operate and collect toll on a road for a specified period of time, which is usually up to 30 years.

The bidding for the projects takes place in two stages as per the process provided below:

- in the pre-qualification stage, NHAI selects certain bidders on the basis of technical and financial expertise, prior experience in implementing similar projects and previous track record; and
- in the biddingstage, NHAI invites commercial bids from the pre-qualified bidders on the basis of which the right to develop the project is awarded.

In hybrid annuity projects, 40% of the total project cost is to be funded by the government and the remaining by the concessionaire.

The NHAI also forms SPVs for funding road projects. This method of private participation involves very less cash support from the NHAI in the form of equity / debt. Most of the funds come from ports/financial institutions/beneficiary organisations in the form of equity / debt. The amount spent on developments of roads/highways is to be recovered in the prescribed concession period by way of collection of toll fee by the SPV.

Tax incentives which are being provided to the private entity are eligible for 100% exemption for any consecutive 10 years out of the first 20 years after completion of a project. The Government has also allowed duty free import of specified modern high-capacity equipment for highway construction.

Control of National Highways (Land and Traffic) Act, 2002

The Control of National Highways (Land and Traffic) Act, 2002 (the "**Control of NH Act**") provides for control of land within national highways, right of way and traffic moving on national highways and also for removal of unauthorised occupation thereon.

In accordance with the provisions of the Control of NH Act, the Central Government has established Highway Administrations. Under the Control of NH Act, all land that forms part of a highway which vests in the Central Government, or that which does not already vest in the Central Government but has been acquired for the purpose of highways shall be deemed to be the property of the Central Government. The Control of NH Act prohibits any person from occupying any highway land or discharging any material through on such land without the permission of the Highway Administration. The Control of NH Act permits the grant of lease and license for use of highway land for temporary use.

Other legislations relevant to the road sector

In addition to the above, there are also certain other legislations that are relevant to the road sector which include the Road Transport Corporation Act, 1950, National Highways Rules, 1957, National Highways (Temporary Bridges) Rules, 1964, National Highways (Fees for the Use of National Highways Section and Permanent Bridge Public Funded Project) Rules, 1997, National Highways (Rate of Fee) Rules, 1997, National Highways Tribunal (Procedure) Rules, 2003, Central Road and Infrastructure Act, 2000, Central Road Fund (State Roads) Rules 2007 and Green Highways (Plantation, Transplantation, Beautification & Maintenance) Policy, 2015.

Environmental laws

The major statutes in India which seek to regulate and protect the environment against pollution related activities in India are the Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Environment Protection Act, 1986 and the rules and regulations thereunder and The Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2016. Pollution Control Boards ("**PCBs**"), which are vested with diverse powers to deal with water and air pollution, have been set up in

each state to control and prevent pollution. The PCBs are responsible for setting the standards for the maintenance of clean air and water, directing the installation of pollution control devices in industries and undertaking investigations to ensure that industries are functioning in compliance with the standards prescribed. All industries and factories are required to obtain consent orders from the PCBs, and these orders are required to be renewed annually.

Labour-related laws

The employment of workers, depending on the nature of activity, is regulated by a wide variety of generally applicable labour laws, including the Industrial Disputes Act, 1947, Contract Labour (Regulation and Abolition) Act, 1970, Payment of Wages Act, 1936, the Minimum Wages Act, 1948, the Employee's State Insurance Act, 1948, the Employees' Provident Funds and Miscellaneous Provisions Act, 1952, the Trade Unions Act, 1926 and the Maternity Benefit Act, 1961, among others.

In order to rationalize and reform labour laws in India, the Government has enacted the following codes:

(a) Code on Wages, 2019, which regulates and amalgamates wage and bonus payments and subsumes four existing laws namely – the Payment of Wages Act, 1936, the Minimum Wages Act, 1948, the Payment of Bonus Act, 1965, and the Equal Remuneration Act, 1976. It regulates, inter alia, the minimum wages payable to employees, the manner of payment and calculation of wages and the payment of bonus to employees.

(b) Industrial Relations Code, 2020, which consolidates and amends laws relating to trade unions, the conditions of employment in industrial establishments and undertakings, and the investigation and settlement of industrial disputes. It subsumes and simplifies the Trade Unions Act, 1926, the Industrial Employment (Standing Orders) Act, 1946 and the Industrial Disputes Act, 1947.

(c) Code on Social Security, 2020, which amends and consolidates laws relating to social security, and subsumes various social security related legislations, inter alia including the Employee's State Insurance Act, 1948, the Employees' Provident Funds and Miscellaneous Provisions Act, 1952, the Maternity Benefit Act, 1961 and the Payment of Gratuity Act, 1972. It governs the constitution and functioning of social security organisations such as the employee's provident fund and the employee's state insurance corporation, regulates the payment of gratuity, the provision of maternity benefits and compensation in the event of accidents that employees suffer, among others.

(d) Occupational Safety, Health and Working Conditions Code, 2020, which amends and consolidates laws regarding the occupational safety, health and working conditions of persons employed in an establishment. It subsumes various enactments including, among others, the Factories Act, 1948 and the Contract Labour (Regulation and Abolition) Act, 1970.

These codes shall become effective on the day that the Government shall notify for this purpose.

Other laws

In addition to the above, the InvIT and the InvIT Assets are required to, inter alia, comply with the provisions of the Factories Act, 1948, the Shops and Establishments Legislations of the relevant State, Petroleum Rules, 2002, Explosives Rules, 2008, the Electricity Act, 2003 and the Bureau of Indian Standards Act, 2016.

RELATED PARTY TRANSACTIONS

In terms of Regulation 2(1)(zv) of the SEBI InvIT Regulations, related party shall be as defined as under the Companies Act, 2013 or under the applicable accounting standards and shall also include: (i) Parties to the InvIT; and (ii) promoters, directors, and partners of the Parties to the InvIT. Further, related parties also include such persons and entities as defined in terms of the applicable accounting standards, being Ind AS 24 on "*Related Party Disclosures*" in relation to related party transactions (collectively, "**Related Parties**"). For further details in relation to the related party transactions for the three month period ended June 30, 2022 and Financial Years ended March 31, 2022, 2021 and 2020 as per Ind AS 24 read with the SEBI InvIT Regulations, see '***Special Purpose Combined Financial Statements***' on page 241. The Parties to the InvIT, may, from time to time, enter into related party transactions, in accordance with applicable law.

Procedure for dealing with Related Party Transactions

The IM Board has adopted the RPT Policy pursuant to its resolution dated December 15, 2022.

The key terms of the RPT Policy are provided below:

(i) The Investment Manager will ensure that all future related party transactions shall be:

  (a) on an arm's length basis;

  (b) in accordance with the relevant accounting standards;

  (c) in the best interest of the Unitholders;

  (d) consistent with the strategy and investment objectives of the InvIT; and

  (e) compliant with applicable law.

(ii) Review and approval of related party transactions:

  (a) Each transaction which is identified as a related party transactions shall be pre-approved by the Audit Committee prior to entering into such transaction; and

  (b) The Audit Committee shall grant omnibus approval for Related Party Transactions. Each such omnibus approval shall be valid for a period not exceeding one year from the date of such approval, and related party transactions undertaken after the expiry of such period shall require fresh approval of the Audit Committee. The Audit Committee shall review, on a quarterly basis, the details of related party transactions entered into by the InvIT pursuant to the omnibus approval.

(iii) The Investment Manager will establish an internal control system so as to ensure that all future related party transactions are compliant with the SEBI InvIT Regulations and applicable accounting standards. Further, the Investment Manager shall convene meetings of the Unitholders in accordance with Regulation 22 of the SEBI InvIT Regulations, and maintain records pertaining to such meetings in the manner prescribed. The Investment Manager shall also ensure compliance with any additional guidelines issued in this regard by SEBI and other relevant regulatory, statutory or governmental authorities from time to time.

(iv) In addition to any other requirement that may be prescribed in terms of the SEBI InvIT Regulations or other applicable laws, all related party transactions to be entered into in the future will be decided by the IM Board after the examination of the nature of the transaction and its supporting documents, as available, or such other data as may be deemed necessary by the IM Board.

(v) The Investment Manager will ensure that if the (i) value of funds borrowed from Related Parties in a financial year exceeds 5% of the total consolidated borrowings of the InvIT, any holding company and the Project SPVs, or any other threshold prescribed by the SEBI InvIT Regulations, or (ii) total value of all the related party transactions in a financial year pertaining to acquisition or sale of assets, whether directly or through a holding company or Project SPV, or investments into securities, exceeds 5% of the value of the assets of the InvIT or any other threshold prescribed by the SEBI InvIT Regulations, approval from the Unitholders shall be obtained prior to entering into any such subsequent transaction with any

Related Party, in accordance with Regulation 22 of the SEBI InvIT Regulations.

(vi) As a general rule, the Investment Manager must demonstrate to the IM Board that future related party transactions satisfy the criteria set out in Paragraph (i) at the time of recommending the same for the approval of the IM Board.

(vii) The Investment Manager will maintain a register to record all related party transactions entered into by the InvIT and the basis on which they are entered into.

(viii) The review of related party transactions by the IM Board will include the examination of the nature of the transaction and its supporting documents or such other data as may be deemed necessary by the IM Board.

(ix) The Investment Manager shall ensure that all the incomes and expenses from related party transactions have arisen from legitimate business transactions.

(x) While considering a related party transaction, any director on the IM Board who has a potential interest in any related party transaction will recuse himself or herself and abstain from discussion, review and voting on the related party transaction.

Potential Conflict of Interest

(i) Subject to applicable law and the RPT Policy, all resolutions in writing of the IM Board in relation to matters concerning related party transactions of the InvIT must be approved by a majority of the Directors.

(ii) Where matters concerning the InvIT relate to transactions entered into or to be entered into by the Investment Manager for and on behalf of InvIT with a Related Party, the IM Board is required to consider the terms of the transactions to satisfy itself that the transactions are conducted in accordance with the parameters set out in the RPT Policy.

Disclosure and Reporting

Related Party Transactions shall be disclosed to the Stock Exchanges and the Unitholders periodically, in accordance with the SEBI InvIT Regulations and the agreements to be entered into with the Stock Exchanges in relation to the listing of the Units.

Notwithstanding the above, the RPT Policy will stand amended to the extent of any change in the applicable law, including any amendment to the SEBI InvIT Regulations, without any action from the Investment Manager or approval of the Unitholders of the InvIT.

Present and On-going Related Party Transactions

Related Party Transactions of the InvIT in relation to the setting up of the InvIT and this Issue

A number of present and on-going transactions with certain Related Parties have been, or will be, entered into in relation to the setting up of the InvIT. The Trustee and the Investment Manager confirm that the following related party transactions have been, or shall be, entered into by the InvIT, on an arm's length basis in accordance with the relevant accounting standards, in the best interest of the Unitholders, consistent with the strategy and investment conditions of the InvIT:

(i) ***Sponsor Contribution***

Pursuant to the Commitment Letter, subject to certain conditions specified therein, the Sponsor has agreed contribute such amount towards subscription of such number of Units, prior to the Bid/ Issue Opening Date (but after the announcement of the Price Band), which shall be equivalent to at least 15% of the total Units of the InvIT on a post-Issue basis, to comply with the requirement under Regulation 12(3) of the SEBI InvIT Regulations. For details, see '***Formation Transactions in relation to the InvIT – Sponsor Contribution***' on page 101.

(ii) ***Share Purchase Agreements***

For details, see '***Formation Transactions in relation to the InvIT – Acquisition of the Project SPVs by the InvIT***' on page 97.

(iii) ***Assignment Agreement***

For details, see '***Formation Transactions in relation to the InvIT – Acquisition of the Project SPVs by the InvIT***' on page 97.

(iv) ***Amended and Restated Trust Deed***

For details, see '***Parties to the InvIT – Key terms of the Amended and Restated Trust Deed***' on page 105.

(v) ***Investment Management Agreement***

For details, see '***Parties to the InvIT – Key terms of the Investment Management Agreement***' on page 117.

(vi) ***Project Management Agreement***

For details, see '***Parties to the InvIT – Key terms of the Project Management Agreement'*** on page 130.

(vii) ***ROFO Agreement***

For details, see '***Formation Transactions in relation to the InvIT – Acquisition of future assets by the InvIT – ROFO Agreement***' on page 101.

(viii) ***Shared Services Agreement***

The Project SPVs, the Investment Manager propose to enter into the Shared Services Agreement with GRIL, an Associate of the InvIT, in relation to services to be provided by GRIL to the Project SPVs and the Investment Manager ("**Recipient Parties**") prior to the filing of the Offer Document. For details of risks in relation to binding agreements not having been entered into with respect to the Formation Transactions, see "***Risk Factors – Our Investment Manager has not executed any binding agreements with respect to the Share Purchase Agreement, Shared Services Agreement, Project Management Agreement, On-lending Agreements and the ROFO Agreement. Our Investment Manager's inability to consummate transactions in relation to these agreements will impact the Issue and its ability to complete the Issue within the anticipated time frame or at all.***" on page 22. Certain key terms of the Shared Services Agreement are proposed to be as follows:

Provision of services: GRIL shall, on and from the closing date, as defined in the Shared Services Agreement, provide the services, as set out in the Shared Services Agreement, to the Recipient Parties (such services, the "**Support Services**"), with reasonable skill and care and keeping with the good practices for the industry in which the InvIT operates, and in compliance with applicable law.

Further, GRIL may, by a prior written notification to the Recipient Parties, subcontract any part of its obligations in relation to the Support Services under the Shared Services Agreement to its affiliates or any third party contractor ("**Contractor**"), provided that GRIL shall ensure that any of its affiliates or the Contractors (i) are adequately trained, skilled and experienced at a level appropriate to provide and perform the Support Services, and (ii) provide and perform the Support Services in compliance with applicable law. GRIL shall be liable for all acts and omissions of such affiliates and the Contractors in relation to the Support Services, as well as for compliance by such affiliates and Contractors with the applicable provisions of the Shared Services Agreement and any breach or default by such affiliate or Contractor of any terms of the Shared Services Agreement shall be deemed to be a breach of GRIL.

Consideration: In consideration of the Support Services to be rendered by GRIL, each of the Recipient Parties, severally and not jointly, shall pay to GRIL a fee as mentioned in the Shared Services Agreement, net of applicable withholding taxes, if any.

Indemnification: Each Recipient Party shall be indemnified by GRIL against any claims, losses, costs, damages, liabilities, suits, proceedings, taxes and expenses, including legal fee from and incurred or suffered by such Recipient Party in connection with the breach of any of the terms of the Shared Services Agreement by GRIL or its affiliates and Contractors or arising out of gross negligence, wilful default or fraud on part of GRIL, in carrying out its obligations under the Shared Services Agreement or under applicable law. The aggregate maximum liability of GRIL to each respective Recipient Party in each financial year shall be limited to an amount equivalent to the Fees payable by each respective Recipient Party in accordance with the terms of the Shared Services Agreement.

Termination:

The Shared Services Agreement shall be effective from the closing date, as defined in the Shared Services Agreement and shall continue to be valid and in full force and effect for a term of 15 years, unless terminated by the parties in accordance with the terms of the Shared Services Agreement or extended by mutual consent expressed in writing by the parties for such period as may be mutually agreed upon between the parties.

In case of termination, GRIL shall be entitled to the accrued fees for the Support Services rendered up to the date of termination.

(ix) ***InvIT Loans***

For details, see '***Use of Proceeds – Details of utilization of the proceeds***' on page 70.

For details of risks involved with respect to such related party transactions, see '***Risk Factors – The InvIT and the Project SPVs have entered into certain related party transactions and expect to continue to enter into related party transactions and there can be no assurance that such transactions will not have an adverse effect on our results of operations, cash flows and financial condition.'*** on page 29.

Borrowings from Related Parties

Borrowings in the form of inter-corporate loans were provided by GRIL, an Associate of the Sponsor, to the Project SPVs. For details, see "***Financial Indebtedness and Deferred Payments***" on page 312.

Potential Conflicts of Interest

The Investment Manager has established certain procedures to deal with conflict-of-interest issues. For further details on management of potential conflicts of interest, see "– ***Procedure for dealing with Related Party Transactions***" on page 224.

Future Related Party Transactions

Certain transactions may be entered with Related Parties in the future and the Trustee and the Investment Manager confirm that such related party transactions shall be entered into in compliance with the SEBI InvIT Regulations and the RPT Policy.

Declaration by the Sponsor in relation to related party transactions

Other than as stated below, the Sponsor does not have any ownership interest in business which competes or is likely to compete, either directly or indirectly with the activities of the InvIT:

The Sponsor is authorized by its memorandum of association to, among other things, (i) purchase, acquire, get, convert, develop or construct land and buildings, deal in land, manage land and buildings; and (ii) carry on the business of contractors, general construction, builders; develop, construct, build, erect, demolish or do any other works in connection with any building, roads, etc. and is currently engaged in the business of and is currently engaged in the business of developing, improving, constructing, leasing and sub-leasing, repairing, maintaining real estate properties, and is exploring opportunities in the infrastructure sector.

For further details on the Sponsor, see '***Parties to the InvIT – The Sponsor****'* on page 103.

The Sponsor has declared that it shall perform its duties in relation to the InvIT independent of the related business as stated above. Further, as on the date of this Draft Offer Document, there are no assets of the Sponsor which are proposed to be acquired by the InvIT.

Declaration by GRIL in relation to related party transactions

Other than as stated below, GRIL does not have any ownership interest in business which competes or is likely to compete, either directly or indirectly with the activities of the InvIT:

GRIL is an integrated road EPC company with experience in design and construction of various road/ highway projects across 16 states in India and having recently diversified into projects in the railway sector and power transmission and distribution sector. The principal business operations are broadly divided into three categories: (i) civil construction activities, under which GRIL provides EPC services; (ii) development of roads, highways

on a BOT basis, including under annuity and HAM; and (iii) manufacturing activities, under which the GRIL processes bitumen, manufacture thermoplastic road-marking paint, electric poles and road signage and fabricate and galvanize metal crash barriers.

Further, as on the date of this Draft Offer Document, except as mentioned in '***Formation Transactions in relation to the InvIT - Arrangements pertaining to InvIT Assets entered into with parties to the InvIT prior to the Issue***' and '***Formation Transactions in relation to the InvIT - Acquisition of future assets by the InvIT*' *– ROFO Agreement*' on pages 97 and 101 respectively, there are no assets of GRIL which are proposed to be acquired by the InvIT.

DISTRIBUTIONS

*Statements contained in this section that are not historical facts are forward-looking statements. Such statements are subject to certain risks and uncertainties that could cause actual results to differ materially from those that may be projected. Under no circumstances should the inclusion of such information herein be regarded as a representation, warranty or prediction with respect to the accuracy of the underlying assumptions by the InvIT, Parties to the InvIT, Lead Managers or any other person. Bidders are cautioned not to place undue reliance on these forward-looking statements that are stated only as at the date of this Draft Offer Document. For details in relation to such forward-looking statements, see '**Forward-Looking Statements and Financial Projections**'* on page 14.

The net distributable cash flows of the InvIT (the "**Distributable Income**") are based on the cash flows generated from the underlying operations undertaken by the Project SPVs. For details of the business and operations presently undertaken by the Project SPVs, see **'*Business*'** on page 138.

Distribution may be made from the monies received by the InvIT, in accordance with the provisions of the InvIT documents and applicable law.

In terms of the SEBI InvIT Regulations, the Project SPVs shall distribute not less than 90% of the net distributable cash flows to the InvIT, proportionate to the InvIT's holding in the Project SPVs, subject to applicable provisions of the Companies Act, 2013, as amended.

The InvIT shall declare and distribute at least 90% of the Distributable Income to the Unitholders. Such distribution shall be declared and made not less than once every six months in every financial year. In accordance with the SEBI InvIT Regulations, distributions by the InvIT shall be made no later than 15 days from the date of such declarations.

All distributions to the Unitholders shall be made in compliance with the SEBI InvIT Regulations, IT Act and other applicable laws.

Distribution Policy

The Distribution Policy aims to outline the process and procedure for distribution in relation to the InvIT.

Method of calculation of Distributable Income

The Distributable Income of the InvIT shall be calculated in accordance with the SEBI InvIT Regulations, any circular, notification or guidance issued thereunder and the InvIT Documents. Presently, the InvIT proposes to calculate the Distributable Income in the manner provided below:

(i) Calculation of net distributable cash flows at the Project SPV level:

Description
Profit after tax as per statement of profit and loss account (A)
Add: Depreciation, impairment and amortisation as per profit and loss account. In case of impairment reversal, same needs to be deducted from profit and loss
Add/less: Loss/gain on sale / transfer / disposal / liquidation of infrastructure assets, investments, other assets of the Project SPVs (if applicable)
Add: Proceeds from sale / transfer / disposal / liquidation of infrastructure assets, investments, other assets of the SPVs (if applicable), adjusted for the following: • applicable capital gains and other taxes • related debts settled or due to be settled from sale proceeds • directly attributable transaction costs • proceeds reinvested or planned to be reinvested as per para 18 (7) (a) of the SEBI InvIT Regulations
Add: Additional borrowings (external as well as borrowings from the InvIT) adjusted for the following: • any prepayment of borrowings if deemed necessary by the Investment Manager • any identified end use as specified in the lender agreement or as deemed necessary by the Investment Manager
Less: Repayment of / principal component of senior debt and unsecured debt
Add: Any amount received from annuities, interest on annuities and operations & maintenance payments received from NHAI and claims received of any kind (net of taxes) which is not recognised as income for the purposes of working out the profit after tax
Add: Interest (or other similar payments) on borrowings (loan, debentures or other instruments) provided by the InvIT

Description
Less: Any amount payable to third parties as deemed necessary by the Investment Manager but not limited to NHAI, any engineering, procurement and construction contractors, if such amount has not already been considered for the determination of profit after tax
Add/less: Any other item of non-cash expense / non cash income (net of actual cash flows for these items), if deemed necessary by the Investment Manager, including but not limited to: • any decrease / increase in carrying amount of an asset or of a liability recognised in profit and loss account on measurement of the asset or the liability at fair value • interest cost as per effective interest rate method • deferred tax • any other items charged / credited to the profit and loss account which do not involve corresponding cash flows • any reserve requirements under the loan agreements or any other reserve in lieu of providing bank guarantee
Add: Opening cash available for distribution
Add/ Less: Other adjustments, including but not limited to net changes in working capital, non-current Assets, non-current liabilities, deferred / prepaid income or deferred / prepaid expenditure, at the Project SPV
Less: Any other adjustment to be undertaken by the Investment Manager to ensure that there is no double counting of the same item for the above calculations
Total Adjustments (B)
Net Distributable Cash Flows (C)=(A+B)

(ii) Calculation of net distributable cash flows at the consolidated InvIT level:

Description
Cash flows received from the Project SPVs in the form of interest (net of applicable taxes, if any)
Add: Cash flows received from the Project SPVs in the form of dividend (net of applicable taxes, if any)
Add: Cash flows received from the Project SPVs towards the repayment of the debt issued to the Project SPVs by the InvIT or redemption of debentures issued by the Project SPVs to the InvIT, if applicable
Add: Proceeds from Project SPVs for any capital reduction/buy back/redemption, subject to applicable law
Add: Any other income accruing at the InvIT level and not captured above, including but not limited to interest / return on surplus cash invested by the InvIT rust
Add: Proceeds from sale or transfer or liquidation or redemption or otherwise realization of investments, assets or shares of / interest in Project SPVs (net of applicable taxes and / or directly attributable transaction costs, if any)
Add: Proceeds from sale of assets of the Project SPV not distributed pursuant to an earlier plan to re-invest, or if such proceeds are not intended to be invested subsequently
Total cash inflow at the InvIT level (A)
Less: Any payment of fees, interest and expense incurred at the InvIT level, including but not limited to the fees of the Investment Manager Fees, Security Trustee Fees, annual fees for valuation, credit rating, technical studies etc.
Less: Costs/ retention associated with sale of assets of the project SPVs: • related debts settled or due to be settled from sale proceeds of Project SPVs • transaction costs paid on sale of the assets of the Project SPVs • capital gains taxes on sale of assets / share in project SPVs / other investments
Less: Proceeds reinvested or planned to be reinvested as per para 18 (7) (a) of the SEBI InvIT Regulations
Less: Repayment of external debt at the InvIT level
Less: Income tax (if applicable) at the standalone InvIT Level
Less: Net cash set aside (i) to comply with reserve requirements under the loan agreements (including but not limited to DSRA and MMRA) adjusted for amount released from DSRA/MMRA or any other reserve in lieu of providing bank guarantee, and/or (ii) on a prudential basis for repayments of borrowings etc., if deemed appropriate by the IM Board
Less: Any cash reserve deemed necessary by the IM Board for expenses which may be due but for which there may not be commensurate cash available by the date such expenses become due
Less: Any other adjustment to be undertaken by the Investment Manager to ensure that there is no double counting of the same item for the above calculations
Total cash outflows / retention at the InvIT level (B)
Net Distributable Cash Flows (C) = (A+B)

For the purposes of the IT Act, any income distributed by the InvIT to the Unitholders shall be deemed to be of the same nature and in the same proportion in the hands of the Unitholder as it had been received by, or accrued to, the InvIT. Accordingly, the InvIT may follow either the receipt approach or the accrual approach subject to the provisions of the IT Act and applicable accounting standards, however, the same shall be followed since the beginning and on a consistent basis.

The Trustee shall subject to advice of the Investment Manager may make deduction of any taxes, cess, fees, charges, assessments and duties, as may be required to be deducted or withheld under the applicable law before making any payment of Distributable Income to any Unitholder.

In terms of the SEBI InvIT Regulations, if the distribution is not made within 15 days from the date of declaration, the Investment Manager shall be liable to pay interest to the Unitholders at the rate of 15% per annum or such other rate as may be specified under applicable law, until the distribution is made. Such interest shall not be recovered by the Investment Manager in the form of fee or any other form payable to the Investment Manager by the InvIT. For risks in relation to distribution, see '***Risk Factors***' on page 16.

RIGHTS OF UNITHOLDERS

The rights and interests of Unitholders are included in this Draft Offer Document and the SEBI InvIT Regulations. Under the Amended and Restated Trust Deed and the Investment Management Agreement, these rights and interests are safeguarded by the Trustee and the Investment Manager, respectively. Any rights and interests of Unitholders as specified in this Draft Offer Document would stand qualified by and deemed to be amended to the extent of any amendment to the SEBI InvIT Regulations.

Beneficial Interest

Each Unit represents an undivided beneficial interest in the InvIT. A Unitholder has no equitable or proprietary interest in the InvIT Assets and is not entitled to transfer of the InvIT Assets (or any part thereof) or any interest in the InvIT Assets (or any part thereof). A Unitholder's right is limited to the right to receive Distributable Income in accordance with Distribution Policy and require due administration of the InvIT in accordance with the provisions of the Amended and Restated Trust Deed and the Investment Management Agreement.

Ranking

No Unitholder of the InvIT shall enjoy superior voting or any other rights over another Unitholder. Further, there shall not be multiple classes of Units.

Redressal of grievances

The Investment Manager shall ensure adequate and timely redressal of all Unitholders' grievances pertaining to the activities of the InvIT, and the Trustee shall periodically review the status of Unitholders' complaints and their redressal undertaken by the Investment Manager. The Investment Manager shall maintain records of the Unitholders' grievances and the actions taken thereon, including copies of correspondences made with the Unitholders. For details, see '***Corporate Governance***' on page 212.

Distribution

The Unitholders shall have the right to receive distribution in accordance with the SEBI InvIT Regulations and in the manner provided in this Draft Offer Document. For details, see '***Distribution***' on page 229.

Meeting of Unitholders

Meetings of Unitholders including the frequency and manner in which such meetings shall be conducted will be in accordance with the SEBI InvIT Regulations.

Passing of resolutions

1. With respect to any matter requiring approval of the Unitholders:

    (i) a resolution shall be considered as passed when the votes cast by Unitholders, so entitled and voting, in favour of the resolution exceed a certain percentage as specified in the SEBI InvIT Regulations, of votes cast against;

    (ii) the voting may be done by postal ballot or electronic mode;

    (iii) a notice of not less than 21 days shall be provided to the Unitholders;

    (iv) voting by any Unitholder (including, the Sponsor in its capacity as a Unitholder), who is a related party in such transaction, as well as associates of such Unitholder(s) shall not be considered on the specific issue; and

    (v) the Investment Manager shall be responsible for all the activities pertaining to conducting of meeting of the Unitholder, subject to oversight by the Trustee. However, for issues pertaining to the Investment Manager, including a change in the Investment Manager, removal of Investment Manager or change in control of Investment Manager; the Trustee shall convene and handle all activities pertaining to conduct of the meetings. Additionally, for issues pertaining to the Trustee, including change in Trustee, the Trustee shall not be involved in any manner in the conduct of the meeting.

2. For the InvIT:

(i) an annual meeting of all Unitholders shall be held not less than once a year within 120 days from the end of each financial year and the time between two meetings shall not exceed 15 months;

(ii) with respect to the annual meeting of Unitholders,

a) any information that is required to be disclosed to the Unitholders and any issue that, in the ordinary course of business, may require approval of the Unitholders may be taken up in the meeting including:

- latest annual accounts and performance of the InvIT;
- approval of auditors and fee of such auditors, as may be required;
- latest valuation reports;
- appointment of valuer, as may be required; and
- any other issue; and

b) for any issue taken up in such meetings which require approval from the Unitholders other than as specified in Regulation 22(6) of the SEBI InvIT Regulations and paragraph 4 below, votes cast in favour of the resolution shall be more than the votes cast against the resolution.

3. Notwithstanding the foregoing, in case of the following, approval from the Unitholders shall be required where the votes cast in favour of the resolution shall be more than the votes cast against the resolution:

(i) any approval from the Unitholders required in terms of Regulation 18 (*Investment conditions and dividend policy)*, Regulation 19 (*Related party transactions)* and Regulation 21 *(Valuation of assets*) of the SEBI InvIT Regulations to the extent applicable;

(ii) any transaction, other than any borrowing, the value of which is equal to or greater than 25% of the InvIT Assets;

(i) any borrowing in excess of specified limit as required under Regulation 20(3)(a) of the SEBI InvIT Regulations;

(ii) any issue of Units after the initial public offer by the InvIT, in whatever form, other than any issue of Units which may be considered by SEBI, under Regulation 22(5) of the SEBI InvIT Regulations;

(iii) increasing period for compliance with investment conditions to one year in accordance with Regulation 18(5)(c) of the SEBI InvIT Regulations;

(iv) any issue, in the ordinary course of business, which in the opinion of the Sponsor or Trustee or the Investment Manager, is material and requires approval of the Unitholders, if any;

(v) de-classification of the status of the Sponsor; and

(vi) any issue for which SEBI or the designated stock exchanges requires approval.

4. In case of the following, approval from the Unitholders shall be required where the votes cast in favour of the resolution shall not be less than one and a half times the votes cast against the resolution:

(i) any change in the Investment Manager, including removal of the Investment Manager or change in control of the Investment Manager;

(ii) any material change in investment strategy or any change in the management fee of the InvIT;

(iii) the trustee and Investment Manager proposing to seek delisting of units of the InvIT;

(iv) any issue, not in the ordinary course of business, which in the opinion of the Sponsor or Investment Manager or Trustee requires approval of the Unitholders;

(v) any issue for which SEBI or the designated stock exchanges requires approval; and

(vi) any issue taken up on request of the Unitholders including:

(a) removal of the Investment Manager and appointment of another investment manager to the InvIT;

(b) removal of the Auditors and appointment of another auditor to the InvIT;

(c) removal of the Valuer and appointment of another valuer to the InvIT;

(d) delisting of the InvIT, if the Unitholders have sufficient reason to believe that such delisting would act in the interest of the Unitholders;

(e) any issue which the Unitholders have sufficient reason to believe that is detrimental to the interest of the Unitholders; and

(f) change in the Trustee, if the Unitholders have sufficient reason to believe that acts of the Trustee are detrimental to the interest of the Unitholders.

With respect to the rights of the Unitholders under clause 4(vi) above:

(i) save as set out in (iii) below, not less than 25% of the Unitholders by value, other than any party related to the transactions and its associates, shall apply, in writing, to the Trustee for the purpose;

(ii) on receipt of such application, the Trustee shall require, with the Investment Manager to place the issue for voting in the manner as specified in the SEBI InvIT Regulations; and

(iii) with respect to clause 4(vi)(f) above, not less than 60% of the Unitholders by value shall apply, in writing, to the Trustee for the purpose.

2. In case of any borrowing by the InvIT in terms of the limit specified in Regulation 20(3)(b) of the SEBI InvIT Regulations, approval from 75% of the Unitholders by value shall be obtained.

3. For delisting of units of the InvIT in terms of the SEBI InvIT Regulations, approval from not less than 90% of the Unitholders by value shall be required and exit shall be provided to dissenting Unitholders.

4. In case any person, other than Sponsor, its related parties and its associates, wants to acquire Units which taken together with Units held by such person and by persons acting in concert with such person, in the InvIT, exceeds 25% of the value of the outstanding Units, approval shall be obtained from 75% of the Unitholders by value excluding the value of the Units held by the parties related to the transaction. If the required approval is not received, the person acquiring the Units shall provide an exit option to the dissenting Unitholders to the extent and in the manner as may be specified by SEBI.

5. In case of any change in the Sponsor or induction of a new sponsor or change in control of the Sponsor or inducted sponsor, approval shall be obtained from 75% of the Unitholders by value excluding the value of the Units held by the parties related to the transaction, prior to such changes. If the required approval is not received, the dissenting Unitholders are required to be provided an exit option in the manner specified under the SEBI InvIT Regulations.

For further details in relation to meetings of Unitholders, see '***Parties to the InvIT – Key Terms of the Amended and Restated Trust Deed – Duties of the Trustee – Meetings of Unitholders***' and '***Parties to the InvIT – Key Terms of the Investment Management Agreement – Duties of the Investment Manager – Meetings of Unitholders***' on pages 110 and 123, respectively.

Information rights

The Investment Manager, on behalf of the InvIT, shall also submit such information to the Stock Exchanges and Unitholders, on a periodical basis, as may be required under the SEBI InvIT Regulations and the Listing

Agreement. The Investment Manager (on behalf of the InvIT) shall disclose to the Stock Exchanges, Unitholders and SEBI, all such information and in such manner as specified under the SEBI InvIT Regulations. The Investment Manager, on behalf of the InvIT, shall also provide disclosures or reports specific to the sector or sub- sector in which the InvIT has invested or proposes to invest, in the manner as may be specified by SEBI.

For further details about the rights of the Unitholders, see '***Parties to the InvIT – Key Terms of the Amended and Restated Trust Deed***' and '***Corporate Governance – Policies Adopted in relation to the InvIT***' on pages 105 and 218, respectively.

Buyback and Delisting of Units

Any buyback and delisting of Units shall be in accordance with the SEBI InvIT Regulations.

For additional details in relation to rights of Unitholders, see '***Parties to the InvIT***' on page 103.

OTHER PARTIES INVOLVED IN THE INVIT

The Auditor

The Investment Manager, in consultation with the Trustee, pursuant to a resolution passed by its board of directors dated September 16, 2022, has appointed SRBC & Co. LLP (Firm Registration No. 324982E/E300003) as the InvIT's auditor for a period of five Financial Years until March 31, 2027. The Auditor has audited the Special Purpose Combined Financial Statements, and their report in relation to such Special Purpose Combined Financial Statements dated December 15, 2022, has been included in this Draft Offer Document.

Functions, Duties and Responsibilities of the Auditor

The Investment Manager shall appoint an auditor of the InvIT for a period of not more than five consecutive years, provided that an auditor, not being an individual, may be reappointed for a period of another five consecutive years, subject to the approval of the Unitholders in an annual meeting, in accordance with provisions of the SEBI InvIT Regulations. With respect to the appointment of the auditor of the InvIT and the fees of such an auditor, an approval from the Unitholders shall be required at the annual meeting in accordance with Regulation 22 of the SEBI InvIT Regulations.

The Investment Manager shall ensure that the auditor carries out an audit of the accounts of the InvIT, not less than once a year and such report is submitted to the Unitholders and the Trustee, either electronically or through physical copies.

In accordance with the SEBI InvIT Regulations, the auditor of the InvIT shall:

a. conduct an audit of the accounts of the InvIT and draft the audit report based on the accounts examined by it, and after taking into account the relevant accounting and auditing standards, as may be specified by SEBI;

b. to the best of its information and knowledge, ensure that the accounts and financial statements give a true and fair view of the state of the affairs of the InvIT, including profit or loss and cash flow for the period and such other matters as may be specified;

c. have a right of access at all times to the books of accounts and vouchers pertaining to activities of the InvIT; and

d. have a right to require such information and explanation pertaining to activities of the InvIT, as it may consider necessary for the performance of its duties as an auditor from the employees of InvIT or Parties to the InvIT or the Project SPVs or any other person in possession of such information.

The Valuer

The Investment Manager, in consultation with the Trustee, pursuant to a resolution passed by its board of directors dated September 16, 2022, has appointed S. Sundararaman (Registration Number IBBI/RV/06/2018/10238) as the Valuer of the InvIT. In accordance with the SEBI InvIT Regulations, the Valuer has undertaken a full valuation of the Project SPVs which are proposed to be acquired by the InvIT pursuant to the Formation Transactions and their report in relation to such valuation dated December 13, 2022 has been included in this Draft Offer Document. For details in relation to the Valuation Report, see page 386.

The Valuer is not an Associate of the Sponsor, the Investment Manager or the Trustee, and has not less than five years of experience in the valuation of infrastructure assets.

Functions, Duties and Responsibilities of the Valuer

The functions, duties and responsibilities of the Valuer will be in accordance with the SEBI InvIT Regulations. Presently, in terms of the SEBI InvIT Regulations, the Valuer is required to comply with the following conditions at all times:

a. the Valuer shall ensure that the valuation of the InvIT assets is impartial, true and fair and is in accordance with Regulation 21 of the SEBI InvIT Regulations;

b. the Valuer shall ensure adequate and robust internal controls to ensure the integrity of its valuation reports;

c. the Valuer shall ensure that it has sufficient key personnel with adequate experience and qualification to perform valuations;

d. the Valuer shall ensure that it has sufficient financial resources to enable it to conduct its business effectively and meet its liabilities;

e. the Valuer and any of its employees involved in valuing of the assets of the InvIT, shall not, (i) invest in Units of the InvIT or in the assets being valued; and (ii) sell the assets or Units of InvIT held prior to being appointed as the Valuer, till the time such person is designated as Valuer of the InvIT and not less than six months after ceasing to be valuer of the InvIT;

f. the Valuer shall conduct valuation of the InvIT assets with transparency and fairness and shall render, at all times, high standards of service, exercise due diligence, ensure proper care and exercise independent professional judgment;

g. the Valuer shall act with independence, objectivity and impartiality in performing the valuation;

h. the Valuer shall discharge its duties towards the InvIT in an efficient and competent manner, utilising its knowledge, skills and experience in best possible way to complete given assignment;

i. the Valuer shall not accept remuneration, in any form, for performing a valuation of the InvIT's assets from any person other than the InvIT or its authorised representative;

j. the Valuer shall before accepting any assignment, from any related party of the InvIT, disclose to the InvIT any direct or indirect consideration which the Valuer may have in respect of such assignment;

k. the Valuer shall disclose to the InvIT any pending business transactions, contracts under negotiation and other arrangements with the Investment Manager or any other party whom the InvIT is contracting with and any other factors that may interfere with the Valuer's ability to give an independent and professional valuation of the assets;

l. the Valuer shall not make false, misleading or exaggerated claims in order to secure assignments;

m. the Valuer shall not provide misleading valuation, either by providing incorrect information or by withholding relevant information;

n. the Valuer shall not accept an assignment which interferes with its ability to do fair valuation; and

o. the Valuer shall, prior to performing a valuation, acquaint itself with all laws or regulations relevant to such valuation.

Appointment of Auditor and Valuer Policy

The key terms of the Appointment of Auditor and Valuer Policy are set out below:

1. **Appointment and role of Auditor of the InvIT**

(i) The Investment Manager, in consultation with the Trustee, shall appoint the Auditor, in a timely manner and in accordance with the SEBI InvIT Regulations.

(ii) The Investment Manager shall ensure that the appointment of the Auditor and the fees payable to the Auditor is approved by the Unitholders in accordance with the SEBI InvIT Regulations.

(iii) The Investment Manager shall ensure that the audit of the accounts of the InvIT by the Auditor is carried out in accordance with the SEBI InvIT Regulations.

(iv) The Investment Manager shall appoint an Auditor for a period of not more than five consecutive years; provided that if the Auditor is not an individual, it may be reappointed for an additional period of five consecutive years, subject to approval of the Unitholders in the annual meeting in accordance with the SEBI InvIT Regulations.

(v) The Investment Manager, in consultation with the Trustee, shall have the right to take all necessary steps to remove the Auditor who ceases to comply with the eligibility criteria required under the SEBI InvIT Regulations and applicable law.

(vi) The Auditor shall conduct the audit of the accounts of the InvIT and draft the audit report based on the accounts examined by it after taking into account the relevant accounting and auditing standards under applicable law, including the SEBI InvIT Regulations and any guidelines, circulars, notifications and clarifications framed or issued by the SEBI, as may be specified from time to time.

(vii) The Auditor shall comply with the conditions prescribed under the SEBI InvIT Regulations at all times, including the following:

a) The accounts of the InvIT shall be subjected to audit by the Auditors and shall be accompanied by a report of the Auditors which shall be submitted with the stock exchanges, in such manner and at such intervals as may be prescribed under applicable law, including InvIT Regulations;

b) The Auditor shall, to the best of its information and knowledge, ensure that the accounts and financial statements give a true and fair view of the state of the affairs of the InvIT, including profit or loss and cash flow for the relevant period and such other matters as may be specified by SEBI;

c) The Auditor shall have a right of access at all times to the books of accounts and vouchers pertaining to activities of the InvIT;

d) The Auditor shall have a right to obtain such information and explanation pertaining to activities of the InvIT as it may consider necessary for the performance of its duties as auditor from the employees of the InvIT, parties to the InvIT, the special purpose vehicle(s) or any other person in possession of such information; and

e) The Auditor should have subjected itself to the peer review process of ICAI and hold such a valid certificate.

2. **Appointment and role of Valuer of The InvIT**

(i) The Investment Manager, in consultation with Trustee, shall appoint the Valuer in a timely manner and shall determine the remuneration of such Valuer, in accordance with the SEBI InvIT Regulations. A 'Valuer' shall have the meaning provided under the SEBI InvIT Regulations.

(ii) The Investment Manager shall ensure that the appointment of the Valuer is approved by the Unitholders in accordance with the SEBI InvIT Regulations.

(iii) The Investment Manager shall ensure that the valuation of the InvIT assets is conducted by the Valuer in accordance with the SEBI InvIT Regulations.

(iv) The Investment Manager in consultation with the Trustee shall have the right to take all necessary steps to remove the Valuer who ceases to comply with the eligibility criteria required under the SEBI InvIT Regulations and applicable law. If the removal of the Valuer and appointment of another valuer to the InvIT is taken up at a meeting of the Unitholders at the request of the Unitholders, such removal of the Valuer shall be approved by the Unitholders in accordance with the SEBI InvIT Regulations.

(v) The remuneration of the Valuer shall not be linked to or based on the value of the assets being valued.

(vi) The Valuer shall not be an Associate of the Sponsor or the Investment Manager or Trustee. The Valuer shall have the minimum number of years of experience in valuation of infrastructure assets as may be required under the SEBI InvIT Regulations.

(vii) The Valuer shall be eligible to act as a valuer in terms of the SEBI InvIT Regulations or any clarifications, guidelines, notifications or exemptions issued by SEBI.

(viii) The Valuer shall not undertake valuation of the same project for more than four years consecutively, provided that the Valuer may be reappointed after a period of not less than two years from the date it ceases to be the Valuer of the InvIT.

(ix) The Valuer shall not undertake valuation of any assets in which it has either been involved with the acquisition or disposal within the last twelve months other than such cases where the Valuer was engaged by the InvIT for such acquisition or disposal.

(x) The Valuer shall comply with the following conditions at all times:

a) The Valuer shall ensure that the valuation of the InvIT assets is impartial, true and fair and is in accordance with the SEBI InvIT Regulations;

b) The Valuer shall ensure adequate and robust internal controls to ensure the integrity of its valuation reports;

c) The Valuer shall ensure that it has sufficient key personnel with adequate experience and qualification to perform valuations;

d) The Valuer shall ensure that it has sufficient financial resources to enable it to conduct its business effectively and meet its liabilities;

e) The Valuer and any of its employees involved in valuing of the assets of the InvIT, shall not:

- invest in units of the InvIT or in the assets being valued; and
- sell the assets or units of the InvIT held prior to being appointed as the Valuer, until the time such person is designated as Valuer of the InvIT and not less than six months after ceasing to be Valuer of the InvIT;

f) The Valuer shall conduct valuation of the InvIT assets with transparency and fairness and shall render, at all times, high standards of service, exercise due diligence, ensure proper care and exercise independent professional judgment;

g) The Valuer shall act with independence, objectivity and impartiality in performing the valuation;

h) The Valuer shall discharge its duties towards the InvIT in an efficient and competent manner, utilizing its knowledge, skills and experience in best possible way to complete given assignment;

i) The Valuer shall not accept remuneration, in any form, for performing a valuation of the InvIT assets from any person other than the InvIT or its authorized representative;

j) The Valuer shall before accepting any assignment, from any related party of the InvIT, disclose to the InvIT through the Investment Manager or the Trustee, any direct or indirect consideration which the Valuer may have in respect of such assignment;

k) The Valuer shall disclose to the InvIT, through the Investment Manager or the Trustee, any pending business transactions, contracts under negotiation and other arrangements with the Investment Manager or any other party whom the InvIT is contracting with and any other factors that may interfere with the Valuer's ability to give an independent and professional valuation of the assets, and other necessary disclosures required under the SEBI InvIT Regulations;

l) The Valuer shall not make false, misleading or exaggerated claims in order to secure assignments;

m) The Valuer shall not provide misleading valuation, either by providing incorrect information or by withholding relevant information;

n) The Valuer shall not accept an assignment which interferes with its ability to do fair valuation; and

o) The Valuer shall, prior to performing a valuation, acquaint itself with all laws or regulations relevant to such valuation.

SPECIAL PURPOSE COMBINED FINANCIAL STATEMENTS

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INDEPENDENT AUDITORS' REPORT

The Board of Directors
GR Highways Investment Managers Private Limited
(As an Investment Manager of Bharat Highways InvIT)
2nd Floor, Novus Tower Plot No. 18,
Sector-18, Gurgaon,
Haryana - 122015

Report on the Audit of Special Purpose Combined Financial Statements

Opinion

We have audited the accompanying special purpose combined financial statements of Varanasi Sangam Expressway Private Limited ("VSEPL"), Porbandar Dwarka Expressway Private Limited ("PDEPL"), GR Phagwara Expressway Limited ("GRPWL"), GR Gundugolanu Devarapalli Highway Private Limited ("GRGDHPL"), GR Akkalkot Solapur Highway Private Limited ("GRASHPL"), GR Sangli Solapur Highway Private Limited ("GRSSHPL") and GR Dwarka Devariya Highway Private Limited ("GDDHPL") (Individually referred to as "SPV" and together referred to as "SPV Group"), which comprise the Special Purpose Combined Balance Sheets as at June 30, 2022, March 31, 2022, March 31, 2021 and March 31, 2020, the Special Purpose Combined Statements of Profit and Loss (including Other Comprehensive Income), the Special Purpose Combined Statements of Changes in Equity and the Special Purpose Combined Cash Flow Statements for the three month period ended June 30, 2022, for the years ended March 31, 2022, March 31, 2021 and March 31, 2020, the Combined Statement of net assets at fair value as at June 30, 2022, the Combined Statement of Total Returns at Fair Value for the three month period ended June 30, 2022 and year ended March 31, 2022 and notes to the special purpose combined financial statements including a summary of significant accounting policies and other explanatory information (collectively, the "Special Purpose Combined Financial Statements"). The Special Purpose Combined Financial Statement are prepared in connection with the proposed initial public offering of units to be issued by the Bharat Highways InvIT ("Trust") as per InvIT Regulation.

The Combined Financial Statements have been prepared in accordance with the basis of preparation as set out in note 2.1 to the Special Purpose Combined Financial Statements.

In our opinion and to the best of our information and according to the explanations given to us and based on the consideration of reports of other auditors on separate financials statements of the SPVs, the aforesaid Special Purpose Combined Financial Statements give a true and fair view in accordance with the basis of preparation as specified in note 2.1 to the Special Purpose Combined Financial Statements in case of:

i. the combined balance sheet, of the state of affairs of the SPV Group as at June 30, 2022, March 31, 2022, March 31, 2021 and March 31, 2020;
ii. the combined statement of profit and loss (including other comprehensive income) of the SPV Group, of the profit for the three month period ended June 30, 2022, for the year ended March 31, 2022, March 31, 2021 and March 31, 2020;
iii. the combined statement of changes in equity, of the movement of the equity holders for the three month period ended June 30, 2022, for the year ended March 31, 2022, March 31, 2021 and March 31, 2020;
iv. the combined cash flow statement, of the cash movements of the SPV group for three month period ended June 30, 2022 and for the year ended March 31, 2022, March 31, 2021 and March 31, 2020;
v. the combined statement of net asset at fair value, of the net assets as at June 30, 2022; and
vi. the combined statement of total returns at fair values, of the total returns for the three month period ended June 30, 2022 and for the year ended March 31, 2022.

Basis of Opinion

We conducted our audit of the Special Purpose Combined Financial Statements in accordance with the Standards on Auditing (SAs) and other pronouncements issued by the Institute of Chartered Accountants of India (ICAI). Our responsibilities under those Standards are further described in the Auditor's Responsibilities for the Audit of the Special Purpose Combined Financial Statements section of our report. We are independent of the Trust and SPV Group in accordance with the 'Code of Ethics' issued by the ICAI and we have fulfilled our other ethical responsibilities in accordance with the Code of Ethics. We believe that the audit evidence obtained by us is sufficient and appropriate to provide a reasonable basis for our audit opinion on the Special Purpose Combined Financial Statements.

Emphasis of matter – Basis of Accounting and Restriction on Distribution and Use

We draw attention to note 2.1 to the Special Purpose Combined Financial Statements, which describes basis of preparation and presentation including the approach to and the purpose for preparing them. The Special Purpose Combined Financial Statements have been prepared by the Investment Manager to the Trust to meet the requirement of SEBI (Infrastructure Investment Trusts) Regulations, 2014, as amended from time to time including the circulars notifications, clarifications and guidelines issued thereunder (the "InvIT Regulations"). Consequently, Special Purpose Combined Financial Statements may not necessarily be indicative of financial performance, financial position and cash flows of the SPV group that would have occurred if it had operated as a separate standalone group of entities during the periods presented.

This Report is addressed to Trust, the Trustee and the Investment Manager solely for inclusion in the Draft Offer Document / Offer Document / Final Offer Document in connection with the proposed initial public issue of units of Trust. As a results, the Special Purpose Combined Financial Statement may not be suitable for another purpose. Our report should not be used, referred to our distributed for any other purpose or to any party. Accordingly, we do not accept or assume any liability or any duty of care for any other purpose or to any other person to whom this report to shown or into whose hands it may come.

The audit report of the SPVs as at and for the three month ended June 30, 2022 included an emphasis of matter on the basis of preparation and presentation of those special purpose interim financial statements which is reproduced below:

"We draw attention to the Special Purpose Interim Financial Statements, which describes basis of preparation and presentation including the approach to and the purpose for preparing them. The Special Purpose Interim Financial Statements have been prepared, and report thereon issued, solely to assist GR Investment Highway Private Limited (as investment manager of Bharat Highway InvIT) to meet the requirement of SEBI (Infrastructure Investment Trusts) Regulations, 2014, as amended from time to time including the circulars notifications, clarifications and guidelines issued thereunder (the "InvIT Regulations").

As a results, the Special Purpose Interim Financial Statement may not be suitable for another purpose. Our report should not be used, referred to our distributed for any other purpose or to any party. Accordingly, we do not accept or assume any liability or any duty of care for any other purpose or to any other person to whom this report to shown or into whose hands it may come."

Our opinion is not modified in respect of this matter.

Management's Responsibility for the Special Purpose Combined Financial Statements

The Board of Directors of the Investment Manager to the Trust are responsible for the preparation and presentation of these Special Purpose Combined Financial Statements that give a true and fair view of the combined financial position, combined financial performance including other comprehensive income, combined statement of change in equity and combined cash flows, combined position of net assets at fair

value and combined total return at fair value of the SPV group in accordance with the basis of preparation specified in note 2.1 to the Special Purpose Combined Financial Statements.

The Board of Directors of the respective SPVs and the Board of Directors of the investment manager are responsible for the maintenance of adequate accounting records in accordance with the provisions of the Companies Act, 2013 for safeguarding the assets of the SPVs and for preventing and detecting frauds and other irregularities; the selection and application of appropriate accounting policies; making judgements and estimates that are reasonable and prudent; and the design, implementation and maintenance of adequate internal financial controls, that were operating effectively for ensuring the accuracy and completeness of the accounting records, relevant to the preparation and presentation of the Special Purpose Combined Financial Statements that give a true and fair view and are free from material misstatement, whether due to fraud or error, which have been used for the purpose of preparation of these Special Purpose Combined Financial Statements by the Investment Manager, as aforesaid.

In preparing the Special Purpose Combined Financial Statements, the Board of Directors of the respective SPVs and Board of Director of the Investment Manager are responsible for assessing the SPV Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the SPV Group or to cease operations or has no realistic alternative but to do so.

The Board of Directors of the SPVs and Board of Directors of the Investment Manager are also responsible for overseeing the SPV Group's financial reporting process.

Auditors' Responsibility for the audit of the Special Purpose Combined Financial Statements

Our objectives are to obtain reasonable assurance about whether the Special Purpose Combined Financial Statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with SAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these Special Purpose Combined Financial Statements.

As part of an audit in accordance with SAs and other pronouncements issued by ICAI, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the Special Purpose Combined Financial Statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal financial control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for expressing an opinion on the effectiveness of the SPV Group's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by Trust management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or

conditions that may cast significant doubt on the SPVs ability to continue as going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the Special Purpose Combined Financial Statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the SPVs to cease to continue as going concern.

- Evaluate the overall presentation, structure and content of the Special Purpose Combined Financial Statements, including the disclosures, and whether the Special Purpose Combined Financial Statements represent the underlying transactions and events in a manner that achieves fair presentation.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the SPV Group to express an opinion on the special purpose combined financial statements. We are responsible for the direction, supervision and performance of the audit of the financial statements of such entities included in the special purpose combined financial statements of which we are the independent auditors. For the other entities included in the special purpose combined financial statements, which have been audited by other auditors, such other auditors remain responsible for the direction, supervision and performance of the audits carried out by them. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

Other Matter

We did not audit the financial statements and other financial information, as of and for the three month period ended June 30, 2022 and years ended March 31, 2022, March 31, 2021 and March 31, 2020 of respective SPV whose financial statements reflected total assets of Rs. 57,292.48 million, Rs. 55,365.79 million, Rs. 49,439.46 million and Rs. 35,769.48 million as at June 30, 2022, March 31, 2022, March 31, 2021 and March 31, 2020 respectively and total revenues of Rs. 4,428.17 million, Rs. 15,857.02 million, Rs. 21,539.65 million and Rs. 30,740.50 million and net cash (outflows) / Inflows of Rs. (989.86) million, Rs. 2,406.61 million, Rs. 1,577.62 million and Rs. 157.72 million for the three month period ended June 30, 2022 and years ended March 31, 2022, March 31, 2021 and March 31, 2020 respectively, included in the Special Purpose Combined Financial Statements. These financial statements and other financial information have been audited by the statutory auditor of those SPVs for the respective years, which financial statement, other information and auditors report have been furnished by Investment manager. Our opinion on the Special Purpose Combined Financial Statements, in so far as it relates to the amounts and disclosures included in respect of the above entities, is based solely on the reports of such other auditors.

These financial statement of SPVs have been used by investment manager for the purpose of preparation of the special purpose combined financial statements after considering adjustment/restatements/reclassifications to such general purpose audited financial statements of the SPV as explained in the note 36 of the Special Purpose Combined Financial statements. In our opinion such adjustments/restatements/reclassifications are appropriate and have been audited by us.

Report on Other Legal and Regulatory Requirements

As required by SEBI Circular number CIR/IMD/DF/114/2016 dated October 20, 2016 ("SEBI Circular"), we report that:

a) We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit;

b) the Special Purpose Combined Balance Sheets, Special Purpose Combined Statements of Profit and Loss (including Other Comprehensive Income), Special Purpose Combined Statements of Changes in Equity and Special Purpose Combined Cash Flow Statements dealt with by this Report are in agreement with the books of account maintained for the purpose of preparation of the Special Purpose Combined Financial Statements;

c) In our opinion, the Special Purpose Combined Financial Statements comply with the basis of preparation as stated in note 2.1 to the Special Purpose Combined Financial Statements.

For S R B C & CO LLP
Chartered Accountants
Firm registration number: 324982E/E300003

_____
per Sukrut Mehta
Partner
Membership No.: 101974
UDIN: 22101974BFNIDQ4179
Place: Ahmedabad
Date: December 15, 2022

SPV Group

(as defined in note 1 - Corporate information)

Special Purpose Combined Balance sheet

(All Amounts are in rupees million, unless otherwise stated)

	Notes	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Assets					
Non-current assets					
(a) Contract assets	4	3,695.31	2,295.33	6,924.58	15,833.38
(b) Financial assets					
(i) Receivable under service concession agreements	5	38,895.78	38,321.40	26,766.39	4,914.96
(ii) Other financial assets	6	9.78	9.48	8.51	1.34
(c) Income tax assets (net)	7	994.88	872.06	534.38	241.87
(d) Other non-current assets	8	2,629.19	3,258.11	3,996.43	3,288.01
Total Non-Current Assets		**46,224.94**	**44,756.38**	**38,230.29**	**24,279.56**
Current assets					
(a) Contract assets	4	1,238.38	1,349.82	4,107.35	8,522.23
(b) Financial assets					
(i) Trade receivables	9	147.67	226.79	346.97	86.56
(ii) Cash and cash equivalents	10	1,123.82	2,113.68	1,343.27	189.98
(iii) Bank balances other than (ii) above	10	3,783.41	3,032.13	1,380.88	27.65
(iv) Receivable under service concession agreements	5	2,831.29	2,491.18	2,640.10	390.33
(v) Other financial assets	6	9.60	21.01	14.49	14.16
(c) Other current assets	8	1,933.37	1,374.80	1,376.11	2,259.01
Total Current Assets		**11,067.54**	**10,609.41**	**11,209.17**	**11,489.92**
Total Assets		**57,292.48**	**55,365.79**	**49,439.46**	**35,769.48**
Equity and liabilities					
Equity					
(a) Equity share capital	11	1,877.90	1,877.90	1,877.90	1,783.00
(b) Other equity	12	4,759.58	4,025.97	3,395.45	1,900.99
Total Equity		**6,637.48**	**5,903.87**	**5,273.35**	**3,683.99**
Liabilities					
Non-current liabilities					
(a) Financial liabilities					
(i) Borrowings	13	44,580.78	44,337.71	35,587.66	22,554.47
(b) Deferred tax liabilities (net)	25	2,137.62	1,473.12	1,260.45	208.94
Total Non-Current Liabilities		**46,718.40**	**45,810.83**	**36,848.11**	**22,763.41**
Current liabilities					
(a) Contract liabilities	16	23.89	64.50	577.26	3,315.29
(b) Financial liabilities					
(i) Borrowings	14	2,422.36	2,454.91	1,516.67	286.36
(ii) Trade payables	15				
(a) Total outstanding dues of micro enterprises and small enterprises		0.48	0.39	0.19	0.68
(b) Total outstanding dues of creditors other than micro and small enterprises		1,459.85	1,039.73	5,139.09	5,591.27
(iii) Other financial liabilities	17	0.33	0.33	0.40	0.08
(c) Other current liabilities	18	17.12	91.23	84.39	128.40
(d) Current tax liabilities (net)	19	12.57	-	-	-
Total Current Liabilities		**3,936.60**	**3,651.09**	**7,318.00**	**9,322.08**
Total Liabilities		**50,655.00**	**49,461.92**	**44,166.11**	**32,085.49**
Total Equity and Liabilities		**57,292.48**	**55,365.79**	**49,439.46**	**35,769.48**
Summary of significant accounting policies	2				

The accompanying notes form an integral part of these Special Purpose Combined Financial Statements.

As per our report of even date

For S R B C & CO LLP
Chartered Accountants

ICAI Firm's Registration No :324982E/E300003

per Sukrut Mehta
Partner
Membership No: 101974
Place : Ahmedabad
Date : 15 December 2022

For and on behalf of Board of Directors of
GR Highways Investment Manager Private Limited
(As an Investment Manager to Bharat Highways InvIT)

Ajendra Kumar Agarwal
Director
DIN: 01147897
Place : Gurugram
Date : 15 December 2022

Siba Narayan Nayak
Director
DIN: 01832348
Place : Gurugram
Date : 15 December 2022

Amit Kumar Singh
CEO

Place : Gurugram
Date : 15 December 2022

Mohnish Dutta
Company Secretary
ICSI Mem. No. FCS10411
Place : Gurugram
Date : 15 December 2022

SPV Group

(as defined in note 1 - Corporate information)

Special Purpose Combined Statement of Profit and Loss

(All Amounts are in rupees million, unless otherwise stated)

		Notes	Three month period ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020
I	**Income**					
	(a) Revenue from operations	20	4,428.17	15,857.02	21,539.65	30,740.50
	(b) Interest on deposits with banks		43.37	104.76	36.59	2.49
	(c) Interest from vendor advance and income tax refund		0.80	40.02	124.67	184.28
	(d) Other income		-	-	3.02	-
	Total income		**4,472.34**	**16,001.80**	**21,703.93**	**30,927.27**
II	**Expenses**					
	(a) Sub - contractor charges	21	2,154.02	11,381.55	16,365.78	27,824.54
	(b) Employee benefits expense	22	1.00	3.92	4.58	3.70
	(c) Finance costs	23	829.98	3,440.87	2,648.58	1,712.12
	(d) Other expenses	24	76.66	332.27	341.77	299.73
	Total expenses		**3,061.66**	**15,158.61**	**19,360.71**	**29,840.09**
III	**Profit before tax (I-II)**		**1,410.68**	**843.19**	**2,343.22**	**1,087.18**
IV	**Tax expense:**	25				
	(a) Current tax		12.57	-	-	202.75
	(b) Adjustment of tax related to earlier periods		-	-	(202.75)	-
	(c) Deferred tax charges		664.50	212.67	1,051.51	130.19
	Total tax expenses		**677.07**	**212.67**	**848.76**	**332.94**
V	**Net profit for the period/year (III-IV)**		**733.61**	**630.52**	**1,494.46**	**754.24**
VI	**Other comprehensive income ("OCI")**					
	(a) Items that will not be reclassified to profit or loss in subsequent period/year (net of tax)		-	-	-	-
	(b) Items that will be reclassified to profit or loss in subsequent period/year (net of tax)		-	-	-	-
	Net other comprehensive income not to be reclassified to profit or loss in subsequent period/year		**-**	**-**	**-**	**-**
VII	**Total Comprehensive Income for the period/year, net of tax (V+VI)**		**733.61**	**630.52**	**1,494.46**	**754.24**
	Earnings per unit [refer note 26]					
	Summary of significant accounting policies	2				

The accompanying notes form an integral part of these Special Purpose Combined Financial Statements.

As per our report of even date

For S R B C & CO LLP
Chartered Accountants
ICAI Firm's Registration No :324982E/E300003

per Sukrut Mehta
Partner
Membership No: 101974
Place : Ahmedabad
Date : 15 December 2022

For and on behalf of Board of Directors of
GR Highways Investment Manager Private Limited
(As an Investment Manager to Bharat Highways InvIT)

Ajendra Kumar Agarwal
Director
DIN: 01147897
Place : Gurugram
Date : 15 December 2022

Siba Narayan Nayak
Director
DIN: 01832348
Place : Gurugram
Date : 15 December 2022

Amit Kumar Singh
CEO

Place : Gurugram
Date : 15 December 2022

Mohnish Dutta
Company Secretary
ICSI Mem. No. FCS10411
Place : Gurugram
Date : 15 December 2022

SPV Group

(as defined in note 1 - Corporate information)

Special Purpose Combined Statement of Changes in Equity

(All Amounts are in rupees million, unless otherwise stated)

A Equity share capital (Equity shares of ₹ 10 each issued, subscribed and fully paid (refer note 11))

	Number of shares	Amount
As at 1 April 2019	17,82,90,000	1,782.90
Add/(Less): Changes during the year	10,000	0.10
As at 31 March 2020	**17,83,00,000**	**1,783.00**
As as at 1 April 2020	17,83,00,000	1,783.00
Add/(Less): Changes during the year	94,90,000	94.90
As at 31 March 2021	**18,77,90,000**	**1,877.90**
As at 1 April 2021	18,77,90,000	1,877.90
Add/(Less): Changes during the year	-	-
As at 31 March 2022	**18,77,90,000**	**1,877.90**
As at 1 April 2022	18,77,90,000	1,877.90
Add/(Less): Changes during the period	-	-
As at 30 June 2022	**18,77,90,000**	**1,877.90**

B Other equity

	Reserves and surplus		
	Debenture Redemption Reserve (Refer note 12)	Retained Earnings (Refer note 12)	Total
Balance as at 1 April 2019		**1,146.75**	**1,146.75**
Profit for the year	-	754.24	**754.24**
Total comprehensive income for the year	**-**	**754.24**	**754.24**
As at 31 March 2020	**-**	**1,900.99**	**1,900.99**
Balance as at 1 April 2020	**-**	**1,900.99**	**1,900.99**
Profit for the year	-	1,494.46	**1,494.46**
Total comprehensive income for the year	**-**	**1,494.46**	**1,494.46**
As at 31 March 2021	**-**	**3,395.45**	**3,395.45**
Balance as at 1 April 2021	**-**	**3,395.45**	**3,395.45**
Profit for the year	-	630.52	**630.52**
Total comprehensive income for the year	**-**	**630.52**	**630.52**
Transfer to debenture redemption reserve	1,016.79	(1,016.79)	**-**
As at 31 March 2022	**1,016.79**	**3,009.18**	**4,025.97**
Balance as at 1 April 2022	**1,016.79**	**3,009.18**	**4,025.97**
Profit for the period	-	733.61	**733.61**
Total comprehensive income for the period	**-**	**733.61**	**733.61**
Transfer to debenture redemption reserve	240.72	(240.72)	**-**
As at 30 June 2022	**1,257.51**	**3,502.07**	**4,759.58**

Summary of significant accounting policies 2

The accompanying notes form an integral part of these Special Purpose Combined Financial Statements.

As per our report of even date

For and on behalf of Board of Directors of
GR Highways Investment Manager Private Limited
(As an Investment Manager to Bharat Highways InvIT)

For S R B C & CO LLP
Chartered Accountants
ICAI Firm's Registration No :324982E/E300003

per Sukrut Mehta
Partner
Membership No: 101974
Place : Ahmedabad
Date : 15 December 2022

Ajendra Kumar Agarwal
Director
DIN: 01147897
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Siba Narayan Nayak
Director
DIN: 01832348
Place : Gurugram
Date : 15 December 2022

Amit Kumar Singh
CEO

Place : Gurugram
Date : 15 December 2022

Mohnish Dutta
Company Secretary
ICSI Mem. No. FCS10411
Place : Gurugram
Date : 15 December 2022

SPV Group

(as defined in note 1 - Corporate information)

Special Purpose Combined Statement of Cash Flows

(All Amounts are in rupees million, unless otherwise stated)

	Three month period ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020
A Cash flows from operating activities				
Profit before tax	**1,410.68**	**843.19**	**2,343.22**	**1,087.18**
Adjustment to reconcile profit before tax to net cash flows:				
Interest income	(44.17)	(144.78)	(161.26)	(186.77)
Finance costs	829.98	3,440.87	2,648.58	1,712.12
Operating Profit before Working Capital changes	**2,196.49**	**4,139.28**	**4,830.54**	**2,612.53**
Working capital adjustments :				
(Increase) in receivable under service concession agreements and contract assets	(2,203.03)	(4,019.31)	(10,777.52)	(14,869.93)
(Decrease) in contract liabilities	(40.61)	(512.76)	(2,738.03)	(104.97)
Decrease / (Increase) in financial and non-financial assets	81.16	721.75	92.43	(1,191.98)
Decrease /(Increase) in trade receivables	79.12	120.18	(260.41)	2.37
Increase / (Decrease) in trade payables	420.21	(4,099.16)	(452.67)	1,693.71
(Decrease) / Increase in provisions, financial and non-financial liabilities	(74.11)	6.77	(43.69)	37.78
Cash generated from / (used in) operating activities	**459.23**	**(3,643.25)**	**(9,349.35)**	**(11,820.49)**
Direct tax paid (net, of refunds)	(122.82)	(337.68)	(89.76)	(380.28)
Net Cash generated from / (used in) operating activities	**336.41**	**(3,980.93)**	**(9,439.11)**	**(12,200.77)**
B Cash Flows from Investing Activities				
(Investments) / Redemptions in bank deposits more than three months (net)	(720.93)	(1,651.25)	(1,346.87)	554.54
Interest received	13.82	144.78	154.90	186.77
Net Cash generated from / (used in) investing activities	**(707.11)**	**(1,506.47)**	**(1,191.97)**	**741.31**
C Cash Flows from Financing Activities				
Proceeds from issue of share capital	-	-	94.90	0.10
Proceeds from non-current borrowings	1,260.04	42,827.81	23,549.72	13,207.88
Repayment of non-current borrowings	(882.62)	(33,413.00)	(9,173.66)	-
Interest and other borrowing cost paid	(996.58)	(3,157.00)	(2,686.59)	(1,590.80)
Net cash generated from / (used in) financing activities	**(619.16)**	**6,257.81**	**11,784.37**	**11,617.18**
Net (Decrease) / Increase in cash and cash equivalents (A+B+C)	**(989.86)**	**770.41**	**1,153.29**	**157.72**
Cash and cash equivalents at the beginning of the period/year	2,113.68	1,343.27	189.98	32.26
Cash and cash equivalents at the end of the period/year	**1,123.82**	**2,113.68**	**1,343.27**	**189.98**

Notes:

1 Components of cash and cash equivalents (refer note 10)

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Cash on hand	0.11	0.11	0.11	0.11
Balance with banks				
in current account	170.05	429.16	435.44	189.87
Deposits with original maturity of less than three months	953.66	1,684.41	907.72	-
Cash and cash equivalents at end of the year	**1,123.82**	**2,113.68**	**1,343.27**	**189.98**

2 The above Special Purpose Combined Statement of Cash Flows has been prepared under the "Indirect Method" as set out in Indian Accounting Standard (Ind AS) - 7 "Statement of Cash Flows" issued by the Institute of Chartered Accountants of India.

3 **Changes in liabilities arising from financing activities in terms of Ind AS 7:**

	As at 1 April 2022	Net cash flow	Others*	As at 30 June 2022
Non-current borrowings	46,792.62	(619.16)	829.68	47,003.14
Total	**46,792.62**	**(619.16)**	**829.68**	**47,003.14**

	As at 1 April 2021	Net cash flow	Others*	As at 31 March 2022
Non-current borrowings	37,104.33	6,257.81	3,430.48	46,792.62
Total	**37,104.33**	**6,257.81**	**3,430.48**	**46,792.62**

	As at 1 April 2020	Net cash flow	Others*	As at 31 March 2021
Non-current borrowings	22,840.83	11,689.47	2,574.03	37,104.33
Total	**22,840.83**	**11,689.47**	**2,574.03**	**37,104.33**

	As at 1 April 2019	Net cash flow	Others*	As at 31 March 2020
Non-current borrowings	9,666.80	11,617.08	1,556.95	22,840.83
Total	**9,666.80**	**11,617.08**	**1,556.95**	**22,840.83**

* Others represent interest accrued and other borrowing cost.

4 Figures in brackets represent outflows.

Summary of significant accounting policies 2

The accompanying notes form an integral part of these Special Purpose Combined Financial Statements.

As per our report of even date

For S R B C & CO LLP
Chartered Accountants
ICAI Firm's Registration No :324982E/E300003

For and on behalf of Board of Directors of
GR Highways Investment Manager Private Limited
(As an Investment Manager to Bharat Highways InvIT)

per Sukrut Mehta
Partner
Membership No: 101974
Place : Ahmedabad
Date : 15 December 2022

Ajendra Kumar Agarwal
Director
DIN: 01147897
Place : Gurugram
Date : 15 December 2022

Siba Narayan Nayak
Director
DIN: 01832348
Place : Gurugram
Date : 15 December 2022

Amit Kumar Singh
CEO

Place : Gurugram
Date : 15 December 2022

Mohnish Dutta
Company Secretary
ICSI Mem. No. FCS10411
Place : Gurugram
Date : 15 December 2022

SPV Group

(as defined in note 1 - Corporate information)

Disclosures as required by Securities and Exchange Board of India Circular No. CIR/IMD/DF/114/2016 dated October 20, 2016

(All Amounts are in rupees million, unless otherwise stated)

A. Statement of Net Assets at Fair Value as at 30 June 2022 [refer note (iii) below]

Particulars		Book value	Fair value
I	Assets	57,292.48	67,332.32
II	Liabilities (at book value)	50,655.00	50,655.00
III	Net Assets (I-II)	6,637.48	16,677.32
IV	No. of units	(Refer note (i) below)	(Refer note (i) below)
V	NAV (III/IV)	(Refer note (i) below)	(Refer note (i) below)

Notes:

(i) The number of units that Trust will issue is not presently ascertainable. Hence the disclosures in respect of No. of units and Net Asset Value (NAV) per Unit have not been given.

(ii) **Project wise break up of Fair value of Assets as at 30 June 2022**

Particulars	Fair value
(i) Varanasi Sangam Expressway Private Limited	16,896.73
(ii) Porbandar Dwarka Expressway Private Limited	10,168.27
(iii) GR Phagwara Expressway Limited	7,338.64
(iv) GR Gundugolanu Deverapalli Highway Private Limited	12,901.20
(v) GR Akkalkot Solapur Highway Private Limited	5,653.47
(vi) GR Sangli Solapur Highway Private Limited	6,950.18
(vii) GR Dwarka Devariya Highway Private Limited	7,423.82
Total	**67,332.32**

(iii) Project wise break up of fair value of total assets includes break up of 7 SPV as at 30 June 2022 as disclosed above are based on solely on the fair valuation report dated 13 December 2022 of the independent valuer appointed by Investment Manager under the InvIT Regulations.

B Statement of Total Return at Fair Value [refer note (i) below]

Particulars	Three month period ended 30 June 2022	Year ended 31 March 2022
Total Comprehensive Income (As per the Statement of Profit and Loss)	733.61	630.52
Add/(less): Other Changes in Fair Value (e.g., in investment property, property, plant & equipment (if cost model is followed)) not recognized in Total Comprehensive Income (refer note below)	5,725.51	9,549.89
Total Return	**6,459.12**	**10,180.41**

Notes :

(i) In the above statement, Other changes in fair value for the Three months ended June 30, 2022 and year ended March 31, 2022 has been computed based on the difference in fair values of total assets as at June 30, 2022, as at March 31, 2022 and as at March 31,2021 respectively. The fair values of total assets as at June 30, 2022, as at March 31, 2022 and as at March 31,2021 are based solely on the valuation report dated 13 December 2022 of the independent valuer appointed by Investment Manager under the InvIT Regulations.

As per our report of even date

For S R B C & CO LLP
Chartered Accountants
ICAI Firm's Registration No :324982E/E300003

per Sukrut Mehta
Partner
Membership No: 101974
Place : Ahmedabad
Date : 15 December 2022

For and on behalf of Board of Directors of
GR Highways Investment Manager Private Limited
(As an Investment Manager to Bharat Highways InvIT)

Ajendra Kumar Agarwal
Director
DIN: 01147897
Place : Gurugram
Date : 15 December 2022

Siba Narayan Nayak
Director
DIN: 01832348
Place : Gurugram
Date : 15 December 2022

Amit Kumar Singh
CEO

Place : Gurugram
Date : 15 December 2022

Mohnish Dutta
Company Secretary
ICSI Mem. No. FCS10411
Place : Gurugram
Date : 15 December 2022

1. Corporate Information

The special purpose combined financial statements comprise financial statements of Varanasi Sangam Expressway Private Limited ("VSEPL"), Porbandar Dwarka Expressway Private Limited ("PDEPL"), GR Phagwara Expressway Limited ("GRPWL"), GR Gundugolanu Devarapalli Highway Private Limited ("GRGDHPL"), GR Akkalkot Solapur Highway Private Limited ("GRASHPL"), GR Sangli Solapur Highway Private Limited ("GRSSHPL") and GR Dwarka Devariya Highway Private Limited ("GDDHPL") (Individually referred to as "SPV" and together referred to as "SPV Group"). The SPVs are private limited companies registered under Companies Act except GRPWL which is public limited. SPVs are domiciled in India and having registered office at G R House, Hiran Magri Sector-11, Udaipur-313002, Rajasthan.

The SPVs are wholly owned subsidiary of the GR Infraprojects Limited and special purpose vehicle which have entered into concession agreement with National Highways Authorities of India (NHAI) to design, build, finance, operates and transfer (DBFOT) or build, operates and transfer (BOT) national highways in various location.

GR Infraprojects Limited (the "GRIL") set up Bharat Highways InvIT (the "Trust") as an irrevocable trust under the Indian Trust Act, 1882 pursuant to Trust Deed dated 16 June 2022 as its Sponsor. The Trust has been settled for an initial sum of ₹ 10,000. The Trust has been registered as an Infrastructure Investment Trust ('InvIT') with Securities Exchange Board of India ('SEBI') under the Securities Exchange Board of India (Infrastructure Investment Trust) Regulations, 2014 vide Certificate of Registration (IN/InvIT/22-23/0023) dated 3 August 2022.The registered office of the Trust is located at Novus Tower, Second Floor, Plot No. 18, Sector 18, Gurugram, Haryana-122015, India. The Trustee to the Trust is IDBI Trusteeship Services Limited (the "Trustee"), Investment manager for the Trust is GR Highways Investment Manager Private Limited (the "Investment Manager").

The object and purpose of the Trust, as described in the Trust Deed, is to carry on the activity of an infrastructure investment trust as permissible under the InvIT Regulations to raise funds through the Trust, to make investments in accordance with the InvIT Regulations and the investment strategy and to carry on the activities as may be required for operating the Trust, including incidental and ancillary matters thereto.

With effect from December 8, 2022, GRIL has discontinued to act as Sponsors of the Trust and Lokesh Builders Private Limited (the "Sponsor" or "LBPL") became Sponsor of the Trust as per amended and restated trust deed dated December 8, 2022, executed between LBPL, GRIL (as the settlor) and the Trustee and the same has been intimated to SEBI by the Investment manager vide letter dated December 1, 2022. The Sponsor which is identified as promotor of GRIL also holds approximately [31.83%] of equity share capital of GRIL, pursuant to which GRIL is an associate of Sponsor. LBPL is a private company registered under Companies Act 1956 and having register office located 80, Shahi Complex, Hiran Magri, Sector no. 11, Udaipur, Rajasthan. LBPL is also designated project manager of the Trust.

GRIL is engaged in integrated engineering, procurement and construction of various infrastructure projects. Currently, GRIL owns 100% shareholding in SPV Group and proposes to transfer 100% of its shareholding in SPV Group to the Trust except in GDDHPL where Trust will initially acquire 49% stake and the remaining 51% will be acquired upon completion of six months from the date of Commercial Operation Date (COD) and after taking approval from NHAI as per requirement of concession agreement and NHAI circular no NH-24028/14/2014-H (Vol.II) dated November 27, 2020. As required by the Guidance Note on Combined and Carve-Out Financial Statements issued by the Institute of Chartered Accountants of India, the details of various entities included in the Special Purpose Combined Financial Statements is as given below:

Name of SPV	Principal Activities	Proposed Shareholding by Trust	Nature of Proposed Investment	Status	Country of incorporation
Varanasi Sangam Expressway Private Limited	Road manufacturing	100%	Subsidiary	Operating	India
Porbandar Dwarka Expressway Private Limited	Road manufacturing	100%	Subsidiary	Operating	India
GR Phagwara Expressway Limited	Road manufacturing	100%	Subsidiary	Operating	India
GR Gundugolanu Devarapalli Highway Private Limited	Road manufacturing	100%.	Subsidiary	Operating	India
GR Akkalkot Solapur Highway Private Limited	Road manufacturing	100%	Subsidiary	Operating	India
GR Sangli Solapur Highway Private Limited	Road manufacturing	100%	Subsidiary	Operating	India
GR Dwarka Devariya Highway Private Limited	Road manufacturing	100%*	Subsidiary	Operating	India

* Initially acquire 49% stake and the remaining 51% will be acquired upon completion of about six months from the date of Commercial Operation Date (COD).

The Special Purpose Combined Financial Statements were approved for issue in accordance with resolution passed by the Board of Directors of the Investment Manager, acting on behalf of the Trust on December 15, 2022.

2. Significant accounting policies

2.1 **Basis of preparation**

The Special Purpose Combined Financial Statements of the SPV Group comprise the Special Purpose Combined Balance Sheet as at June 30, 2022, March 31, 2022, March 31, 2021, March 31, 2020 and the Special purpose Combined Statement of Profit and Loss (including Other Comprehensive Income), Combined Statement of Changes in Equity, Special Purpose Combined Cash Flow Statement for the three month period ended June 30, 2022, for the years ended March 31, 2022, March 31, 2021 and March 31, 2020, the Combined Statement of net assets at fair value as at June 30, 2022, the Combined Statement of Total Returns at Fair Value for the three month period ended June 30, 2022 and year ended March 31, 2022 and notes to the special purpose combined financial statements including a summary of significant accounting policies and other explanatory information (collectively, the "Special Purpose Combined Financial Statements").

The Special Purpose Combined Financial Statements have been prepared in accordance with Indian Accounting Standards as defined in Rule 2(1)(a) of the Companies (Indian Accounting Standards) Rules, 2015 prescribed under Section 133 of the Companies Act, 2013 ("Ind AS") except for Ind AS 33: Earning per share read with SEBI (Infrastructure Investment Trusts) Regulations, 2014 as amended from time to time including circulars, notifications, clarifications and guidelines issued thereunder ("InvIT Regulations") and the Guidance Note on Combined and Carve-Out Financial Statements issued by the Institute of Chartered Accountants of India ("Guidance Note").

The Special Purpose Combined Financial Statements have been prepared by Investment Manager, acting on behalf of the Trust ('Trust Management') to meet the requirements of InvIT Regulations and for inclusion in the Draft Offer Documents / Offer Document / Final Offer Documents prepared by the Investment Manager in connection with the proposed Initial Public Issue of units of Trust. As a result, the Special Purpose Combined Financial Statements may not be suitable for another purpose. Further, the requirement of Schedule III (as amended) notified under the Companies Act 2013 are not applicable to these Combined Financial Statements and hence these financial statements are not prepared in accordance with those requirements.

In accordance with requirements of the InvIT Regulations, since the Trust was registered as an InvIT on 3 August 2022 and hence it has been in existence for a period lesser than three completed financial years before the filing of offer documents. The Special Purpose Combined Financial Statements has been accordingly prepared considering financial information of the SPV Group for the three month period ended June 30, 2022 and year ended March 31, 2022, March 31, 2021 and March 31, 2020 when such historical financial statements of Trust were not available. The special purpose interim financial statement of the SPVs for the three month period ended June 30, 2022 and general purpose financial statements of the SPVs years ended March 31, 2022, March 31, 2021 and March 31, 2020 were audited by firms of Chartered Accountants other than S R B C & Co LLP.

Further, as required by the InvIT regulations, the Special Purpose Combined Financial Statements are prepared, based on an assumption that 100% stake in all SPV entities is held by Trust for such period when the Trust was not in existence including stake in GDDHPL where Trust will initially acquire 49% stake and the remaining 51% will be acquired upon completion of six months from the date of Commercial Operation Date (COD) and after taking approval from NHAI as per requirement of concession agreement and NHAI circular no NH-24028/14/2014-H (Vol.II) dated November 27, 2020 . However, the Special Purpose Combined Financial Statements may not be representative of the position which may prevail after the SPV Group is transferred to the Trust. Further, in accordance with SEBI Circular CIR/IMD/DF/114/2016 dated October 20, 2016 the Special Purpose Financial Statements have been presented after making necessary adjustments, rectifications and reclassifications due to errors, omissions wherever necessary and accordingly, these may be different from the general purpose audited financial statements of the SPV. Refer note 36 for details of adjustments made in these Special Purpose Combined Financial Statements.

The Special Purpose Combined Financial Statements are presented in INR, which is the functional currency of the SPV Group. The SPV Group does not have any foreign operation and has assessed the functional currency to be INR. All values are rounded to the nearest Million rupees, unless otherwise indicated. Certain amounts that are required to be disclosed and do not appear due to rounding-off are expressed as 0.00.

These Special Purpose Combined Financial Statements correspond to classification provisions contained in Ind AS 1 'Presentation of Financial Statements'. These Special Purpose Combined Financial Statements have been prepared on a historical cost convention and on an accrual basis except for certain financial assets (refer accounting policy regarding financial instruments).

Basis of Combination

The Special Purpose Combined Financial Statements have been prepared using uniform accounting policies for like transactions and other events in similar circumstances. The special purpose combined financial statements of the SPV Group used for the purpose of combination are drawn up to the same reporting date i.e. year ended on March 31 each year/three month period ended June 30.

The procedure for preparing Special Purpose Combined Financial Statements of the SPV Group are stated below –

i) Combine like items of assets, liabilities, equity, income, expenses and cash flows of the SPV;

ii) Eliminate in full intragroup assets and liabilities, equity, income, expenses and cash flows relating to transactions between entities of the SPV group (profits or losses resulting from intragroup transactions that are recognised in assets, such as inventory and property, plant and equipment, are eliminated in full). Ind AS 12, *Income Taxes* applies to temporary differences that arise from the elimination of profits and losses resulting from intragroup transactions.

Dates of commencement of commercial operations

InvIT Regulations require disclosure, if there are any assets for which the financial information is considered for a period lesser than three years and the additional interim period. The details of incorporation and commencement of operations of such SPV which are as given below:

Name of the SPV	Date of incorporation	Commercial operation date *
Varanasi Sangam Expressway Private Limited	April 17, 2017	October 30, 2020
Porbandar Dwarka Expressway Private Limited	June 09, 2017	April 18, 2020
GR Phagwara Expressway Limited	Sept 21, 2016	February 25, 2020
GR Gundugolanu Devarapalli Highway Private Limited	March 28, 2013	July 10, 2021
GR Akkalkot Solapur Highway Private Limited	April 26, 2018	March 31, 2021
GR Sangli Solapur Highway Private Limited	April 26, 2018	June 28, 2021
GR Dwarka Devariya Highway Private Limited	March 26, 2019	August 2, 2022

* Provisional completion date considered as Commercial operation date

2.2 **Summary of Significant accounting policies**

The following are the significant accounting policies applied by SPV Group in preparing its special purpose combined financial statements:

a. Current versus non-current classification

SPV Group presents assets and liabilities in the Balance Sheet based on current/non-current classification. An asset is current when it is:

- Expected to be realized or intended to be sold or consumed in the normal operating cycle;
- Held primarily for the purpose of trading;
- Expected to be realised within twelve months after the reporting period; or
- Cash or cash equivalent unless restricted from being exchanged or used to settle a liability for at least twelve months after the reporting period.

All other assets are classified as non-current.

Operating cycle

The operating cycle is the time between the acquisition of assets for processing and their realization in cash and cash equivalents. The SPV group has ascertained its operating cycle being a period of twelve months for the purpose of classification of assets and liabilities as current and non-current.

b. Financial instruments

A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity.

i Financial Assets - Initial recognition and measurement

Financial assets are classified, at initial recognition, as subsequently measured at amortised cost, fair value through other comprehensive income (OCI), and fair value through profit or loss.

The classification of financial assets at initial recognition depends on the financial asset's contractual cash flow characteristics and the SPV Group's business model for managing them. With the exception of trade receivables that do not contain a significant financing component or for which SPV Group has applied the practical expedient, SPV Group initially measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs. Trade receivables that do not contain a significant financing component or for which SPV Group has applied the practical expedient are measured at the transaction price determined under Ind AS 115. Refer to the accounting policies of Revenue from contracts with customers.
In order for a financial asset to be classified and measured at amortised cost or fair value through OCI, it needs to give rise to cash flows that are 'solely payments of principal and interest (SPPI)' on the principal amount outstanding. This assessment is referred to as the SPPI test and is performed at an instrument level. Financial assets with cash flows that are not SPPI are classified and measured at fair value through profit or loss, irrespective of the business model.

SPV Group's business model for managing financial assets refers to how it manages its financial assets in order to generate cash flows. The business model determines whether cash flows will result from collecting contractual cash flows, selling the financial assets, or both. Financial assets classified and measured at amortised cost are held within a business model with the objective to hold financial assets in order to collect contractual cash flows while financial assets classified and measured at fair value through OCI are held within a business model with the objective of both holding to collect contractual cash flows and selling.

Purchases or sales of financial assets that require delivery of assets within a time frame established by regulation or convention in the marketplace (regular way trades) are recognised on the trade date, i.e., the date that SPV Group commits to purchase or sell the asset.

ii Subsequent measurement
For purposes of subsequent measurement, financial assets are classified in four categories:
- Financial assets at amortised cost (debt instruments)
- Financial assets at fair value through profit or loss

Financial assets at amortized cost (debt instruments)
A financial asset is measured at amortised cost if it meets both of the following conditions are met:
a) the asset is held within a business model whose objective is to hold assets to collect contractual cash flows; and
b) the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

After initial measurement, such financial assets are subsequently measured at amortised cost using the effective interest rate (EIR) method. Amortised cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the EIR. The EIR amortisation is included in finance income in the profit or loss. The losses arising from impairment are recognised in the profit or loss. SPV Group's financial assets at amortised cost includes service concession receivable, trade receivables, security deposits**.**

Financial assets at fair Value through Profit and Loss (FVTPL)
All financial assets which are not classified as measured at amortized cost or FVOCI as described above, are measured at FVTPL. This includes all derivative financial assets. On initial recognition, SPV Group may irrevocably designate a financial asset that otherwise meets the requirements to be measured at amortised

cost or at FVOCI as at FVTPL if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise.

Financial assets at FVTPL are measured at fair value at the end of each reporting period, with any gains or losses arising on remeasurement recognised in profit or loss. The net gain or loss recognised in profit or loss incorporates any dividend or interest earned on the financial asset.

iii Derecognition

A financial asset (or, where applicable, a part of a financial asset or part of a group of similar financial assets) is primarily derecognised (i.e. removed from SPV Group's Combined balance sheet) when:

- The rights to receive cash flows from the asset have expired, or
- SPV Group has transferred its rights to receive cash flows from the asset or has assumed an obligation to pay the received cash flows in full without material delay to a third party under a 'pass-through' arrangement; and either (a) SPV Group has transferred substantially all the risks and rewards of the asset, or (b) SPV Group has neither transferred nor retained substantially all the risks and rewards of the asset, but has transferred control of the asset.

When SPV Group has transferred its rights to receive cash flows from an asset or has entered into a pass-through arrangement, it evaluates if and to what extent it has retained the risks and rewards of ownership. When it has neither transferred nor retained substantially all of the risks and rewards of the asset, nor transferred control of the asset, SPV Group continues to recognise the transferred asset to the extent of SPV Group's continuing involvement. In that case, SPV Group also recognises an associated liability. The transferred asset and the associated liability are measured on a basis that reflects the rights and obligations that SPV Group has retained. Further, the contractual terms of the existing financial assets are substantially modified, such modification is treated as the derecognition of original financial asset and the recognition of a new financial asset. Such newly recognized financial asset is measured at fair value on initial recognition. The difference in respective carrying amount, if any, is recognized in the Statement of Profit and Loss. If the modification of a financial asset does not result in its derecognition, then the gross carrying amount of the financial asset is recalculated at original effective interest rate and the resulting gain or loss is recognized in the Statement of Profit and Loss.

Continuing involvement that takes the form of a guarantee over the transferred asset is measured at the lower of the original carrying amount of the asset and the maximum amount of consideration that SPV Group could be required to repay.

iv Impairment of financial instruments

At each reporting date, SPV Group assesses whether financial assets carried at amortised cost are credit-impaired. A financial asset is 'credit-impaired' when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.
Evidence that a financial asset is credit-impaired includes the following observable data:

- significant financial difficulty of the borrower or issuer;
- a breach of contract such as a default or being past due for 90 days or more;
- the restructuring of a loan or advance by SPV Group on terms that SPV Group would not consider otherwise;
- it is probable that the borrower will enter bankruptcy or other financial reorganization; or
- the disappearance of an active market for a security because of financial difficulties.

Ind AS 109 requires expected credit losses to be measured through a loss allowance. SPV Group measures loss allowances at an amount equal to lifetime expected credit losses for all trade receivable and/or contract assets that do not constitute a financing transaction, For all other financial assets, expected credit losses are

measured at an amount equal to the 12 month expected credit losses or at an amount equal to the life time expected credit losses if the credit risk on the financial asset has increased significantly since initial recognition.

Loss allowances for financial assets measured at amortised cost are deducted from the gross carrying amount of the assets.

v Financial liabilities – Initial recognition and measurement

Financial liabilities are classified, at initial recognition, as financial liabilities at fair value through profit or loss, loans and borrowings, payables, or as derivatives designated as not designated as hedging instruments, as appropriate.

All financial liabilities are recognised initially at fair value and, in the case of loans and borrowings and payables, net of directly attributable transaction costs.

vi Subsequent measurement

For purposes of subsequent measurement, financial liabilities are classified in two categories:

- Financial liabilities at fair value through profit or loss
- Financial liabilities at amortised cost (loans and borrowings)

Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss include financial liabilities held for trading and financial liabilities designated upon initial recognition as at fair value through profit or loss. Financial liabilities are classified as held for trading if they are incurred for the purpose of repurchasing in the near term. This category also includes derivative financial instruments entered into by SPV Group that are not designated as hedging instruments in hedge relationships as defined by Ind AS 109. Separated embedded derivatives are also classified as held for trading unless they are designated as effective hedging instruments.

Gains or losses on liabilities held for trading are recognised in the profit or loss.

Financial liabilities designated upon initial recognition at fair value through profit or loss are designated as such at the initial date of recognition, and only if the criteria in Ind AS 109 are satisfied. For liabilities designated as FVTPL, fair value gains/ losses attributable to changes in own credit risk are recognized in OCI. These gains/ losses are not subsequently transferred to P&L. However, SPV Group may transfer the cumulative gain or loss within equity. All other changes in fair value of such liability are recognised in the statement of profit and loss. SPV Group has not designated any financial liability as at fair value through profit or loss.

Financial liabilities at amortised cost (Loans and borrowings)

After initial recognition, interest-bearing loans and borrowings are subsequently measured at amortised cost using the EIR method. Gains and losses are recognised in profit or loss when the liabilities are derecognised as well as through the EIR amortisation process. Amortised cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the EIR. The EIR amortisation is included as finance costs in the statement of profit and loss.

vii Derecognition

A financial liability is derecognised when the obligation under the liability is discharged or cancelled or expires. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or

modification is treated as the derecognition of the original liability and the recognition of a new liability. The difference in the respective carrying amounts is recognised in the statement of profit and loss.

viii Reclassification of financial assets

SPV Group determines classification of financial assets and liabilities on initial recognition. After initial recognition, no reclassification is made for financial assets, such as equity instruments designated at FVTPL or FVOCI and financial liabilities. For financial assets which are debt instruments, a reclassification is made only if there is a change in the business model for managing those assets.

ix Offsetting

Financial assets and financial liabilities are offset and the net amount presented in the balance sheet when, and only when, SPV Group currently has a legally enforceable right to set off the amounts and it intends either to settle them on a net basis or to realise the asset and settle the liability simultaneously.

c. Fair values measurement

SPV Group measurement financial instrument, such as derivative, investment and mutual fund at fair values at each balance sheet date.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value measurement is based on the presumption that the transaction to sell the asset or transfer the liability takes place either:

- In the principal market for the asset or liability, or
- In the absence of a principal market, in the most advantageous market for the asset or liability

The principal or the most advantageous market must be accessible by SPV Group.

The fair value of an asset or a liability is measured using the assumptions that market participants would use when pricing the asset or liability, assuming that market participants act in their economic best interest.

A fair value measurement of a non-financial asset takes into account a market participant's ability to generate economic benefits by using the asset in its highest and best use or by selling it to another market participant that would use the asset in its highest and best use.

SPV Group uses valuation techniques that are appropriate in the circumstances and for which sufficient data are available to measure fair value, maximising the use of relevant observable inputs and minimising the use of unobservable inputs

All assets and liabilities for which fair value is measured or disclosed in the special purpose combined financial statements are categorised within the fair value hierarchy, described as follows, based on the lowest level input that is significant to the fair value measurement as a whole:

Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.
Level 2: Valuation techniques for which the lowest level input that is significant to the fair value measurement is directly or indirectly observable.
Level 3: Valuation techniques for which the lowest level input that is significant to the fair value measurement is unobservable.

For assets and liabilities that are recognised in the special purpose combined financial statements on a recurring basis, SPV Group determines whether transfers have occurred between levels in the hierarchy by re-assessing categorisation (based on the lowest level input that is significant to the fair value measurement as a whole) at the end of each reporting period.

SPV Group has an established control framework with respect of fair values. This includes a financial reporting team that has overall responsibility for overseeing all significant fair value measurements, including Level 3 fair values, and reports directly to the Chief Financial Officer.

The financial reporting team regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as pricing services, is used to measure fair values, then the financial reporting team assesses the evidence obtained from the third parties to support the conclusion that these valuations meet the requirements of Ind AS, including the level in the fair value hierarchy in which the valuations should be classified.

For the purpose of fair value disclosures, SPV Group has determined classes of assets and liabilities on the basis of the nature, characteristics and risks of the asset or liability and the level of the fair value hierarchy as explained above.

d. Leases

At inception of a contract, SPV Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

i. Company as a lessee

SPV Group applies a single recognition and measurement approach for all leases, except for short-term leases and leases of low-value assets.

Lease term which is a non-cancellable period together with periods covered by an option to extend the lease if SPV Group is reasonably certain to exercise that option; and periods covered by an option to terminate the lease if SPV Group is reasonably certain not to exercise that option. SPV Group uses judgement in assessing the lease term (including anticipated renewals/termination options).

SPV Group recognises lease liabilities to make lease payments and right-of-use assets representing the right to use the underlying assets.

Short-term leases and leases of low-value assets

SPV Group has elected not to recognise right of use assets and lease liabilities for short term leases of all the assets that have a lease term of twelve months or less with no purchase option and leases for which the underlying asset is of low value. The lease payments associated with these leases are recognized as an expense on a straight-line basis over the lease term.

e. Revenue from contracts with customer

Revenue from contracts with customers is recognised when control of the goods or services are transferred to the customer at an amount that reflects the consideration to which SPV Group expects to be entitled in exchange for those goods or services. SPV Group has generally concluded that it is the principal in its revenue arrangements because it typically controls the goods or services before transferring them to the customer.

The accounting policies for the specific revenue streams of SPV Group as summarized below:

i Construction Income

Revenue, where the performance obligation is satisfied over time since SPV Group creates an assets that the customer controls, is recognised in proportion to the stage of completion of the contract. The stage of completion is assessed by reference to surveys of work performed. Contract costs are recognised as an expense in the Statement of Profit and Loss in the accounting periods in which the work to which they relate is performed.

ii Operational and maintenance Income

SPV group is required to carry out operations and maintenance on the road annually with an obligation to carry out periodic maintenance in terms of the concession at regular intervals. Revenue is recognized when services are performed and contractually billable.

iii Income from Service Concession Arrangement (Finance Income)

SPV Group recognizes the considerations given by the grantor i.e. National Highway Authority of India ('NHAI') in accordance with the Appendix C to Ind AS 115 – Service Concession Arrangements under financial assets mode. Under financial assets mode, SPV group has an unconditional contractual right to receive cash i.e. fixed annuity after concession period including interest thereon. The finance Income calculated on the basis of the effective interest rate in accordance with the Ind AS 109. The finance Income is recognized under other operating income.

iv Variable consideration

SPV Group's claim for bonus, incentives and other claims in rates relating to execution of contracts are recognized as revenue in the year in which said claims are finally accepted by the clients. Claims under arbitration/disputes are accounted as income based on final award. Expenses on arbitration are accounted as incurred.

v Contract balances

Contract assets

A contract asset is the right to consideration in exchange for goods or services transferred to the customer. If SPV Group performs by transferring goods or services to a customer before the customer pays consideration or before payment is due, a contract asset is recognised for the earned consideration that is conditional.

Trade receivables

A receivable is recognised if an amount of consideration that is unconditional (i.e., only the passage of time is required before payment of the consideration is due). Refer to accounting policies of financial assets in section (b) Financial instruments – initial recognition and subsequent measurement.

Contract liabilities

A contract liability is the obligation to transfer goods or services to a customer for which SPV Group has received consideration (or an amount of consideration is due) from the customer. If a customer pays consideration before SPV Group transfers goods or services to the customer, a contract liability is recognised when the payment is made, or the payment is due (whichever is earlier). Contract liabilities are recognised as revenue when SPV Group performs under the contract.

vi Recognition of interest income and insurance claim

Interest income is recognised using the effective interest method.

The 'effective interest rate' is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument to:

- the gross carrying amount of the financial asset; or

- the amortised cost of the financial liability.

Insurance claims are accounted for on the basis of claims admitted/expected to be admitted and to the extent that there is no uncertainty in receiving the claims.

f. Service concession arrangement

SPV group constructs or upgrades infrastructure (construction or upgrade service) used to provide to public service and operates and maintains that infrastructure (operation service) for a specified period of time. These arrangement may include infrastructure used in a public-to-private service concession arrangement for its entire useful life.

SPV group recognizes the considerations given by the grantor i.e. National Highway Authority of India ('NHAI') in accordance with Appendix C to Ind AS 115 – 'Revenue from Contracts with Customers'. The SPV group recognizes a financial asset to the extent that it has an unconditional contractual right to receive cash. As per Service Concession Arrangement the financial assets need to be recognized in accordance with Ind AS 109. Ind AS 109 requires a financial asset to be measured at its fair value on first recognition and any difference between the initial measurement of the financial assets in accordance with Ind AS 109 and the contract assets recognized under Ind AS 115 to be presented as an expense. Subsequently, financial assets recognized at amortised cost. Any subsequent modifications to the contractual cash flows are accounted through the statement of profit and loss account in accordance with the Ind-As 109.

g. Income tax

Income tax comprises of current and deferred tax. It is recognised in the Special Purpose Combined Statement of Profit and Loss except to the extent that it relates to an item recognised directly in equity or in OCI.

i ***Current tax***

Current tax comprises of the expected tax payable or receivable on the taxable income or loss for the year and any adjustment to the tax payable or receivable in respect of previous years. The amount of current tax reflects the best estimate of the tax amount expected to be paid or received after considering the uncertainty, if any, related to income taxes. It is measured using tax rates (and tax laws) enacted or substantively enacted by the reporting date.

ii ***Deferred tax***

Deferred tax is measured at the tax rates that are expected to apply to the period when the asset is realised or the liability is settled, based on the laws that have been enacted or substantively enacted by the reporting date. The measurement of deferred tax reflects the tax consequences that would follow from the manner in which SPV Group expects, at the reporting date, to recover or settle the carrying amount of its assets and liabilities.

Deferred tax is recognised in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the corresponding amounts used for taxation purposes. Deferred tax is also recognised in respect of carried forward tax losses and tax credits.

Deferred tax assets are recognised to the extent that it is probable that future taxable profits will be available against which they can be used. Deferred tax liabilities are recognised for all taxable temporary differences. The existence of unused tax losses is strong evidence that future taxable profit may not be available. Therefore, in case of a history of recent losses, SPV Group recognises a deferred tax asset only to the extent that it has sufficient taxable temporary differences or there is convincing other evidence that sufficient taxable profit will be available against which such deferred tax asset can be realised. Deferred tax assets –

unrecognised or recognised, are reviewed at each reporting date and are recognised/ reduced to the extent that it is probable/ no longer probable respectively that the related tax benefit will be realised.

Deferred tax assets and liabilities are offset if there is a legally enforceable right to offset current tax liabilities and assets, and they relate to income taxes levied by the same tax authority on the same taxable entity, or on different tax entities, but they intend to settle current tax liabilities and assets on a net basis or their tax assets and liabilities will be realised simultaneously.

Current and deferred tax is recognised in profit or loss, except to the extent that it relates to items recognised in other comprehensive income or directly in equity. In this case, the tax is also recognised in other comprehensive income or directly in equity, respectively.

h. Borrowing cost

Borrowing costs are interest and other costs incurred in connection with the borrowing of funds. Borrowing costs directly attributable to acquisition or construction of an asset which necessarily take a substantial period of time to get ready for their intended use are capitalised as part of the cost of that asset. Other borrowing costs are recognised as an expense in the Special Purpose Combined Statement of Profit and Loss in the period in which they are incurred.

Capitalization of borrowing costs ceases when substantially all the activities necessary to prepare the qualifying assets for their intended uses are complete.

i. Provisions and contingencies

A provision is recognised if, as a result of a past event, SPV Group has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are measure based on management's estimate required to settle the obligation at the balance sheet date and are discounted the expected future cash flows (representing the best estimate of the expenditure required to settle the present obligation at the balance sheet date) at a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability.

Provisions are reviewed at each balance sheet date and adjusted to reflect the current best estimate. If it is no longer probable that the outflow of resources would be required to settle the obligation, the provision is reversed.

Contingencies

Disclosure for a contingent liability is made when there is a possible obligation or a present obligation that may, but probably will not require an outflow of resources embodying economic benefits or the amount of such obligation cannot be measured reliably. When there is a possible obligation or a present obligation in respect of which likelihood of outflow of resources embodying economic benefits is remote, no provision or disclosure is made.

j. Earnings per unit

Basic Earnings Per Unit is calculated by dividing the net profit or loss for the period attributable to unit holders by the weighted average number of units outstanding during the year.

For the purpose of calculating Diluted Earnings Per Unit, the net profit or loss for the period attributable to unit holders and the weighted average number of units outstanding during the period are adjusted for the effects of all dilutive potential equity units.

k. Operating segments

Operating segments are reported in a manner consistent with the internal reporting provided to the Chief Operating Decision Maker (CODM) of SPV Group. The CODM is responsible for allocating resources and assessing performance of the operating segments of SPV Group.

l. Cash and cash equivalents

Cash and cash equivalent in the balance sheet comprise cash at banks and on hand and short-term deposits with an original maturity of three months or less, that are readily convertible to a known amount of cash and subject to an insignificant risk of changes in value.

For the purpose of the Combined statement of cash flows, cash and cash equivalents consist of cash and short-term deposits, as defined above, net of outstanding bank overdrafts as they are considered an integral part of SPV Group's cash management.

2.3 Significant accounting judgements, estimates and assumptions

The preparation of the special purpose combined financial statements requires management to make judgements, estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities, and the accompanying disclosures, and the disclosure of contingent liabilities. Uncertainty about these assumptions and estimates could result in outcomes that require a material adjustment to the carrying amount of assets or liabilities affected in future periods.

The key assumptions concerning the future and other key sources of estimation uncertainty at the reporting date, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year, are described below. SPV Group based its assumptions and estimates on parameters available when the Special purpose combined financial statements were prepared. Existing circumstances and assumptions about future developments, however, may change due to market changes or circumstances arising that are beyond the control of SPV Group. Such changes are reflected in the assumptions when they occur.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised prospectively.

The following are the significant judgements, apart from those involving estimations, that the investment manager have made in the process of applying SPV Group's accounting policies and that have the most significant effect on the amounts recognised in the financial statement.

i. Service Concession arrangement:

The Cash flow model indicates the cash flow to be generated over the project lifecycle. The key inputs of the model comprise of annuity and interest on annuity inflows, estimations on cost to build and maintain the asset and other operational efficiencies. These inputs are based on circumstances existing and management judgement / assumption on the future expectations based on current situations. Judgements include management view on expected earnings in future years, changes in interest rates, cost inflation, government policy changes, etc. These input assumptions could affect the reported cash flow from the related assets and accordingly these assumptions are reviewed periodically.

ii. Key sources of estimation uncertainty:

The following are the key assumptions concerning the future, and other key sources of estimation uncertainty at the end of the reporting period that may have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year

Assumptions and estimation uncertainties

Fair value measurement and valuation process	Fair valuation of investments and determining fair value less cost of sale of the disposal group on the basis of significant unobservable inputs
Trade receivable and contract assets	In assessing the recoverability of the trade receivables and contracts assets, management's judgement involves consideration of aging status, evaluation of litigations and the likelihood of collection based on the terms of the contract.
Tax	Uncertainties exist with respect to the interpretation of complex tax regulations, changes in tax laws, and the amount and timing of future taxable income. Given the wide range of business relationships and the long-term nature and complexity of existing contractual agreements, differences arising between the actual results and the assumptions made, or future changes to such assumptions, could necessitate future adjustments to tax income and expense already recorded. The SPV Group establishes provisions, based on reasonable estimates.

3. Changes in accounting policies and disclosures

New and amended standards

The accounting policies adopted in the preparation of the special purpose combined financial statements are consistent except for amendments to the existing Indian Accounting Standards (Ind AS). SPV Group has not early adopted any other standard, interpretation or amendment that has been issued but is not yet effective. SPV group applies below amendment, for the accounting periods beginning on or after 1 April 2022, that do not have any impact on the special purpose combined financial statements of SPV Group:

1. Ind AS 101 - First-time adoption of Ind AS
2. Ind AS 103 – Business Combinations
3. Ind AS 109 – Financial Instruments
4. Ind AS 16 – Property, Plant and Equipment
5. Ind AS 37 – Provisions, Contingent Liabilities and Contingent Assets
6. Ind AS 41 – Agriculture

Standards notified but not yet effective

There are no new standards that are notified, but not yet effective, upto the date of issuance of SPV Group's special purpose combined financial statements which would have been applicable from April 1, 2022

4 Contract assets (Unsecured, considered good)

	As at 30 June 2022		As at 31 March 2022		As at 31 March 2021		As at 31 March 2020	
	Non-current	Current	Non-current	Current	Non-current	Current	Non-current	Current
Contract assets (refer note 34)	3,695.31	1,238.38	2,295.33	1,349.82	6,924.58	4,107.35	15,833.38	8,522.23
Total	**3,695.31**	**1,238.38**	**2,295.33**	**1,349.82**	**6,924.58**	**4,107.35**	**15,833.38**	**8,522.23**

Notes:-
a) Above carrying value of contract assets are subject to a charge to secure the SPV Group's secured borrowing. (refer note 13).

5 Receivable under service concession agreements

	As at 30 June 2022		As at 31 March 2022		As at 31 March 2021		As at 31 March 2020	
	Non-current	Current	Non-current	Current	Non-current	Current	Non-current	Current
Receivable under service concession agreements (refer note 34)	38,895.78	2,831.29	38,321.40	2,491.18	26,766.39	2,640.10	4,914.96	390.33
Total	**38,895.78**	**2,831.29**	**38,321.40**	**2,491.18**	**26,766.39**	**2,640.10**	**4,914.96**	**390.33**

Notes:-
a) Above carrying value of receivable are subject to a charge to secure the SPV Group's secured borrowing. (refer note 13).

6 Other financial assets (Unsecured, considered good)

	As at 30 June 2022		As at 31 March 2022		As at 31 March 2021		As at 31 March 2020	
	Non-current	Current	Non-current	Current	Non-current	Current	Non-current	Current
Security deposits	9.78	-	9.48	-	8.51	-	1.34	-
Receivable from authorities	-	9.60	-	21.01	-	14.49	-	14.16
Total	**9.78**	**9.60**	**9.48**	**21.01**	**8.51**	**14.49**	**1.34**	**14.16**

Notes:-
a) There is no amount due from director, other officer of the SPV Group or firm in which any director is a partner or private companies in which any director is a director at any time during reporting period.

b) The fair value of non current assets is not materially different from the carrying value presented.
c) Above carrying value of receivable are subject to a charge to secure the SPV Group's secured borrowing. (refer note 13).

7 Income tax assets (net)

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Income tax receivable (net of provision)	994.88	872.06	534.38	241.87
Total	**994.88**	**872.06**	**534.38**	**241.87**

8 Other assets (Unsecured, Considered Good)

	As at 30 June 2022		As at 31 March 2022		As at 31 March 2021		As at 31 March 2020	
	Non-current	Current	Non-current	Current	Non-current	Current	Non-current	Current
Advance to suppliers for goods and services	-	0.14	-	0.14	-	0.06	-	4.04
Mobilisation advances given to related party (refer note 28)	-	-	-	-	-	595.12	-	1,676.32
Prepaid expenses	-	29.54	-	40.99	-	36.76	-	7.73
Unamortised processing fees	-	-	-	-	49.53	-	134.36	-
Balances with government authorities	2,629.19	1,903.69	3,258.11	1,333.67	3,946.90	744.17	3,153.65	570.92
Total	**2,629.19**	**1,933.37**	**3,258.11**	**1,374.80**	**3,996.43**	**1,376.11**	**3,288.01**	**2,259.01**

Notes:-
a) There is no amount due from director, other officer of the SPV Group or firm in which any director is a partner or private companies in which any director is a director at any time during reporting period.
b) Above carrying value of receivable are subject to a charge to secure the SPV Group's secured borrowing. (refer note 13).

9 Trade receivables

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Secured, considered good	-	-	-	-
Unsecured, considered good	147.67	226.79	346.97	86.56
Trade Receivables which have significant increase in credit risk	-	-	-	-
Trade Receivables - credit impaired		-	-	-
	147.67	**226.79**	**346.97**	**86.56**

Below is Trade receivables ageing schedule

	Current but not due	Outstanding for following periods from due date of payment					Total
		Less than 6 month	6 months - 1 year	1-2 years	2-3 years	More than 3 years	
As at 30 June 2022							
Undisputed Trade Receivables – considered good	-	67.20	14.95	36.27	20.51	8.74	147.67
Undisputed Trade Receivables – which have significant increase in credit risk	-	-	-	-	-	-	-
Undisputed Trade receivable – credit impaired	-	-	-	-	-	-	-
Disputed Trade receivables - considered good	-	-	-	-	-	-	-
Disputed Trade Receivables – which have significant increase in credit risk	-	-	-	-	-	-	-
Disputed Trade receivables – credit impaired	-	-	-	-	-	-	-
Total	**-**	**67.20**	**14.95**	**36.27**	**20.51**	**8.74**	**147.67**
As at 31 March 2022							
Undisputed Trade Receivables – considered good	-	149.93	11.90	49.48	9.86	5.62	226.79
Undisputed Trade Receivables – which have significant increase in credit risk	-	-	-	-	-	-	-
Undisputed Trade receivable – credit impaired	-	-	-	-	-	-	-
Disputed Trade receivables - considered good	-	-	-	-	-	-	-
Disputed Trade Receivables – which have significant increase in credit risk	-	-	-	-	-	-	-
Disputed Trade receivables – credit impaired	-	-	-	-	-	-	-
Total	**-**	**149.93**	**11.90**	**49.48**	**9.86**	**5.62**	**226.79**
As at 31 March 2021							
Undisputed Trade Receivables – considered good	-	291.15	17.28	23.13	15.41	-	346.97
Undisputed Trade Receivables – which have significant increase in credit risk	-	-	-	-	-	-	-
Undisputed Trade receivable – credit impaired	-	-	-	-	-	-	-
Disputed Trade receivables - considered good	-	-	-	-	-	-	-
Disputed Trade Receivables – which have significant increase in credit risk	-	-	-	-	-	-	-
Disputed Trade receivables – credit impaired	-	-	-	-	-	-	-
Total	**-**	**291.15**	**17.28**	**23.13**	**15.41**	**-**	**346.97**
As at 31 March 2020							
Undisputed Trade Receivables – considered good	-	67.44	3.71	15.41	-	-	86.56
Undisputed Trade Receivables – which have significant increase in credit risk	-	-	-	-	-	-	-
Undisputed Trade receivable – credit impaired	-	-	-	-	-	-	-
Disputed Trade receivables - considered good	-	-	-	-	-	-	-
Disputed Trade Receivables – which have significant increase in credit risk	-	-	-	-	-	-	-
Disputed Trade receivables – credit impaired	-	-	-	-	-	-	-
Total	**-**	**67.44**	**3.71**	**15.41**	**-**	**-**	**86.56**

Notes:-

a) Trade Receivables are unsecured, non interest bearing and generally have credit period of 30-90 days.
b) For terms and conditions relating to related party receivables, refer Note 28
c) Above carrying value of trade receivable are subject to a charge to secure the SPV Group's secured borrowing. (refer note 13).
d) No trade or other receivable are due from directors or other officers of the SPV Group either severally or jointly with any other person. Nor any trade or other receivable are due from firms or private companies respectively in which any director is a partner, a director or a member.
e) SPV group does not have unbilled revenue at respective balance sheet date and hence not disclosed.

10 Cash and bank balances	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Cash and cash equivalents				
Cash on hand	0.11	0.11	0.11	0.11
Balance with banks				
-in current account	170.05	429.16	435.44	189.87
Deposits with original maturity of less than three months	953.66	1,684.41	907.72	-
Total - A	**1,123.82**	**2,113.68**	**1,343.27**	**189.98**
Other bank balances				
Earmark Deposits with remaining maturity less than 12 months (refer note (a) below)	3,783.41	3,032.13	1,380.88	27.65
Total - B	**3,783.41**	**3,032.13**	**1,380.88**	**27.65**
Total - (A+B)	**4,907.23**	**5,145.81**	**2,724.15**	**217.63**
Notes :				
a) Earmark deposits :				
i) Deposits lien with banks/ lenders against Debt Service Reserve Account (DSRA) and Major Maintenance Reserve Account (MMRA).	2,718.40	2,484.70	1,082.60	-

b) Cash at bank earns interest at floating rates based on daily bank deposit rates. Short term deposits are made for varying periods of between one day and three months, depending on the immediate cash requirement of the SPV Group and earn interest at the respective short term deposit rates.

11 Equity share capital

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Authorised share capital #				
20,93,00,000 (31 March 2022: 20,93,00,000,, 31 March 2021: 20,93,00,000, 31 March 2020: 17,83,10,000) equity shares of ₹ 10 each	**2,093.00**	**2,093.00**	**2,093.00**	**1,783.10**
Issued subscribed and paid up #				
18,77,90,000 (31 March 2022: 18,77,90,000 , 31 March 2021: 18,77,90,000, 31 March 2020: 17,83,00,000) equity shares of ₹ 10 each	1,877.90	1,877.90	1,877.90	1,783.00
Total	**1,877.90**	**1,877.90**	**1,877.90**	**1,783.00**

#Equity capital of the SPV group is line by line aggregate of the authorized share capital and paid-up share capital of each of the SPVs. It does not represent legal share capital of the SPV Group.

A. Reconciliation of share outstanding at the beginning and at the end of the year/period.

	As at 30 June 2022		As at 31 March 2022		As at 31 March 2021		As at 31 March 2020	
	Numbers	Amount	Numbers	Amount	Numbers	Amount	Numbers	Amount
At the beginning of the year/period	1,87,79,000	1,877.90	1,87,79,000	1,877.90	1,78,30,000	1,783.00	1,78,29,000	1,782.90
Add/(Less): Changes during the year/period	-	-	-	-	9,49,000	94.90	1,000	0.10
Outstanding at the end of the year/period	**1,87,79,000**	**1,877.90**	**1,87,79,000**	**1,877.90**	**1,87,79,000**	**1,877.90**	**1,78,30,000**	**1,783.00**

B. Rights, preferences and restrictions attached to equity shares

The SPV Group has a only one class of equity shares having par value of ₹ 10 per share. Each holder of equity share is entitled to one vote per share. The SPV Group declares and pays dividend in Indian rupees. The dividend proposed by board of directors is subject to the approval of the shareholders in the annual general meeting.

In the event of liquidation of the SPV Group, the holders of equity shares will be entitled to receive the remaining assets of the SPV Group, after distribution of all preferential amounts. The distribution will be in proportion to the number of equity shares held by the shareholders.

C. Particulars of shareholders holding more than 5% shares

	As at 30 June 2022		As at 31 March 2022		As at 31 March 2021		As at 31 March 2020	
	Numbers	% of total share capital	Numbers	% of total share capital	Numbers	% of total share capital	Numbers	% of total share capital
Equity share of ₹ 10 each fully paid								
G R Infraprojects Limited (Parent Company along with its nominees)	1,87,79,000	100.00	1,87,79,000	100.00	1,87,79,000	100.00	1,78,30,000	100.00

12 Other equity

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
A. Debenture redemption reserve (refer note (i))				
Balance at the beginning of the year/period	1,016.79	-	-	-
Add: Transferred from Retained Earnings	240.72	1,016.79		
Balance at the end of the year/period	**1,257.51**	**1,016.79**	**-**	**-**
B. Retained earnings (refer note (ii))				
Balance at the beginning of the year/period	3,009.18	3,395.45	1,900.99	1,146.75
Add:-Profit for the year/period	733.61	630.52	1,494.46	754.24
Less : Transferred to Debenture Redemption Reserve	(240.72)	(1,016.79)		
Balance at the end of the year/period	**3,502.07**	**3,009.18**	**3,395.45**	**1,900.99**
Total (A+B)	**4,759.58**	**4,025.97**	**3,395.45**	**1,900.99**

i) **Debenture redemption reserve ('DRR')**

The SPV group has issued redeemable non-convertible debentures (refer note 11) and as per the Companies (Share capital and Debentures) Rules, 2014 (as amended) require the SPV group to create Debenture Redemption Reserve ('DRR') out of profits of the SPV group available for payment of dividend. DRR is required to be created for an amount which is equal to 10% of the value of debentures issued. DRR is required to be created over the life of debentures and upon redemption of debentures, DRR is required to be transferred to general reserve. However, as per the Companies (Share Capital and Debentures) Amendment rules, 2019 dated August 16, 2019 whereby it has exempted listed companies from creation of DRR in case of public issue of debentures.

Pursuant to notification dated 19 February 2021, which is effective from April 01, 2021, MCA has made certain amendment in the definition of "Listed Company" read with Rule 2A of Companies Specification of definitions details Second Amendment Rules, 2021, whereby its prescribed that for the purposes of the proviso to clause (52) of section 2 of the Act, the following classes of companies shall not be considered as listed companies which have not listed their equity shares on the recognized stock exchange but have listed their non-convertible debt securities issued on private placement basis in terms of SEBI (Issue and Listing of Debt Securities) Regulations, 2008.

Considering the above, SPV group has maintained the balance of DRR to the extent of 10% of the outstanding debenture by transferring amount from retain earning.

ii) **Retained earnings**

Retained earnings represents the profit that the company earn till date and can be distributed by the Company as dividends considering the requirements of the Companies' Act, 2013 less transfers to other reserves.

13 Non Current Borrowings

	As at 30 June 2022		As at 31 March 2022		As at 31 March 2021		As at 31 March 2020	
	Non current	Current Maturities	Non current	Current Maturities	Non current	Current Maturities	Non current	Current Maturities
A. Loan from banks - Secured #								
Term loan - Indian rupees	24,503.64	1,626.56	23,980.84	1,549.65	26,953.14	1,516.67	17,454.08	286.36
	24,503.64	**1,626.56**	**23,980.84**	**1,549.65**	**26,953.14**	**1,516.67**	**17,454.08**	**286.36**
B. Debentures - Secured #								
Listed Redeemable non convertible debentures	11,752.40	795.80	12,027.61	905.26	-	-	-	-
	11,752.40	**795.80**	**12,027.61**	**905.26**	**-**	**-**	**-**	**-**
C. Unsecured								
Loan from related party (refer note 28)	8,324.74	-	8,329.26	-	8,634.52	-	5,100.39	-
	8,324.74	**-**	**8,329.26**	**-**	**8,634.52**	**-**	**5,100.39**	**-**
Total	**44,580.78**	**2,422.36**	**44,337.71**	**2,454.91**	**35,587.66**	**1,516.67**	**22,554.47**	**286.36**

Includes interest accrual and the effect of the transaction cost paid to lender on upfront basis.

Notes:

i) Term loans from banks in Indian rupees are secured by:
First charges by way of hypothecation of all the fixed assets /Movable assets projects book debts, operating cash flow , receivable , revenue whatever nature , uncalled capital, Projects bank account and Assignment of all the SPV group's right, insurance policies and interest under all the agreement related to the projects and guarantee or performance bond provided by any party for any contract related to the projects in favour of the borrower, pledge of 51% share of equity shares.

ii) In case NCD issued by GR Phagwara Expressway Limited, debentures are secured by First charges by way of hypothecation of all the fixed assets /Movable assets projects book debts, operating cash flow, receivable, revenue whatever nature, uncalled capital, Projects bank account and Assignment of all the GR Phagwara Expressway Limited's right, insurance policies and interest under all the agreement related to the projects and guarantee or performance bond provided by any party for any contract related to the projects in favour of the borrower, pledge of 51% share of equity share

iii) In case NCD issued by GR Akkalkot Solapur Highway Private Limited, debentures are secured by First charges by way of hypothecation of all the fixed assets /Movable assets projects book debts, operating cash flow , receivable , revenue whatever nature , uncalled capital, Projects bank account and Assignment of all the GR Akkalkot Solapur Highway Private Limited's right, insurance policies and interest under all the agreement related to the projects and guarantee or performance bond provided by any party for any contract related to the projects in favour of the borrower, pledge of 51% equity shares.

iv) In case NCD issued by GR Gundugolanu Devarapalli Highway Private Limited, debentures are secured by First charges by way of hypothecation of all the fixed assets /Movable assets projects book debts, operating cash flow, receivable, revenue whatever nature, uncalled capital, Projects bank account & Assignment of all the GR Gundugolanu Devarapalli Highway Private Limited's right, insurance policies and interest under all the agreement related to the projects and guarantee or performance bond provided by any party for any contract related to the projects in favour of the borrower, pledge of 51% share of equity share.

v) In case NCD issued by Varanasi Sangam Expressway Private Limited, debentures are secured by First charges by way of hypothecation of all the fixed assets /Movable assets projects book debts, operating cash flow, receivable, revenue whatever nature, uncalled capital, Projects bank account and Assignment of all the Varanasi Sangam Expressway Private Limited's right, insurance policies and interest under all the agreement related to the projects and guarantee or performance bond provided by any party for any contract related to the projects in favour of the borrower, pledge of 51% share of equity share

vi) Terms of repayment of Term loan and Debentures:

Nature of borrowings		Repayment and interest terms
a)	Listed Redeemable non convertible debentures	Repayment in 24 half-yearly instalment as defined in the repayment schedule starting from March 31, 2022 ending with September 30, 2033 along with half-yearly interest rate equivalent to aggregate of Repo Rate (as prescribed by Reserve Bank of India from time to time) plus Spread of 2.35% i.e. 6.35% to 7.25% p.a. In the financial year 2021-22, NCD has been issued for the existing loan refinancing in case of GR Phagwara Expressway Limited. There is a Put/Call option thorugh which each of the Debenture Holders and the SPV shall have the option to seek the outstanding debentures redeemed with 90 days prior notice (together with accrued interest, if any) on September 30, 2024 Repayment in 26 half-yearly instalment as defined in the repayment schedule starting from April 30, 2022 ending with October 31, 2034 along with half-yearly interest rate equivalent to aggregate of Repo Rate (as prescribed by Reserve Bank of India from time to time) plus Spread of 1.95% i.e. 5.95% to 6.85% p.a. In the financial year 2021-22, NCD has been issued for the existing loan refinancing in case of GR Akkalkot Solapur Highway Private Limited. There is a Put/Call option thorugh which each of the Debenture Holders and the SPV shall have the option to seek the outstanding debentures redeemed with 90 days prior notice (together with accrued interest, if any) on Dec 02,2025 Repayment in 26 half-yearly installment as defined in the repayment schedule starting from August 10, 2022 ending with February 10, 2035 along with half-yearly interest rate equivalent to aggregate of floating Repo Rate (as prescribed by Reserve Bank of India from time to time) plus Spread of 1.80% i.e. 5.80% to 6.70% p.a. In the financial year 2021-22, NCD has been issued for the existing loan refinancing in case of GR Gundugolanu Devarapalli Highway Private Limited. There is a Put/Call option thorugh which each of the Debenture Holders and the SPV shall have the option to seek the outstanding debentures redeemed with 90 days prior notice (together with accrued interest, if any) on March 16,2024 Repayment in 27 half-yearly installment as defined in the repayment schedule starting from December 31, 2021 ending with December 29, 2034 along with half-yearly interest rate equivalent to aggregate of Repo Rate (as prescribed by Reserve Bank of India from time to time) plus Spread of 2.80% i.e. 6.80% to 7.70% p.a. In the financial year 2021-22, NCD has been issued for the existing loan refinancing in case of Varanasi Sangam Expressway Private Limited. There is a Put/Call option through which each of the Debenture Holders and the SPV shall have the option to seek the outstanding Debentures redeemed with 90 days prior notice (together with accrued interest, if any) on June 14,2024
b)	Secured Term loan from bank - Indian Rupee Loan	Repayment 27 half-yearly installment commence post completion of moratorium period post COD ranging from 2.40% to 4.55% of loan taken starting from Januray 31, 2022 to January 31, 2035 along with monthly interest rate range of 8.15% p.a. to 8.25% p.a. in case of GR Sangli Solapur Highway Private Limited.Loan has been refinanced in month of Feb-2022. Repayment in 27 half-yearly installment ranging from 2.70% to 4.40% of loan taken starting from October 31, 2022 to October 31, 2035, along with monthly interest rate range of 9.55 % to 9.65% p.a. in case of Porbander Dwarka Expressway Private Limited.Loan has been refinanced in month of Jan-2021. Repayment in 27 half-yearly installment ranging from 2.50% to 4.50% of loan taken starting from July 31, 2021 toJuly 31, 2034 , along with half-yearly interest rate from 8.65% p.a. to 9.70% p.a. in case of Varanasi Sangam Expressway Private Limited.Loan has been refinanced in month of June-2021. Repayment in 27 half-yearly installment ranging from 2.70% to 4.30% of loan taken starting from February 10, 2022 to November 12, 2035, along with monthly interest rate range from 8.15% p.a. to 8.25% p.a. in case of GR Gundugolanu Devarapalli Highway Private Limited.Loan has been refinanced in month of March-2022. Repayment in 27 half-yearly installment ranging from 2.35% to 4.75% of loan taken starting from October 31, 2021 to October 31, 2034, along with half-yearly interest rate range from 7.95% p.a. to 8.10% p.a. in case of GR Akkalkot Solapur Highway Private Limited.Loan has been refinanced in the month of Dec-2021. Repayment in 27 half-yearly installment ranging from 2.50% to 4.50% of loan taken starting from September 30,2020 to Septmeber 30, 2033, along with half-yearly interest rate range from 9.55% p.a. to 9.65% p.a. in case of GR Phagwara Expressway Limited.Loan has been refinanced in the month of Oct-2021.

Repayment 27 half-yearly installment commence post completion of moratorium period post COD ranging from 3.02% to 4.87% of loan taken starting from July 31, 2022 to January 31, 2035, along with monthly interest rate range of 5.90% p.a. to 6.65% p.a. in case of GR Sangli Solapur Highway Private Limited.

Repayment in 27 half-yearly installment ranging from 2.93% to 4.52% of loan taken starting from May18, 2021 to May 18, 2034, along with monthly interest rate range of 6.85 % to 7.25% p.a. in case of Porbander Dwarka Expressway Private Limited.

Repayment 27 half-yearly installment commence post completion of moratorium period post COD ranging from 2.50% to 4.50% of loan taken starting from October 31, 2022 to October 31, 2035 , along with monthly interest rate range of 8.55% p.a. to 8.65% p.a. in case of GR Dwarka Devariya Highway Private Limited.

Repayment in 27 half-yearly installment for existing loan refinanced and 28 half-yearly installment for the top up loan repayment ranging from 3.08% to 4.62% of loan taken starting from December 31, 2021 to November 12, 2034 , along with half-yearly interest rate from 6.95% p.a. to 7.85% p.a. in case of Varanasi Sangam Expressway Private Limited.
Repayment in 27 half-yearly installment for the top up loan repayment ranging from 0.50% to 13.50% of loan taken starting from December 31,2021 to December 31,2034 , along with half-yearly interest rate of 6.95% p.a. to 7.85% p.a in case of Varanasi Sangam Expressway Private Limited.

Repayment in 27 half-yearly installment for existing loan refinanced for the loan repayment ranging from 2.70% to 4.30% of loan taken starting from August 10, 2022 to February 10, 2035, along with monthly interest rate range from 5.80% p.a. to 6.70% p.a. in case of GR Gundugolanu Devarapalli Highway Private Limited.

Repayment in 27 half-yearly installment for existing loan refinanced for the loan repayment ranging from 2.97% to 4.86% of loan taken starting from April 30, 2022 to October 31, 2034, along with half-yearly interest rate range from 6.25% p.a. to 6.65% p.a. in case of GR Akkalkot Solapur Highway Private Limited.

Repayment in 27 half-yearly installment for existing loan refinanced for the loan repayment ranging from 3.27% to 4.93% of loan taken starting from March 31, 2022 to Septmeber 30, 2033, along with half-yearly interest rate range from 6.25% p.a. to 7.15% p.a. in case of GR Phagwara Expressway Limited.

vii) Unsecured loan from related party :
Rate of Interest : The rate of interest, shall be equivalent to the weighted average cost of fund to lender which will be reset by lender at its discretions, compounded annually (currently 9.00 %).
Terms of repayment : The SPV Group has taken interest bearing loan from its holding company. Repayment of such loan is as per the terms of loan agreement.

viii) Debt Covenants:
The SPV Group has satisfied all the debts covenants prescribed in the terms of respective loan/debenture agreement as at reporting date. The SPV Group has not defaulted in any loans/debenture payable.

ix) Undrawn borrowing facility
The SPV Group has undrawn committed borrowing facilities (excluding non-fund based facilities) towards future projects to be executed by the SPV Group as at 30 June 2022 is ₹ 1,380 millions (31 March 2022 is ₹ 2,380 millions, 31 March 2021 is ₹ 12,255.7 millions, 31 March 2020 is ₹ 23,926.5 millions).

14 Current Borrowings

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Secured				
Current maturities of non current borrowings (refer note 13)	2,422.36	2,454.91	1,516.67	286.36
	2,422.36	**2,454.91**	**1,516.67**	**286.36**

15 Trade payables

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Total outstanding dues of micro and small enterprises (MSE)	0.48	0.39	0.19	0.68
Total outstanding dues of creditors other than micro and small enterprises	1,459.85	1,039.73	5,139.09	5,591.27
Total	**1,460.33**	**1,040.12**	**5,139.28**	**5,591.95**

Trade payable ageing schedule

	Outstanding for following periods from due date of payment						
As at 30 June 2022	**Unbilled**	**Not due**	**Less than 1 year**	**1-2 years**	**2-3 years**	**More than 3 years**	**Total**
Total outstanding dues of MSE	-	-	0.48	-	-	-	**0.48**
Total outstanding dues of creditors other than MSE	472.88	7.34	979.63	-	-	-	**1,459.85**
Disputed dues of MSE	-	-	-	-	-	-	**-**
Disputed dues of creditors other than MSE	-	-	-	-	-	-	**-**
Total	**472.88**	**7.34**	**980.11**	**-**	**-**	**-**	**1,460.33**
As at 31 March 2022							
Total outstanding dues of MSE	-	-	0.39	-	-	-	**0.39**
Total outstanding dues of creditors other than MSE	344.33	7.34	688.06	-	-	-	**1,039.73**
Disputed dues of MSE	-	-	-	-	-	-	**-**
Disputed dues of creditors other than MSE	-	-	-	-	-	-	**-**
Total	**344.33**	**7.34**	**688.45**	**-**	**-**	**-**	**1,040.12**
As at 31 March 2021							
Total outstanding dues of MSE	-	-	0.19	-	-	-	**0.19**
Total outstanding dues of creditors other than MSE	493.57	7.34	4,638.18	-	-	-	**5,139.09**
Disputed dues of MSE	-	-	-	-	-	-	**-**
Disputed dues of creditors other than MSE	-	-	-	-	-	-	**-**
Total	**493.57**	**7.34**	**4,638.37**	-	-	-	**5,139.28**
As at 31 March 2020							
Total outstanding dues of MSE	-	-	0.68	-	-	-	**0.68**
Total outstanding dues of creditors other than MSE	18.85	11.80	5,560.62	-	-	-	**5,591.27**
Disputed dues of MSE	-	-	-	-	-	-	**-**
Disputed dues of creditors other than MSE	-	-	-	-	-	-	**-**
Total	**18.85**	**11.80**	**5,561.30**	-	-	-	**5,591.95**

Notes:-

a) Trade payable are non interest bearing and generally have credit period of 30-90 days.

b) For terms and conditions relating to related party payables (refer Note 28)

c) Details of dues to micro and small enterprises as defined under the Micro, Small and Medium Enterprises Development Act, 2006

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
i) The principal amount remaining unpaid to any supplier at the end of each accounting year;	0.48	0.39	0.19	0.68
ii) The interest due thereon remaining unpaid to any supplier at the end of each accounting year;	-	-	-	-
iii) The amount of interest paid by the buyer in terms of section 16 of the MSE Act 2006 along with the amounts of the payment made to the supplier beyond the appointed day during each accounting year	-	-	-	-
iv) The amount of interest due and payable for the period of delay in making payment (which have been paid but beyond the appointed day during the year) but without adding the interest specified under the MSE Act 2006.	-	-	-	-
v) The amount of interest accrued and remaining unpaid at the end of each accounting year	-	-	-	-
vi) The amount of further interest remaining due and payable even in the succeeding years, until such date when the interest dues as above are actually paid to the small enterprise for the purpose of disallowance as a deductible expenditure under section 23 of the MSE Act 2006	-	-	-	-

The disclosure in respect of the amount payable to enterprises which have provided goods and services to the SPV Group and which qualify under the definition of micro and small enterprises, as defined under Micro, Small and Medium Enterprises Development Act, 2006 has been made in the financial statements as at the reporting date based on the information received and available with the SPV Group. On the basis of such information, no interest is payable to any micro, small and medium enterprises. These have been relied by the auditor.

16 Contract liabilities

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Contract liabilities - Advance from customers (refer note 34)	23.89	64.50	577.26	3,315.29
Total	**23.89**	**64.50**	**577.26**	**3,315.29**

17 Other financial liabilities

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Dues to employees (refer note 28)	0.33	0.33	0.40	0.08
Total	**0.33**	**0.33**	**0.40**	**0.08**

18 Other current liabilities

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
TDS payable	17.12	91.23	84.39	128.40
Total	**17.12**	**91.23**	**84.39**	**128.40**

19 Current tax liabilities (net)

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Provision for tax [net of advance tax]	12.57	-	-	-
	12.57	**-**	**-**	**-**

20 Revenue from operations

	Three month period ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020
Revenue from contracts with customers (refer note 34)				
Construction income	2,170.33	11,751.29	16,612.29	28,135.32
Operation and maintenance income	69.87	231.82	156.94	-
	2,240.20	**11,983.11**	**16,769.23**	**28,135.32**
Other operating revenue				
Finance income on financial assets carried on amortised cost	2,187.97	3,873.91	4,770.42	2,605.18
	2,187.97	**3,873.91**	**4,770.42**	**2,605.18**
Total	**4,428.17**	**15,857.02**	**21,539.65**	**30,740.50**

21 Sub - contractor charges

	Three month period ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020
Sub contract charges (EPC contract)	2,084.15	11,149.73	16,208.84	27,824.54
Sub contract charges (operation and maintenance contract)	69.87	231.82	156.94	-
Total	**2,154.02**	**11,381.55**	**16,365.78**	**27,824.54**

22 Employee benefits expense

	Three month period ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020
Salaries, wages and bonus	1.00	3.92	4.58	3.70
Total	**1.00**	**3.92**	**4.58**	**3.70**

23 Finance costs

	Three month period ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020
Interest on				
- banks borrowings	420.63	1,957.89	1,920.96	1,181.30
- debentures	216.74	483.74	-	-
- customer advances (mobilisation)	0.30	10.39	74.55	155.17
- loan from related party (refer note 28)	183.79	697.97	594.57	368.34
Amortisation of processing fees	7.49	270.59	45.35	-
Other borrowing costs	1.03	20.29	13.15	7.31
Total	**829.98**	**3,440.87**	**2,648.58**	**1,712.12**

24 Other expenses

	Three month period ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020
Expenses relating to short term leases	0.01	0.08	0.05	0.07
Insurance expenses	19.10	78.93	76.80	33.45
Legal and professional charges	5.53	26.46	17.93	17.16
Independent engineers fees	15.16	66.78	86.65	77.79
Labour charges and labour cess	10.95	77.71	96.96	161.76
Electricity charges	21.58	73.98	39.50	2.85
Miscellaneous expenses	4.33	8.33	23.88	6.65
Total	**76.66**	**332.27**	**341.77**	**299.73**

25 Tax expense

The major component of income tax expenses for the period ended 30 June 202 and years ended March 31, 2022, March 31, 2021 and March 31, 2020 are as under:

A Income tax (income) / expense recognised in the Statement of Profit and Loss:

	Three month period ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020
Current tax				
Current tax on profit for the year/period	12.57	-	-	202.75
Adjustment of income tax related to earlier year (net)	-	-	(202.75)	-
	12.57	**-**	**(202.75)**	**202.75**
Deferred tax				
Deferred tax credit for the year/period	664.50	212.67	1,051.51	130.19
Total Deferred tax credit	**664.50**	**212.67**	**1,051.51**	**130.19**
Tax expenses reported in the Statement of Profit and loss	**677.07**	**212.67**	**848.76**	**332.94**

B Reconciliation of tax expenses and the accounting profit multiplied by India's domestic tax rate:

	Three month period ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020
Accounting Profit before tax	**1,410.68**	**843.19**	**2,343.22**	**1,087.18**
Statutory income tax rate (in %)	25.17%	25.17%	25.17%	26.95%
Expected income tax expenses at the SPV Group's appliacble statutory income tax rate	**355.04**	**212.21**	**589.74**	**292.95**
Tax effect of adjustments to reconcile expected income tax expenses to reported income tax expenses				
Non deductible expenses	-	-	-	1.15
Adjustment of tax related to earlier period	-	-	(202.75)	1.76
Impact of tax ordinance (refer note a below)	-	-	450.87	-
Adjustment of current year tax losses (refer note E below)	(67.12)	-	-	-
Adjustment for the brought forward tax losses (refer note E below)	389.15	-	-	-
Others	-	0.46	10.90	37.10
Total Tax expense	**677.07**	**212.67**	**848.76**	**332.94**
Consequent to reconciliation items above, the effective interest rate (%)	**48.00%**	**25.22%**	**36.22%**	**30.62%**

C Deferred Tax:

The movement in deferred tax assets / (liabilities) during the three month period ended 30 June 2022 and years ended 31 March 2022, 31 March 2021 and 31 March 2020 are give below:

Three months period ended 30 June 2022	As at 1 April 2022	Recognised in profit or loss during the period	As at 30 June 2022
Deferred tax liabilities			
Difference in carrying value and tax base in measurement of financial instrument at amortised cost	32.47	(1.29)	31.18
Difference in carrying value and tax base in measurement of annuity receivable under service concession arrangement	1,829.80	276.64	2,106.44
	1,862.27	**275.35**	**2,137.62**
Deferred tax assets			
Carried forward income tax losses available for offset in future period (refer note E below)	389.15	(389.15)	-
	389.15	**(389.15)**	**-**
Net Deferred tax assets / (liabilities)	**(1,473.12)**	**(664.50)**	**(2,137.62)**

For the year ended 31 March 2022	As at 1 April 2021	Recognised in profit or loss during 2021-22	As at 31 March 2022
Deferred tax liabilities			
Difference in carrying value and tax base in measurement of financial instrument at amortised cost	73.53	(41.06)	32.47
Difference in carrying value and tax base in measurement of annuity receivable under service concession arrangement	2,150.67	(320.87)	1,829.80
	2,224.20	**(361.93)**	**1,862.27**
Deferred tax assets			
Carried forward income tax losses available for offset in future period (refer note E below)	963.75	(574.60)	389.15
	963.75	**(574.60)**	**389.15**
Net Deferred tax assets / (liabilities)	**(1,260.45)**	**(212.67)**	**(1,473.12)**

For the year ended 31 March 2021	As as at 1 April 2020	Recognised in profit or loss during 2020-21	As at 31 March 2021
Deferred tax liabilities			
Difference in carrying value and tax base in measurement of financial instrument at amortised cost	83.97	(10.44)	73.53
Difference in carrying value and tax base in measurement of annuity receivable under service concession arrangement	1,281.53	869.14	2,150.67
	1,365.50	**858.70**	**2,224.20**
Deferred tax assets			
Carried forward income tax losses available for offset in future period (refer note E below)	623.69	340.06	963.75
MAT credit entitlement (refer note D below)	532.87	(532.87)	-
	1,156.56	**(192.81)**	**963.75**
Net Deferred tax assets/(liabilities)	**(208.94)**	**(1,051.51)**	**(1,260.45)**

For the year ended 31 March 2020	As as at 1 April 2019	Recognised in profit or loss during 2019-20	As at 31 March 2020
Deferred tax liabilities			
Difference in carrying value and tax base in measurement of financial instrument at amortised cost	71.06	12.91	83.97
Difference in carrying value and tax base in measurement of annuity receivable under service concession arrangement	546.98	734.55	1,281.53
	618.04	**747.46**	**1,365.50**
Deferred tax assets			
Carried forward income tax losses available for offset in future period (refer note E below)	209.17	414.52	623.69
MAT credit entitlement (refer note D below)	330.12	202.75	532.87
	539.29	**617.27**	**1,156.56**
Net Deferred tax assets / (liabilities)	**(78.75)**	**(130.19)**	**(208.94)**

D The SPV Group has following unutilised MAT credit under Income Tax Act, 1961 for which deferred tax recognised as at Balance sheet date :

Particulars	31 March 2020	
	MAT credit available	Expiry assessment year
AY 2018-19	-	2033-34
AY 2019-20	24.57	2034-35
AY 2020-21	305.56	2035-36
AY 2021-22	202.74	2036-37
Total	**532.87**	

The MAT credit has been reversed in financial year 20-21 on account of availment of benefit under section 115BAA of the Income Tax Act, 1961. Further refer note (a) below.

E The SPV Group has following available carried forward losses under Income Tax Act, 1961 for which deferred tax recognised as at Balance sheet date :

Particulars	31 March 2022		31 March 2021		31 March 2020	
	Carried forward losses available	Expiry assessment year	Carried forward losses available	Expiry assessment year	Carried forward losses available	Expiry assessment year
AY 2017-18	-	2025-26	-	2025-26	40.40	2025-26
AY 2018-19	-	2026-27	13.63	2026-27	13.63	2026-27
AY 2019-20	-	2027-28	545.25	2027-28	545.25	2027-28
AY 2020-21	469.67	2028-29	1,528.77	2028-29	1,578.30	2028-29
AY 2021-22	976.36	2029-30	1,741.61	2029-30	-	-
AY 2022-23	100.22	2030-31	-	-	-	-
AY 2023-24	-	-	-	-	-	-
Total	**1,546.25**		**3,829.27**		**2,177.58**	

Deferred tax on carry forward tax losses has not been recognised considering that these unabsorbed tax losses of SPV group may not be available to Trust as per the requirement of Section 79 of Income Tax Act, 1961. Accordingly, there is no reasonable certainty that such carried forward unabsorbed tax losses available for future taxable profit of SPV group and thus no deferred tax assets has been recognised against such unabsorbed tax losses.

Notes :

a) Impact of tax ordinance

On 20 September 2019, the Government of India had brought in the Taxation Laws (Amendment) Ordinance 2019 to make certain amendments in the Income Tax Act, 1961 ('the Act') whereby Government has introduced new section 115BAA for concession tax rate (New Tax Regime) for domestic companies. Such amendment has given the option to assesses that they can adopt the new tax regime or remain in the existing applicable tax rate. SPV Group had not opted new tax regime and created provision for income tax under existing tax rate during the year ended financial statements for the year ended 31 March 2020 since the management of those companies was of the view that this option was more beneficial. However, subsequently, SPV Group had decided to adopted for New Tax Regime and accordingly, the adjustment on account of such change had recorded in financial year 2020-21 which resulted in reversal of ₹ 202.75 millions of current tax expense and reversal of deferred tax assets of ₹ 450.87 millions (net tax charge of ₹ 248.12 millions).

26 Earnings per Unit

The number of units that Trust will issue to investors in the proposed initial public issue is not presently ascertainable. Hence the disclosures in respect of Earnings per Unit have not been given in these Special Purpose Combined Financial Statements.

27 Contingent liabilities and commitments

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
A Contingent liabilities (to the extent not provided for)				
Claims against the Company not acknowledged as debts				
(i) Indirect tax matters (including interest and penalty)	1,474.61	-	-	-
Total	**1,474.61**	**-**	**-**	**-**

Indirect tax matter related to denial of input tax credit on a proportionate basis due to exempted turnover and difference of input tax credit from the tax authorities for the period May-2018 to January 2021 vide demand order in GR Gundugolanu Devarapalli Highway Private Limited, one of SPV. The SPV had filed an appeal before the Hon'ble High Court, Andhra Pradesh against said order. Currently, the matter is pending in Hon'ble High Court, Andhra Pradesh.

SPV is contensting the demands and the management including its tax advisors, believe that its position shall likely be upheld in the appellate process. No tax expenses has been accrued in the special purpose combined financial statements for the tax demand raised. The management believes that the ultimate outcome of those proceeding will not have a material adverse effect on the SPV Group's financial position and results of operations.

B Commitments	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Estimate amount of EPC contract remaining to be executed (net of advances)	1,880.31	3,741.46	11,830.77	24,103.15

28 Related party disclosure

1 List of related party as per the requirement of Ind AS - 24

A Related parties where control exists :

i) Holding Company

G R Infraprojects Limited

B Related party with whom transactions have taken place during the year

i) Key Management Personnel ("KMP"):

(a) GR Phagwara Expressway Limited

Mr. Vinod Kumar Agarwal - Director (resigned w.e.f. 02.02.2021)
Mr. Anand Rathi - Director (resigned w.e.f. 02.02.2021)
Mr. Vikas Agarwal - Director and Chief Executive Officer
Mr. Kuldeep Jain - Chief Financial Officer
Ms. Heena Talesara - Company Secretary
Ms. Riya Parakh - Director (resigned w.e.f. 01.12.2021)
Ms. Anu Kalra - Director (resigned w.e.f. 30.06.2020)
Mr Dilip kumar Girdharilal Tikami - Director (Resigned w.e.f. 28.02.2020)
Mr Diwakar Goyal - Director (Resigned w.e.f. 28.02.2020)
Mr. Varun Bhasin - Director (w.e.f. 02.02.2021)
Mr. Kuldeep Jain-Additional Director (w.e.f. 01.12.2021)

(b) Varanasi Sangam Expressway Private Limited

Mr. Ajendra Kumar Agarwal - Director (resigned w.e.f 01.03.2021)
Mr. Anand Rathi - Director (resigned w.e.f 01.03.2021)
Mr. Vikas Agarwal - Director
Mr. Karan Agarwal - CFO (resigned w.e.f 28.032022)
Ms. Suhani Jain - Director (appointed w.e.f. 16.11.2021)
Ms. Riya Parakh - Director (resigned w.e.f. 02.11.2021)
Mr. Chirag Gandhi - Company Secretary (appointed w.e.f. 01.04.2020)
Ms. Sugandha Goyal -Company Secretary (resigned w.e.f. 30.11.2019)
Ms. Riti -Company Secretary (resigned w.e.f. 30.01.2020)
Mr.Varun Bhasin - Director
Mr. Ajendra Kumar Agarwal - CEO
Ms. Namita Somani - CFO (appointed w.e.f 29.03.2022)

(c) Porbander Dwarka Expressway Private Limited

Mr. Vinod Kumar Agarwal - Director
Mr. Anand Rathi - Director (resigned w.e.f 19.10.2020)
Mr. Ajendra Kumar Agarwal - Director
Mr. Nagendra Singh Chouhan - CFO
Mr. Sachin Kumar Agarwal -CEO
Mr. Vikram Talwar -Company Secretary
Mr. Surya Prakash Moud -Company Secretary (resigned w.e.f. 30.04.2019)
Mr Kuldeep Singhvi - CFO (Resigned w.e.f. 30.06.2019)
Ms. Suhani Jain - Director (resigned w.e.f 01.04.2020)
Ms. Riya Parakh - Director (resigned w.e.f. 29.10.2021)

28 Related party disclosure (Continued)

(d) GR Gundugolanu Deverapalli Highway Private Limited
Mr. Karan Agarwal - Director (resigned w.e.f. 01.03.2022)
Mr. Kuldeep Jain-Additional Director (appointed w.e.f. 30.09.2021)
Mr. Anand Rathi - Director (resigned w.e.f. 30.09.2021)
Mr. Bala ji - Company Secretary (resigned w.e.f 31.03.2021)
Ms. Riya Parakh - Director (resigned on 29.10.2021)
Mr. Pushkar Bhola -Chief Financial Officer & Chief Executive Officer (resigned w.e.f. 31.01.2022)
Mr. Sneh Dharmawat-Chief Financial Officer & Chief Executive Officer (appointed w.e.f. 03.02.2022)
Mr. Sumit Sharma-Company Secretary (appointed w.e.f. 01.08.2021)
Ms. Suhani Jain-Additional Director (appointed w.e.f. 06.12.2021)

(e) GR Sangli Solapur Highway Private Limited
Mr. Vikas Agarwal - Director (resigned w.e.f. 01.03.2021)
Mr. Varun Bhasin-Director
Mr. Anand Rathi - Director (resigned w.e.f. 01.03.2021)
Mr. Karan Agarwal - Director (resigned w.e.f. 01.03.2022)
Mr. Mohnish Dutta - Company Secretary (resigned w.e.f. 30.06.2022)
Ms. Suhani Jain-Additional Director (appointed w.e.f. 06.12.2021)
Mr. Sanwar Mal Sharma -Chief Financial Officer & Chief Executive Officer (appointed w.e.f. 01.08.2019)
Mrs Pooja Shukla - Company Secretary (resigned w.e.f. 10th June 2019)
Mrs Anushree Nagda (appointed w.e.f. 01.07.2022)

(f) GR Akkalkot Solapur Highway Private Limited
Mr. Anand Rathi - Director (resigned w.e.f. 06.04.2022)
Mr. Varun Bhasin - Additional Director (appointed w.e.f. 06.04.2022)
Mr. Vikas Agarwal - Director
Mr. Karan Agarwal - Director (resigned w.e.f. 28.03.2022)
Ms Gunjan Jain - Company Secretary (resigned w.e.f. 02.12.2020)
Mr . Mahendra Kumar Darji -Chief Financial Officer and Chief Executive Officer
Ms. Nandini Agarwal - Company Secretary (w.e.f. 08.01.2021)

(g) GR Dwarka Devariya Highway Private Limited
Mr. Anand Rathi - Director (resigned w.e.f. 06.04.2022)
Mr. Karan Agarwal - Director (resigned w.e.f. 01.03.2022)
Ms. Surabhi Bhandari - Company Secretary (appointed w.e.f. 01.04.2020 and resigned w.e.f. 20.11.2020)
Mr. Varun Bhasin-Additional Director (appointed w.e.f. 31.01.2022)
Mr. Kuldeep Jain - Additional Director (appointed w.e.f. 06.04.2022)

2 List of related parties as per requirement of InvIT regulation

(a) Parties of Trust
Lokesh Builders Private Limited - Sponsor and Project Manager
GR Highways Investment Manager Private Limited - Investment Manager
IDBI Trusteeship Services Limited - Trustee

(b) Promoters, Directors and Partners of the persons mentioned in clause (a)

Particulars	Sponsor and Project Manager	Investment Manager	Trustee
Promotors	Vinod Kumar Agarwal HUF Devki Nandan Agarwal Vinod Kumar Agarwal Suman Agarwal Purshottam Agarwal HUF Ritu Agarwal Kiran Agarwal Purshottam Agarwal Ajendra Kumar Agarwal HUF Ajendra Kumar Agarwal Lalita Agarwal Mahendra Kumar Agarwal Harish Agarwal HUF Laxmi Devi Agarwal Puja Agarwal Sangeeta Agarwal	Lokesh Builders Private Limited	IDBI Bank Limited Life Insurance Corporation of India General Insurance Corporation of India
Directors	Purshottam Agarwal Lokesh Agarwal Sachin Kumar Agarwal	Ajendra Kumar Agarwal Siba Narayan Nayak Deepak Maheshwari Raghav Chandra	Padma Vinod Betai(MD and KMP) Samuel Joseph Jebaraj Pradeep Kumar Jain Madhuri J. Kulkarni (resigned w.e.f. 06.12.2022) Jayashree Vijay Ranade
Partners	Not applicable	Not applicable	Not applicable

28 Related party disclosure (Continued)

3 Transactions with Holding Company and their closing balances

The aggregate value of the transactions occued with related parties and outstanding balances is as follows:

	Relationship with related party	Transaction value			
		30 June 2022	31 March 2022	31 March 2021	31 March 2020
(a) Loan received	Holding	181.91	2,575.70	3,668.22	2,661.58
(b) Loan repaid	Holding	370.23	3,494.35	575.37	482.16
(c) Share Capital issued	Holding	-	-	94.90	0.10
(d) Sub - contractor charges	Holding	2,154.02	11,381.55	16,365.79	27,824.54
(e) Mobilisation advances given	Holding	-	-	930.41	587.00
(f) Mobilisation advances adjusted	Holding	-	595.12	2,011.60	1,458.94
(g) Interest on mobilisation advances	Holding	-	16.42	117.50	184.28
(h) Interest on unsecured loan	Holding	183.79	697.97	594.57	368.34
(i) Interest on claims (others borrowing cost)	Holding	-	12.75	-	-

	Relationship with related party	Balance outstanding			
		30 June 2022	31 March 2022	31 March 2021	31 March 2020
(a) Borrowing (including interest accrued)	Holding	8,324.74	8,329.27	8,634.52	5,100.39
(b) Trade payable	Holding	1,447.42	1,014.58	5,093.05	5,570.37
(c) Mobilisation advances receivable	Holding	-	-	595.12	1,676.32

4 Transactions with key management personnel and their closing balances:

The aggregate value of the transactions occued with related parties and outstanding balances is as follows:

	Transaction value			
	30 June 2022	31 March 2022	31 March 2021	31 March 2020
(a) Remuneration				
Ms. Heena Talesara	0.17	0.66	0.56	0.54
Ms. Nandini Agarwal	0.10	0.42	0.11	-
Ms. Gunjan Jain	-	-	0.28	0.43
Mr. Bala ji	-	-	1.26	1.50
Mr. Sumit Sharma	0.08	0.22	-	-
Ms. Sugandha Goyal	-	-	-	0.28
Ms. Riti	-	-	-	0.04
Mr. Chirag Gandhi	0.15	0.60	0.49	-
Mrs Pooja Shukla	-	-	-	0.03
Mr. Mohnish Dutta	0.33	1.32	0.85	0.47
Mr. Surya Prakash Moud	-	-	-	0.05
Mr. Vikram Talwar	0.17	0.70	0.58	0.36
Ms. Surabhi Bhandari	-	-	0.45	-

	Balance outstanding			
	30 June 2022	31 March 2022	31 March 2021	31 March 2020
(a) Remuneration payable				
Ms. Heena Talesara	0.06	0.05	0.08	0.05
Ms. Nandini Agarwal	0.04	0.04	0.04	-
Ms. Gunjan Jain	-	-	-	0.04
Mr. Bala ji	-	-	0.09	0.12
Mr. Sumit Sharma	0.03	0.03	-	-
Mr. Mohnish Dutta	0.11	0.11	0.06	0.06
Mr. Vikram Talwar	0.06	0.06	0.09	0.05
Mr. Chirag Gandhi	0.05	0.05	0.04	-

5 Terms & Condition with Related Party

i) The transactions with related parties are made on terms equivalent to those that prevail in arm's length transactions. Outstanding balance other than loan taken at the year-end are unsecured and interest free and settlement occurs in cash.

ii) Unsecured loan issued to the related party carried interest rate of 9% as at June 30, 2022. (March 31, 2022: 9%, March 31, 2021:9%, March 31, 2020:9%)

iii) The terms and conditions of the transactions with key management personnel and their related parties were no more favourable than those available, or those which might reasonably be expected to be available, in respect of similar transactions with non-key management personnel related entities on an arm's length basis.

iv) Key Managerial Personnel consists of "Director", "Chief Financial Officer" and "Company Secretary". The Remuneration disclosed above given to "Company Secretary" is mainly related to short term employee benefits and does not include post employee benefits as the same is not applicable to SPV Group.

v) SPV group has not provided any commitment to the related party as at June 30, 2022, March 31, 2022, March 31, 2021 and March 31, 2020.

29 Disclosure of Financial Instruments by Category #

	Amortised cost			
	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Receivable under service concession agreements	41,727.07	40,812.58	29,406.49	5,305.29
Trade receivables	147.67	226.79	346.97	86.56
Cash and cash equivalents	1,123.82	2,113.68	1,343.27	189.98
Other bank balance	3,783.41	3,032.13	1,380.88	27.65
Other financial assets	19.38	30.49	23.00	15.50
Total Financial assets	**46,801.35**	**46,215.67**	**32,500.61**	**5,624.98**
Borrowings	47,003.14	46,792.62	37,104.33	22,840.83
Trade payables	1,460.33	1,040.12	5,139.28	5,591.95
Other financial liabilities	0.33	0.33	0.40	0.08
Total Financial liabilities	**48,463.80**	**47,833.07**	**42,244.01**	**28,432.86**

Considering that there is no item of fair value through profit and loss and fair value through other comprehensive income and hence the same is not disclosed.

30 Fair value disclosures for financial assets and financial liabilities

The carrying amount of financial assets and financial liabilities measured at amortised cost in the special purpose combined financial statements are a reasonable approximation of their fair values since the SPV Group does not anticipate that the carrying amounts would be significantly different from the values that would eventually be received or settled.

The fair value of the financial assets and financial liabilities are included at the amount at which the instrument could be exchanged in a current transaction between willing parties, other than in a forced or liquidation sale.

31 Fair value hierarchy

The following table provides the fair value measurement hierarchy of the SPV Group's assets and liabilities:

Quantitative disclosures fair value measurement hierarchy for financial assets as at June 30, 2022, March 31, 2022 and March 31, 2021 & March 31, 2020 is as under

	Level 1 - Quoted price in active markets	Level 2 - Significant observable inputs	Level 3 - Significant unobservable inputs	Total
30 June 2022				
Assets for which fair value disclosure is given				
Total assets	-	-	67,332.32	67,332.32
	-	**-**	**67,332.32**	**67,332.32**
31 March 2022				
Assets for which fair value disclosure is given				
Total assets	-	-	61,606.81	61,606.81
	-	**-**	**61,606.81**	**61,606.81**
31 March 2021				
Assets for which fair value disclosure is given				
Total assets	-	-	52,056.92	52,056.92
	-	**-**	**52,056.92**	**52,056.92**
31 March 2020				
Assets for which fair value disclosure is given				
Total assets	-	-	40,084.23	40,084.23
	-	**-**	**40,084.23**	**40,084.23**

The SPV Group is required to present the Statement of total assets at fair value and Statement of total returns at fair value as per SEBI Circular No. CIR/IMD/DF/114/2016 dated 20 October 2016 as a part of these Special purpose combined financial statements - Refer Statement of Net assets at fair value and Statement of Total Returns at fair value.
The inputs to the valuation models for computation of fair value of assets for the above mentioned statements are taken from observable markets where possible, but where this is not feasible, a degree of judgement is required in establishing fair values. Judgements include considerations of inputs such as WACC, Tax rates, Inflation rates, etc.

The significant unobservable inputs used in the fair value measurement required for disclosures as above categorised within Level 3 of the fair value hierarchy as above together with a quantitative sensitivity analysis as at June 30, 2022, March 31, 2022, March 31, 2021 and March 31, 2020 are as shown below:

Description of significant unobservable inputs to valuation:

Significant unobservable inputs	Input for June 30, 2022	Input for March 31, 2022	Input for March 31, 2021	Input for March 31, 2020	Sensitivity of input to the fair value	Increase /(decrease) in fair value			
						30 June 2022	31 March 2022	31 March 2021	31 March 2020
WACC	7.07%	6.69% to 8.54%	7.29% to 9.05%	8.68% to 9.98%	0.50%	(1,579.02)	(1,535.18)	(1,516.59)	(1,245.29)
					-0.50%	1,649.82	1,604.95	1,589.83	1,304.15
Tax rate (normal tax and MAT)	MAT: 17.47%	MAT: 17.47%	MAT: 17.47%	MAT: 17.47%	2.00%	(590.10)	(527.88)	(572.87)	(164.34)
	Normal Tax: 25.17%	Normal Tax: 25.17%	Normal Tax: 25.17%	Normal Tax: 25.17%	-2.00%	590.78	527.88	572.87	164.34
Inflation rate for expenses	5%	4.5% to 5%	4.5% to 5%	4.5% to 5%	1.00%	(619.70)	(2,593.43)	(1,857.21)	(1,436.25)
					-1.00%	572.73	1,464.80	1,395.11	1,140.00

32 Financial risk management objectives and policies

The SPV Group's principal financial liabilities comprise of borrowings, trade and other payables. The main purpose of these financial liabilities is to finance the SPV Group's operations and to provide guarantees to support its operations. The SPV Group's financial assets comprise mainly of receivable under service concession, cash and cash equivalents, other balances with banks, trade receivables and other receivables that derive directly from its operations.

The SPV Group is exposed to market risk, credit risk and liquidity risk. The SPV Group's board of directors have overall responsibility for establishment and oversees the SPV Group's risk management framework. All derivative activities for risk management purposes are carried out by finance team which has appropriate skills, experience and supervision. It is the SPV Group's policy that no trading in derivatives for speculative purposes may be undertaken. The Board of Directors reviews and agrees policies for managing each of these risks, which are summarised below.

A. Market risk

Market risk is the risk that the fair value of future cash flow of financial instrument will fluctuate because of changes in market prices. Market Risk comprises three types of risk: interest rates risk, currency risk and other price risk, such as equity prices risk and commodity risk. Financial instruments affected by market risk include loans and borrowings, deposits and debt.
The sensitivity analyses in the following sections relate to the position as at 30 June 2022, 31 March 2022 , 31 March 2021 and 31 March 2020.
The sensitivity analyses have been prepared on the basis that the amount of net debt and the ratio of fixed to floating interest rates of the debt are all constant and on the basis of hedge designations in place at 30 June 2022, 31 March 2022 , 31 March 2021 and 31 March 2020.

The following assumptions have been made in calculating the sensitivity analyses:

• The sensitivity of the relevant profit or loss item is the effect of the assumed changes in respective market risks. This is based on the financial liabilities held at 30 June 2022, 31 March 2022, 31 March 2021 and 31 March 2020.

Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The SPV Group is exposed to interest risk of changes in market interest rates relate primarily to the SPV Group's long-term debt obligations with floating interest rates. While most of long-term borrowings primarily consist of floating rate obligations linked to the applicable benchmark rates, which may typically be adjusted at certain intervals in accordance with prevailing interest rates. As at 30 June 2022, none of the SPV Group's borrowings are at fixed rate (31 March 2022: 0%,31 March 2021: 0%,31 March 2020: 0%). Increases in interest rates would increase interest expenses relating to outstanding floating rate borrowings and increase the cost of new debt. In addition, an increase in interest rates may adversely affect ability to service long-term debt and to finance development of new projects, all of which in turn may adversely affect results of operations. The SPV Group seeks to mitigate such risk by maintaining an adequate proportion of floating and fixed interest rate borrowings.

Exposure to interest rate risk

The interest rate profile of the SPV Group's interest - bearing financial instruments as reported to management is as follows:

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Variable-rate instruments				
Financial assets	46,464.14	45,529.12	31,695.09	5,332.94
Financial liabilities	47,003.14	46,792.62	37,104.33	22,840.83

Interest rate sensitivity

Profit or loss is sensitive to higher/lower interest expense from borrowings as a result of change in interest rates. The following table demonstrates the sensitivity of floating rate financial instruments to a reasonably possible change in interest rates. The risk estimates provided assume a parallel shift of 100 basis points interest rate across all yield curves. This calculation also assumes that the change occurs at the balance sheet date and has been calculated based on risk exposures outstanding as at that date. The year end balances are not necessarily representative of the average debt outstanding during the period.

Sensitivity analysis	Impact on profit before tax				Impact on equity, net of tax			
	Three month ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Interest rate								
- increase by 100 basis points	(5.39)	(12.63)	(54.09)	(175.08)	(4.03)	(9.46)	(40.48)	(127.90)
- decrease by 100 basis points	5.39	12.63	54.09	175.08	4.03	9.46	40.48	127.90

B. Credit risk

Credit risk is the risk that a counterparty will not meet its obligations under a financial instrument or customer contract, leading to a financial loss. The SPV Group is exposed to credit risk primarily receivable under service concession, trade receivables and other financial assets including deposits with banks. The SPV Group's exposure and credit ratings of its counterparties are continuously monitored and the aggregate value of transactions is reasonably spread amongst the counterparties. The maximum exposure to credit risk at the reporting date is the carrying value of each class of financial assets disclosed in note 29.

Trade receivable, receivable under service concession and contract assets

The SPV Group's customer profile includes government entities. General payment terms is as per the concession agreement for annuity and in other case such as utility shifting is 30-90 days from date of billing.

Credit risk on trade receivables, receivable under service concession and contract assets is limited as the customers of the SPV Group consists of the government entities having a strong credit worthiness. Ageing of trade receivable has been disclosed in note 9

The significant change in the balance of trade receivables and contract asset are disclosed in note 34.

Concentration of credit risk

At 30 June 2022, the SPV Group had one customer which is public sector undertaking (31 March 2022: one customer, 31 March 2021: one customer, 31 March 2020: one customer) that accounted for 100% (31 March 2022: 100% 31 March 2021: 100% , 31 March 2020: 100%) of all the receivables and contract asset outstanding.

Financial instruments and bank deposits

Credit risk from balances with banks and financial institutions is managed by the SPV Group's and GRIL's treasury departments in accordance with the SPV Group's policies. Investments of surplus funds are made only with approved counterparties and within credit limits assigned to each counterparty. The limits are set to minimise the concentration of risks and therefore mitigate financial loss through counterparty's potential failure to make payments.

This comprises mainly of deposits with banks. The SPV Group's maximum exposure to credit risk for the components of the balance sheet at 30 June 2022, 31 March 2022, 31 March 2021 and 31 March 2020 is the carrying amounts as illustrated in Note 29.

C. Liquidity risk

Liquidity risk is the risk that the SPV Group will encounter difficulty in meeting the obligations associated with its financial liabilities that are settled by delivering cash or another financial asset. The SPV Group's approach for managing liquidity is to ensure, as far as possible, that it will have sufficient liquidity to meet its liabilities when they are due, under both normal and stressed conditions, without incurring unacceptable losses or risking damage to the SPV Group's reputation. The Group invest in liquid bank deposits to meet the immediate obligations.

Exposure to liquidity risk

The following are the remaining contractual maturities of financial liabilities at the reporting date. The amounts are gross and undiscounted basis.

	Carrying amount	Contractual cash flows			
		Total	Less than 1 year	1-5 years	More than 5 years
As at 30 June 2022					
Borrowings (incl. current maturities) #	47,003.14	47,003.14	2,422.36	11,634.95	32,945.83
Trade payables	1,460.33	1,460.33	1,460.33	-	-
Other financial liabilities	0.33	0.33	0.33	-	-
Total	**48,463.80**	**48,463.80**	**3,883.02**	**11,634.95**	**32,945.83**
As at 31 March 2022					
Borrowings (incl. current maturities) #	46,792.62	46,792.62	2,454.91	11,223.83	33,113.88
Trade payables	1,040.12	1,040.12	1,040.12	-	-
Other financial liabilities	0.33	0.33	0.33	-	-
Total	**47,833.07**	**47,833.07**	**3,495.36**	**11,223.83**	**33,113.88**
As at 31 March 2021					
Borrowings (incl. current maturities) #	37,104.33	37,104.33	1,516.67	7,620.62	27,967.04
Trade payables	5,139.28	5,139.28	5,139.28	-	-
Other financial liabilities	0.40	0.40	0.40	-	-
Total	**42,244.01**	**42,244.01**	**6,656.35**	**7,620.62**	**27,967.04**
As at 31 March 2020					
Borrowings (incl. current maturities) #	22,840.83	22,840.83	286.36	4,434.59	18,119.88
Trade payables	5,591.95	5,591.95	5,591.95	-	-
Other financial liabilities	0.08	0.08	0.08	-	-
Total	**28,432.86**	**28,432.86**	**5,878.39**	**4,434.59**	**18,119.88**

Borrowing includes unamortised transaction cost paid to lenders on upfront basis and interest accrued.

33 Capital management

For the purpose of the SPV Group's capital management, capital includes paid-up equity capital and all other equity reserves attributable to the equity holders of all the SPV Group. The primary objective of the SPV Group's capital management is to ensure that it maintains a strong credit rating and healthy capital ratio in order to support its business and maximise shareholder value.

The SPV Group manages its capital structure and makes adjustments to it in the light of changes in economic conditions and the requirements of the financial covenants. The SPV Group monitors capital using Debt-Equity ratio, which is net debt divided by total equity. The SPV Group includes within net debt, interest bearing loans and borrowings,excluding loan from GRIL considering as a promotor contribution less cash and short-term deposits.

	30 June 2022	31 March 2022	31 March 2021	31 March 2020
Total borrowings	38,678.40	38,463.36	28,469.81	17,740.44
Less: cash and cash equivalents	1,123.82	2,113.68	1,343.27	189.98
Adjusted net debt	**37,554.58**	**36,349.68**	**27,126.54**	**17,550.46**
Equity share capital	1,877.90	1,877.90	1,877.90	1,783.00
Other equity	4,759.58	4,025.97	3,395.45	1,900.99
Total equity	**6,637.48**	**5,903.87**	**5,273.35**	**3,683.99**
Adjusted net debt to equity ratio	**5.66**	**6.16**	**5.14**	**4.76**

No changes were made in the objectives, policies or processes for managing capital during the year ended 30 June 2022, 31 March 2022, 31 March 2021 and 31 March 2020.

34 Disclosures pursuant to Indian Accounting standard (Ind AS) 115, Revenue from Contracts with Customers

A. Disaggregated revenue information

	Three month period ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020
i) Type of service rendered				
Construction income	2,170.33	11,751.29	16,612.29	28,135.32
Operation and maintenance income	69.87	231.82	156.94	-
Total	**2,240.20**	**11,983.11**	**16,769.23**	**28,135.32**
ii) Based on geography wise				
India	2,240.20	11,983.11	16,769.23	28,135.32
Outside India	-	-	-	-
Total	**2,240.20**	**11,983.11**	**16,769.23**	**28,135.32**
iii) Timing of Revenue recognition				
Revenue from Goods and Services transferred to customers at a point in time	-	-	-	-
Revenue from Goods and Services transferred to customers over time	2,240.20	11,983.11	16,769.23	28,135.32
Total	**2,240.20**	**11,983.11**	**16,769.23**	**28,135.32**

B. Contract balances:

The following table provides information about receivables, contract assets and contract liabilities from the contracts with customers.

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Trade receivables				
Opening balance	226.79	346.97	86.56	88.93
Closing balance	147.67	226.79	346.97	86.56

The increase / decrease in trade receivables is mainly due to increase / decrease in sales and receipts of amount from customer. Trade receivables are generally non interest bearing and are on terms of 30 to 90 days.

Contract assets				
Opening balance	3,645.15	11,031.93	24,355.61	14,790.97
Closing balance	4,933.69	3,645.15	11,031.93	24,355.61

Contract assets are recognised as per agreement with customers upon completion of work, the contract assets are classified as receivable under service concession agreement upon achievement of PCOD. There was significant decrease of ₹ 7,386.78 million and ₹ 13,323. 68 million in contract assets for the year ended March 31, 2022 and March 31, 2021 respectively mainly because SPVs achieved its PCOD and hence, its transferred to receivable under service concession. Further, There was significant increase of ₹ 9,564.64 million in contract assets for the year ended March 31, 2020 mainly because significant increase construction activities of SPVs.

Receivable under service concession agreements				
Opening balance	40,812.58	29,406.49	5,305.29	-
Closing balance	41,727.07	40,812.58	29,406.49	5,305.29

Receivable under service concession agreements are recognised as per Appendix D to Ind AS 115, when the Project SPV Group has an unconditional right to receive cash at the direction of the grantor under the service concession agreement. There was significant increase of ₹ 11,406.09 million and ₹ 24,101.20 million in contract assets for the year ended March 31, 2022 and March 31, 2021 respectively mainly because SPVs achieved its PCOD and hence, its transferred from Contract assets.

Contract liabilities				
Opening balance	64.50	577.26	3,315.29	3,420.26
Closing balance	23.89	64.50	577.26	3,315.29

Contract liabilities include advance from customers, These contract liabilities are adjusted with trade receivables/contract assets upon completion of work. There was significant decrease in contract liabilities of ₹ 2,738 million during the year March 31, 2021 mainly because of adjustment of customer advances against trade receivables/contract assets.

C. The amount of revenue recognized from

	Three month period ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020
- Performance obligations satisfied in previous years	-	72.86	48.04	-
- Amounts included in contract liabilities at the beginning of the year	40.91	348.41	2,868.21	1,536.20

D. Performance obligation

Sales of Services:

The performance obligation is satisfied over time as the assets is under control of customer and they simultaneously receives and consumes the benefits provided by the Project SPV Group. The Project SPV Group receives progressive payment toward provision of services.

E. Transaction price allocated to remaining performance obligation

The aggregate amount of transaction price allocated to the performance obligations that are unsatisfied (or partially unsatisfied) as at June 30, 2022, March 31, 2022, March 31, 2021, March 31, 2020, after considering the practical expedient mentioned above is ₹ 1,880.31 million (March 31, 2022: ₹ 3,741.46 million, March 31, 2021: ₹ 12,425.89 million and March 31, 2020: ₹ 25,779.47 million) and the SPV Group will recognise this revenue over construction period next 12 months.

F. Reconciliation of the amount for revenue recognised in the Combined Statement of Profit and Loss with the contracted price:

	Three month period ended 30 June 2022	Year ended 31 March 2022	Year ended 31 March 2021	Year ended 31 March 2020
Revenue as per contracted price	**2,240.20**	**11,910.25**	**16,721.19**	**28,135.32**

Adjustments				
Claims	-	46.31	-	-
Variable consideration - Performance bonus	-	26.55	48.04	-
Revenue from contract with customers	**2,240.20**	**11,983.11**	**16,769.23**	**28,135.32**

35 Disclosures as required by Securities and Exchange Board of India Circular No. CIR/IMD/DF/114/2016 dated October 20, 2016

A Operating Cash Flow from projects (Project wise)

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Varanasi Sangam Expressway Private Limited	969.95	1,623.08	(1,678.48)	(4,578.73)
Porbander Dwarka Expressway Private Limited	542.01	735.93	(149.47)	(4,310.33)
GR Phagwara Expressway Limited	(19.78)	519.81	631.14	(1,785.53)
GR Gundugolanu Deverapalli Highway Private Limited	5.02	(3,198.99)	(4,163.52)	(301.36)
GR Akkalkot Solapur Highway Private Limited	(11.49)	(42.76)	(1,692.96)	(877.92)
GR Sangli Solapur Highway Private Limited	(136.77)	(950.82)	(2,012.25)	(279.07)
GR Dwarka Devariya Highway Private Limited	(1,012.53)	(2,667.18)	(373.57)	(67.83)
Operating Cash Flow inflow/(used in) from projects (Project wise)	**336.41**	**(3,980.93)**	**(9,439.11)**	**(12,200.77)**

B Capitalisation Statement

	Pre issue as at 30 June 2022	As adjusted for issue*
Financial liabilities		
Non Current Borrowings (Including current maturities of non-current borrowings)	47,003.14	
Current Borrowings	-	
Total Borrowings (A)	**47,003.14**	
Equity		
Equity Share Capital	1,877.90	
Other equity	4,759.58	
Total equity (B)	**6,637.48**	
Total Borrowings / Total equity ratio (A/B) (times)	7.08	

* Corresponding details post initial issue are not available as of now, hence the required disclosures in respect of the same have not been provided in the above table.

C Debt payment history

	As at 30 June 2022	As at 31 March 2022	As at 31 March 2021	As at 31 March 2020
Varanasi Sangam Expressway Private Limited				
Carrying amount of debt at the beginning of the year	12,086.85	12,159.68	9,310.73	4,095.07
Additional borrowings during the year	-	11,701.66	2,841.69	5,194.68
Repayments during the year	(519.14)	(11,878.44)	-	-
Carrying amount of debt at the end of the year	11,441.12	12,086.85	12,159.68	9,310.73
Interest Payments (cash outflow) (Net of TDS)	342.23	866.44	939.77	576.88
GR Phagwara Expressway Limited				
Carrying amount of debt at the beginning of the year	5,532.14	6,221.62	5,149.81	3,309.04
Additional borrowings during the year	41.11	4,737.38	2,627.90	1,837.84
Repayments during the year	-	(5,488.40)	(1,521.56)	-
Carrying amount of debt at the end of the year	5,590.71	5,532.14	6,221.62	5,149.81
Interest Payments (cash outflow) (Net of TDS)	80.24	425.11	539.29	430.95
Porbander Dwarka Expressway Private Limited				
Carrying amount of debt at the beginning of the year	7,642.42	8,022.48	6,368.44	1,613.00
Additional borrowings during the year	-	-	7,951.76	4,790.72
Repayments during the year	(316.56)	(378.24)	(6,332.10)	-
Carrying amount of debt at the end of the year	7,294.14	7,642.42	8,022.48	6,368.44
Interest Payments (cash outflow) (Net of TDS)	167.74	582.47	662.28	487.05
GR Gundugolanu Deverapalli Highway Private Limited				
Carrying amount of debt at the beginning of the year	9,606.68	4,847.66	466.57	380.19
Additional borrowings during the year	62.08	13,073.12	5,799.07	86.37
Repayments during the year	-	(8,398.96)	(1,320.00)	-
Carrying amount of debt at the end of the year	9,669.29	9,606.68	4,847.66	466.57
Interest Payments (cash outflow) (Net of TDS)	160.14	563.51	251.99	134.10
GR Akkalkot Solapur Highway Private Limited				
Carrying amount of debt at the beginning of the year	4,047.08	2,946.47	1,113.21	221.42
Additional borrowings during the year	46.64	4,403.52	1,829.53	914.27
Repayments during the year	(46.92)	(3,348.88)	-	-
Carrying amount of debt at the end of the year	4,016.63	4,047.08	2,946.47	1,113.21
Interest Payments (cash outflow) (Net of TDS)	99.28	279.18	154.95	80.68
GR Sangli Solapur Highway Private Limited				
Carrying amount of debt at the beginning of the year	4,726.48	2,424.89	331.45	48.08
Additional borrowings during the year	30.12	6,191.03	2,118.86	283.37
Repayments during the year	-	(3,920.08)	-	-
Carrying amount of debt at the end of the year	4,758.00	4,726.48	2,424.89	331.45
Interest Payments (cash outflow) (Net of TDS)	76.58	273.58	145.40	31.24
GR Dwarka Devariya Highway Private Limited				
Carrying amount of debt at the beginning of the year	3,150.97	481.54	100.63	-
Additional borrowings during the year	1,080.09	2721.1	380.91	100.63
Repayments during the year	-	0	-	-
Carrying amount of debt at the end of the year	4,233.25	3150.97	481.54	100.63
Interest Payments (cash outflow) (Net of TDS)	70.67	177.1	67.46	5.07

Notes to Special Purpose Combined Financial Statements

(All Amounts are in rupees million, unless otherwise stated)

36 The Special Purpose Combined Financial Statements are prepared after considering the adjustments as required persuant to section 3.4 of SEBI Circular no. CIR/IMD/DF/114/2016 dated 20 October 2016.

Below disclosure compiles the adjustments made to the general purpose annual financial statements of the SPV Group for the financial years ended 31 March 2022, 31 March 2021 and 31 March 2020 respectively, while preparing these Special Purpose Combined Financial Statements:

(i) Impact on Combined Balance sheet

Particulars	Notes	31 March 2022			31 March 2021			31 March 2020		
		General purpose audited financial statements	Adjustments	Special purpose financial statements	General purpose audited financial statements	Adjustments	Special purpose financial statements	General purpose audited financial statements	Adjustments	Special purpose financial statements
Assets										
Non-current assets										
(a) Contract assets	1	-	2,295.33	2,295.33	-	6,924.58	6,924.58	-	15,833.38	15,833.38
(b) Financial assets										
(i) Receivable under service concession agreements	1	-	38,321.40	38,321.40	-	26,766.39	26,766.39	-	4,914.96	4,914.96
(ii) Other financial assets	1,4,5	38,396.40	(38,386.92)	9.48	27,198.92	(27,190.41)	8.51	11,782.95	(11,781.61)	1.34
(c) Income tax assets (net)		872.06	-	872.06	534.38	-	534.38	241.87	-	241.87
(d) Other non-current assets	1	2,295.33	962.78	3,258.11	6,974.11	(2,977.68)	3,996.43	9,099.87	(5,811.86)	3,288.01
Total Non-Current Assets		**41,563.79**	**3,192.59**	**44,756.38**	**34,707.41**	**3,522.88**	**38,230.29**	**21,124.69**	**3,154.87**	**24,279.56**
Current assets										
(a) Contract assets	1,2	-	1,349.82	1,349.82	-	4,107.35	4,107.35	-	8,522.23	8,522.23
(b) Financial assets										
(i) Trade receivables	2	304.14	(77.35)	226.79	659.02	(312.05)	346.97	89.68	(3.12)	86.56
(ii) Cash and cash equivalents	4	4,174.20	(2,060.52)	2,113.68	435.55	907.72	1,343.27	189.98	-	189.98
(iii) Bank balances other than (ii) above	4	896.61	2,135.52	3,032.13	1,856.08	(475.20)	1,380.88	27.53	0.12	27.65
(iv) Receivable under service concession agreements	1	-	2,491.18	2,491.18	-	2,640.10	2,640.10	-	390.33	390.33
(v) Other financial assets	1,5,2	2,521.66	(2,500.65)	21.01	2,662.18	(2,647.69)	14.49	610.66	(596.50)	14.16
(c) Other current assets	1,2	5,905.39	(4,530.59)	1,374.80	9,119.22	(7,743.11)	1,376.11	13,726.94	(11,467.93)	2,259.01
Total Current Assets		**13,802.00**	**(3,192.59)**	**10,609.41**	**14,732.05**	**(3,522.88)**	**11,209.17**	**14,644.79**	**(3,154.87)**	**11,489.92**
Total Assets		**55,365.79**	**-**	**55,365.79**	**49,439.46**	**-**	**49,439.46**	**35,769.48**	**-**	**35,769.48**
Equity and liabilities										
Equity										
(a) Equity share capital		1,877.90	-	1,877.90	1,877.90	-	1,877.90	1,783.00	-	1,783.00
(b) Other equity	11	4,025.97	-	4,025.97	3,387.84	7.61	3,395.45	1,893.88	7.11	1,900.99
Total Equity		**5,903.87**	**-**	**5,903.87**	**5,265.74**	**7.61**	**5,273.35**	**3,676.88**	**7.11**	**3,683.99**
Liabilities										
Non-current liabilities										
(a) Financial liabilities										
(i) Borrowings	8	44,337.71	-	44,337.71	35,789.14	(201.48)	35,587.66	22,780.24	(225.77)	22,554.47
(b) Deferred tax liabilities (net)	3,6	1,473.12	-	1,473.12	1,257.79	2.66	1,260.45	206.44	2.50	208.94
Total Non-Current Liabilities		**45,810.83**	**-**	**45,810.83**	**37,046.93**	**(198.82)**	**36,848.11**	**22,986.68**	**(223.27)**	**22,763.41**
Current liabilities										
(a) Contract liabilities	7	-	64.50	64.50	-	577.26	577.26	-	3,315.29	3,315.29
(b) Financial liabilities										
(i) Borrowings	8	2,454.91	-	2,454.91	-	1,516.67	1,516.67	-	286.36	286.36
(ii) Trade payables										
(a) Total outstanding dues of micro enterprises and small enterprises	6	-	0.39	0.39	-	0.19	0.19	-	0.68	0.68
(b) Total outstanding dues of creditors other than micro and small enterprises	6	1,040.12	(0.39)	1,039.73	5,139.28	(0.19)	5,139.09	5,598.74	(7.47)	5,591.27
(iii) Other financial liabilities	8	0.33	-	0.33	1,315.60	(1,315.20)	0.40	60.67	(60.59)	0.08
(c) Other current liabilities	6,7	155.73	(64.50)	91.23	671.91	(587.52)	84.39	3,446.51	(3,318.11)	128.40
Total Current Liabilities		**3,651.09**	**-**	**3,651.09**	**7,126.79**	**191.21**	**7,318.00**	**9,105.92**	**216.16**	**9,322.08**
Total Liabilities		**49,461.92**	**-**	**49,461.92**	**44,173.72**	**(7.61)**	**44,166.11**	**32,092.60**	**(7.11)**	**32,085.49**
Total Equity and Liabilities		**55,365.79**	**-**	**55,365.79**	**49,439.46**	**-**	**49,439.46**	**35,769.48**	**-**	**35,769.48**

(ii) Impact on Combined statement of profit and loss and total comprehensive income

Particulars	Notes	31 March 2022			31 March 2021			31 March 2020		
		General purpose audited financial statements	Adjustments	Special purpose financial statements	General purpose audited financial statements	Adjustments	Special purpose financial statements	General purpose audited financial statements	Adjustments	Special purpose financial statements
Income										
(a) Revenue from operations		15,857.02	-	15,857.02	21,539.65	-	21,539.65	30,740.50	-	30,740.50
(b) Interest on deposits with banks	10	104.76	-	104.76	36.05	0.54	36.59	2.49	-	2.49
(c) Interest from vendor advance and income tax refund	10	40.02	-	40.02	125.21	(0.54)	124.67	184.28	-	184.28
(d) Other income	6	-	-	-	3.02	-	3.02	2.02	(2.02)	-
Total income		**16,001.80**	**-**	**16,001.80**	**21,703.93**	**0.00**	**21,703.93**	**30,929.29**	**(2.02)**	**30,927.27**
Expenses										
(a) Sub - contractor charges	9	11,459.26	(77.71)	11,381.55	16,460.04	(94.26)	16,365.78	27,986.30	(161.76)	27,824.54
(b) Employee benefits expense		3.92	-	3.92	4.58	-	4.58	3.70	-	3.70
(c) Finance costs	6	3,430.60	10.27	3,440.87	2,649.24	(0.66)	2,648.58	1,721.73	(9.61)	1,712.12
(d) Other expenses	9	254.56	77.71	332.27	247.51	94.26	341.77	137.97	161.76	299.73
Total expenses		**15,148.34**	**10.27**	**15,158.61**	**19,361.37**	**(0.66)**	**19,360.71**	**29,849.70**	**(9.61)**	**29,840.09**
Profit before tax		**853.46**	**(10.27)**	**843.19**	**2,342.56**	**0.66**	**2,343.22**	**1,079.59**	**7.59**	**1,087.18**
Tax expense:										
(a) Current tax		-	-	-	-	-	-	202.75	-	202.75
(b) Adjustment of tax related to earlier periods	3,6	-	-	-	(202.75)	-	(202.75)	2.78	(2.78)	-
(c) Deferred tax charges	6	215.33	(2.66)	212.67	1,051.35	0.16	1,051.51	128.40	1.79	130.19
Total tax expenses		**215.33**	**(2.66)**	**212.67**	**848.60**	**0.16**	**848.76**	**333.93**	**(0.99)**	**332.94**
Net profit for the period/year		**638.13**	**(7.61)**	**630.52**	**1,493.96**	**0.50**	**1,494.46**	**745.66**	**8.58**	**754.24**
Other comprehensive income ("OCI")										
Items that will not be reclassified to profit or loss in subsequent period/year (net of tax)		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Net other comprehensive income not to be reclassified to profit or loss in subsequent period/year		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Comprehensive Income for the period/year, net of tax		**638.13**	**(7.61)**	**630.52**	**1,493.96**	**0.50**	**1,494.46**	**745.66**	**8.58**	**754.24**

(iii) Impact on Combined cash flow

Particulars	Notes	31 March 2022			31 March 2021			31 March 2020		
		General purpose audited financial statements	Adjustments	Special purpose financial statements	General purpose audited financial statements	Adjustments	Special purpose financial statements	General purpose audited financial statements	Adjustments	Special purpose financial statements
A. Cash flows from operating activities	12	(3,623.29)	(357.64)	(3,980.93)	(9,796.31)	357.20	(9,439.11)	(12,053.71)	(147.06)	(12,200.77)
B. Cash Flows from Investing Activities	12	(227.79)	(1,278.68)	(1,506.47)	(335.23)	(856.74)	(1,191.97)	741.43	(0.12)	741.31
C. Cash Flows from Financing Activities	12	6,257.69	0.12	6,257.81	11,709.16	75.21	11,784.37	11,470.00	147.18	11,617.18
Net Increase in cash and cash equivalents		**2,406.61**	**(1,636.20)**	**770.41**	**1,577.62**	**(424.33)**	**1,153.29**	**157.72**	**-**	**157.72**
Cash and cash equivalents at the beginning of the year		1,767.60	(424.33)	1,343.27	189.98	-	189.98	32.26	-	32.26
Cash and cash equivalents at the end of the year		**4,174.21**	**(2,060.53)**	**2,113.68**	**1,767.60**	**(424.33)**	**1,343.27**	**189.98**	**-**	**189.98**

(iv) Impact on retained earnings as at April 1, 2019

Particulars		Notes	Amount
A.	**Retained earnings as per General purpose audited financial statements**		1,148.22
	Other adjustments		
	Liabilities no longer required written back	6	2.02
	Prior period tax	3	(2.78)
	Tax impact on other adjustments	6	(0.71)
B.	**Total impact of adjustments**		**(1.47)**
C.	**Retained earnings as restated (A+B)**		**1,146.75**

(v) Footnotes

Note 1 - Other financial assets and Other assets

Reclassification on account of the following:

(a) Reclassification of other non-current financial assets and current financial assets amounting to ₹ 4,695.96 million and ₹ 609.33 million to Receivable under service concession arrangement (non-current) and Receivable under service concession arrangement (current) amounting to ₹ 4,914.96 million and ₹ 390.33 million respectively. Further, other non-current financial assets of ₹ 7,086.88 million, other non-current assets and other current assets amounting to ₹ 5,811.86 million and ₹ 11,456.89 million to Contract assets (Non-current) and Contract assets (Current) amounting to ₹ 15,833.38 million and ₹. 8,522.23 million respectively, at the financial year ended 31 March 2020.

(b) Reclassification of other non-current financial assets and current financial assets amounting to ₹ 26,766.40 million and ₹ 2,640.10 million to Receivable under service concession arrangement (non-current) and Receivable under service concession arrangement (current) amounting to ₹ 26,766.40 million and ₹ 2,640.10 million respectively. Further, other non-current assets and other current assets amounting to ₹ 2,977.68 million and ₹ 7,743.11 million to Contract assets (Non-current) and Contract assets (Current) amounting to ₹ 6,924.58 million and ₹.3,796.21 million respectively, at the financial year ended 31 March¬ 2021.

(c) Reclassification of other non-current financial assets and current financial assets amounting to ₹ 38,321.40 million and ₹ 2,491.18 million to Receivable under service concession arrangement (non-current) and Receivable under service concession arrangement (current) amounting to ₹ 38,321.40 million and ₹ 2,491.18 million respectively. Further, other non-current assets and other current assets amounting to ₹ 2295.33 million and ₹ 1,272.47 million to Contract assets (Non-current) and Contract assets (Current) amounting to ₹ 2,295.33 million and ₹.1,272.47 million respectively, at the financial year ended 31 March 2022. Further, reclassification of GST receivable of ₹ 3,258.11 million from other current assets to other non current assets, at the financial year ended 31 March 2022.

Note 2 - Trade receivables

(a) Reclassification of trade receivables amounting to ₹ 14.16 million to other current financial assets and other current assets amounting to ₹ 11.04 million to trade receivables, at the financial year ended 31 March 2020.

(b) Reclassification of trade receivables amounting to ₹ 312.05 million to Contract assets (Current) amounting to ₹ 311.14 million and other current financial assets amounting to ₹ 0.91 million, at the financial year ended 31 March 2021.

(c) Reclassification of trade receivables amounting to ₹ 77.35 million to Contract assets (Current) amounting to ₹ 77.35 million, at the financial year ended 31 March 2022.

Note 3 - Tax Assets

Adjustment on account of following:

(a) In the financial statements of certain SPV group companies for the years ended 31 March 2020, tax accounted for pertaining to earlier years based on assessment by Income-tax authorities. For the purpose of these statements, such taxes have been appropriately adjusted in the respective financial year to which they relate.

Note 4 - Cash and Cash Equivalents and Bank balances other than cash and cash equivalents

Reclassification on account of the following:

(a) Reclassification of term deposits of ₹ 2,060.52 million from 'cash and cash equivalents' to 'Bank balances other than cash and cash equivalents' and ₹ 907.72 million from 'Bank balances other than cash and cash equivalents' to 'cash and cash equivalents' based on nature and maturity for the year ended March 31, 2022 and March 31, 2021 respectively.

(b) Reclassification from 'Other non-current financial assets' to 'Bank balances other than cash and cash equivalents' based on nature and maturity of ₹ 75 million, ₹ 432.53 million and ₹ 0.12 million based on nature and maturity for the year ended March 31, 2022, March 31, 2021 and March 31, 2020 respectively.

Note 5 – Security deposits

Reclassification on followings:

(a) Reclassification of security deposits from other current financial assets to other non-current financial assets of ₹ 9.48 million, ₹ 8.51 million and ₹ 1.34 million for the year ended March 31, 2022, March 31, 2021 and March 31, 2020 respectively.

Note 6 - Trade payables and other current liabilities

Reclassification on account of the following:

(a) Reclassification of trade payables to other other current liabilities amounting to ₹ 6.79 million, at the financial year ended 31 March 2020.

(b) Reclassification of outstanding dues of creditors other than micro and small enterprises under trade payables to outstanding dues of micro enterprises and small enterprises under Trade Payables amounting to ₹ 0.68 million, at the financial year ended 31 March 2020.

(c) Reclassification of outstanding dues of creditors other than micro and small enterprises under trade payables to outstanding dues of micro enterprises and small enterprises under Trade Payables amounting to ₹ 0.19 million, at the financial year ended 31 March 2021.

(d) Reclassification of outstanding dues of creditors other than micro and small enterprises under trade payables to outstanding dues of micro enterprises and small enterprises under Trade Payables amounting to ₹ 0.39 million, at the financial year ended 31 March 2022.

Adjustment on account of following:

(a) During the year ended 31 March 2022, accrual for interest on mobilisation advances amounting to ₹ 10.27 million written back, of which ₹ 9.61 million was excess provided in the year ended 31 March 2020 and ₹ 0.66 million was excess provided in the year ended 31 March 2021. For the purpose of this statement, the said liabilities and provisions have been appropriately adjusted in the respective financial year to which they relate. The tax rate applicable for the respective years has been used to calculate the deferred tax impact on the adjustments

(b) During the year ended 31 March 2020, certain liabilities and provisions of ₹ 2.02 million, which were recorded in earlier years, were written back. For the purpose of this statement, the said liabilities and provisions have been appropriately adjusted in the respective financial year to which they relate The tax rate applicable for the respective years has been used to calculate the deferred tax impact on the adjustments.

Note 7 Contract liabilities

Reclassification on followings:

(a) Reclassification of other current liabilities to contract liabilities of ₹ 64.50 million, ₹ 577.26 million and ₹ 3,315.29 million for the year ended March 31, 2022, March 31, 2021 and March 31, 2020 respectively.

Note 8 - Borrowings (Non-Current and Current)

Reclassification on account of the following:

(a) Reclassification of long term debt amounting to ₹ 225.77 million and 'other current financial liability' amounting to ₹ 60.59 million as at 31 March 2020, to 'current-borrowings' in accordance with suggestive framework and maturity.

(b) Reclassification of long term debt amounting to ₹ 201.48 million and 'other current financial liability' amounting to ₹ 1315.20 million as at 31 March 2021, to 'current-borrowings' in accordance with suggestive framework and maturity.

Note 9 - Sub - contractor charges and Other expenses

Reclassification on account of the following:

(a) Reclassification of Labour charges and labour cess amounting to ₹ 77.71 million, ₹ 94.26 million and ₹ 161.76 million for the financial year ended 31 March 2022, 31 March 2021 and 31 March 2020 respectively, from sub-contractor charges to other expenses.

Note 10 - Interest on deposits with banks and Interest from others

Reclassification on account of the following:

(a) Reclassification of Interest income amounting to ₹ 0.54 million for the financial year ended 31 March 2021, from Interest from others to Interest on deposits with bank.

Note 11 - Other Equity

Adjustment on account of following:

(a) Adjustments in Other equity has been made consequent to the adjustments (explained above) along with corresponding impacts to 'tax expense', wherever applicable.

Note 12 - Cash flows from Operating activities, Investing Activities and Financing Activities

Adjustment on account of following:

(a) Adjustments in Cash flows from Operating activities, Investing Activities and Financing Activities has been made consequent to the adjustments (explained above) along with corresponding impacts to 'tax expense', wherever applicable.

37 Disclosure pursuant to Appendix E of Ind AS 115 for Service Concession Arrangements

Under service concession arrangements (SCA), where a special purpose vehicle (SPV) has acquired contractual right to receive specified determinable amount (Annuity) for use of assets, such amounts are recognised as "financial assets" and are disclose as "receivable under service concession arrangement. Below is additional disclosure requirement pursuant to Appendix E of IND AS 115 - Service Concession Arrangement (SCA).

Name of concession	Start of concession period under concession agreement (appointed date)	End of concession period under concession agreement	Period of Concession since the appointed Date	Construction completed date or scheduled completion date under the concession agreement as applicable
GR Phagwara Expressway Limited	06-10-2017	25-02-2035	17.4 years	25-02-2020
Porbandar Dwarka Expressway Private Limited	12-02-2018	18-04-2035	17.2 years	18-04-2020
Varanasi Sangam Expressway Private Limited	05-12-2017	02-11-2035	17.9 years	02-11-2020
GR Gundugolanu Devarapalli Highway Private Limited	22-10-2018	10-07-2036	17.7 years	10-07-2021
GR Sangli Solapur Highway Private Limited	31-12-2018	28-06-2036	17.5 years	28-06-2021
GR Akkalkot Solapur Highway Private Limited	14-12-2018	31-03-2036	17.3 years	31-03-2021
GR Dwarka Devariya Highway Private Limited	08-02-2020	02-08-2037	17.5 years	02-08-2022

Note:-

(i) 40% of the total bid project cost shall be due and payable to the company during the construction period and balance 60% in half yearly annuity in 15 years in accordance with the provision of service concession agreement.

(ii) Interest shall be due and receivable on the reducing balance of completion cost at an interest rate equal to the applicable rate specified in the concession agreement. Such interest shall be due and receivable in half yearly annuity in accordance with provision of the concession agreement.

38 The SPV Group has assessed the possible impact of COVID-19 pandemic on its business operations, liquidity position and recoverability of its asset as at respective balance sheet date as at June 30, 2022, March 31, 2022, March 31, 2021 and March 31, 2020 based on the internal and external sources of information. Basis such assessment, the management does not see any risks in the SPV Group's ability to continue as a going concern and meeting its liabilities as and when they fall due. The SPV Group has adequate funds and/or unutilized fund-based credit facilities available, to take care of any urgent requirement of funds. Accordingly, the SPV Group believes that there is no material impact of Covid 19 on these special purpose combined financial statement. The final impact of COVID-19 may be different from that estimated as at the date of approval of these special purpose combined financial statement and hence management of SPV group will continue to monitor any material changes to the future economic conditions.

39 Segment Information

SPV group is preliminary engaged in a business of construction and operation and maintenance of Road Projects on "Design, Build, Operate and Transfer (DBOT)" basis. The Chief Operating Decision Maker (CODM) reviews business performance at an overall SPV Group level as one segment and hence, does not have any additional disclosures to be made under Ind AS 108 Operating Segments. Further, the SPV group also primarily operates under one geographical segment namely India. There is one single customer which contribute 100% total revenue of the SPV group i.e. National Highway Authorities of India.

40 Other Information

(i) The SPV Group do not have any transactions with companies struck off.
(ii) The SPV Group have not traded or invested in Crypto currency or Virtual Currency during the financial year.
(iii) The SPV Group have not any such transaction which is not recorded in the books of accounts that has been surrendered or disclosed as income during the year in the tax assessments under the Income Tax Act, 1961 (such as, search or survey or any other relevant provisions of the Income Tax Act, 196).

As per our report of even date
For S R B C & CO LLP
Chartered Accountants
ICAI Firm's Registration No :324982E/E300003

per Sukrut Mehta
Partner
Membership No: 101974
Place : Ahmedabad
Date : 15 December 2022

For and on behalf of Board of Directors of
GR Highways Investment Manager Private Limited
(As an Investment Manager to Bharat Highways InvIT)

Ajendra Kumar Agarwal
Director
DIN: 01147897
Place : Gurugram
Date : 15 December 2022

Siba Narayan Nayak
Director
DIN: 01832348
Place : Gurugram
Date : 15 December 2022

Amit Kumar Singh
CEO
Place : Gurugram
Date : 15 December 2022

Mohnish Dutta
Company Secretary
ICSI Mem. No. FCS10411
Place : Gurugram
Date : 15 December 2022

CAPITALISATION STATEMENT

The following table sets forth the InvIT's capitalization as at June 30, 2022, on the basis of amounts derived from the Special Purpose Combined Financial Statements, and as adjusted for the Issue. This table should be read in conjunction with the sections "***Management's Discussion and Analysis of Financial Position and Results of Operations***", "***Special Purpose Combined Financial Statements***" and "***Risk Factors***" on pages 290, 241 and 16, respectively.

(in ₹ million, except ratios)

	Pre-Issue as at 30 June 2022	**As adjusted for Issue***
Financial liabilities		
Non current borrowings (Including current maturities of non-current borrowings)	47,003.14	
Current borrowings	-	
Total borrowings (A)	**47,003.14**	
Equity		
Equity share capital	1,877.90	
Other equity	4,759.58	
Total equity (B)	**6,637.48**	
Total borrowings / Total equity ratio (A/B) (times)	7.08	

** Corresponding details post Issue are not available, hence the required disclosures in respect of the same have not been provided in the above table.*

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

*You should read the following discussion and analysis of our financial condition, results of operations and cash flows in conjunction with "**Summary Combined Financial Statements**" and "**Special Purpose Combined Financial Statements**" on pages 44 and 241, respectively. This discussion contains forward-looking statements and involves numerous risks and uncertainties, including, but not limited to, those described in "**Risk Factors**" on page 16. Actual results could differ materially from those contained in any forward-looking statements and for further details regarding forward-looking statements, please refer to "**Forward-Looking Statements and Financial Projections**" on page 14. The Special Purpose Combined Financial Statements are prepared in accordance with Ind AS except for Ind AS 33: Earnings per share read with the SEBI InvIT Regulations and the circulars issued thereunder and the Guidance Note on Combined and Carve-Out Financial Statements issued by the Institute of Chartered Accountants of India, which differs in certain respects from Indian GAAP, IFRS and U.S. GAAP. Our fiscal year ends on March 31 of each year and references to a particular fiscal are to the twelve months ended March 31 of that year. For the sole purposes of the Special Purpose Combined Financial Statements, references to "we", "us" and "our" are to the Project SPVs on a combined basis.*

*Unless otherwise indicated or unless the context requires otherwise, the financial information included herein is based on our Special Purpose Combined Financial Statements included in this Draft Offer Document. For further details, see "**Special Purpose Combined Financial Statements**" on page 241.*

Overview

We are an infrastructure investment trust established to acquire, manage and invest in a portfolio of infrastructure assets in India and to carry on the activities of an infrastructure investment trust, as permissible under the SEBI InvIT Regulations. We were settled by way of the Original Trust Deed, by GRIL (the Settlor), and registered as an infrastructure investment trust with SEBI on August 3, 2022 pursuant to the SEBI InvIT Regulations.

The Sponsor is a private company, limited by shares, and an entity forming part of the GR Group. GRIL is the flagship entity of GR Group and is engaged in integrated road engineering, procurement and construction with an experience of over 25 years in design and construction of various road/highway projects across 16 states in India and more than 100 road construction projects executed since 2006. The GR Group carries out its operations through GRIL and other entities primarily in three categories: (i) civil construction activities, under which it provides engineering, procurement and construction ("**EPC**") services; (ii) development of roads, highways on a Build Operate Transfer ("**BOT**") basis, including under annuity and Hybrid Annuity Model ("**HAM**"); and (iii) manufacturing activities, under which GRIL processes bitumen, manufactures thermoplastic road-marking paint, electric poles and road signage and fabricates and galvanizes metal crash barriers.

The Sponsor holds 31.83% (as of September 30, 2022) of the issued, subscribed and paid-up equity share capital of GRIL, and is an identified promoter of GRIL. The Sponsor complies with the eligibility requirements under the SEBI InvIT Regulations of ensuring a sound track record in development of infrastructure through GRIL.

The Sponsor is authorized by its memorandum of association to, among other things, (i) purchase, acquire, get, convert, develop or construct land and buildings, deal in land, manage land and buildings; and (ii) carry on the business of contractors, general construction, builders; develop, construct, build, erect, demolish or do any other works in connection with any building, roads, etc and is currently engaged in the business of developing, improving, constructing, leasing and sub-leasing, repairing, maintaining real estate properties, and is exploring opportunities in the infrastructure sector.

Our initial portfolio assets consist of seven road assets, all operating on HAM basis, in the states of Punjab, Gujarat, Andhra Pradesh, Maharashtra and Uttar Pradesh. These roads are operated and maintained pursuant to concession rights granted by the NHAI and are owned and operated by the Project SPVs, which are currently wholly owned by GRIL (an Associate of the Sponsor). For more information about the InvIT Assets, see "***Business – Details of the Project SPVs and the InvIT Assets***" on page 144.

In addition, the InvIT proposes to enter into a ROFO Agreement with GRIL, pursuant to which GRIL will grant a right of first offer to the InvIT to acquire certain other assets owned and developed by GRIL. For more details, see "***Business – ROFO Assets**" and "**Formation Transactions in relation to the InvIT – Acquisition of future assets by the InvIT – ROFO Agreement***" on pages 155 and 101, respectively.

Factors Affecting Results of Operations

The Project SPVs' business, prospects, results of operations and financial conditions are affected by a number of factors, including the following:

Inflation and interest rate risk

In some of the Concession Agreements, the interest payable to us on balance completion cost is linked with the RBI Bank Rate and income arising out of O&M payments is linked with the movements of inflation indices in the relevant period. However, there are no specific provisions in the Concession Agreements protecting us against increases in interest rates on our borrowings or cost of raw materials, except to the extent of rates linked to RBI Bank Rate and the inflation index. The loan facilities availed by the Project SPVs typically carry a floating rate of interest specified by the lender (benchmarked to the repo rate, MCLR or T-Bill interest rate). Our lenders may have the right to periodically adjust our interest rates and our applicable interest rates may increase based on their review of our credit profile and perceived risks in our operations. Our operational costs may change if our Project Manager fails to perform its O&M duties and responsibilities under the Project Management Agreement. Many factors causing such adverse changes are beyond our control and we are usually not able to demand matching increases in our annuities to account for the impact of inflation and interest rate adjustments on our costs. Even if we invoke inflation adjustment provisions in the Concession Agreements, the increase may not be adequate to offset the negative impact of increases in interest rates or the O&M costs.

Strategic expansions through acquisitions including under the Right of First Offer

The Investment Manager intends to develop and expand the portfolio of InvIT Assets by capitalizing on opportunities provided by GRIL to undertake strategic acquisitions of infrastructure assets, including the ROFO Assets. The Investment Manager may also consider potential acquisitions of infrastructure assets from third parties, other than through the Right of First Offer. Any acquisition will have a direct impact on our revenue growth as well as a corresponding increase in any operating and financial expenses that we will incur. Future acquisitions are expected to be financed by incurring additional debt and/or through the issuance of fresh Units, which could impact our cash flows in case of any adverse developments or could lead to dilution of holdings of existing unit holders that do not maintain their percentage interests upon the issuance of fresh Units. Key factors that affect our ability to acquire additional assets include the limited availability of, and competition for, suitable projects, our financial resources, including our available cash and borrowing capacity, and other factors that may be beyond our control. For more details, please see '***Risk Factors***' on page 16.

General economic conditions in India, economic conditions in the areas in which the Project SPVs operate and the level of investment and activity in the road infrastructure sector

Demand for roads in India and consequently, the performance and growth of road projects are impacted by economic conditions in India and government policies relating to infrastructure development to support long-term growth plans of the Indian economy.

The Indian economy has been affected by the recent global economic uncertainties, volatility in interest rates, currency exchange rates, commodity and electricity prices, adverse conditions affecting agriculture and various other macroeconomic factors. Since the Project SPVs focus on the road and highways sectors, any slowdown or perceived slowdown in the Indian economy, or in those sectors of the Indian economy, could materially and adversely impact the business, financial performance and results of operation of the Project SPVs. Similarly, the health and sustained economic development in the regions in which the Project SPVs operate could have a significant impact on the revenues and growth prospects of the Project SPVs. Additionally, an increase in trade deficit or a decline in India's foreign exchange reserves could negatively impact interest rates and liquidity, which could adversely impact the Indian economy and our business. Any downturn in the macroeconomic environment in India could materially and adversely affect our business

Due to increased budgetary allocations by the Government and its road development initiatives as well as investments by the private sector in the infrastructure projects, the road and highways sectors have developed significantly in the last decade. While recent Indian governments have been focused on encouraging private participation in the industrial sector, any adverse change in policy could result in a further slowdown of the Indian economy. The rate of economic liberalisation could decrease, and specific laws and policies affecting foreign investment, currency exchange rates and other matters affecting investment in India could change as well. In the road sector, there can be no assurance that the GoI's engagement with and outreach to private sector operators, including InvIT, will continue in the future. A significant change in India's economic liberalisation and

deregulation policies, in particular, those relating to the road sector, could disrupt business and economic conditions in India generally and our business in particular.

Dependence on support from governmental entities

Any significant changes in a particular government's policy for the road infrastructure sector could have a significant effect on the InvIT's revenues, expenditure and growth prospects as they relate to future projects. The results of operations of future projects are likely to be affected by budgetary allocations made by the various central and state government agencies for the infrastructure sector as well as funding provided by international and multilateral development finance institutions for road infrastructure projects. Any adverse change in focus or policy framework regarding infrastructure development or the surface transportation industry, or the InvIT's relationship with the government or various governmental entities in India could adversely affect the InvIT's business, financial condition and results of operations. Changing political or social imperatives can also affect the InvIT's and the Project SPVs' businesses.

Competition

The InvIT faces competition from other road operators, financial investors and other infrastructure investment trusts in acquiring profitable concessions for future projects. The competition for road projects varies depending on the size, nature and complexity of the project and on the geographical region in which the project is to be executed. Some competitors may have, greater financial resources, economies of scale and operating efficiencies than the InvIT. In respect of new and eligible acquisition opportunities, the InvIT may rely on the experience and qualifications of GRIL (an Associate of our Sponsor), which faces competition from both domestic and international entities in the roads and highways infrastructure sector, as most of the contracts awarded by the Government of India and State Governments are awarded on a competitive bidding basis and subject to satisfaction of other prescribed pre-qualification criteria. There can be no assurance that GRIL can effectively compete with its competitors in relation to the acquisition of future projects, and any failure to compete effectively may have a material adverse effect on the InvIT's financial condition and results of operations.

Critical Accounting Policies

The preparation of the Special Purpose Combined Financial Statements requires management to make judgements, estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities, and the accompanying disclosures, and the disclosure of contingent liabilities. Uncertainty about these assumptions and estimates could result in outcomes that require a material adjustment to the carrying amount of assets or liabilities affected in future periods.

While all aspects of the Special Purpose Combined Financial Statements should be read and understood in assessing their current and expected financial condition and results, we believe that the following critical accounting policies warrant particular attention:

|Basis of preparation

The Special Purpose Combined Financial Statements comprise the special purpose combined balance sheet as at June 30, 2022, March 31, 2022, March 31, 2021, March 31, 2020 and the special purpose combined statement of profit and loss (including other comprehensive income), combined statement of changes in equity, special purpose combined cash flow statement for the three month period ended June 30, 2022, for the years ended March 31, 2022, March 31, 2021 and March 31, 2020, the combined statement of net assets at fair value as at June 30, 2022, the combined statement of total returns at fair value for the three month period ended June 30, 2022 and year ended March 31, 2022 and notes to the special purpose combined financial statements including a summary of significant accounting policies and other explanatory information.

The Special Purpose Combined Financial Statements have been prepared in accordance with Ind AS, except for Ind AS 33: Earning per share, read with the SEBI InvIT Regulations and the Guidance Note on Combined and Carve-Out Financial Statements issued by the Institute of Chartered Accountants of India.

Basis of combination

The Special Purpose Combined Financial Statements have been prepared using uniform accounting policies for like transactions and other events in similar circumstances. The special purpose combined financial statements of the SPV Group used for the purpose of combination are drawn up to the same reporting date i.e. year ended on March 31 each year/three month period ended June 30.

Functional and presentation currency

The Special Purpose Combined Financial Statements are presented in INR, which is the functional currency of the SPV Group. The SPV Group does not have any foreign operations and have assessed the functional currency to be INR. All values are rounded to the nearest million rupees, unless otherwise indicated. Certain amounts that are required to be disclosed and do not appear due to rounding-off are expressed as 0.00.

Current versus non-current classification

The SPV Group presents assets and liabilities in the balance sheet based on current/non-current classification. An asset is current when it is:

- Expected to be realized or intended to be sold or consumed in the normal operating cycle;
- Held primarily for the purpose of trading;
- Expected to be realised within twelve months after the reporting period; or
- Cash or cash equivalent unless restricted from being exchanged or used to settle a liability for at least twelve months after the reporting period.

All other assets are classified as non-current.

Financial instruments

A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity.

i Financial Assets - Initial recognition and measurement

Financial assets are classified, at initial recognition, as subsequently measured at amortised cost, fair value through other comprehensive income (OCI), and fair value through profit or loss.

The classification of financial assets at initial recognition depends on the financial asset's contractual cash flow characteristics and the SPV Group's business model for managing them. With the exception of trade receivables that do not contain a significant financing component or for which SPV Group has applied the practical expedient, SPV Group initially measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs. Trade receivables that do not contain a significant financing component or for which SPV Group has applied the practical expedient are measured at the transaction price determined under Ind AS 115. Refer to the accounting policies of Revenue from contracts with customers.

In order for a financial asset to be classified and measured at amortised cost or fair value through OCI, it needs to give rise to cash flows that are 'solely payments of principal and interest (SPPI)' on the principal amount outstanding. This assessment is referred to as the SPPI test and is performed at an instrument level. Financial assets with cash flows that are not SPPI are classified and measured at fair value through profit or loss, irrespective of the business model.

SPV Group's business model for managing financial assets refers to how it manages its financial assets in order to generate cash flows. The business model determines whether cash flows will result from collecting contractual cash flows, selling the financial assets, or both. Financial assets classified and measured at amortised cost are held within a business model with the objective to hold financial assets in order to collect contractual cash flows while financial assets classified and measured at fair value through OCI are held within a business model with the objective of both holding to collect contractual cash flows and selling.

Purchases or sales of financial assets that require delivery of assets within a time frame established by regulation or convention in the marketplace (regular way trades) are recognised on the trade date, i.e., the date that SPV Group commits to purchase or sell the asset.

ii Subsequent measurement

For purposes of subsequent measurement, financial assets are classified in four categories:

- Financial assets at amortised cost (debt instruments)
- Financial assets at fair value through profit or loss

Financial assets at amortized cost (debt instruments)

A financial asset is measured at amortised cost if it meets both of the following conditions are met:

a) the asset is held within a business model whose objective is to hold assets to collect contractual cash flows; and

b) the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

After initial measurement, such financial assets are subsequently measured at amortised cost using the effective interest rate (EIR) method. Amortised cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the EIR. The EIR amortisation is included in finance income in the profit or loss. The losses arising from impairment are recognised in the profit or loss. SPV Group's financial assets at amortised cost includes service concession receivable, trade receivables, security deposits**.**

Financial assets at fair Value through Profit and Loss (FVTPL)

All financial assets which are not classified as measured at amortized cost or at fair value through other comprehensive income (FVOCI) as described above, are measured at FVTPL. This includes all derivative financial assets. On initial recognition, SPV Group may irrevocably designate a financial asset that otherwise meets the requirements to be measured at amortised cost or at FVOCI as at FVTPL if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise.

Financial assets at FVTPL are measured at fair value at the end of each reporting period, with any gains or losses arising on remeasurement recognised in profit or loss. The net gain or loss recognised in profit or loss incorporates any dividend or interest earned on the financial asset.

iii Derecognition

A financial asset (or, where applicable, a part of a financial asset or part of a group of similar financial assets) is primarily derecognised (i.e. removed from SPV Group's combined balance sheet) when:

- The rights to receive cash flows from the asset have expired, or
- SPV Group has transferred its rights to receive cash flows from the asset or has assumed an obligation to pay the received cash flows in full without material delay to a third party under a 'pass-through' arrangement; and either (a) SPV Group has transferred substantially all the risks and rewards of the asset, or (b) SPV Group has neither transferred nor retained substantially all the risks and rewards of the asset, but has transferred control of the asset.

When SPV Group has transferred its rights to receive cash flows from an asset or has entered into a pass-through arrangement, it evaluates if and to what extent it has retained the risks and rewards of ownership. When it has neither transferred nor retained substantially all of the risks and rewards of the asset, nor transferred control of the asset, SPV Group continues to recognise the transferred asset to the extent of SPV Group's continuing involvement. In that case, SPV Group also recognises an associated liability. The transferred asset and the associated liability are measured on a basis that reflects the rights and obligations that SPV Group has retained. Further, the contractual terms of the existing financial assets are substantially modified, such modification is treated as the derecognition of original financial asset and the recognition of a new financial asset. Such newly recognized financial asset is measured at fair value on initial recognition. The difference in respective carrying amount, if any, is recognized in the statement of profit and loss. If the modification of a financial asset does not result in its derecognition, then the gross carrying amount of the financial asset is recalculated at original effective interest rate and the resulting gain or loss is recognized in the statement of profit and loss.

Continuing involvement that takes the form of a guarantee over the transferred asset is measured at the lower of the original carrying amount of the asset and the maximum amount of consideration that SPV Group could be required to repay.

iv Impairment of financial instruments

At each reporting date, SPV Group assesses whether financial assets carried at amortised cost are credit-impaired. A financial asset is 'credit-impaired' when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.

Evidence that a financial asset is credit-impaired includes the following observable data:

- significant financial difficulty of the borrower or issuer;
- a breach of contract such as a default or being past due for 90 days or more;
- the restructuring of a loan or advance by SPV Group on terms that SPV Group would not consider otherwise;
- it is probable that the borrower will enter bankruptcy or other financial reorganization; or
- the disappearance of an active market for a security because of financial difficulties.

Ind AS 109 requires expected credit losses to be measured through a loss allowance. SPV Group measures loss allowances at an amount equal to lifetime expected credit losses for all trade receivable and/or contract assets that do not constitute a financing transaction, For all other financial assets, expected credit losses are measured at an amount equal to the 12 month expected credit losses or at an amount equal to the life time expected credit losses if the credit risk on the financial asset has increased significantly since initial recognition.

Loss allowances for financial assets measured at amortised cost are deducted from the gross carrying amount of the assets.

v Financial liabilities – Initial recognition and measurement

Financial liabilities are classified, at initial recognition, as financial liabilities at fair value through profit or loss, loans and borrowings, payables, or as derivatives designated as not designated as hedging instruments, as appropriate.

All financial liabilities are recognised initially at fair value and, in the case of loans and borrowings and payables, net of directly attributable transaction costs.

vi Subsequent measurement

For purposes of subsequent measurement, financial liabilities are classified in two categories:

- Financial liabilities at fair value through profit or loss
- Financial liabilities at amortised cost (loans and borrowings)

Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss include financial liabilities held for trading and financial liabilities designated upon initial recognition as at fair value through profit or loss. Financial liabilities are classified as held for trading if they are incurred for the purpose of repurchasing in the near term. This category also includes derivative financial instruments entered into by the SPV Group that are not designated as hedging instruments in hedge relationships as defined by Ind AS 109. Separated embedded derivatives are also classified as held for trading unless they are designated as effective hedging instruments.

Gains or losses on liabilities held for trading are recognised in the profit or loss.

Financial liabilities designated upon initial recognition at fair value through profit or loss are designated as such at the initial date of recognition, and only if the criteria in Ind AS 109 are satisfied. For liabilities designated as

FVTPL, fair value gains/ losses attributable to changes in own credit risk are recognized in OCI. These gains/ losses are not subsequently transferred to P&L. However, SPV Group may transfer the cumulative gain or loss within equity. All other changes in fair value of such liability are recognised in the statement of profit and loss. SPV Group has not designated any financial liability as at fair value through profit or loss.

Financial liabilities at amortised cost (Loans and borrowings)

After initial recognition, interest-bearing loans and borrowings are subsequently measured at amortised cost using the EIR method. Gains and losses are recognised in profit or loss when the liabilities are derecognised as well as through the EIR amortisation process. Amortised cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the EIR. The EIR amortisation is included as finance costs in the statement of profit and loss.

vii Derecognition

A financial liability is derecognised when the obligation under the liability is discharged or cancelled or expires. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as the derecognition of the original liability and the recognition of a new liability. The difference in the respective carrying amounts is recognised in the statement of profit and loss.

viii Reclassification of financial assets

SPV Group determines classification of financial assets and liabilities on initial recognition. After initial recognition, no reclassification is made for financial assets, such as equity instruments designated at FVTPL or FVOCI and financial liabilities. For financial assets which are debt instruments, a reclassification is made only if there is a change in the business model for managing those assets.

ix Offsetting

Financial assets and financial liabilities are offset and the net amount presented in the balance sheet when, and only when, SPV Group currently has a legally enforceable right to set off the amounts and it intends either to settle them on a net basis or to realise the asset and settle the liability simultaneously.

a. Fair values measurement

SPV Group measurement financial instrument, such as derivative, investment and mutual fund at fair values at each balance sheet date.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value measurement is based on the presumption that the transaction to sell the asset or transfer the liability takes place either:

- In the principal market for the asset or liability, or
- In the absence of a principal market, in the most advantageous market for the asset or liability

The principal or the most advantageous market must be accessible by SPV Group.

The fair value of an asset or a liability is measured using the assumptions that market participants would use when pricing the asset or liability, assuming that market participants act in their economic best interest.

A fair value measurement of a non-financial asset takes into account a market participant's ability to generate economic benefits by using the asset in its highest and best use or by selling it to another market participant that would use the asset in its highest and best use.

SPV Group uses valuation techniques that are appropriate in the circumstances and for which sufficient data are available to measure fair value, maximising the use of relevant observable inputs and minimising the use of unobservable inputs

All assets and liabilities for which fair value is measured or disclosed in the special purpose combined financial statements are categorised within the fair value hierarchy, described as follows, based on the lowest level input that is significant to the fair value measurement as a whole:

Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.

Level 2: Valuation techniques for which the lowest level input that is significant to the fair value measurement is directly or indirectly observable.

Level 3: Valuation techniques for which the lowest level input that is significant to the fair value measurement is unobservable.

For assets and liabilities that are recognised in the special purpose combined financial statements on a recurring basis, SPV Group determines whether transfers have occurred between levels in the hierarchy by re-assessing categorisation (based on the lowest level input that is significant to the fair value measurement as a whole) at the end of each reporting period.

SPV Group has an established control framework with respect of fair values. This includes a financial reporting team that has overall responsibility for overseeing all significant fair value measurements, including Level 3 fair values, and reports directly to the chief financial officer.

The financial reporting team regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as pricing services, is used to measure fair values, then the financial reporting team assesses the evidence obtained from the third parties to support the conclusion that these valuations meet the requirements of Ind AS, including the level in the fair value hierarchy in which the valuations should be classified.

For the purpose of fair value disclosures, SPV Group has determined classes of assets and liabilities on the basis of the nature, characteristics and risks of the asset or liability and the level of the fair value hierarchy as explained above.

f. Leases

At inception of a contract, SPV Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

i. Company as a lessee

SPV Group applies a single recognition and measurement approach for all leases, except for short-term leases and leases of low-value assets.

Lease term which is a non-cancellable period together with periods covered by an option to extend the lease if SPV Group is reasonably certain to exercise that option; and periods covered by an option to terminate the lease if SPV Group is reasonably certain not to exercise that option. SPV Group uses judgement in assessing the lease term (including anticipated renewals/termination options).

SPV Group recognises lease liabilities to make lease payments and right-of-use assets representing the right to use the underlying assets.

Short-term leases and leases of low-value assets

SPV Group has elected not to recognise right of use assets and lease liabilities for short term leases of all the assets that have a lease term of twelve months or less with no purchase option and leases for which the underlying asset is of low value. The lease payments associated with these leases are recognized as an expense on a straight-line basis over the lease term.

g. Revenue from contracts with customer

Revenue from contracts with customers is recognised when control of the goods or services are transferred to the customer at an amount that reflects the consideration to which SPV Group expects to be entitled in exchange for those goods or services. SPV Group has generally concluded that it is the principal in its revenue arrangements because it typically controls the goods or services before transferring them to the customer.

The accounting policies for the specific revenue streams of SPV Group as summarized below:

i Construction Income

Revenue, where the performance obligation is satisfied over time since SPV Group creates an assets that the customer controls, is recognised in proportion to the stage of completion of the contract. The stage of completion

is assessed by reference to surveys of work performed. Contract costs are recognised as an expense in the Statement of Profit and Loss in the accounting periods in which the work to which they relate is performed.

ii Operational and maintenance Income

SPV group is required to carry out O&M services on the road annually with an obligation to carry out periodic maintenance in terms of the concession at regular intervals. Revenue is recognized when services are performed and contractually billable.

iii Income from Service Concession Arrangement (Finance Income)

SPV Group recognizes the considerations given by the NHAI in accordance with the Appendix C to Ind AS 115 – Service Concession Arrangements under financial assets mode. Under financial assets mode, SPV group has an unconditional contractual right to receive cash i.e. fixed annuity after concession period including interest thereon. The finance income calculated on the basis of the effective interest rate in accordance with the Ind AS 109. The finance income is recognized under other operating income.

iv Variable consideration

SPV Group's claim for bonus, incentives and other claims in rates relating to execution of contracts are recognized as revenue in the year in which said claims are finally accepted by the clients. Claims under arbitration/disputes are accounted as income based on final award. Expenses on arbitration are accounted as incurred.

v Contract balances

Contract assets

A contract asset is the right to consideration in exchange for goods or services transferred to the customer. If SPV Group performs by transferring goods or services to a customer before the customer pays consideration or before payment is due, a contract asset is recognised for the earned consideration that is conditional.

Trade receivables

A receivable is recognised if an amount of consideration that is unconditional (i.e., only the passage of time is required before payment of the consideration is due). Refer to accounting policies of financial assets in section (b) Financial instruments – initial recognition and subsequent measurement.

Contract liabilities

A contract liability is the obligation to transfer goods or services to a customer for which SPV Group has received consideration (or an amount of consideration is due) from the customer. If a customer pays consideration before SPV Group transfers goods or services to the customer, a contract liability is recognised when the payment is made, or the payment is due (whichever is earlier). Contract liabilities are recognised as revenue when SPV Group performs under the contract.

vi Recognition of interest income and insurance claim

Interest income is recognised using the effective interest method.

The 'effective interest rate' is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument to:

- the gross carrying amount of the financial asset; or
- the amortised cost of the financial liability.

Insurance claims are accounted for on the basis of claims admitted/expected to be admitted and to the extent that there is no uncertainty in receiving the claims.

h. Service concession arrangement

SPV Group constructs or upgrades infrastructure (construction or upgrade service) used to provide to public service and operates and maintains that infrastructure (operation service) for a specified period of time. These

arrangement may include infrastructure used in a public-to-private service concession arrangement for its entire useful life.

SPV Group recognizes the considerations given by the NHAI in accordance with Appendix C to Ind AS 115 – 'Revenue from Contracts with Customers'. The SPV Group recognizes a financial asset to the extent that it has an unconditional contractual right to receive cash. As per Service Concession Arrangement the financial assets need to be recognized in accordance with Ind AS 109. Ind AS 109 requires a financial asset to be measured at its fair value on first recognition and any difference between the initial measurement of the financial assets in accordance with Ind AS 109 and the contract assets recognized under Ind AS 115 to be presented as an expense. Subsequently, financial assets recognized at amortised cost. Any subsequent modifications to the contractual cash flows are accounted through the statement of profit and loss account in accordance with the Ind-As 109.

i. Income tax

Income tax comprises of current and deferred tax. It is recognised in the special purpose combined statement of profit and loss except to the extent that it relates to an item recognised directly in equity or in OCI.

i *Current tax*

Current tax comprises of the expected tax payable or receivable on the taxable income or loss for the year and any adjustment to the tax payable or receivable in respect of previous years. The amount of current tax reflects the best estimate of the tax amount expected to be paid or received after considering the uncertainty, if any, related to income taxes. It is measured using tax rates (and tax laws) enacted or substantively enacted by the reporting date.

ii *Deferred tax*

Deferred tax is measured at the tax rates that are expected to apply to the period when the asset is realised or the liability is settled, based on the laws that have been enacted or substantively enacted by the reporting date. The measurement of deferred tax reflects the tax consequences that would follow from the manner in which SPV Group expects, at the reporting date, to recover or settle the carrying amount of its assets and liabilities.

Deferred tax is recognised in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the corresponding amounts used for taxation purposes. Deferred tax is also recognised in respect of carried forward tax losses and tax credits.

Deferred tax assets are recognised to the extent that it is probable that future taxable profits will be available against which they can be used. Deferred tax liabilities are recognised for all taxable temporary differences. The existence of unused tax losses is strong evidence that future taxable profit may not be available. Therefore, in case of a history of recent losses, SPV Group recognises a deferred tax asset only to the extent that it has sufficient taxable temporary differences or there is convincing other evidence that sufficient taxable profit will be available against which such deferred tax asset can be realised. Deferred tax assets –unrecognised or recognised, are reviewed at each reporting date and are recognised/ reduced to the extent that it is probable/ no longer probable respectively that the related tax benefit will be realised.

Deferred tax assets and liabilities are offset if there is a legally enforceable right to offset current tax liabilities and assets, and they relate to income taxes levied by the same tax authority on the same taxable entity, or on different tax entities, but they intend to settle current tax liabilities and assets on a net basis or their tax assets and liabilities will be realised simultaneously.

Current and deferred tax is recognised in profit or loss, except to the extent that it relates to items recognised in other comprehensive income or directly in equity. In this case, the tax is also recognised in other comprehensive income or directly in equity, respectively.

j. Borrowing cost

Borrowing costs are interest and other costs incurred in connection with the borrowing of funds. Borrowing costs directly attributable to acquisition or construction of an asset which necessarily take a substantial period of time to get ready for their intended use are capitalised as part of the cost of that asset. Other borrowing costs are recognised as an expense in the special purpose combined statement of profit and loss in the period in which they are incurred.

Capitalization of borrowing costs ceases when substantially all the activities necessary to prepare the qualifying assets for their intended uses are complete.

k. Provisions and contingencies

A provision is recognised if, as a result of a past event, SPV Group has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are measure based on management's estimate required to settle the obligation at the balance sheet date and are discounted the expected future cash flows (representing the best estimate of the expenditure required to settle the present obligation at the balance sheet date) at a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability.

Provisions are reviewed at each balance sheet date and adjusted to reflect the current best estimate. If it is no longer probable that the outflow of resources would be required to settle the obligation, the provision is reversed.

Contingencies

Disclosure for a contingent liability is made when there is a possible obligation or a present obligation that may, but probably will not require an outflow of resources embodying economic benefits or the amount of such obligation cannot be measured reliably. When there is a possible obligation or a present obligation in respect of which likelihood of outflow of resources embodying economic benefits is remote, no provision or disclosure is made.

l. Earnings per unit

Basic earnings per unit is calculated by dividing the net profit or loss for the period attributable to unit holders by the weighted average number of units outstanding during the year.

For the purpose of calculating diluted earnings per unit, the net profit or loss for the period attributable to unit holders and the weighted average number of units outstanding during the period are adjusted for the effects of all dilutive potential equity units.

m. Operating segments

Operating segments are reported in a manner consistent with the internal reporting provided to the Chief Operating Decision Maker (CODM) of SPV Group. The CODM is responsible for allocating resources and assessing performance of the operating segments of SPV Group.

n. Cash and cash equivalents

Cash and cash equivalent in the balance sheet comprise cash at banks and on hand and short-term deposits with an original maturity of three months or less, that are readily convertible to a known amount of cash and subject to an insignificant risk of changes in value.

For the purpose of the combined statement of cash flows, cash and cash equivalents consist of cash and short-term deposits, as defined above, net of outstanding bank overdrafts as they are considered an integral part of SPV Group's cash management.

Principal Components of Combined Statement of Profit and Loss

Income

Our total income consists of (i) revenue from operations, (ii) interest on deposits with banks, (iii) interest from vendor advance and income tax refund and (iv) other income.

Revenue from operations

Revenue from operations primarily comprises:

(i) Revenue from contracts with customers: Revenue from contracts with customers primarily consists of construction income and operation and maintenance income. Construction income is recognised in accordance with applicable accounting standards, by applying percentage of completion method after providing for foreseeable losses, if any. Percentage of completion method is determined as a proportion

of the cost incurred up to the reporting date to the total estimated cost to complete. Operation and maintenance income is recognised in accordance with applicable accounting standards and comprises O&M expenses incurred during the Fiscal.

(ii) Other operating revenue: Other operating income includes finance income consisting of interest income on financial assets which is created in accordance with Ind AS by adopting financial asset model for future annuity receivables from the NHAI.

Interest on deposits with banks

Interest on deposits with banks primarily consists of interest income arising from deposits with banks.

Interest from vendor advance and income tax refund

Interest from vendor advance and income tax refund primarily consists of interest income from advances made to vendors and income tax refunds.

Other income

Other income primarily consists of other non-operating income.

Expenses

Our expenses primarily consist of (i) sub-contractor charges, (ii) employee benefits expenses, (iii) finance costs and (iv) other expenses.

Sub-contractor charges

Sub-contractor charges comprise (a) sub-contract charges (EPC contract) and (b) sub-contract charges (O&M contract).

Employee benefits expenses

Employee benefits expenses comprise salaries, wages and bonuses paid to employees. Since the employees work for the Project SPVs on a secondment basis from GRIL (an Associate of the Sponsor), costs in relation to employee benefits (i.e., towards gratuity, leave encashment and post-retirement benefits) are borne by the GRIL at the first instance, which is then reimbursed by the Project SPVs by way of invoices raised on the respective Project SPVs.

Finance costs

Finance costs comprise (a) interest payable on borrowings from banks, debentures, customer advances (mobilization) and unsecured loans availed from GRIL; and (b) other borrowing costs.

Other expenses

Other expenses include expenses in relation to (a) short term leases, (b) insurance, (c) legal and professional charges, (d) independent engineers' fees, (d) labour charges and labour cess, (e) electricity and (f) miscellaneous expenses.

Results of Operations

The following table sets forth certain information with respect to the results of operations of the SPV Group for the periods indicated:

Particulars	Three month period ended June 30, 2022		Year Ended March 31, 2022		Year Ended March 31, 2021		Year Ended March 31, 2020	
	(in ₹ million)	Percentage of Total Income (%)	(in ₹ million)	Percentage of Total Income (%)	(in ₹ million)	Percentage of Total Income (%)	(in ₹ million)	Percentage of Total Income (%)
Income								
Revenue from operations	4,428.17	99.01	15,857.02	99.10	21,539.65	99.24	30,740.50	99.40
Interest on deposits with banks	43.37	0.97	104.76	0.65	36.59	0.17	2.49	0.01
Interest from vendor advance and income tax refund	0.80	0.02	40.02	0.25	124.67	0.58	184.28	0.59
Other income	-	-	-	-	3.02	0.01	-	-
Total Income – (I)	**4,472.34**	**100.00**	**16,001.80**	**100.00**	**21,703.93**	**100.00**	**30,927.27**	**100.00**
Expenses								
Sub-contractor charges	2,154.02	48.16	11,381.55	71.13	16,365.78	75.40	27,824.54	89.97
Employee benefits expenses	1.00	0.02	3.92	0.02	4.58	0.02	3.70	0.01
Finance costs	829.98	18.56	3,440.87	21.50	2,648.58	12.20	1,712.12	5.54
Other expenses	76.66	1.72	332.27	2.08	341.77	1.58	299.73	0.96
Total Expenses – (II)	**3,061.66**	**68.46**	**15,158.61**	**94.73**	**19,360.71**	**89.20**	**29,840.09**	**96.48**
Profit before tax (I-II)	**1,410.68**	**31.54**	**843.19**	**5.27**	**2,343.22**	**10.80**	**1,087.18**	**3.52**
Tax expenses								
Current tax	12.57	0.28	-	-	-	-	202.75	0.66
Adjustment of tax related to earlier periods	-	-	-	-	(202.75)	(0.93)	-	-
Deferred tax charges	664.50	14.86	212.67	1.33	1,051.51	4.84	130.19	0.42
Total tax expenses	**677.07**	**15.14**	**212.67**	**1.33**	**848.76**	**3.91**	**332.94**	**1.08**
Net profit for the period/ year	**733.61**	**16.40**	**630.52**	**3.94**	**1,494.46**	**6.89**	**754.24**	**2.44**

Three month period ended June 30, 2022

Income

Total income for the three month period ended June 30, 2022 was ₹4,472.34 million, principally comprising revenue from operations of ₹4,428.17 million, interest income on deposits with banks of ₹43.37 million and interest income from vendor advance and income tax refund of ₹0.80 million.

Revenue from operations

Revenue from operations for the three month period ended June 30, 2022 was ₹4,428.17 million. Revenue from operations represented 99.01% of our total income for the three month period ended June 30, 2022.

- *Revenue from contracts with customers*: Revenue from contracts with customers for the three month ended period June 30, 2022 was ₹2,240.20 million, which was principally attributable to construction income. Revenue from contracts with customers represented 50.09% of our total income for the three month period ended June 30, 2022.
    - *Construction income*: Construction income for the three month period ended June 30, 2022 was ₹2,170.33 million, which was principally attributable to civil construction revenue under contracts, income from change of scope and income from utility shifting. Construction income represented 48.53% of our total income for the three month period ended June 30, 2022.
    - *Operation and maintenance income*: Operation and maintenance income for the three month period ended June 30, 2022 was ₹69.87 million, which was principally attributable to O&M income, as recognized in accordance with applicable accounting standards. Operation and maintenance income represented 1.56% of our total income for the three month period ended June 30, 2022.
- *Other operating revenues*: Other operating income for the three month period ended June 30, 2022 was ₹2,187.97 million, which was principally attributable to finance income on financial assets carried on amortised cost. Other operating revenues represented 48.92% of our total income for the three month period ended June 30, 2022.

Interest on deposits with banks

Interest income from deposits with banks for the three month period ended June 30, 2022 was ₹43.37 million. Interest income from deposits with banks represented 0.97% of our total income for the three month period ended June 30, 2022.

Interest from vendor advance and income tax refund

Interest income from vendor advances and income tax refunds for the three month period ended June 30, 2022 was ₹0.80 million. Interest income from vendor advances and income tax refunds represented 0.02% of our total income for the three month period ended June 30, 2022.

Other income

There was no other income during the three month period ended June 30, 2022.

Expenses

Total expenses for the three month period ended June 30, 2022 was ₹3,061.66 million, which principally comprised sub-contractor charges of ₹2,154.02 million, employee benefits expenses of ₹1.00 million, finance costs of ₹829.98 million and other expenses of ₹76.66 million.

- *Sub-contractor charges*: Sub-contractor charges for the three month period ended June 30, 2022 was ₹2,154.02 million, which was principally attributable to sub-contracting charges paid to O&M and EPC contractors. Sub-contractor charges represented 70.35% of our total expenses for the three month period ended June 30, 2022.

- *Employee benefits expenses*: Employee benefits expenses for the three month period ended June 30, 2022 was ₹1.00 million, which was principally attributable to salaries, wages and bonuses payable to employees. Employee benefits expenses represented 0.03% of our total expenses for the three month period ended June 30, 2022.

- *Finance costs*: Finance costs for the three month period ended June 30, 2022 was ₹829.98 million, which was principally attributable to interest payable on borrowings from banks, debentures and interest payable on unsecured loans availed from GRIL. Finance costs represented 27.11% of our total expenses for the three month period ended June 30, 2022.

- *Other expenses*: Other expenses for the three month period ended June 30, 2022 was ₹76.66 million, which was principally attributable to electricity expenses, insurance expenses and independent engineers' fees labour charges and labour cess. Other expenses represented 2.51% of our total expenses for the three month period ended June 30, 2022.

Profit / Loss before tax

As a result of the factors outlined above, our profit before tax was ₹1,410.68 million for the three month period ended June 30, 2022.

Tax expenses

Tax expenses for the three month period ended June 30, 2022 was ₹677.07 million which was principally attributable to a deferred tax liability on account of difference in taxable profit and book profit.

Profit / Loss after tax

As a result of the factors outlined above, our profit after tax was ₹733.61 million for the three month period ended June 30, 2022.

Fiscal 2022 compared to Fiscal 2021

Income

Total income decreased by ₹5,702.13 million, or 26.27%, from ₹21,703.93 million for Fiscal 2021 to ₹16,001.80 million for Fiscal 2022, primarily due to a decrease in revenue from operations.

Revenue from operations

Revenue from operations decreased by ₹5,682.63 million, or 26.38%, from ₹21,539.65 million for Fiscal 2021 to ₹15,857.02 million for Fiscal 2022, primarily due to a decrease in the construction income on account of two projects achieving PCOD during Fiscal 2021 and two projects achieving PCOD in Fiscal 2022. Revenue from operations represented 99.10% and 99.24% of our total income in Fiscals 2022 and 2021, respectively.

- *Revenue from contracts with customers*: Revenue from contracts with customers decreased by ₹4,786.12 million or 28.54%, from ₹16,769.23 million in Fiscal 2021 to ₹11,983.11 million in Fiscal 2022, which was principally attributable to a decrease in construction income as three projects, namely VSEPL and PDEPL, achieved PCOD in Fiscal 2021, and two projects, namely GASHPL and GSSHPL, achieving PCOD in Fiscal 2022, resulting in only O&M revenue and construction income for remaining works in Fiscal 2022 from these projects. Revenue from contracts with customers represented 74.89% and 77.26% of our total income in Fiscals 2022 and 2021, respectively.

    - *Construction income*: Construction income decreased by ₹4,861.00 million or 29.26%, from ₹16,612.29 million in Fiscal 2021 to ₹11,751.29 million in Fiscal 2022, which was principally attributable to three HAM projects achieving PCOD in Fiscal 2021 and two HAM projects achieving PCOD in Fiscal 2022, as a result of which the benefit of recognising revenue at construction cost in Fiscal 2021 was not available in Fiscal 2022 (resulting in lower revenues). Construction income represented 73.44% and 76.54% of our total income in Fiscals 2022 and 2021, respectively.

    - *Operation and maintenance income*: Operation and maintenance income increased by ₹74.88 million or 47.71% from ₹156.94 million in Fiscal 2021 to ₹231.82 million in Fiscal 2022, which

was principally attributable to increase in O&M income in respect of our operational projects. Operation and maintenance income represented 1.45% and 0.72% of our total income in Fiscals 2022 and 2021, respectively.

- *Other operating revenues*: Other operating income decreased by ₹896.51 million or 18.79%, from ₹4,770.42 million in Fiscal 2021 to ₹3,873.91million in Fiscal 2022, which was principally attributable to a one-time impact in financials due to the applicability of GST on annuities received from the NHAI pursuant to certain directives issued by the NHAI in Fiscal 2022. Other operating revenues represented 24.21% and 21.98% of our total income in Fiscals 2022 and 2021, respectively.

Interest on deposits with banks

Interest income on deposits with banks increased by ₹68.17 million or 186.31%, from ₹36.59 million in Fiscal 2021 to ₹104.76 million in Fiscal 2022, which was principally attributable an increase in the deposits placed with banks towards debt service reserve account (DSRA) for certain of our operational projects. Interest income on deposits with banks represented 0.65% and 0.17% of our total income in Fiscals 2022 and 2021, respectively.

Interest from vendor advances and income tax refund

Interest income from vendor advances and income tax refunds decreased by ₹84.65 million or 67.90%, from ₹124.67 million in Fiscal 2021 to ₹40.02 million in Fiscal 2022, which was principally attributable to lower interest income on mobilization advances given to the EPC contractor upon certain projects achieving PCOD. Interest income from vendor advances and income tax refunds represented 0.25% and 0.58% of our total income in Fiscals 2022 and 2021, respectively.

Other income

Other income decreased by ₹3.02 million or 100%, from ₹3.02 million in Fiscal 2021 to 0% in Fiscal 2022, which was principally attributable to a one-time insurance payment received in Fiscal 2021 in relation to a claim made by VSEPL. Other non-operating income represented 0.00% and 0.01% of the total income in Fiscals 2022 and 2021, respectively.

Expenses

Total expenses decreased by ₹4,202.10 million, or 21.70%, from ₹19,360.71 million for Fiscal 2021 to ₹15,158.61 million for Fiscal 2022, primarily due to a reduction in sub-contractor charges on account of completion of under-construction projects.

- *Sub-contractor charges*: Sub-contractor charges decreased by ₹4,984.23 million or 30.46%, from ₹16,365.78 million in Fiscal 2021 to ₹11,381.55 million in Fiscal 2022, which was principally attributable to two HAM projects achieving PCOD in Fiscal 2022, as a result of which the construction costs reduced in Fiscal 2022 as compared to Fiscal 2021. Sub-contractor charges represented 75.08% and 84.53% of our total expenses in Fiscals 2022 and 2021, respectively.

- *Employee benefits expenses*: Employee benefits expenses decreased by ₹0.66 million or 14.41%, from ₹4.58 million in Fiscal 2021 to ₹3.92 million in Fiscal 2022, which was principally attributable to the transfer of employees to GRIL upon projects achieving PCOD and other employee redundancies. Employee benefit expenses represented 0.03% and 0.02% of our total expenses in Fiscals 2022 and 2021, respectively.

- *Finance costs*: Finance costs increased by ₹792.29 million or 29.91%, from ₹2,648.58 million in Fiscal 2021 to ₹3,440.87 million in Fiscal 2022, which was principally attributable to an increase in the interest payable on borrowings from banks and debentures. Finance costs represented 22.70% and 13.68% of our total expenses in Fiscals 2022 and 2021, respectively.

- *Other expenses*: Other expenses decreased by ₹9.5 million or 2.78%, from ₹341.77 million in Fiscal 2021 to ₹332.27 million in Fiscal 2022, which was principally attributable to reduction in fees payable to independent engineers and labour cess. Other expenses represented 2.19% and 1.77% of our total expenses in Fiscals 2022 and 2021, respectively.

Profit / Loss before tax

As a result of the factors outlined above, our profit before tax was ₹843.19 million for Fiscal 2022 compared to ₹2,343.22 million for Fiscal 2021.

Tax expenses

Tax expenses decreased by ₹636.09 million or 74.94%, from ₹848.76 million for Fiscal 2021 to ₹212.67 million for Fiscal 2022, which was due to a reduction in deferred tax liabilities. There were no current tax expenses in Fiscal 2021 or Fiscal 2022.

Profit / Loss after tax

As a result of the factors outlined above, our profit after tax was ₹630.52 million for Fiscal 2022 compared to ₹1,494.46 million for Fiscal 2021.

Fiscal 2021 compared to Fiscal 2020

Income

Total income decreased by ₹9,223.34 million, or 29.82%, from ₹30,927.27 million for Fiscal 2020 to ₹21,703.93 million for Fiscal 2021, primarily due to a decrease in revenue from operations.

Revenue from operations

Revenue from operations decreased by ₹9,200.85 million, or 29.93%, from ₹30,740.50 million for Fiscal 2020 to ₹21,539.65 million for Fiscal 2021 primarily due to a decrease in the revenue from contracts with customers as one project, namely GPEL, achieved PCOD in Fiscal 2020 and three projects, namely, VSEPL and PDEPL, achieved PCOD in Fiscal 2021, resulting in only O&M revenue and construction income for remaining works in Fiscal 2021 from these projects. Revenue from operations represented 99.24% and 99.40% of our total income in Fiscals 2021 and 2020, respectively.

- *Revenue from contracts with customers*: Revenue from contracts with customers decreased by ₹11,366.09 million or 40.40%, from ₹ 28,135.32 million in Fiscal 2020 to ₹16,769.23 million in Fiscal 2021, which was principally attributable to completion of under-construction projects resulting in reduced construction income. Revenue from contracts with customers represented 77.26% and 90.97% of our total income in Fiscals 2021 and 2020, respectively.
    - *Construction income*: Construction income customers decreased by ₹11,523.03 million or 40.96%, from ₹ 28,135.32 million in Fiscal 2020 to ₹16,612.29 million in Fiscal 2021, which was principally attributable to three HAM projects achieving PCOD in Fiscal 2021, as a result of which the benefit of recognising revenue at construction cost in Fiscal 2020 was not available in Fiscal 2021 (resulting in lower revenues). Construction income represented 76.54% and 90.97% of our total income in Fiscals 2021 and 2020, respectively.
    - *Operation and maintenance income*: Operation and maintenance income increased by ₹156.94 million or 100% from 0% in Fiscal 2020 to ₹156.94 million in Fiscal 2021, which was principally attributable to O&M revenue for GPEL, VSEPL and PDEPL. Operation and maintenance income represented 0.72% and 0.00% of our total income in Fiscals 2020 and 2021, respectively
- *Other operating revenues*: Other operating income increased by ₹2,165.24 million or 83.11%, from ₹2,605.18 million in Fiscal 2020 to ₹4,770.42 million in Fiscal 2021, which was principally attributable to increase in finance income on financial assets carried on amortised cost. Other operating revenues represented 21.98% and 8.42% of our total income in Fiscals 2021 and 2020, respectively.

Interest on deposits with banks

Interest income on deposits with banks increased by ₹34.10 million or 1,369.48%, from ₹2.49 million in Fiscal 2020 to ₹36.59 million in Fiscal 2021, which was principally attributable to increase in deposits placed with banks towards DSRA for PDEPL and GPEL. Interest income on deposits with banks represented 0.17% and 0.01% of our total income in Fiscals 2021 and 2020, respectively.

Interest from vendor advances and income tax refund

Interest income from vendor advances and income tax refunds decreased by ₹59.61 million or 32.35%, from ₹184.28 million in Fiscal 2020 to ₹124.67 million in Fiscal 2021, which was principally attributable to lower interest income on mobilization advances given to the EPC contractor upon certain projects achieving PCOD. Interest income from vendor advances and income tax refunds represented 0.58% and 0.59% of our total income in Fiscals 2021 and 2020, respectively.

Other income

Other income increased by ₹3.02 million or 100%, from 0% in Fiscal 2020 to ₹3.02 million in Fiscal 2021, which was principally attributable to a one-time insurance payment received in Fiscal 2021 in relation to a claim made by VSEPL. Other non-operating income represented 0.01% and 0.00% of the total income in Fiscals 2021 and 2020, respectively.

Expenses

Total expenses decreased by ₹10,479.38 million, or 35.12%, from ₹29,840.09 million for Fiscal 2020 to ₹19,360.71 million for Fiscal 2021, primarily due to a reduction in sub-contractor charges on account of completion of under-construction projects.

- *Sub-contractor charges*: Sub-contractor charges decreased by ₹11,458.76 million or 41.18%, from ₹27,824.54 million in Fiscal 2020 to ₹16,365.78 million in Fiscal 2021, which was principally attributable to three HAM projects achieving PCOD in Fiscal 2021, as a result of which the construction costs reduced in Fiscal 2021 as compared to Fiscal 2020. Sub-contractor charges represented 84.53% and 93.25% of our total expenses in Fiscals 2021 and 2020, respectively.

- *Employee benefits expenses*: Employee benefits expenses increased by ₹0.88 million or 23.78%, from ₹3.70 million in Fiscal 2020 to ₹4.58 million in Fiscal 2021, which was principally attributable to the transfer of employees to GRIL upon projects achieving PCOD and other employee redundancies. Employee benefits expenses represented 0.02% and 0.01% of our total expenses in Fiscals 2021 and 2020, respectively.

- *Finance costs*: Finance costs increased by ₹936.46 million, or 54.70% from ₹1,712.12 million in Fiscal 2020 to ₹2,648.58 million in Fiscal 2021, which was principally attributable to an increase in the interest payable on borrowings from banks and debentures. Finance costs represented 13.68% and 5.74% of our total expenses in Fiscals 2021 and 2020, respectively.

- *Other expenses*: Other expenses increased by ₹42.04 million or 14.03%, from ₹299.73 million in Fiscal 2020 to ₹341.77 million in Fiscal 2021, which was principally attributable to an increase in electricity expenses, insurance expenses and other miscellaneous expenses. Other expenses represented 1.77% and 1.00% of our total expenses in Fiscals 2021 and 2020, respectively.

Profit / Loss before tax

As a result of the factors outlined above, our profit before tax was ₹2,343.22 million for Fiscal 2021 compared to ₹1,087.18 million for Fiscal 2020.

Tax expenses

Tax expenses increased by ₹515.82 million or 154.93%, from ₹332.94 million for Fiscal 2020 to ₹848.76 million for Fiscal 2021, which was due to an increase in deferred tax liabilities.

Profit / Loss after tax

As a result of the factors outlined above, our profit after tax was ₹1,494.46 million for Fiscal 2021 compared to ₹754.24 million for Fiscal 2020.

Cash Flows

The following table sets forth certain information relating to the cash flows of the SPV Group on a combined basis for the three month period ended June 30, 2022 and year ended March 31, 2022, March 31, 2021 and March 31, 2020 indicated:

(in ₹ million)

Particulars	Three month period ended June 30, 2022	Year Ended March 31, 2022	Year Ended March 31, 2021	Year Ended March 31, 2020
Net cash generated from / (used in) operating activities	336.41	(3,980.93)	(9,439.11)	(12,200.77)
Net cash generated from / (used in) investing activities	(707.11)	(1,506.47)	(1,191.97)	741.31
Net cash from generated / (used in) financing activities	(619.16)	6,257.81	11,784.37	11,617.18

Operating activities

Net cash flow generated by operating activities for the three month period ended June 30, 2022 was ₹336.41million, which was principally attributable to operational revenue from annuities receivable from the NHAI.

Net cash flow used in operating activities for Fiscal 2022 was ₹3,980.93 million, which was principally attributable to construction expenses for new projects.

Net cash flow used in operating activities for Fiscal 2021 was ₹9,439.11 million, which was principally attributable to construction expenses for new projects.

Net cash flow used in operating activities for Fiscal 2020 was ₹12,200.77 million, which was principally attributable to construction expenses for new projects.

Investing activities

Net cash flow used in investing activities for the three month period ended June 30, 2022 was ₹707.11 million, which was principally attributable to investment in fixed deposits with banks.

Net cash flow used in investing activities for Fiscal 2022 was ₹1,506.47 million, which was principally attributable to redemption of fixed deposits with banks.

Net cash flow used in investing activities for Fiscal 2021 was ₹1,191.97 million, which was principally attributable to redemption of fixed deposits with banks.

Net cash flow generated by investing activities for Fiscal 2020 was ₹741.31 million, which was principally attributable to interest income from fixed deposits with banks.

Financing activities

Net cash flow used in financing activities for three month period ended June 30, 2022 was ₹619.16million, which was principally attributable to repayment of borrowings and interest thereon.

Net cash flow generated by financing activities for Fiscal 2022 was ₹6,257.81 million, which was principally attributable to receipt of proceeds from borrowings.

Net cash flow generated by financing activities for Fiscal 2021 was ₹11,784.37 million, which was principally attributable to receipt of proceeds from borrowings.

Net cash flow generated by financing activities for Fiscal 2020 was ₹11,617.18 million, which was principally attributable to receipt of proceeds from borrowings.

Borrowings

The following table provides the types and amounts of the SPV Group's outstanding borrowings as on June 30, 2022, ended March 31, 2022, March 31, 2021 and March 31, 2020:

(*In ₹ million*)

	As at 30 June 2022		As at 31 March 2022		As at 31 March 2021		As at 31 March 2020	
	Non current	**Current Maturities**	**Non current**	**Current Maturities**	**Non current**	**Current Maturities**	**Non current**	**Current Maturities**
Loan from banks - Secured								
Term loan - Indian rupees	24,503.64	1,626.56	23,980.84	1,549.65	26,953.14	1,516.67	17,454.08	286.36
Debentures - Secured								
Listed Redeemable non convertible debentures	11,752.40	795.80	12,027.61	905.26	-	-	-	-
Unsecured								
Loan from related party	8,324.74	-	8,329.26	-	8,634.52	-	5,100.39	-
Total	**44,580.78**	**2,422.36**	**44,337.71**	**2,454.91**	**35,587.66**	**1,516.67**	**22,554.47**	**286.36**

As of June 30, 2022, the SPV Group's total borrowings were ₹47,003.14 million, comprising secured loans of ₹38,678.40 million and unsecured loans of ₹8,324.74 million. The financing arrangements of the Project SPVs are secured by way of charges created over their moveable and fixed assets, includes charges on bank accounts, present and future revenues and benefits accruing to the SPV Group under the project agreements.

Related Party Transactions

The Project SPVs have, in the course of their business and operations, entered into various transactions with related parties, such as operation and maintenance charges, loans and advances and EPC costs.

For further information on our related party transactions, see "***Related Party Transactions***" on page 224.

Known Trends or Uncertainties

Other than as described in "***Risk Factors***" on page 16 and this section, to our knowledge there are no known trends or uncertainties that have had or are expected have a material adverse impact on our revenues or income from continuing operations.

Sufficiency of working capital

The InvIT Assets are HAM projects and require working capital only to the extent of employee costs. To that extent, the Investment Manager has confirmed that the InvIT has the ability to meet such working capital requirements for a period of at least 12 months from the date of listing of the Units.

Seasonality

All the InvIT Assets comprise of HAM projects and accordingly, our business is not seasonal.

Unusual or infrequent transactions

Except as disclosed in this Draft Offer Document, there have been no events or transactions to our knowledge which could be categorized as unusual or infrequent.

Total turnover from each major segment of the InvIT

All the Project SPVs currently operate only road projects and therefore we have only one business segment.

Quantitative and Qualitative Disclosures on Market Risks

Interest rate risk

As the infrastructure development and construction business is capital intensive, the Project SPVs are exposed to interest rate risk. Interest rates for borrowings have been volatile in India in recent periods. The Project SPVs infrastructure development and construction projects were funded to a large extent by debt and increases in interest expense could have an adverse effect on their results of operations and financial condition. As of June 30, 2022,

the majority of the Project SPVs' total indebtedness was subject to variable rates. Although from time to time we may engage in interest rate hedging transactions and enter into new financing arrangements, there can be no assurance that we will be able to do so on commercially reasonable terms, that our counterparties will perform their obligations, or that these agreements, if entered into, will protect us adequately against interest rate risks.

Credit Risk

Credit risk on trade receivables is limited as the customers of the InvIT mainly consists of government promoted entities having strong credit worthiness.

Liquidity Risk

Liquidity risk relates to the risk that the InvIT or the Project SPVs will not be able to meet their respective obligations associated with its financial liabilities. The InvIT and the Project SPVs are exposed to liquidity risk in respect of financing arrangements and short-term and long-term investment programs mainly in their growth projects.

It is expected that the InvIT, through the Investment Manager, will regularly monitor liquidity requirements to ensure that it maintains adequate means of obtaining funds necessary in order to meet liquidity requirements in the short and longer term. Further, the InvIT and the Project SPVs aim to minimize the risk by generating sufficient cash flows from their current operations, cash and cash equivalents, liquid investments and by deploying a robust cash management system.

Significant Developments since June 30, 2022

Except as disclosed in this Draft Offer Document and except in the ordinary course of business of the Project SPVs, we are not aware of any circumstances that have arisen since June 30, 2022 that materially and adversely affect, or are likely to affect, our operations or profitability, the values of our respective assets or our ability to pay our respective liabilities in the next twelve months.

The InvIT and the Investment Manager confirm that there has been no material change in contingent liabilities since June 30, 2022, which is the date of the latest financial information included by way of the Special Purpose Combined Financial Statements.

The InvIT and the Investment Manager confirm that there has been no material change in the capital and other commitments since June 30, 2022, which is the date of the latest financial information included by way of the Combined Financial Statement.

Further, the following table sets forth the monthly revenue of the Project SPVs since June 30, 2022:

In Rs. Millions

Project SPV	Particulars	For the month of				
		July, 2022	**August, 2022**	**September, 2022**	**October, 2022**	**November, 2022**
GR Akkalkot Solapur Highways Private Limited	Revenue from operations	72.97	89.65	81.96	75.91	76.00
	Other income	0.95	0.95	0.95	0.95	0.95
	Total Income	**73.92**	**90.59**	**82.91**	**76.85**	**76.95**
GR Sangli Solapur Highways Private Limited	Revenue from operations	115.65	132.57	222.73	97.48	276.62
	Other income	2.80	2.80	2.80	2.80	2.80
	Total Income	**118.46**	**135.37**	**225.53**	**100.28**	**279.42**
GR Gundugolanu Devarapalli Highways Private Limited	Revenue from operations	221.94	161.47	121.02	156.84	157.02
	Other income	7.72	3.28	3.28	3.28	3.28
	Total Income	**229.66**	**164.75**	**124.29**	**160.12**	**160.30**
GR Phagwara Expressway Limited	Revenue from operations	46.92	47.80	47.68	82.10	83.67
	Other income	1.93	1.93	3.23	0.62	1.93
	Total Income	**48.84**	**49.73**	**50.91**	**82.73**	**85.60**
Porbandar Dwarka Expressway Private Limited	Revenue from operations	128.98	128.60	128.85	142.30	142.27
	Other income	0.85	0.85	0.85	0.85	0.85
	Total Income	**129.84**	**129.45**	**129.70**	**143.15**	**143.12**
Varanasi Sangam Expressway Private Limited	Revenue from operations	187.85	188.16	188.79	232.60	231.58
	Other income	3.18	3.18	3.52	2.85	3.18
	Total Income	**191.03**	**191.34**	**192.31**	**235.45**	**234.76**

Project SPV	Particulars	For the month of				
		July, 2022	**August, 2022**	**September, 2022**	**October, 2022**	**November, 2022**
GR Dwarka Devariya Highways Private Limited	Revenue from operations	241.87	182.36	364.67	81.91	302.64
	Other income	0.11	0.11	2.34	0.11	1.77
	Total Income	**241.98**	**182.46**	**367.00**	**82.02**	**304.42**

FINANCIAL INDEBTEDNESS AND DEFERRED PAYMENTS

*The following is a summary of the indebtedness of the Project SPVs as on September 30, 2022, together with a brief description of certain material covenants of the relevant financing agreements. For additional details, Investors should also refer to '**Use of Proceeds**' and '**Special Purpose Combined Financial Statements**', on pages 70 and 241.*

The Project SPVs have primarily availed loans, amongst others, for refinancing/take-over of the existing loans sanctioned and availed, for their respective projects to the extent outstanding, or repayment of the loans availed from GRIL for setting up their respective projects. Certain Project SPVs have availed loans for financing their respective projects, to meet the interest and O&M expenses from COD till receipt of first annuity payment from NHAI, and submission of bank guarantee for receiving advance payment from NHAI in terms of their respective Concession Agreements. Further, the Project SPVs have availed loans from GRIL for the purpose of their respective projects which forms part of the total means of finance of the projects ("**GRIL Loans**"). Set forth below is a brief summary of the outstanding borrowings of the Project SPVs (except for GRIL Loans), on a standalone basis, as of November 30, 2022:

Category of Borrowing	Outstanding Amount as on November 30, 2022 *(₹ in million)*
GPEL	
Term Loan	3,453.62
NCD	936.30
Total (A)	**4,389.93**
GDHPL	
Term Loan	4,850.44
NCDs	2,591.77
Total (B)	**7,442.20**
GDDHPL	
Term Loan	3,999.13
NCDs	-
Total (C)	**3,999.13**
GASHPL	
Term Loan	1,544.02
NCDs	1,494.93
Total (D)	**3,038.95**
GSSHPL	
Term Loan	3,710.18
NCDs	-
Total (E)	**3,710.18**
PDEPL	
Term Loan	5,526.54
NCDs	-
Total (F)	**5,526.54**
VSEPL	
Term Loan	3,110.59
NCDs	7,671.78
Total (G)	**10,782.36**
Total (A+B+C+D+E+F+G)	**38,889.30**

I - Principal terms of the borrowings (other than GRIL Loans) availed by the Project SPVs

1. **Interest and commissions:** The facilities availed by the Project SPVs typically have a benchmark floating rate of interest specified by the lender (repo rate, MCLR or T-Bill rate) plus an applicable spread which may be altered by the lender upon occurrence of events specified in the financing agreements, interest tax and other statutory levies, payable monthly. The applicable spread varies amongst different loans and is subject to reset in a manner specified in the relevant financing agreements.

2. **Maturity and Repayment:** The final maturity period of the loans availed by the Project SPVs range from 12 years to 14 years. These loans are repayable in 24 to 27 structured semi-annual installments in accordance with the repayment schedule specified in the relevant financing agreements.

3. **Voluntary Pre-Payment/ Repayment Terms**: The Project SPVs have the right to voluntarily prepay all

or part of the outstanding amounts, subject to payment of a prepayment premium, which is typically 1% to 2% of the amount proposed to be repaid. The Project SPVs have the right to prepay all or part of the outstanding amounts without payment of a prepayment premium on the occurrence of certain events specified in the relevant facility agreement. Further, certain facility agreements have provisions for mandatory prepayment of the entire amount outstanding, without payment of prepayment premium, on the receipt of monies pursuant to occurrence of certain mandatory prepayment events such as any damage/penalty received pursuant to the project agreements, in excess of the corresponding amount due to be paid by the Project SPV to the other entity, any insurance proceeds to the extent not applied to repair/restore the project assets, proceeds resulting from arbitral or judicial award in connection with any project agreement, proceeds from sale/ transfer/ disposal of the project assets, proceeds in connection with breach of warranty or guarantee under any project documents or change in control has occurred without prior written consent of the lenders, subject to the terms specified in the relevant financing agreements.

Further, facility agreements entered into by certain of the Project SPVs have provision for prepayment upon formation of an infrastructure investment trust wherein in the event of a proposed change in shareholding/change in control of the relevant Project SPV, its lenders have the discretion to: (i) participate in the funding of the infrastructure investment trust; or (ii) continue with the loan on conditions already agreed upon and GRIL continuing with its obligations; or (iii) request the relevant Project SPV to mandatorily prepay its loans, without payment of prepayment premium, subject to such repayment happening prior to change in shareholding/change in control of the relevant Project SPV pursuant to formation of the infrastructure investment trust.

As on date of this Draft Offer Document, such Project SPVs have intimated its lenders and applied for waiver from such mandatory prepayment requirement, upon formation of the InvIT.

4. **Security:** Where the security needs to be created in terms of the debt facilities availed, the Project SPVs are typically, *inter alia*, required to create:

(a) first ranking *pari passu* charge by way of hypothecation over:

1. all the Project SPV's fixed assets and tangible moveable assets;

2. all of the bank accounts of the Project SPVs, including but not limited to the escrow account and sub-accounts that may be opened pursuant to the transaction documents;

3. book debts, operating cash flows, receivables, commissions, revenues of whatsoever nature and whenever arising, both present and future; and

4. all intangible assets of the Project SPVs.

(b) first ranking *pari passu* charge/assignment by way of security over:

1. all the right, title, interest benefits claims and demands whatsoever of the Project SPVs in, to and under the project agreements;

2. all the right, title, interest benefits, claims and demands whatsoever of the Project SPVs in, to and under all the clearances;

3. all the right, title, interest, benefit, claims and demands whatsoever of the Project SPVs in, to and under any letter of credit, guarantees provided by any person in favour of the Project SPVs under any project agreement; and

4. all the right, title, interest, benefits, claims and demands whatsoever of the Project SPVs in, to and under all insurance contracts and insurance proceeds.

(c) first ranking *pari passu* charge by way of pledge of equity shares and preference shares, both present and future, held by GRIL, aggregating to at least 51% of the share capital of the Project SPVs;

(d) pledge over quasi-equity (except preference shares) extended by GRIL to the Project SPVs, in favour of the security trustee for the benefit of the lenders in form and substance satisfactory to the security trustee; and

(e) security interest by way of equitable assignment or pledge (as applicable) of the subordinate loans, if any, extended by GRIL to the Project SPVs.

The security creation above is only indicative, and there may be additional requirements under the various borrowing arrangements entered into by the Project SPVs.

For additional details, see '***Risk Factors – Our Project SPVs are subject to restrictive covenants under their financing agreements that could limit our flexibility in managing our business or to use cash or other assets. Any default under the existing financing arrangements by any of the Project SPVs could adversely impact the InvIT's ability to continue to own a majority of each of the Project SPVs, its cash flows and its ability to make distributions to Unitholders.***' on page 23.

5. **Undertakings:** GRIL in the case of debt facilities availed by GDDHPL has provided certain undertakings under the facility agreements in favor of the lenders, which includes, among others:

(a) bring in GRIL's contribution required for the project during the construction period and additional funds to meet the time and/or cost overruns in full;

(b) infuse short term funds in the form of unsecured loans towards shortfall in case of delay in receipt of construction support from NHAI or delay in release of mobilization advance by NHAI;

(c) create debt service reserve equivalent to three months debt servicing upfront, by GRIL, upon COD of GDDHPL;

(d) bring in funds required for incurring O&M and major maintenance expenses;

(e) fund any penalty imposed by NHAI;

(f) not to abandon the project and allow GDDHPL to abandon the project;

(g) not effect any change in ownership without prior approval of lenders; and

(h) create and maintain pledge over 51% of the equity and preference shares of GDDHPL and 100% of the debentures issued by GDDHPL.

In the case of GDDHPL, post completion of the Formation Transaction, the InvIT will be required to provide such undertakings to the lenders in the same form given by GRIL. For additional details, see '***Risk Factors – Our Project SPVs are subject to restrictive covenants under their financing agreements that could limit our flexibility in managing our business or to use cash or other assets. Any default under the existing financing arrangements by any of the Project SPVs could adversely impact the InvIT's ability to continue to own a majority of each of the Project SPVs, its cash flows and its ability to make distributions to Unitholders.***' on page 23.

6. **Restrictive Covenants:** Borrowing arrangements entered by the Project SPVs contain certain restrictive conditions and covenants restricting certain corporate actions and the respective Project SPV is required to take the prior approval of the lender or their agent, as the case may be, before carrying out such activities. The negative covenants in the facility documents in relation to the Project typically include

(a) not effect any change in its capital structure including reduction, purchase, buy-back, re-organisation of share capital;

(b) not formulate any scheme for winding up, merger, de-merger, consolidation, amalgamation with its shareholders or creditors;

(c) not dispose of the project assets;

(d) not acquire assets of any other person or make any investment in any entity, give any loans, extend financial assistance to any person, undertake any obligation on behalf of or for the benefit

of any other person, enter into long term contractual arrangement/obligations except as permitted;

(e) not declare or pay any restricted payments, as specified in the financing agreements;

(f) not create any security interest on or in any of its assets;

(g) not take any action to cancel or terminate any transaction document, sell, transfer or assign its interest in any transaction document;

(h) not directly or indirectly incur any financial indebtedness with any other person or financial institution except as permitted;

(i) not abandon the project;

(j) not raise any equity or preference capital except as permitted;

(k) not prepay any debt, redeem preference shares, change its capital structure;

(l) not repay the monies brought in by GRIL;

(m) not permit any change in ownership/control/management except as permitted;

(n) not alter, augment, modernize, expand or otherwise make material changes to scope of the project beyond the purview of the concession agreements;

(o) not undertake any new project or business diversification or expansion of project;

(p) not open or operate any bank account other than the escrow account;

(q) not remove any person exercising substantial powers of management of the affairs of the Project SPV;

(r) not change control of the Project SPV up to the final settlement date;

(s) not carry out any amendments or alternations to memorandum and articles of association which shall have material adverse effect; and

(t) not enter any transaction with any person other than in ordinary course of business and on arm's length basis and on a commercially reasonable basis.

The covenants above are only indicative, and there may be additional restrictive conditions and covenants under the various borrowing arrangements entered into by the Project SPVs. For additional details, see '***Risk Factors – Our Project SPVs are subject to restrictive covenants under their financing agreements that could limit our flexibility in managing our business or to use cash or other assets. Any default under the existing financing arrangements by any of the Project SPVs could adversely impact the InvIT's ability to continue to own a majority of each of the Project SPVs, its cash flows and its ability to make distributions to Unitholders.***' on page 23.

7. **Events of Default:** The borrowing arrangements entered into by the Project SPVs contain standard events of default, including:

(a) Default payment of any repayment installment or interest payment on respective due dates;

(b) Any default occurs under any of the financing agreements;

(c) Default in performance of covenants and conditions under the financing agreements;

(d) Cross default by Project SPV;

(e) Any amendments to memorandum and articles of association of Project SPVs which detrimentally affect the interests of the lenders;

(f) Supply of misleading information by Project SPV;

(g) Inability to pay debts;

(h) Failure to maintain insurance required under the transaction documents;

(i) Non creation/perfection of security interests by Project SPV;

(j) Sale, disposal and removal of project assets by Project SPV;

(k) Insolvency of the Project SPVs;

(l) Failure of GRIL to meet its obligations under the transaction documents;

(m) Any event occurs which could have a material adverse effect;

(n) Change in ownership of the Project SPVs; and

(o) Misutilization of the facility availed.

Under the relevant facility agreements entered into by certain of the Project SPVs, the lenders have the right to appoint a nominee director to the board of directors of the relevant Project SPV upon the occurrence of an event of default.

II – Principal terms of GRIL Loans

GRIL and the Projects SPVs have entered into agreements for providing loans to the Project SPVs to be utilized for the purpose of Project SPVs' respective projects ("**GRIL Loan(s)**"), details of which are set forth below:

(i) Agreement dated April 18, 2018, with GSSHPL, for providing an unsecured loan not exceeding ₹1,110 million;

(ii) Agreement dated December 18, 2018, with GASHPL for providing an unsecured loan not exceeding ₹1,000 million

(iii) Agreement dated April 8, 2017, with VESPL for providing an unsecured loan not exceeding ₹1,700 million;

(iv) Agreement dated May 29, 2017, with PDEPL for providing an unsecured loan not exceeding ₹1,700 million;

(v) Agreement dated August 23, 2016, with GEPL for providing an unsecured loan not exceeding ₹1,200 million;

(vi) Agreement dated March 17, 2018, with GDHPL for providing an unsecured loan not exceeding ₹2,500 million; and

(vii) Agreement dated March 18, 2019, with GDDHPL for providing an unsecured loan not exceeding ₹1,250 million.

Set forth below is the outstanding amount of GRIL Loans availed by the Project SPVs, on a standalone basis, as of November 30, 2022:

Category of Borrowing	**Outstanding Amount as on November 30, 2022** ***(₹ in million)***
GPEL	
GRIL Loan	1,016.97
GDHPL	
GRIL Loan	1,871.16
GDDHPL	
GRIL Loan	1,193.97
GASHPL	

Category of Borrowing	Outstanding Amount as on November 30, 2022 *(₹ in million)*
GRIL Loan	937.29
GSSHPL	
GRIL Loan	1,008.36
PDEPL	
GRIL Loan	1,371.41
VSEPL	
GRIL Loan	718.74
Total	**8,117.90**

The principal terms of the GRIL Loans availed by the Project SPVs are set forth below:

Interest and commissions	The loans availed by the Project SPVs from GRIL have interest rates equivalent to weighted average cost of fund to its lenders which will be reset by the lenders at its discretion.
Maturity and Repayment:	The loans availed by the Project SPVs from GRIL are repayable pursuant to the payments schedule, after the Project SPVs meet their respective senior debt obligations.
Voluntary Pre-Payment/ Repayment Terms:	The loans availed by the Project SPVs from GRIL have no prepayment penalty.
Purpose	The Project SPVs have availed loans from GRIL for the purpose of their respective projects which forms part of the total means of finance of the projects
Security	The loans availed by the Project SPVs from GRIL are unsecured.
Covenants	The GRIL Loans do not have any covenants

The GRIL Loans are proposed to be assigned to the InvIT pursuant to the Assignment Agreement. For details in relation to the Assignment Agreement, see *"**Formation Transactions in Relation to the InvIT – Arrangements pertaining to InvIT Assets entered into with parties to the InvIT prior to the Issue – Assignment Agreements***" on page 100.

III - NCD Terms

GPEL, VSEPL, GDHPL and GASHPL have issued NCDs to its respective debenture holders. Certain principal terms of the NCDs are as follows:

Instrument	INR denominated, senior, rated, listed, fully secured, redeemable, non-convertible debentures
Amount Issued	GPEL: 990 NCDs with face value ₹1 million VSEPL: 7,840 NCDs with face value ₹1 million GDHPL: 2,670 NCDs with face value ₹1 million GASHPL: 1,580 NCDs with face value ₹1 million
Tenor and repayment	GPEL: Tenure of 12 years from October 1, 2021, to be redeemed in 24 structured semi-annual instalments beginning after a moratorium up to COD, as per the redemption schedule specified in the relevant debenture trust deed. VSEPL: Tenure of 13 years and six months from June 17, 2021, to be redeemed in 27 structured semi-annual instalments beginning after a moratorium up to COD, as per the redemption schedule specified in the relevant debenture trust deed GDHPL: Tenure of 12 years, ten months, 25 days from March 16, 2022, to be redeemed in 26 structured semi-annual instalments, as per the redemption schedule specified in the relevant debenture trust deed GASHPL: Tenure of 12 years, ten months, 30 days, from December 1, 2021, to be redeemed in 26 unequal semi-annual instalments beginning after a moratorium, as per the redemption schedule specified in the relevant debenture trust deed
Purpose	Refinancing the outstanding amounts of the facility availed by the relevant Project SPVs for the purpose of financing the setting up of its projects. In the case of VSEPL, to refinancing the outstanding amounts of the facility availed

	by VSEPL for the purpose of financing the setting up of its projects and repayment of debt availed from GRIL for part-financing of its project.
Security	See above, '***Principal Terms of the Borrowings availed by the Project SPVs – 4. Security***'
Issuance Mode	Dematerialised form
Coupon Rate	The percentage rate per annum (payable semi-annually) which is the aggregate of repo rate plus an applicable spread, which are subject to reset in a manner specified in the relevant debenture trust deed. The applicable spread varies amongst different lenders.
Covenants	All customary covenants typical to issuance of NCDs apply. See above, '***Principal Terms of the Borrowings availed by the Project SPVs – 6. Restrictive Covenants***'
Event of Default	All customary events of default and consequences thereof typical to issuance of NCDs apply. See above, '***Principal Terms of the Borrowings availed by the Project SPVs – 7. Events of Default***'

The descriptions above are only indicative, and there may be additional terms and conditions with respect to security, financial or other covenants and events of default under the various borrowing arrangements entered into by the Project SPVs and NCD documents entered into by the Project SPVs. The Project SPVs are required to ensure that the aforementioned events of default and other events of default, as specified under the various documents and agreements entered into by such Project SPV for the purpose of availing of loans, are not triggered.

IV - InvIT Rupee Term Loan - Indicative principal terms of the borrowing to be availed by the InvIT from external lenders

The InvIT has received certain sanctions / in-principle approvals from certain external lenders in relation to loans proposed to be availed by the InvIT ("**InvIT Rupee Term Loan**"), the terms of which are subject to finalization and execution of the relevant financing agreements. The indicative key terms of the InvIT Rupee Term Loan facility are as follows:

Particulars	Details
InvIT Rupee Term Loan Facility	Facility 1: Rupee Term Loan ("**RTL**") facility of up to ₹19,000 million Facility 2: RTL facility of up to ₹8,000 million
Purpose	Facility 1**:** The proceeds shall be used towards refinancing the existing debt of Project SPVs and transaction costs Facility 2: The proceeds shall be used towards refinancing the existing debentures availed by Project SPVs and transaction costs
Loan Tenor	Facility 1**:** Door to door tenor of 13.5 years from date of disbursement Facility 2**:** Door to door tenor of 12.5 years from date of disbursement
Interest Rate	Linked to repo rate
Security	The obligations of the InvIT under the facilities, all interest and other monies in respect thereof shall be secured by a first ranking security interest including, but not limited to following: 1. First pari passu charge on all moveable assets and the receivables of the InvIT present and future including but not limited to: a. Receivables of the InvIT limited to the Project SPVs and the interest and principal repayment of the InvIT Rupee Term Loan b. charge over rights of the InvIT under the InvIT Rupee Term Loan and securities created in favour of the InvIT to secure the InvIT Rupee Term Loan. Dividends and any other amounts to be paid / payable by the Project SPVs to InvIT. 2. First pari passu charge on all immoveable assets of the InvIT (if any and if permitted under law). 3. First pari passu charge on the escrow account opened by the InvIT in which the free cash flows of the Project SPVs owned by the InvIT will be deposited/ credited or any other account opened / maintained by InvIT in relation to such Project SPVs 4. First pari-passu charge over Debt Service Reserve Account ("**DSRA**") 5. Charge over rights of the InvIT Rupee Term Loan and securities created by InvIT 6. Pledge over 51% of the equity shares of all Project SPVs
Mandatory Prepayment	The InvIT shall make mandatory prepayments of the amount received as: 1. Any insurance proceeds to the extent not applied to repair, renovation, restoration or re-instatement of the InvIT Assets 2. The proceeds of any termination payments/ buy-out payments received from the NHAI by the Project SPVs

Particulars	Details
	3. The proceeds resulting from the expropriation or other takeover event by any governmental authority of the InvIT Assets or the Project SPVs 4. The excess of proceeds over the expenses incurred, resulting from an arbitral or judicial award in connection with any of the project documents of the Project SPVs with respect to any event occurring post signing of the facility shall be distributed between lenders to the InvIT and unitholders in the proportion of debt to equity 5. Cessation of business by any of the material Project SPVs
Debt Service Reserve Account (DSRA)	The InvIT shall create DSRA within one month from date of first disbursement with an amount equivalent principal, interest, due and payable in respect of the facility for the subsequent three months. DSRA may be held in the form of cash, fixed deposit, bank guarantee, or permitted investments
Events of Default	The following events, among other things, shall constitute an event of default: 1. Any principal, interest or any other amounts under the facilities are not paid on the respective due dates to any lenders to the InvIT 2. If the facilities do not have a valid credit rating; 3. Breach of any terms of any transaction documents by the InvIT or the Project SPVs 4. Failure to comply with any condition, covenant or undertaking provided under the transaction documents 5. Cessation/ declaration of intent of cessation of business or its functions by the InvIT or the Project SPVs; 6. Unlawfulness and invalidity of the agreements entered into by the Projects SPVs in relation to the InvIT Assets / the transaction documents; 7. The security becoming invalid, unenforceable or not having the effect and ranking as stipulated under the transaction documents 8. Making any restricted payments without satisfaction of certain conditions 9. Occurrence of a material adverse event. 10. Non-creation and perfection of security within stipulated timelines 11. Failure to maintain the stipulated DSRA or other reserves as stipulated in the financing documents, which is not cured or waived
Consequences of Events of Default	If an event of default has occurred, the lenders to the InvIT may exercise any one or more of the following actions, including but not limited to: 1. exercise rights with respect to security, including enforcement of security, in accordance with the financing documents 2. Enforcement of security and any other rights available under the transaction documents 3. Declare the commitments under the Facilities to be cancelled or suspended; 4. Utilize any amounts in the InvIT / Project SPVs' escrow accounts to service and repay/prepay the Facilities in accordance with and pursuant to the provisions of the escrow agreement entered into by the InvIT

The Investment Manager, on behalf of the InvIT, proposes to provide to the Project SPVs, certain amount from the InvIT Rupee Term Loan by way of secured rupee term loans pursuant to the On-lending Agreement. For further details on the On-lending Agreement, see '***Use of Proceeds'*** on page 70.

Post-Issue Indebtedness of the InvIT

Under the SEBI InvIT Regulations, the aggregate consolidated borrowings and deferred payments of the InvIT shall not exceed 70% of the value of the InvIT assets and any borrowings exceeding 25% of the value of the InvIT assets shall be subject to certain conditions specified under the SEBI InvIT Regulations, including obtaining requisite Unitholders approval.

Consents from the Lenders of the Project SPVs

As at the date of this Draft Offer Document, all the Project SPVs have intimated and applied for necessary consent from all its lenders, as required under the relevant facility documentations to undertake the various activities that are proposed by way of the Formation Transactions and the Issue, such as transfer 100% of the outstanding equity shares (and convertible instruments) of the Project SPVs held by its shareholders and its nominees, to the InvIT, resulting in the change shareholding, management and control of the Project SPVs, including any change in the composition of the board of directors of the Project SPVs, temporary release of negative lien, pledge and non-disposal undertakings on the pledged equity shares of the Project SPV, for the limited purpose of the proposed transaction, prepay / repay (i) the existing loan facilities availed from existing lenders, and (ii) the debt availed from GRIL by the Project SPVs out of financing availed from the InvIT, replacement of project agreements,

including the execution of new operation and maintenance agreement and engineering, procurement and construction agreement, and appointment of a new O&M contractors and EPC contractors etc.

Further, as on the date of this Draft Offer Document, while the Project SPVs have obtained lender consents from a majority of their lenders for the purpose of the Issue and the Formation Transactions, we are yet to receive consent from Indian Bank for the Formation Transactions in relation to GDDHPL. Further, the Project SPVs have intimated all their lenders the proposal to assign the GRIL Loans to the InvIT simultaneously with the transfer of the 100% of the shareholding of the Project SPVs to the InvIT. In addition, the lender consents received from certain of the lenders contain certain conditions, See '***Risk Factors – Our Project SPVs are subject to restrictive covenants under their financing agreements that could limit our flexibility in managing our business or to use cash or other assets. Any default under the existing financing arrangements by any of the Project SPVs could adversely impact the InvIT's ability to continue to own a majority of each of the Project SPVs, its cash flows and its ability to make distributions to Unitholders.***' on page 23 for further details.

Borrowing Policy

The Investment Manager shall ensure that all funds borrowed in relation to the InvIT are in compliance with the SEBI InvIT Regulations and accordingly the Investment Manager has formulated the Borrowing Policy to outline the process for borrowing monies in relation to the InvIT. For details, see, '***Corporate Governance***' on page 212.

MATERIAL LITIGATION AND REGULATORY ACTION

Except as stated in this section, there are no outstanding material litigation or regulatory action involving the Project SPVs and against the InvIT, the Sponsor, the Investment Manager, the Project Manager or any of their Associates and the Trustee, that are currently pending.

*For purposes of this section, on the basis described below, details of all regulatory actions and criminal matters involving Project SPVs or against the InvIT, the Sponsor, the Investment Manager, the Project Manager or their respective Associates (collectively referred to as the "**Relevant Parties**") and the Trustee that are currently pending have been disclosed. Further, all outstanding civil matters involving an amount equivalent to, or more than the amount as disclosed below, with respect to the Project SPVs and against the InvIT, the Sponsor, the Investment Manager, the Project Manager or each of their respective Associates and the Trustee have been disclosed.*

In relation to the Relevant Parties (except GRIL, an Associate, whose equity shares are listed on the Stock Exchanges), all outstanding civil matters which involve an amount exceeding ₹47.50 million (being 5.00% of the total consolidated income for Fiscal 2022 of the Sponsor) have been considered material. Further, in relation to the Trustee, all the outstanding civil matters involving the Trustee have been disclosed.

All outstanding civil matters against GRIL, shall be considered material, if such litigation is material as per the materiality policy approved and adopted by GRIL.

Outstanding litigation involving any of the Project SPVs before any judicial forum involving an amount exceeding ₹59.03 million, being 1.00% of the combined net worth of the Project SPVs for Fiscal 2022, in accordance with the Special Purpose Combined Financial Statements shall be considered material.

Further, in cases where the outcome of one matter impacts one or more other matters, which individually are below the amounts mentioned above, but collectively above, such cases will also be disclosed in the Offer Documents. Additionally, in relation to an outstanding matter where the monetary liability is not quantifiable, such matter shall be considered material if the outcome of such matter would have a material adverse effect on the position of the Relevant Parties or the Project SPVs.

It is clarified that notices received by the Relevant Parties or the Project SPVs from third parties (excluding notices from regulatory or tax authorities or notices threatening criminal action) shall not be evaluated for materiality until the Relevant Parties or the Project SPVs are impleaded as defendants in proceedings before any judicial forum. Additionally, there have been certain criminal complaints and first information reports filed against the employees of the Relevant Parties during the course of their employment of the Relevant Parties, wherein the Relevant Parties have not been impleaded, and therefore, such matters have not been disclosed.

Further, taxation proceedings against the Relevant Parties (and, in case of the Project SPVs, involving the Project SPVs) have been disclosed in a consolidated manner.

I. Litigation and Regulatory Actions against the InvIT

As of the date of this Draft Offer Document, there are no outstanding criminal litigation, regulatory actions or material civil litigation against the InvIT.

II. Litigation and Regulatory Actions against the Associates of the InvIT

As of the date of this Draft Offer Document, there are no outstanding criminal litigation, regulatory actions or material civil litigation against the Associates of the InvIT, except GRIL. For further details, see '– ***Litigation and Regulatory Actions against the Associates of the Sponsor and Project Manager – GRIL*'** on page 322.

III. Litigation and Regulatory Actions involving the Project SPVs

As of the date of this Draft Offer Document, there are no outstanding criminal litigation, regulatory actions or material civil litigation involving the Project SPVs.

IV. Litigation and Regulatory Actions against the Sponsor and Project Manager

As of the date of this Draft Offer Document, there are no outstanding criminal litigation, regulatory

actions or material civil litigation against the Sponsor and Project Manager.

V. Litigation and Regulatory Actions against the Associates of the Sponsor and Project Manager

A. Litigation and Regulatory Actions against GRIL

Criminal Matters

1. A company petition ("**Petition**") was filed before the National Company Law Tribunal, New Delhi ("**NCLT**"), by Vaibhav Jalan against JKM Infra Projects Limited ("**JKM**"), its directors, GRIL, and Vinod Kumar Agarwal, among others ("**Respondents**"), seeking (i) investigation into the affairs of JKM in terms of Section 213(b)(i) of the Companies Act, 2013, (ii) directions for initiation of an investigation by the Serious Fraud Investigation Office against the Respondents, and (iii) the passing of an order against the Respondents for committing fraud under Section 447 of the Companies Act, 2013. It was alleged, through the petition, that JKM had colluded with GRIL to facilitate various unlawful activities. GRIL and Vinod Kumar Agarwal have filed an application with the NCLT for, among others, the removal of their name from the Petition.

2. The Mining Department, Madhya Pradesh, through the Mineral Inspector, Morena filed a first information report ("**FIR**") dated December 3, 2020 with the Police Station Nurabad, District Morena, Madhya Pradesh, under Sections 379 and Section 414 of the IPC and Sections 4 and Section 21 of the Mines and Minerals (Development and Regulation) Act, 1957, read with Rule 18(1) of the Madhya Pradesh Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2006 against GRIL and one of the employees of GRIL. It was alleged, by way of the FIR, that GRIL had illegally stored the mineral 'pathar – gitti'. GRIL filed a miscellaneous criminal petition with the High Court of Madhya Pradesh, seeking the quashing of the FIR. The High Court of Madhya Pradesh, by way of its order dated June 10, 2021, granted a stay on the FIR and the proceedings arising thereunder till the next date of hearing. The matter is currently pending.

3. The Mining Department, Madhya Pradesh, through the Mineral Inspector, filed an FIR dated December 3, 2020 with the Police Station Nurabad, District Morena, Madhya Pradesh, under Sections 379 and Section 414 of the IPC and Sections 4 and Section 21 of the Mines and Minerals (Development and Regulation) Act, 1957, read along with Rule 18(1) of the Madhya Pradesh Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2006 against GRIL and one of the employees of GRIL. It was alleged, by way of the FIR, that GRIL had illegally stored sand. GRIL filed a miscellaneous criminal petition with the High Court of Madhya Pradesh, seeking the quashing of the FIR. The High Court of Madhya Pradesh, by way of its order dated March 17, 2021, granted a stay on the FIR and the proceedings arising thereunder till the next date of hearing. The matter is currently pending.

4. An FIR dated June 12, 2022 has been filed by the Central Bureau of Investigation, Anti-Corruption Unit – I under Section 120-B of the IPC and Sections 7, 8, 9, 10 and 12 of the Prevention of Corruption Act, 1988 against certain employees of GRIL (the "**Representatives**"), GRIL, certain officials of the NHAI and others. It has been alleged that the Representatives along with certain unknown public servants have been involved in offences such as criminal conspiracy, bribing of public servants, bribing of public servants by commercial organization. GRIL has received a summon to appear before the Court of Special Judge, Central Bureau of Investigation, Assam. The matter is currently pending.

5. On April 16, 2018, GRIL received an order, issued by the Maharashtra Pollution Control Board ("**MPCB**"), requiring the closure of a ready-mix concrete plant and crusher plant ("**RMC Plant**") set up by GRIL, as part of one of its highway construction projects. Subsequently, the MPCB filed a criminal complaint with the Judicial Magistrate First Class, Ambejogai ("**JMFC, Ambejogai**") on April 10, 2019, alleging that GRIL had continued operations at the RMC Plant despite receiving directions for closure. Pursuant to the criminal complaint, the JMFC, Ambejogai passed an order dated April 10, 2019 issuing process against GRIL, Vinod Kumar Agarwal, and one of GRIL's employees ("**JMFC Order**"). GRIL, Vinod Kumar Agarwal, and the employee filed a criminal writ petition with the High Court of Maharashtra against the JMFC Order, seeking, among others, that (i) it be quashed and set aside and (ii) it be stayed pending

hearing and disposal of the writ petition. The High Court of Maharashtra passed an order dated July 4, 2019, deferring the hearing of the case at the trial court. The matter is currently pending.

6. GRIL has received a summon dated April 15, 2021 from the Sub-Divisional Judicial Magistrate, Criminal Court, Balachur in respect of a complaint filed by the State of Punjab through the Forest Range Office, Kathgarh in Balachaur tehsil of the Shaheed Bhagat Singh Nagar district, under Sections 4 and 5 of the Punjab Land Preservation Act, 1900 read with Sections 1 and 2 of the Forest Conservation Act, 1980 wherein it has been alleged that GRIL had damaged land and undertaken soil mining illegally in the forest range in Kathgarh. The matter is currently pending.

7. GRIL has received a notice dated June 29, 2021 from the Police Station, Shamgarh District, Mandsaur, Madhya Pradesh (the "**Police Station**") stating that the investigation of GRIL is to be initiated pursuant to an FIR filed at the Police Station. The FIR was filed by the District Minerals Officer, Mandsaur under Sections 379 and Section 414 of the IPC and Sections 4 and Section 21 of the Mines and Minerals (Development and Regulation) Act, 1957, read with Rule 18 of the Madhya Pradesh Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2006, pursuant to the directions issued by the High Court of Madhya Pradesh. Under the FIR, it has been alleged that GRIL and a certain sub-contractor of GRIL had undertaken mining of murram in violation of the M.P. Minor Mineral Rules, 1996. The matter is currently pending.

8. Arvind Kumar Baishya ("**Complainant**") has filed an FIR filed at the Police Station, Madhata, Pratapgarh, Uttar Pradesh dated June 22, 2018 under Section 154 of the CrPC against GRIL. It has been alleged that GRIL has undertaken illegal demolition of the Complainant's house situated on the Faizabad-Allahabad Road which caused the death of a member of his family and grievous hurt to two other members of his family. The matter is currently pending.

9. The Tehsildar, Budhadeet, Kota, Rajasthan, filed an FIR dated May 11, 2022 under Section 179 of the IPC and Sections 4 and Section 21 of the Mines and Minerals (Development and Regulation) Act, 1957, against GRIL. It has been alleged that GRIL has undertaken illegal mining of ordinary soil in the village, Budhadeet. The matter is currently pending.

10. GRIL has received an order dated July 29, 2022 ("**Order**") from the Court of Additional Chief Judicial Magistrate, Varanasi in respect of a complaint filed by Dharmendra Kumar at the Police Station, Badagaon, Varanasi under the Sections 379 and 451 of the IPC ("**Complaint**"), seeking the appearance of GRIL and certain of its employees. GRIL has filed a criminal miscellaneous application with the High Court of Allahabad seeking the quashing of the Complaint and the Order. The matter is currently pending.

Regulatory Actions

1. On December 19, 2019, the Assistant Mining Engineer, Amet, passed an order ("**AME Order**") stipulating that GRIL had undertaken unauthorized excavation of minerals at certain mining areas in Rajasthan and imposing a penalty of ₹4.52 million. GRIL has filed a writ petition with the High Court of Rajasthan for, among others, quashing the AME Order and seeking that GRIL be absolved from paying the penal amount. The High Court of Rajasthan passed a stay order dated January 15, 2020 on the execution of the AME Order. The matter is currently pending.

2. Mahendra Kumar Agarwal (in his capacity as a former director of GRIL), received a notice dated November 11, 2013 from the Certificate Officer, Assistant Electrical Engineer (Commerce and Revenue) Jharkhand State Electricity Board, Electricity Supply Circle, for initiation of certificate proceedings due to the alleged non-payment of electricity dues of ₹2.04 million by GRIL. In response to the notice, Mahendra Kumar Agarwal filed a petition before the Certificate Officer, Electricity Supply Division, Hazaribagh seeking the dropping of the certificate proceedings and the refund of the security money deposited by GRIL for the electricity connection, along with interest. The matter is currently pending.

3. The Certificate Officer (Mining), North Chotanagpur, Anchal, Hazaribagh ("**Certificate Officer**") passed an order dated July 12, 2017, holding that GRIL was liable to pay penalty since it had illegally mined soil as part of one of its projects. The Certificate Officer subsequently issued various demand notices, including a demand notice dated September 16,

2020, for a sum of ₹13.85 million. GRIL filed a writ petition before the High Court of Jharkhand seeking, among others, the issuance of a writ for the quashing of the order dated July 12, 2017 and the demand notice dated September 16, 2020. The High Court of Jharkhand, by way of an order dated January 28, 2021, held that no coercive steps would be taken against GRIL until the admission of the matter. The matter is currently pending.

4. Pursuant to a letter by the District Mining Officer, Ramgarh, the Certificate Officer (Mining), North Chotanagpur, Anchal, Hazaribagh ("**Certificate Officer**"), initiated recovery proceedings, contending that GRIL was liable to pay a penalty for a sum of ₹10.18 million since it had illegally mined soil as part of one of its projects. The matter is currently pending before the Certificate Officer.

5. GRIL received orders dated January 14, 2020 and February 5, 2020 ("**Orders**") passed by the Assistant Mining Engineer, Mines and Geology Department, Bhilwara ("**AME**"), by way of which, a demand of ₹11.24 million was raised on GRIL. On the basis of an audit objection received, the AME contended in the Orders that GRIL had failed to disclose the use of a certain mineral in one of its projects and, accordingly, was liable to pay the amount demanded. GRIL filed an appeal with the Additional Director, Mines and Geology Department, Udaipur ("**Additional Director**"), seeking the quashing of the Orders and separately filed an application seeking a stay on the operation of the Orders. The Additional Director granted a stay order dated December 1, 2020 on the execution of the order dated February 5, 2020. The matter is currently pending.

6. An application was filed by the Patwari Halka No. 405, village Barkheda Hada before the Tehsildar, Neemuch ("**Tehsildar**") alleging that Ashoka Buildcon Limited and GRIL were illegally excavating soil and operation on Government land situated at survey no. 403 rakba. On basis of such application, the Tehsildar registered a case bearing number 23/B-21/2008-2009 against GRIL before the mining officer, Madhya Pradesh ("**Mining Officer**"). On receipt of report from the Mining Officer, case bearing number 07/A-67/2010-11 was initiated against Ashoka Buildcon Limited and GRIL, before Sub divisional Magistrate, Department of Revenue, Neemuch ("**SDM**"). The Tehsildar issued a show cause notice dated January 19, 2011 ("**SCN**") against GRIL, as under the Madhya Pradesh Land Revenue Code, 1959 and ordered to pay a penalty for a sum of ₹5.13 million as under section 53 of the Minor Mineral Rules, 1996 ("**Rules**"). GRIL filed a reply to the SCN, however the SDM, vide order dated July 31, 2017, passed an order ("**Impugned Order**") of penalty of ₹5.13 million against GRIL towards mining royalty. GRIL filed an appeal bearing number 135/2017 ("**Appeal**") before the Director, Mines Mineral Department, Bhopal, Madhya Pradesh ("**Authority**") against the said order of the SDM and submitted that the Impugned Order was passed without giving reasonable opportunity to GRIL and that it is also violative of the set provisions of the Rules. The Authority remanded the matter back to the Additional District Magistrate, Neemuch, who by way of an order dated January 11, 2021, directed the recovery of the penalty of ₹5.13 million. GRIL filed an appeal against this order before the Director of Geology and Mining, Bhopal, which has been transferred to the Commissioner, Ujjain Division. The matter is currently pending.

7. GRIL is in receipt of an order dated February 11, 2021 ("**Order**") from District Magistrate, Muzaffarnagar, stating that GRIL is liable to pay a sum of ₹7.69 million for the illegal mining of ordinary soil. GRIL filed an appeal with the Commissioner, Saharanpur Circle, Saharanpur ("**Commissioner**") seeking, among others, the quashing of the Order and an injunction on its operation which has been upheld by the Commissioner. GRIL has filed a writ petition before the High Court of Allahabad seeking the quashing of the Order. The matter is currently pending.

8. GRIL received a communication dated June 25, 2020, issued by the Mining Engineer, Mines and Geology Department, Bhilwara ("**ME**"), by way of which, a demand of ₹8.69 million was made with respect to a certain project undertaken by GRIL. The amount had been claimed basis certain audit objections made by the Accountant General of Rajasthan suggesting that GRIL had mined in excess of the quantity allowed under three short term permits procured by GRIL. Subsequently, GRIL received a notice dated July 2, 2020, issued by the ME, seeking explanations with respect to the audit objections. GRIL filed a writ petition with the High Court of Rajasthan seeking (i) that the communication dated June 25, 2020 and the notice dated July 2, 2020 be declared illegal and be quashed and (ii) that no coercive action be taken against GRIL with respect to such notices. The matter is currently pending.

9. GRIL is in receipt of an order dated July 6, 2020 ("**Order**") from Collector, Mining Division, Morena stating that GRIL is liable to pay a sum of ₹2.01 million for illegal stocking of soil. GRIL has filed an appeal with the Commissioner, Chambal Division, Morena, seeking, among others, the quashing of the Order. The matter is currently pending.

10. GRIL is in receipt of an order dated July 6, 2020 ("**Order**") from Collector, Mining Division, Morena stating that GRIL and another party are liable to pay a sum of ₹0.52 million for illegal stocking of soil. GRIL has filed an appeal with the Commissioner, Chambal Division, Morena, seeking, among others, the quashing of the Order. The matter is currently pending.

11. GRIL is in receipt of an order dated March 9, 2020 ("**Order**") from Assistant Collector, Solapur stating that GRIL is liable to pay a sum of ₹61.2 million for illegal stocking of soil. GRIL has filed an appeal with the Additional District Magistrate, Solapur seeking, among others, the quashing of the Order. The matter is currently pending.

12. A recovery notice dated June 14, 2018 ("**Recovery Notice**") has been issued by the Sub Registrar II, Udaipur ("**Sub Registrar**") against GRIL for the payment of ₹163.00 million towards alleged deficit stamp duty required to be paid by GRIL in relation to certain loan documentation entered into by GRIL and executed in New Delhi, and allegedly received in Rajasthan. GRIL has filed an appeal before the High Court of Rajasthan against the State of Rajasthan, Deputy Inspector General, Stamps and Registration Department, Circle Udaipur and the sub Registrar (collectively, the "**Respondents**") wherein GRIL has prayed that, inter alia, the Recovery Notice be declared illegal and set aside and that the Sub Registrar be restrained from proceeding against GRIL pursuant to the Recovery Notice. The High Court of Rajasthan has subsequently issued a stay order in favour of GRIL against the Recovery Notice. The matter is currently pending.

13. GRIL is in receipt of an order dated September 21, 2021 ("**Order**") from the office of District Magistrate, Ambedkarnagar, stating that GRIL is liable to pay a sum of ₹2.86 million for illegal mining of ordinary soil. GRIL has filed an appeal with the Commissioner, Ayodhya, seeking, among others, the quashing of the Order. The matter is currently pending.

14. GRIL is in receipt of an order dated August 5, 2021 ("**Order**") from the office of District Magistrate, Sultanpur, stating that GRIL is liable to pay a sum of ₹0.14 million for illegal mining of ordinary soil. GRIL has filed an appeal with the Commissioner, Ayodhya, seeking, among others, the quashing of the Order. The matter is currently pending.

15. GRIL is in receipt of an order dated October 9, 2020 ("**Order**") from the office of District Magistrate, Sultanpur, stating that GRIL is liable to pay a sum of ₹0.08 million for illegal mining of ordinary soil. GRIL has filed an appeal with the Commissioner, Ayodhya, seeking, among others, the quashing of the Order. The matter is currently pending.

16. GRIL is in receipt of an order dated October 9, 2020 ("**Order**") from the office of District Magistrate, Sultanpur, stating that GRIL is liable to pay a sum of ₹0.57 million for illegal mining of ordinary soil. GRIL has filed an appeal with the Commissioner, Ayodhya, seeking, among others, the quashing of the Order. The matter is currently pending.

17. GRIL is in receipt of an order dated November 23, 2021 ("**Order**") from the office of District Magistrate, Sultanpur, stating that GRIL is liable to pay a sum of ₹0.55 million for illegal mining of ordinary soil. GRIL has filed an appeal with the Commissioner, Ayodhya, seeking, among others, the quashing of the Order. The matter is currently pending.

18. GRIL is in receipt of an order dated October 12, 2021 ("**Order**") from the office of District Magistrate, Sultanpur, stating that GRIL is liable to pay a sum of ₹0.64 million for illegal mining of ordinary soil. GRIL has filed an appeal with the Commissioner, Ayodhya, seeking, among others, the quashing of the Order. The matter is currently pending.

19. GRIL is in receipt of a notice of demand dated December 29, 2021 ("**Notice**") from the office of District Magistrate, Sultanpur, stating that GRIL is liable to pay a sum of ₹1.05 million for illegal mining of ordinary soil. GRIL has filed an appeal with the Commissioner, Ayodhya, seeking, among others, the quashing of the Notice. The matter is currently pending.

20. GRIL is in receipt of a notice of demand dated May 30, 2022 ("**Notice**") from the office of District Magistrate, Sultanpur, stating that GRIL is liable to pay a sum of ₹0.34 million for illegal mining of ordinary soil. GRIL has filed an appeal with the Commissioner, Ayodhya, seeking, among others, the quashing of the Notice. The matter is currently pending.

21. GRIL is in receipt of a notice of demand dated March 30, 2022 ("**Notice**") from Assistant Director of Mines and Geology, Eluru, stating that GRIL is liable to pay a sum of ₹822.65 million towards, among others, seigniorage fee and penalty for non-payment of seigniorage fee. GRIL has filed an appeal with the Department of Mines and Geology, Ibrahimpatnam, Krishna District, Andhra Pradesh, seeking, among others, the quashing of the Notice. The matter is currently pending.

22. GRIL is in receipt of notices dated December 14, 2021 and March 3, 2022 ("**Notices**") from the Tehsil Office, Ambejogai stating that GRIL is liable to pay a sum of ₹0.64 million on account of a change in the assessment of the amount of taxes and charges payable with respect to the occupation of a parcel of land by GRIL in Ambejogai. GRIL has responded to the Notice by way of a letter dated April 4, 2022 disputing the assessment of the taxes and charges payable. The matter is currently pending.

23. GRIL is in receipt of a show cause notice dated May 25, 2022 ("**Notice**") from the Mines Department, Kota wherein it has been alleged that GRIL has undertaken illegal mining of ordinary soil in the village Budhadeet, Kota, Rajasthan. GRIL has responded to the Notice by way of a letter dated July 4, 2022 disputing the allegations therein. The matter is currently pending.

    Further, an FIR dated May 11, 2022 has been filed against GRIL in this regard. For further details, see '– ***Litigation and Regulatory Actions against the Associates of the Sponsor and Project Manager – Litigation and Regulatory Actions against GRIL – Criminal Matters***' on page 322.

24. GRIL is in receipt of a notice dated July 14, 2022 ("**Notice**") from the Assistant Engineer, Mines Department, Balesar wherein it has been alleged that GRIL has failed to pay royalty and District Mineral Foundation Trust ("**DMFT**") charges liable to be paid under the Rajasthan Minor Mineral Concession Rules, 2017. Further, the Notice states that GRIL is liable to pay a sum of ₹0.99 million towards royalty and DMFT charges along with interest. GRIL has responded to the Notice by way of a letter dated July 27, 2022 disputing the allegations therein. The matter is currently pending.

25. GRIL is in receipt of a notice dated June 22, 2022 from the Tehsil Office, Sangola wherein it has been alleged that GRIL has undertaken illegal excavation of brass murum in the village Wadhegaon, Sangola taluka. Further, an order dated July 26, 2022 has been passed by the Tehsildar, Sangola stating that GRIL is liable to pay a sum of ₹117.51 million as penalty for the alleged illegal excavation of brass murum. GRIL has filed an appeal against this order before the Sub Divisional Officer, Mangalwedha. The matter is currently pending.

26. GRIL is in receipt of a notice dated June 22, 2022 from the Tehsil Office, Sangola wherein it has been alleged that GRIL has undertaken illegal excavation of brass murum in the village Wadhegaon, Sangola taluka. Further, an order dated July 26, 2022 has been passed by the Tehsildar, Sangola stating that GRIL is liable to pay a sum of ₹101.04 million as penalty for the alleged illegal excavation of brass murum. GRIL has filed an appeal against this order before the Sub Divisional Officer, Mangalwedha. The matter is currently pending.

27. GRIL is in receipt of a notice dated June 22, 2022 from the Tehsil Office, Sangola wherein it has been alleged that GRIL has undertaken illegal excavation of brass murum in the village Wadhegaon, Sangola taluka. Further, an order dated July 26, 2022 has been passed by the Tehsildar, Sangola stating that GRIL is liable to pay a sum of ₹23.55 million as penalty for the alleged illegal excavation of brass murum. GRIL has filed an appeal against this order before the Sub Divisional Officer, Mangalwedha. The matter is currently pending.

28. GRIL is in receipt of a notice dated June 22, 2022 from the Tehsil Office, Sangola wherein it has been alleged that GRIL has undertaken illegal excavation of brass murum in the village

Wadhegaon, Sangola taluka. Further, an order dated July 26, 2022 has been passed by the Tehsildar, Sangola stating that GRIL is liable to pay a sum of ₹120.46 million as penalty for the alleged illegal excavation of brass murum. GRIL has filed an appeal against this order before the Sub Divisional Officer, Mangalwedha. The matter is currently pending.

29. GRIL is in receipt of a notice dated June 22, 2022 from the Tehsil Office, Sangola wherein it has been alleged that GRIL has undertaken illegal excavation of brass murum in the village Wadhegaon, Sangola taluka. Further, an order dated July 26, 2022 has been passed by the Tehsildar, Sangola stating that GRIL is liable to pay a sum of ₹29.25 million as penalty for the alleged illegal excavation of brass murum. GRIL has filed an appeal against this order before the Sub Divisional Officer, Mangalwedha. The matter is currently pending.

30. GRIL is in receipt of a notice dated June 22, 2022 from the Tehsil Office, Sangola wherein it has been alleged that GRIL has undertaken illegal excavation of brass murum in the village Wadhegaon, Sangola taluka. Further, an order dated July 26, 2022 has been passed by the Tehsildar, Sangola stating that GRIL is liable to pay a sum of ₹82.66 million as penalty for the alleged illegal excavation of brass murum. GRIL has filed an appeal against this order before the Sub Divisional Officer, Mangalwedha. The matter is currently pending.

31. GRIL is in receipt of a notice dated June 22, 2022 from the Tehsil Office, Sangola wherein it has been alleged that GRIL has undertaken illegal excavation of brass murum in the village Wadhegaon, Sangola taluka. Further, an order dated July 26, 2022 has been passed by the Tehsildar, Sangola stating that GRIL is liable to pay a sum of ₹114.31 million as penalty for the alleged illegal excavation of brass murum. GRIL has filed an appeal against this order before the Sub Divisional Officer, Mangalwedha. The matter is currently pending.

32. GRIL is in receipt of a notice dated June 22, 2022 from the Tehsil Office, Sangola wherein it has been alleged that GRIL has undertaken illegal excavation of brass murum in the village Wadhegaon, Sangola taluka. Further, an order dated July 26, 2022 has been passed by the Tehsildar, Sangola stating that GRIL is liable to pay a sum of ₹53.26 million as penalty for the alleged illegal excavation of brass murum. GRIL has filed an appeal against this order before the Sub Divisional Officer, Mangalwedha. The matter is currently pending.

33. GRIL is in receipt of a notice dated May 23, 2022 from the Tehsil Office, Sangola wherein it has been alleged that GRIL has undertaken illegal excavation of brass murum in the village Wadhegaon, Sangola taluka. Further, an order dated July 26, 2022 has been passed by the Tehsildar, Sangola stating that GRIL is liable to pay a sum of ₹217.84 million as penalty for the alleged illegal excavation of brass murum. GRIL has filed an appeal against this order before the Sub-Divisional Officer, Mangalwedha. The matter is currently pending.

34. GRIL is in receipt of a notice dated May 23, 2022 from the Tehsil Office, Sangola wherein it has been alleged that GRIL has undertaken illegal excavation of brass murum in the village Wadhegaon, Sangola taluka. Further, an order dated July 26, 2022 has been passed by the Tehsildar, Sangola stating that GRIL is liable to pay a sum of ₹22.90 million as penalty for the alleged illegal excavation of brass murum. GRIL has filed an appeal against this order before the Sub-Divisional Officer, Mangalwedha. The matter is currently pending.

35. GRIL is in receipt of a notice dated May 23, 2022 from the Tehsil Office, Sangola wherein it has been alleged that GRIL has undertaken illegal excavation of brass murum in the village Wadhegaon, Sangola taluka. Further, an order dated July 26, 2022 has been passed by the Tehsildar, Sangola stating that GRIL is liable to pay a sum of ₹14.20 million as penalty for the alleged illegal excavation of brass murum. GRIL has filed an appeal against this order before the Sub-Divisional Officer, Mangalwedha. The matter is currently pending.

36. GRIL is in receipt of a notice dated February 4, 2022from the Tehsil Office, Sangola wherein it has been alleged that GRIL has undertaken illegal excavation of brass murum in the village Shivane, Sangola taluka and that GRIL is liable to pay a sum of ₹2,944.24 million as penalty for such alleged illegal excavation. GRIL has filed an appeal against this notice before the Sub-Divisional Officer, Mangalwedha. The matter is currently pending.

37. GRIL has received a summon dated November 25, 2022 from the Collector of Badohi in respect

of an application for claim of relief under the Public Liability Insurance Act, 1991 filed by Yunus Hashmi claiming a compensation of ₹10.00 million for the death of his son. GRIL has filed its response denying the allegations set forth in the application filed by Yunus Hashmi. The matter is currently pending.

38. GRIL is in receipt of a challan dated January 8, 2020 from the District Transport Officer, Bikaner levying a one-time tax and surcharge amounting to ₹0.17 million with respect to one of the vehicles of GRIL. GRIL has filed an appeal before the Regional Transport Office, Bikaner in this regard. The matter is currently pending.

Other Material Matters

1. The owners of certain tracts of land ("**Disputed Land**") in revenue village Manda Basni, Rajasthan ("**Petitioners**") filed a writ petition with the High Court of Rajasthan against The State of Rajasthan, through the Secretary, Department of Public Works and GRIL, among others, on July 20, 2020. GRIL is involved in the construction of roads over, among others, the Disputed Land. The Petitioners alleged in the writ petition that they had been inadequately compensated for the acquisition of the land by the Department of Public Works, Rajasthan pursuant to an order of the Secretary, Public Works Department, Government of Rajasthan ("**Order**") dated July 28, 2017. Accordingly, the Petitioners have sought that the Order be quashed and set aside and that they be granted additional compensation for the loss of land and trees. The matter is currently pending.

2. The owners of certain tracts of land in Kather Bye Pass, Himachal Pradesh ("**Petitioners**") filed a writ petition with the High Court of Himachal Pradesh against the State of Himachal Pradesh through its Chief Secretary and GRIL, among others on March 2, 2020. The Petitioners have sought, among others, the relocation of a culvert constructed by GRIL as part of an ongoing project for the construction of a national highway. The matter is currently pending.

3. A writ petition has been filed by Score Information Technologies Limited and Ajit Kumar Jain ("**Petitioners**") with the High Court of Delhi against Bharat Sanchar Nigam Limited ("**BSNL**") and GRIL, among others on September 8, 2020. GRIL is involved as a sub-contractor in this project. The Petitioners have sought, among other reliefs, the initiation of an appropriate inquiry into the execution of a tender for the setting up of an optical fibre communication network by BSNL along with the Ministry of Defence, Government of India. By way of an order dated September 9, 2020, the matter was converted into a public interest litigation. The matter is currently pending.

4. The owners of certain tracts of land ("**Disputed Land**") in village and post – Kareban, District – Sultanpur ("**Petitioners**") filed a writ petition with the High Court of Allahabad against the State of Uttar Pradesh, through the Principal Secretary, Mines Department, the Chairman, Uttar Pradesh Express Industrial Development Authority ("**UPEIDA**"), and GRIL, among others, on February 26, 2020. It was alleged that GRIL (which was involved in the construction of a highway near the Disputed Land), along with the UPEIDA, had excavated soil and clay from the Disputed Land without permission and rendered such land infertile. Accordingly, the Petitioners have sought that a writ be issued for the payment of compensation for the losses caused to them, that action be taken against GRIL for violation of applicable law, and that the Disputed Land be restored. The matter is currently pending.

5. The owners of certain tracts of land ("**Disputed Land**") in Sultanpur ("**Petitioners**") filed a writ petition with the High Court of Allahabad against the State of Uttar Pradesh, through the Chief Secretary, UPEIDA, Lucknow and GRIL, among others, on November 5, 2019. It was alleged that GRIL (which was involved in the construction of a highway near the Disputed Land), along with the UPEIDA, had excavated soil from the Disputed Land without permission and had damaged such land. Accordingly, the Petitioners have sought that a writ be issued for (i) the payment of compensation to them or for land to be provided in exchange and (ii) action to be taken against GRIL for such digging and consequent damage. The matter is currently pending.

6. The owners of certain tracts of land ("**Disputed Land**") in Mohal Bara, Tehsil and District Solan, Himachal Pradesh ("**Petitioner**") filed writ petitions with the High Court of Himachal

Pradesh against the Union of India, through its Secretary (MoRTH) and GRIL, among others, on April 17, 2021. It was alleged that GRIL (which was involved in the construction of a highway near the Disputed Land) had excavated soil resulting in damage to the Disputed Land, the buildings situated on it, and the adjoining parcel of land, which was also owned by the Petitioner. Accordingly, the Petitioner has sought that a writ be issued (i) to direct the respondents to acquire the Disputed Land and the buildings in accordance with the provisions of the National Highways Act, 1956 and the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 and to pay compensation to the Petitioner in accordance with law and (ii) to direct the respondents to acquire the land adjoining the Disputed Land and to pay compensation to the Petitioner in accordance with the law. The matter is currently pending.

7. A writ petition has been filed by Vaibhav Jalan with the High Court of Delhi against JKM Infra Projects Limited, its directors, GRIL and others ("**Respondents**") on May 27, 2022. Vaibhav Jalan has alleged that the Respondents have colluded to facilitate various unlawful activities and sought for a writ to be issued directing the Enforcement Directorate to initiate investigation on such activities. The High Court of Delhi by way of its order dated May 31, 2022 issued a notice to the Enforcement Directorate and directed the Enforcement Directorate to submit a status report before the court. Subsequently, the High Court of Delhi passed an order dated September 5, 2022 recording that the Enforcement Directorate has submitted its status report before the court and referring the matter to Delhi High Court Mediation and Conciliation Centre for mediation. The matter is currently pending.

B. ***Litigation and Regulatory Actions against other Associates***

1. A company petition was filed before NCLT, by Vaibhav Jalan against, Vinod Kumar Agarwal, among others. For further details, see '– ***Litigation and Regulatory Actions against the Associates of the Sponsor and Project Manager – Litigation and Regulatory Actions against GRIL – Criminal Matters*'** on page 322.

2. The JMFC, Ambejogai passed an order dated April 10, 2019 issuing process against GRIL, Vinod Kumar Agarwal, and one of the employees of GRIL. For further details, see '– ***Litigation and Regulatory Actions against the Sponsor and Project Manager – Litigation and Regulatory Actions against GRIL – Criminal Matters***' on page 322.

3. The Regional Labour Commissioner (Central), Jaipur, has filed a complaint against Purshottam Agarwal, in his capacity as a (former) director of GRIL, before the Judicial Magistrate, Jaipur, (the "**Magistrate**") alleging certain violations under the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Central Rules, 1998 with respect to the project involving the extension and strengthening of the runway in the premises of AGM (Civil) Airport Authority of India, Jaipur. The matter is currently pending.

4. An application has been filed by Chandagi against Jasamrit Premises Private Limited and others ("**Defendants**") before the Sub-Divisional Officer, Tijara, Alwar, Rajasthan disputing the purchase of certain parcels of land by the Defendants in Tijara. Jasamrit Premises Private Limited has filed a written statement responding to such application. The matter is currently pending.

VI. Litigation and Regulatory Actions against the Investment Manager

As of the date of this Draft Offer Document, there are no outstanding criminal litigation, regulatory actions or material civil litigation against the Investment Manager.

VII. Litigation and Regulatory Actions against the Associates of the Investment Manager

As of the date of this Draft Offer Document, there are no outstanding criminal litigation, regulatory actions or material civil litigation against the Associates of the InvIT, except GRIL. For further details, see "***- Litigation and Regulatory Actions against the Associates of the Sponsor and Project Manager – Litigation and Regulatory Actions against GRIL***" on page 322.

VIII. Litigation and Regulatory Actions against the Trustee

1. Hubtown Limited (the "**Plaintiff**") had filed a case before the High Court of Bombay against the Trustee and its directors (the "**Defendants**") for having informed the bankers of the Plaintiff regarding the defaults committed by the Plaintiff. The Trustee has stated that the Plaintiff is a guarantor for the debt for which the Trustee is acting as a debenture trustee and in case of defaults, the relevant documents authorize the Trustee to share information about such default to CIBIL/ RBI and other creditors. The aggregate amount claimed is ₹3,000.00 million. The matter is currently pending for settlement.

2. SBICAP Trustee Company Limited (the "**Plaintiff**") had filed a suit before the City Civil Court, Bangalore against the Trustee and others (the "**Defendants**") requiring sale of pledged shares for a particular price by SREI Fund/Investors, for whom the Trustee was acting as the share pledge trustee. The Plaintiff was acting for a consortium of lenders and has residual interest. The aggregate claim amount is ₹1,550.30 million. The Plaintiff along with their counsel submitted to the Court that they are willing to explore settlement. The Court referred the matter for pre-conciliation efforts. The Plaintiff informed the Conciliator that if certain details of the loan transaction and a statement of accounts in relation to the same were provided, the dispute could be resolved quickly. The matter is currently pending.

3. Balmer Lawrie and Company Limited and another (the "**Plaintiffs**") had filed a petition before the High Court of Calcutta against the Trustee and certain others (the "**Defendants**") challenging the validity of the sale transaction of 1,48,20,000 shares in Transafe Services Limited by the Defendant to the Plaintiff. The Plaintiffs have inter alia sought (a) the recovery of consideration received by the Defendants for the allegedly void contract being ₹237.12 million and (b) interest at the rate of 18% per annum on the decretal amount. The matter is currently pending.

4. Loancore Servicing Solutions Private Limited (the "**Petitioner**") had filed a company petition no. 293/59/ND/2019 before the National Company Law Tribunal ("**NCLT**"), Principal Bench at New Delhi against the Religare Enterprise Limited and others including the Trustee (the "**Respondents**") alleging that the Respondents sold the shares of the Religare Enterprise Limited under the dominion and control of the Petitioners to Respondent nos. 3 to5. It is further alleged that the Trustee appropriated the shares and had transferred them to the Respondents nos. 3 to 5. It is furthermore alleged that the pledged shares had been sold to consciously deprive the Petitioner of its rights and to facilitate an illegal takeover of Respondent no. 1 by the Trustee through Respondent no.5 acting in concert. The alleged damages claim amount is ₹700 million is against the Respondent nos. 2 to 5. The NCLT has refused to pass any interim orders as asked by the Petitioner. The Petitioners has failed to produce any evidence or otherwise establish that it has any form of contractual privity or other relationship of any manner with the Trustee and therefore has absolutely no locus to make any claims against the Trustee. However, the petition is currently pending before the NCLT, Delhi.

5. Future Corporate Resources Limited ("**FCRL**") In the matter of FCRL ESOP Trust, SEBI Adjudicating Officer has passed an order dated the February 3, 2021, on the ground of insider trading against eight persons including FCRL Employees Trust of which the Trustee is a trustee. FCRL along with FCRL Employee Welfare Trust has been jointly and severally directed to disgorge an amount of ₹27.56 million. The Trustee has submitted that the Trustee as a trustee has acted on the instructions of the committee and not liable for insider trading and has not gained or received any amount. The Trustee and FCRL Employee Welfare Trust are separate. All the said persons have filed an appeal before SAT against the said SEBI Order dated the February 3, 2021. SAT has given the next date of hearing in the month of November on November 9, 2021. The matter is currently pending.

6. Pursuant to receipt of information against Trustees Association of India and three of its members, *i.e.*, the Trustee, Axis Trustee Services Limited, and SBI CAP Trustee Company Limited (collectively, the "**Respondents**") for alleged contravention of Sections 3(3) and 4 of the Competition Act, 2002, *i.e.*, for entering into anti-competitive agreements and formation of cartel, the Competition Commission of India (the "**CCI**") passed an order dated December 23, 2021 under Section 26(1) of the Competition Act, 2002 directing the Director General to investigate the conduct of the Respondents and its office bearers for *prima facie* violating Section 3(1) read with Section 3(3) of the Competition Act, 2002.

   In response to the above order, the Respondents have filed writ petitions before the High Court of Bombay challenging the jurisdiction of the CCI to decide the matter as SEBI is the sectoral regulator regulating the Respondents. The matter is currently pending.

7. R. K. Mohata Family Trust has filed a commercial suit before the High Court of Bombay against the Trustee praying for a meeting of the debenture holders of Reliance Home Finance Limited ("**RHFL**") to be held and also for damages worth ₹10.55 million from the Trustee. Pursuant to an order dated March 31, 2022 read with the orders dated April 6, 2022 and May 10, 2022 from the High Court of Bombay, the Trustee has convened a meeting of the debenture holders of RHFL the results of the voting on matters taken up at such meeting have been placed before the High Court of Bombay. The matter is currently pending.

8. A contempt petition has been filed by Kalyan Toll Infrastructure Limited against the Trustee and its directors before the National Company Law Tribunal, Hyderabad ("**NCLT**"), pursuant to an order of the NCLT dated April 26, 2022 in the case of Lanco Hoskote Highway Limited ("**LHHL**") alleging non-issuance of no-objection certificate for satisfaction of mortgage charge created by LHHL. The matter is currently pending.

9. A suit was instituted before the Supreme Court of Mauritius (the "**Court**") in 2014 against Dynamic India Fund III ("**DIF III**"), International Financial Services Limited ("**IFS**"), ICICI Venture Funds Management Company Limited ("**ICICI Venture**"), ICICI Bank Limited ("**ICICI Bank**") and the Trustee (collectively, the "**Defendants**"), by certain investors of DIF III claiming damages to the tune of $103.69 million for the loss of their investments in DIF III.

   The Defendants have raised various preliminary objections to the suit, including on the jurisdiction of the Court to decide on disputes involving non-residents of Mauritius. By way of an order dated June 9, 2020, the Court stayed the proceedings against ICICI Venture and ICICI Bank on the grounds that the allegations made against these entities did not take place in Mauritius and therefore, the Court lacked jurisdiction to adjudicate on such matters. Subsequently, the plaintiffs informed that the Court of their decision not to appeal against such order. Thereafter, by way of an order dated June 3, 2022, the Court deleted ICICI Venture and ICICI Bank from the array of parties involved in the suit, thereby allowing the suit to continue against DIF III, IFS and the Trustee. The plaintiffs have filed an appeal against the order dated June 3, 2022.

   ICICI Venture, the investment manager of DIF III, is handling and taking care of the matter on behalf of the Trustee, who was acting as a trustee to DIF III. The matter is currently pending.

IX. Taxation Proceedings

The details of all outstanding tax disputes involving the Project SPVs and against the Relevant Parties, on the basis of abovementioned, are set forth below:

Name of the Entity	Number of Proceedings*	Amounts Involved[#] (in ₹ million)
Direct tax		
i. InvIT	Nil	Nil
ii. Sponsor	Nil	Nil
iii. Investment Manager	Nil	Nil
iv. Associates of the Sponsor/ Project Manager/ Investment Manager/ InvIT (excluding the Project SPVs)	1	4.31
v. Project SPVs	Nil	Nil
Indirect Tax		
i. InvIT	Nil	Nil
ii. Sponsor	Nil	Nil
iii. Investment Manager	Nil	Nil
iv. Associates of the Sponsor/ Project Manager/ Investment Manager/ InvIT (excluding the Project SPVs)	12	459.44
v. Project SPVs	3	1,474.69

** Does not include assessment orders passed by tax authorities which have not resulted in the issuance of show cause notices or institution of legal proceedings.*

[#]To the extent quantifiable.

REGULATORY APPROVALS

*Provided below are the material approvals, consents, licenses, registrations and permissions from the government, various governmental agencies and other statutory and/or regulatory authorities with which the InvIT can undertake the Issue and the InvIT and the Project SPVs can undertake their respective current business activities, as applicable. Unless otherwise stated, these approvals are valid as of the date of this Draft Offer Document. In the event that any of the approvals and licenses that are required for the Project SPVs' business operations expire in the ordinary course of business, the relevant Project SPV will apply for such renewal from time to time. For details in connection with the regulatory and legal framework within which the InvIT and the Project SPVs operate, see '**Regulations and Policies in India**' on page 221.*

A. Approvals in relation to the Issue

1. In-principle approval from the BSE dated [●].

2. In-principle approval from the NSE dated [●].

3. Resolution dated September 16, 2022, passed by the board of directors of the Investment Manager in relation to the Issue and other incidental matters.

B. Approvals in relation to the InvIT

1. Resolution dated February 10, 2022 passed by the board of directors of G R Infraprojects Limited approving the settlement of the InvIT.

2. Resolution dated November 30, 2022 passed by the board of directors of Lokesh Builders Private Limited authorizing Lokesh Builders Private Limited to act as the Sponsor of the InvIT.

3. Certificate of registration dated August 3, 2022 bearing registration number IN/InvIT/22-23/0023 issued by SEBI under Regulation 3 of the SEBI InvIT Regulations, for registration of the InvIT as an infrastructure investment trust.

C. Approvals in Relation to the SPVs

Completion Certificates

1. Provisional completion certificate dated November 9, 2020 issued by Theme Engineering Services Pvt. Ltd., acting as independent engineer, in respect of six-laning of 72.644 km of VSEPL's Handia-Varanasi NH-2 project, provisionally declaring the project fit for entry into commercial operation on November 2, 2020.

2. Provisional completion certificate dated April 12, 2021 issued by M/s SA Infrastructure Consultants Pvt. Ltd., acting as independent engineer, in respect of 27.65 km of GASHPL's Akkalkot-Solapur NH-150(E) project, provisionally declaring such section of the project fit for entry into commercial operation on March 31, 2021.

3. Completion certificate dated June 12, 2021 issued by TPF Getinsa Eueroestudios, S.L. in association with Segmental Consulting & Infrastructure Advisory (P) Ltd acting as independent engineer, in respect of four-laning of GPEL's Phagwara-Rupnagar NH-344A project, declaring the project fit for entry into commercial operation on May 26, 2021.

4. Provisional completion certificate dated July 27, 2021 issued by MSV International Inc, acting as independent engineer, in respect of 64 km against a stretch of 69.884 km of GDHPL's Gundugolanu-Devarapalli-Kovvuru NH-16 project, provisionally declaring such section of the project fit for entry into commercial operation on July 10, 2021.

5. Provisional completion certificate dated July 29, 2021 issued by Dhruv Consultancy Services Ltd., acting as independent engineer, in respect of 34.36 km against the qualifying stretch of 39.33 km of four laning of GSSHPL's Sangli-Solapur NH-166 project, provisionally declaring such section of the project fit for entry into commercial operation on June 28, 2021.

6. Completion certificate dated October 16, 2021 issued by Aarvee Associates Architects Engineers &

Consultants Pvt. Ltd. acting as independent engineer, in respect of PDEPL's Porbandar-Dwarka NH-8E project, declaring the project fit for entry into commercial service on October 13, 2021.

7. Provisional completion certificate dated October 19, 2022 issued by M/s LEA Associates South Asia Private Limited, acting as independent engineer, in respect of 54.210 km against the qualifying stretch of 71.890 kms of four laning of GDHHPL's Dwarka (Karanga – Khambhaliya-Devariya) NH-151-A project, provisionally declaring such section of the project fit for entry into commercial operation on August 2, 2022.

Approvals for continuing commercial operations

The SPVs are required to obtain and maintain certain approvals, consents, licenses, registrations and permissions during the operations stage of their respective projects, as listed below:

I. VSEPL

1. Registration certificate dated July 3, 2017 under the provisions of the Building and other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996.

2. License dated June 30, 2022 under the provisions of the Contract Labour Act.

II. GASHPL

1. Registration certificate dated March 29, 2019 under the provisions of the Building and other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996.

2. License dated February 24, 2022 under the provisions of the Contract Labour Act.

III. GPEL

1. Registration certificate dated November 21, 2016 under the provisions of the Building and other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996.

2. License dated November 21, 2016 (renewed as on December 3, 2021) under the provisions of the Contract Labour Act.

IV. GDHPL

1. Registration certificate dated September 22, 2018 under the provisions of the Building and other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996.

2. License dated December 21, 2018 (renewed as on December 13, 2021) under the provisions of the Contract Labour Act.

V. GSSHPL

1. Registration certificate dated April 22, 2019 under the provisions of the Building and other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996.

2. License dated November 25, 2021 under the provisions of the Contract Labour Act.

VI. PDEPL

1. Registration certificate dated September 19, 2018 under the provisions of the Building and other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996.

2. License dated September 19, 2018 under the provisions of the Contract Labour Act.

VII. GDDHPL

1. Registration certificate dated July 30, 2019 under the provisions of the Building and other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996.

2. License dated July 30, 2019 under the provisions of the Contract Labour Act.

In addition to those set out above, the SPVs have also obtained certain approvals, consents, licenses, registrations and permissions from the relevant governmental, statutory and regulatory authorities that are required during the construction of the respective InvIT Assets, such as consents to operate and establish issued by state pollution control boards, permissions for drawing groundwater and licenses to use explosives.

The SPVs have, save as set out below, also obtained the necessary approvals, consents, licenses, registrations and permissions from the relevant governmental, statutory and regulatory authorities that are required for their respective businesses and operations.

D. Approvals applied for, but not yet received

The Project SPVs have applied to NHAI seeking their consent for the transfer of 100% of its equity shareholding from GRIL and its nominees to the Bharat Highways InvIT and receipt of such approvals are pending as on date of this Draft Offer Document. For further details, see "***Risk Factors – Consummation of the Formation Transactions pursuant to which we will acquire the Project SPVs is subject to receipt of approval from NHAI and timely release of certain security created on the InvIT Assets"*** on page 17.

Except as stated above, as of the date of this Draft Offer Document, there are no approvals required to be obtained by the InvIT and the SPVs, for which applications have been made, but approvals have not been received.

E. Approvals for which applications are yet to be made

As of the date of this Draft Offer Document, there are no material approvals required to be obtained by the InvIT or the SPVs for which applications are yet to be made.

SECURITIES MARKET IN INDIA

The information in this section has been extracted from documents available on the website of SEBI and the Stock Exchanges and has not been prepared or independently verified by the Parties to the InvIT or the Lead Managers or any of their respective affiliates or advisors.

The Indian Securities Market

India has a long history of organized securities trading. The first stock exchange in India was established in 1875. BSE and NSE hold dominant positions among the stock exchanges in terms of the number of listed companies, market capitalization and trading activity.

Stock Exchange Regulation

Indian stock exchanges are regulated primarily by SEBI, as well as by the Government acting through the Ministry of Finance, Capital Markets Division, under the SCRA and the SCRR. Pursuant to its powers under the SCRA and the SEBI Act, SEBI notified the Securities Contract (Regulation) (Stock Exchanges and Clearing Corporations) Regulations, 2018 (the "**SECC Regulations**"), which regulate the recognition, ownership and internal governance of stock exchanges and clearing corporations in India together with providing for minimum capitalization requirements for stock exchanges. The SCRA, the SCRR and the SECC Regulations, together with various rules, bye-laws and regulations of the respective stock exchanges, regulate the recognition of stock exchanges, qualifications for membership thereof and the manner in which contracts are entered into, settled and enforced between members of the stock exchanges.

The SEBI Act empowers SEBI to regulate the Indian securities markets, including stock exchanges and intermediaries in the capital markets, promote and monitor self-regulatory organisations and prohibits fraudulent and unfair trade practices. SEBI has notified several regulations to regulate the securities market in India, including regulations relating to corporate governance requirements by listed companies, insider trading, substantial acquisition of shares and takeover of companies, buy-backs of securities, employee stock option schemes and sweat equity, stock brokers, merchant bankers, depositories, mutual funds, foreign portfolio investors, research analysts and other capital market participants.

Listing and Delisting of Units

The SEBI InvIT Regulations provide for the listing and delisting of infrastructure investment trusts on the Stock Exchanges.

BSE

The BSE was established in 1875 and was Asia's first stock exchange. In August 1957, it became the first stock exchange in India to obtain permanent recognition under the SCRA and also launched India's first equity index in 1986. The BSE provides a market for trading in equity, currencies, debt instruments, derivatives and mutual funds.

NSE

The NSE was recognized as a stock exchange under the SCRA in 1993 and commenced operations in the wholesale debt market segment in 1994. It was established to provide nationwide online, satellite-linked, screen-based trading facilities with electronic clearing and settlement for securities including government securities, debentures, public sector bonds and units. Presently, the products on the exchange are organized into three assets classes for trading, namely (i) equity and equity-linked products such as stocks, IDRs, ETFs and units of closed-ended mutual fund schemes, (ii) derivates and (iii) fixed income securities and debt products, including corporate bonds, sovereign gold bonds and other debt securities.

Internet-based Securities Trading and Services

Internet trading takes place through order routing systems, which route client orders to exchange trading systems for execution. Stockbrokers interested in providing this service are required to apply for permission to the relevant stock exchange and also have to comply with certain minimum conditions stipulated by SEBI. The NSE was the first exchange to grant approval to its members for providing internet-based trading services. Internet trading is possible on both the equity and derivatives segments of the NSE. Subsequently, the BSE also introduced the BSE On-Line Trading (BOLT) platform for internet-based trading in 1995.

The NSE operates on the National Exchange for Automated Trading (NEAT) system, a fully automated screen-based trading system which enables the exchange to support high trading volumes and reduce transaction costs.

Trading Hours

Trading on both NSE and BSE occurs from Monday to Friday, between 9:15 a.m. and 3:30 p.m. IST (excluding the 15 minutes pre-open session from 9:00 a.m. to 9:15 a.m. IST and a closing session between 3:30 p.m. and 4:00 p.m. IST). BSE and NSE are closed on public holidays.

Depositories

The Depositories Act provides a legal framework for the establishment of depositories to record ownership details and effect changes in ownership records through book entry. It also enables the dematerialization of securities and provides investors to hold securities in dematerialized form. Further, SEBI has framed regulations governing the registration of depositories and participants and their respective rights and obligations. The depository system has facilitated the operation of the Indian securities markets.

SELLING AND TRANSFER RESTRICTIONS

The distribution of this Draft Offer Document and the offer, sale or delivery of the Units is restricted by law in certain jurisdictions. Persons who may come into possession of this Draft Offer Document are advised to consult with their own legal advisors as to what restrictions may be applicable to them and to observe such restrictions. This Draft Offer Document may not be used for the purpose of an offer or invitation in any circumstances. Due to the following restrictions, investors are advised to consult legal counsel prior to purchasing or subscribing to the Units or making any resale, pledge or transfer of the Units.

Republic of India

The Draft Offer Document may not be distributed directly or indirectly in India or to residents of India and any Units may not be offered or sold directly or indirectly in India to, or for the account or benefit of, any resident of India except as permitted by applicable Indian laws and regulations.

The Units may not be offered or sold, directly or indirectly, and the Draft Offer Document, any offering materials and any advertisements in connection with the offering of the Units may be distributed or published in or from any country or jurisdiction except under circumstances that will result in compliance with any applicable rules and regulations of any such country or jurisdiction. The Issue will be made in compliance with the applicable SEBI InvIT Regulations.

Australia

The Draft Offer Document:

1. does not constitute a product disclosure document or prospectus under Chapter 6D.2 of the Corporations Act, 2001 (Cth) ("**Australian Corporations Act**");

2. has not been, and will not be, lodged with the Australian Securities and Investments Commission ("**ASIC**"), as a disclosure document for the purposes of the Corporations Act and does not purport to include the information required of a disclosure document under Chapter 6D of the Australian Corporations Act;

3. does not constitute or involve a recommendation to acquire, an offer or invitation for issue or sale, an offer or invitation to arrange the issue or sale, or an issue or sale, of interests to a "retail client" (as defined in section 761G of Australian Corporations Act and applicable regulations) in Australia; and

4. may only be provided in Australia to select investors who are able to demonstrate that they fall within one or more of the categories of investors, or Exempt Investors, available under section 708 of the Australian Corporations Act.

The Units may not be directly or indirectly offered for subscription or purchased or sold, and no invitations to subscribe for or buy the Units may be issued, and no draft or definitive Draft Offer Document, advertisement or other offering material relating to any Units may be distributed in Australia, except where disclosure to investors is not required under Chapter 6D of the Australian Corporations Act or is otherwise in compliance with all applicable Australian laws and regulations. By submitting an application for the Units, you represent and warrant to us that you are an Exempt Investor.

As any offer of Units under this Draft Offer Document will be made without disclosure in Australia under Chapter 6D.2 of the Australian Corporations Act, the offer of those securities for resale in Australia within 12 months may, under section 707 of the Australian Corporations Act, require disclosure to investors under Chapter 6D.2 if none of the exemptions in section 708 applies to that resale. By applying for the Units you undertake to the InvIT, the Investment Manager and the Lead Managers that you will not, for a period of 12 months from the date of issue of the Units, offer, transfer, assign or otherwise alienate those securities to any person in Australia except in circumstances where disclosure to such person is not required under Chapter 6D.2 of the Australian Corporations Act or where a compliant disclosure document is prepared and lodged with ASIC.

Bahrain

All applications for investment should be received, and any allotments should be made, in each case from outside Bahrain. The Draft Offer Document has been prepared for private information purposes of intended investors only who will be high net worth individuals and institutions. The InvIT has not made and will not make any invitation

to the public in the Kingdom of Bahrain and the Draft Offer Document will not be issued, passed to, or made available to the public generally. The Bahrain Monetary Agency ("**BMA**") has not reviewed, nor has it approved, the Draft Offer Document or the marketing of Units in the Kingdom of Bahrain. Accordingly, Units may not be offered or sold in Bahrain or to residents thereof except as permitted by Bahrain law.

British Virgin Islands

The Units are not being, and may not be offered to the public or to any person in the British Virgin Islands for purchase or subscription by or on the behalf. The Units may be offered to companies incorporated under the BVI Business Companies Act, 2004 (British Virgin Islands) (each a "**BVI Company**"), but only where the offer will be made to, and received by, the relevant BVI Company entirely outside of the British Virgin Islands.

The Draft Offer Document has not been, and will not be, registered with the Financial Services Commission of the British Virgin Islands. No registered prospectus has been or will be prepared in respect of the Units for the purposes of the Securities and Investment Business Act, 2010 or the Public Issuers Code of the British Virgin Islands.

Canada

Units may be sold in Canada only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions of the Canadian Securities Administrators or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the Units must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable Canadian securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this Draft Offer Document (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts ("**NI 33-105**"), the Lead Managers are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with any offer of Units.

Upon receipt of this Draft Offer Document, each Canadian purchaser is hereby deemed to confirm that it has expressly requested that all documents evidencing or relating in any way to the sale of the Units described herein (including, for the avoidance of doubt, any purchase confirmation or any notice) be drawn up in the English language only.

Cayman Islands

No offer or invitation to subscribe for Units may be made to the public in the Cayman Islands to subscribe for any of the Units but an invitation or offer may be made to sophisticated persons (as defined in the Cayman Islands Securities Investment Business Law (the "**SIBL**"), high net worth persons (as defined in the SIBL) or otherwise in accordance with the SIBL.

The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this document nor taken steps to verify the information set out in it and has no responsibility for it. The Units to which this Draft Offer Document relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the Units offered should conduct their own due diligence on the Units.

Dubai International Financial Centre

The Draft Offer Document relates to an Exempt Offer in accordance with the Markets Rules Module of the Dubai Financial Services Authority ("**DFSA**") Rulebook. The Draft Offer Document is intended for distribution only to persons of a type specified in the Markets Rules Module. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved the Draft Offer Document nor taken steps to verify the information set forth

herein and has no responsibility for this Draft Offer Document. The securities to which the Draft Offer Document relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the securities offered should conduct their own due diligence on the securities. If you do not understand the contents of the Draft Offer Document you should consult an authorized financial advisor.

In relation to its use in the Dubai International Financial Centre, the Draft Offer Document is strictly private and confidential and is being distributed to a limited number of investors and must not be provided to any person other than the original recipient and may not be reproduced or used for any other purpose. The interests in the securities may not be offered or sold directly or indirectly to the public in the Dubai International Financial Centre.

Hong Kong

Each Lead Manager has represented, warranted and agreed that:

(i) it has not offered or sold and will not offer or sell in Hong Kong, by means of any document, any Units other than (a) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong (the "**SFO**") and any rules made under the SFO; or (b) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong (the "**CWUMPO**") or which do not constitute an offer to the public within the meaning of the CWUMPO; and

(ii) it has not issued or had in its possession for the purposes of the issue, and will not issue or have in its possession for the purposes of issue, whether in Hong Kong or elsewhere any advertisement, invitation or document relating to the Units, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong), other than with respect to Units which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the SFO and any rules made under the SFO.

Indonesia

The Units have not been, and will not be, registered with the Indonesia Financial Service Authority (Otoritas Jasa Keuangan or OJK) in Indonesia, and therefore, the Units may not be offered and/or sold within the territory of Indonesia or to Indonesian citizens or entities, wherever domiciled, or to Indonesian residents, in a manner which constitutes a public offering under Law No. 8 of 1995 on Capital Markets and the implementing regulations or private placement under OJK Regulation No. 30/POJK.04/2019 on the Privately Issued Debt-Linked Securities and/or Sukuk.

Japan

The Units have not been and will not be registered under the Financial Instruments and Exchange Act of Japan (Law. No. 25 of 1948 as amended) (the "**FIEA**") and disclosure under the FIEA has not been and will not be made with respect to the Units. No Units have, directly or indirectly, been offered or sold, and may not, directly or indirectly, be offered or sold in Japan or to, or for the benefit of, any resident of Japan as defined in the first sentence of Article 6, Paragraph 1, Item 5 of the Foreign Exchange and Foreign Trade Law of Japan ("**Japanese Resident**") or to others for re-offering or re-sale, directly or indirectly in Japan or to, or for the benefit of, any Japanese Resident except (i) pursuant to an exemption from the registration requirements of the FIEA and (ii) in compliance with any other relevant laws, regulations and governmental guidelines of Japan.

If an offeree does not fall under a "qualified institutional investor" (tekikaku kikan toshika), as defined in Article 10, Paragraph 1 of the Cabinet Office Ordinance Concerning Definition Provided in Article 2 of the Financial Instruments and Exchange Act (the "Qualified Institutional Investor"), the Units will be offered in Japan by a private placement to small number of investors (shoninzu muke kanyu), as provided under Article 23- 13, Paragraph 4 of the FIEA, and accordingly, the filing of a securities registration statement for a public offering pursuant to Article 4, Paragraph 1 of the FIEA has not been made.

If an offeree falls under the Qualified Institutional Investor, the Units will be offered in Japan by a private placement to the Qualified Institutional Investors (tekikaku kikan toshikamuke kanyu), as provided under Article 23-13, Paragraph 1 of the FIEA, and accordingly, the filing of a securities registration statement for a public offering pursuant to Article 4, Paragraph 1 of the FIEA has not been made. To subscribe the Units (the "**QII Units**") such offeree will be required to agree that it will be prohibited from selling, assigning, pledging or otherwise transferring the QII Units other than to another Qualified Institutional Investor.

Kuwait

The Units have not been authorised or licensed for offering, marketing or sale in the State of Kuwait. The distribution of the Draft Offer Document and the offering and sale of the Units in the State of Kuwait is restricted by law unless a license is obtained from the Kuwaiti Ministry of Commerce and Industry in accordance with Law 31 of 1990.

Malaysia

No prospectus or other offering material or document in connection with the offer and sale of the Units has been or will be registered with the Securities Commission of Malaysia ("**Commission**") for the Commission's approval pursuant to the Capital Markets and Services Act 2007. Accordingly, the Draft Offer Document, and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the Units may not be circulated or distributed, nor may the Units be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Malaysia other than (i) a closed end fund approved by the Commission; (ii) a holder of a Capital Markets Services Licence; (iii) a person who acquires the Units, as principal, if the offer is on terms that the Units may only be acquired at a consideration of not less than RM250,000 (or its equivalent in foreign currencies) for each transaction; (iv) an individual whose total net personal assets or total net joint assets with his or her spouse exceeds RM3 million (or its equivalent in foreign currencies), excluding the value of the primary residence of the individual; (v) an individual who has a gross annual income exceeding RM300,000 (or its equivalent in foreign currencies) per annum in the preceding twelve months; (vi) an individual who, jointly with his or her spouse, has a gross annual income of RM400,000 (or its equivalent in foreign currencies), per annum in the preceding twelve months; (vii) a corporation with total net assets exceeding RM10 million (or its equivalent in a foreign currencies) based on the last audited accounts; (viii) a partnership with total net assets exceeding RM10 million (or its equivalent in foreign currencies); (ix) a bank licensee or insurance licensee as defined in the Labuan Financial Services and Securities Act 2010; (x) an Islamic bank licensee or takaful licensee as defined in the Labuan Financial Services and Securities Act 2010; and (xi) any other person as may be specified by the Commission; provided that, in the each of the preceding categories (i) to (xi), the distribution of the Units is made by a holder of a Capital Markets Services Licence who carries on the business of dealing in securities. The distribution in Malaysia of the Draft Offer Document is subject to Malaysian laws. The Draft Offer Document does not constitute and may not be used for the purpose of public offering or an issue, offer for subscription or purchase, invitation to subscribe for or purchase any securities requiring the registration of a prospectus with the Commission under the Capital Markets and Services Act 2007.

Mauritius

The Units may not be offered or sold, directly or indirectly, to the public in Mauritius. Neither the Draft Offer Document nor any offering material or information contained herein relating to the offer of the Units may be released or issued to the public in Mauritius or used in connection with any such offer. The Draft Offer Document does not constitute an offer to sell the Units to the public in Mauritius and is not a prospectus as defined under the Companies Act 2001.

New Zealand

The Draft Offer Document is not a prospectus. It has not been prepared or registered in accordance with the Securities Act 1978 of New Zealand (the "**New Zealand Securities Act**"). The Draft Offer Document is being distributed in New Zealand only to persons whose principal business is the investment of money or who, in the course of and for the purposes of their business, habitually invest money, within the meaning of section 3(2)(a)(ii) of the New Zealand Securities Act ("**Habitual Investors**"). By accepting the Draft Offer Document, each investor represents and warrants that if they receive the Draft Offer Document in New Zealand they are a Habitual Investor and they will not disclose the Draft Offer Document to any person who is not also a Habitual Investor.

Sultanate of Oman

The Draft Offer Document and the Units to which it relates may not be advertised, marketed, distributed or otherwise made available to any person in Oman without the prior consent of the Capital Market Authority ("**CMA**") and then only in accordance with any terms and conditions of such consent. In connection with the offering of Units, no prospectus has been filed with the CMA. The offering and sale of Units described in the Draft Offer Document will not take place inside Oman. The Draft Offer Document is strictly private and confidential and is being issued to a limited number of sophisticated investors, and may neither be reproduced, used for any other purpose, nor provided to any other person than the intended recipient hereof.

Qatar (excluding the Qatar Financial Centre)

The Units have not been offered, sold or delivered, and will not be offered, sold or delivered at any time, directly or indirectly, in the State of Qatar in a manner that would constitute a public offering. The Draft Offer Document has not been reviewed or registered with Qatari Government Authorities, whether under Law No. 25 (2002) concerning investment funds, Central Bank resolution No. 15 (1997), as amended, or any associated regulations. Therefore, the Draft Offer Document is strictly private and confidential, and is being issued to a limited number of sophisticated investors, and may not be reproduced or used for any other purposes, nor provided to any person other than the recipient thereof.

The Capital Market Authority does not make any representation as to the accuracy or completeness of the Draft Offer Document, and expressly disclaims any liability whatsoever for any loss arising from, or incurred in reliance upon, any part of the Draft Offer Document. Prospective purchasers of the Units offered hereby should conduct their own due diligence on the accuracy of the information relating to the Draft Offer Document. If you do not understand the contents of the Draft Offer Document, you should consult an authorized financial adviser.

Qatar Financial Centre

The Draft Offer Document does not, and is not intended to, constitute an invitation or offer of securities from or within the Qatar Financial Center ("**QFC**"), and accordingly should not be construed as such. The Draft Offer Document has not been reviewed or approved by or registered with the Qatar Financial Centre Authority, the Qatar Financial Centre Regulatory Authority or any other competent legal body in the QFC. The Draft Offer Document is strictly private and confidential and may not be reproduced or used for any other purpose, nor provided to any person other than the recipient thereof. The InvIT has not been approved or licensed by or registered with any licensing authorities within the QFC.

Saudi Arabia

The Draft Offer Document may not be distributed in the Kingdom of Saudi Arabia except to such persons as are permitted under the Offers of Securities Regulations as issued by the board of the Saudi Arabian Capital Market Authority ("**CMA**") pursuant to resolution number 2-11-2004 dated October 4, 2004 as amended by resolution number 1-28-2008, as amended (the "**CMA Regulations**"). The CMA does not make any representation as to the accuracy or completeness of the Draft Offer Document and expressly disclaims any liability whatsoever for any loss arising from, or incurred in reliance upon, any part of the Draft Offer Document. Prospective purchasers of the Units offered hereby should conduct their own due diligence on the accuracy of the information relating to the Units. If you do not understand the contents of the Draft Offer Document, you should consult an authorized financial adviser.

Singapore

The Draft Offer Document has not been and will not be registered as a prospectus in Singapore with the Monetary Authority of Singapore. Accordingly, the Draft Offer Document and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the Units may not be circulated or distributed, nor may the Units be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to any person in Singapore other than (i) to an institutional investor (as defined in Section 4A of the Securities and Futures Act, (Chapter 289), of Singapore as modified and amended from time to time (the "**Securities and Futures Act**")) pursuant to Section 274 of the Securities and Futures Act, (ii) to a relevant person (as defined in Section 275(2) of the Securities and Futures Act) pursuant to Section 275(1) of the Securities and Futures Act, or any person pursuant to Section 275(1A) of the Securities and Futures Act, and in accordance with the conditions specified in Section 275 of the Securities and Futures Act, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the Securities and Futures Act.

Where the Units are subscribed or purchased under Section 275 of the Securities and Futures Act by a relevant person which is:

(a) a corporation (which is not an accredited investor (as defined in Section 4A of the Securities and Futures Act)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities or securities-based derivatives contracts (each as defined in Section 239(1) of the Securities and Futures Act) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the Units pursuant to an offer made under Section 275 of the Securities and Futures Act except:

(1) to an institutional investor or to a relevant person, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the Securities and Futures Act;

(2) where no consideration is or will be given for the transfer;

(3) where the transfer is by operation of law;

(4) as specified in Section 276(7) of the Securities and Futures Act; or

(5) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018 of Singapore.

Notification under Sections 309B(1)(a) and 309B(1)(c) of the SFA: The InvIT determined, and hereby notifies all relevant persons (as defined in Section 309A of the SFA) that the Units are: (A) prescribed capital markets products (as defined in the Securities and Futures (Capital Markets Products) Regulations 2018) and (B) Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAAN16: Notice on Recommendations on Investment Products).

South Korea

We are not making any representation with respect to the eligibility of any recipients of this document to acquire the Units therein under the laws of Korea, including, but without limitation, the Foreign Exchange Transaction Law and Regulations thereunder. The Units have not been and will not be registered under the Financial Investment Services and Capital Markets Act of Korea (the "**FSCMA**"). Accordingly, the Units may not be offered, sold or delivered, or offered or sold to any person for re-offering or resale, directly or indirectly, in Korea or to, or for the account or benefit of, any resident of Korea (as such term is defined under the Foreign Exchange Transaction Law of Korea and its Enforcement Decree), for a period of one year from the date of issuance of the Units, except (i) where relevant requirements are satisfied, the Units may be offered, sold or delivered to or for the account or benefit of a Korean resident which falls within certain categories of qualified professional investors as specified in the FSCMA, its Enforcement Decree and the Regulation on Securities Issuance and Disclosure promulgated thereunder, or (ii) as otherwise permitted under applicable Korean laws and regulations.

Furthermore, the Units may not be re-sold to Korea residents unless the purchaser of the Units complies with all applicable regulatory requirements (including, but not limited to, governmental approval requirements under the Foreign Exchange Transaction Law and its subordinate decrees and regulations) in connection with purchase of the Units.

Switzerland

The Units may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange ("**SIX**") or on any other stock exchange or regulated trading facility in Switzerland. The Draft Offer Document does not constitute a prospectus within the meaning of, and has been prepared without regard to the disclosure standards for issuance prospectuses under Article 652a or Article 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under Articles 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the Units or the Issue may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the Units or the Issue or the InvIT have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the Issue will not be supervised by, the Swiss Financial Market Supervisory Authority, and the Issue has not been and will not be authorised under the Swiss Federal Act on Collective Investment Schemes ("**CISA**"). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of the Units.

Taiwan

The Units have not and will not be registered with the Financial Supervisory Commission of Taiwan pursuant to relevant securities laws and regulations and may not be sold, issued or offered within Taiwan through a public offering or in circumstances which constitutes an offer within the meaning of the Securities and Exchange Act of Taiwan that requires a registration or approval of the Financial Supervisory Commission of Taiwan. No person or entity in Taiwan has been authorized to offer, sell, give advice regarding or otherwise intermediate the offering and sale of the Units in Taiwan.

United Arab Emirates (excluding the Dubai International Financial Centre)

This document does not constitute or contain an offer of securities to the general public in the United Arab Emirates ("**UAE**"). No offering, marketing, promotion, advertising or distribution (together, "**Promotion**") of this document or the Units may be made to the general public in the UAE unless: (a) such Promotion has been approved by the UAE Securities and Commodities Authority (the "**SCA**") and is made in accordance with the laws and regulations of the UAE, including SCA Board of Directors' Chairman Decision no. (3/R.M.) of 2017 (the "**Promotion and Introduction Regulations**"), and is made by an entity duly licensed to conduct such Promotion activities in the UAE; or (b) such Promotion is conducted by way of private placement made: (i) only to non-natural persons "Qualified Investors" (as such term is defined in the Promotion and Introduction Regulations); or (ii) otherwise in accordance with the laws and regulations of the UAE; or (c) such Promotion is carried out by way of reverse solicitation only upon an initiative made in writing by an investor in the UAE. None of the SCA, the UAE Central Bank, the UAE Ministry of Economy or any other regulatory authority in the UAE has reviewed or approved the contents of this document nor does any such entity accept any liability for the contents of this document.

United States of America

Each purchaser acknowledges and represents that:

i. it understands and agrees that the Units have not been and will not be registered under the Securities Act or with any securities regulatory authority of any state, territory or other jurisdiction of the United States and may not be offered, resold, pledged or otherwise transferred, except (1) in an offshore transaction complying with Rule 903 or Rule 904 of Regulation S, (2) pursuant to an exemption from the registration requirements of the Securities Act, or (3) pursuant to an effective registration statement under the Securities Act and (4) in accordance with all applicable securities laws of any state, territory or other jurisdiction of the United States;

ii. it understands that in the event Units are held in certificated form, such certificated Units will bear a legend substantially to the following effect:

"THE SECURITY EVIDENCED HEREBY HAS NOT BEEN AND WILL NOT BE REGISTERED UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED (THE "**SECURITIES ACT**"), ANY STATE SECURITIES LAWS IN THE UNITED STATES OR THE SECURITIES LAWS OF ANY OTHER JURISDICTION AND MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED, EXCEPT: (A) IN AN OFFSHORE TRANSACTION IN ACCORDANCE WITH RULE 903 OR RULE 904 OF REGULATION S UNDER THE SECURITIES ACT; (B) PURSUANT TO AN EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT; OR (C) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT, IN EACH CASE IN ACCORDANCE WITH ANY APPLICABLE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES. NO REPRESENTATION CAN BE MADE AS TO THE AVAILABILITY OF THE EXEMPTION PROVIDED UNDER THE SECURITIES ACT FOR RESALES OF THIS SECURITY.";

iii. any resale made other than in compliance with the above stated restrictions shall not be recognised by the InvIT;

iv. it agrees that it will give to each person to whom it transfers Units notice of any restrictions on transfer of such Units; and

v. it acknowledges that the InvIT, the Sponsor and the Lead Managers and others will rely upon the truth and accuracy of the foregoing acknowledgements, representations and agreements and agrees that, if any of such acknowledgements, representations or agreements deemed to have been made by virtue of its

purchase of Units are no longer accurate, it will promptly notify the InvIT, the Sponsor and the Lead Managers, and if it is acquiring any Units as a fiduciary or agent for one or more accounts, it represents that it has sole investment discretion with respect to each such account and that it has full power to make the foregoing acknowledgements, representations and agreements on behalf of each such account.

Other Jurisdictions

The distribution of Draft Offer Document and the offer and sale of the Units may be restricted by law in certain jurisdictions. Persons into whose possession this Draft Offer Document comes are required to inform themselves about, and to observe, any such restrictions to the extent applicable.

ISSUE PROCEDURE

Below is a summary, intended to provide a general outline of procedures for bidding, application, payment, Allocation and Allotment. The procedure followed in this Issue may differ from other issues, and investors are presumed to have apprised themselves of the same from the Investment Manager or the Lead Managers.

*SEBI through its circular (SEBI/HO/DDHS/DDHS_Div3/P/CIR/2022/085) dated June 24, 2022 has introduced an alternate payment mechanism making use of the Unified Payments Interface ("**UPI**") with the ASBA for Non-Institutional Investors whose Bid size does not exceed ₹ 0.50 million.*

Bidders are advised to inform themselves of any restrictions or limitations that may be applicable to them and are required to consult their respective advisers in this regard. Bidders that apply in the Issue will be required to confirm and will be deemed to have represented to the Trustee, the Investment Manager, the Lead Managers and their respective directors, officers, agents, affiliates and representatives that they are eligible under all applicable laws, rules, regulations, guidelines and approvals to acquire the Units. Bidders are also advised to make their independent investigations submitted in accordance with applicable laws and do not exceed the investment limits or maximum number of Units that can be held by them under applicable law or as specified herein. The Investment Manager, the Trustee, the Lead Managers, the Syndicate Members and their respective directors, officers, agents, affiliates and representatives accept no responsibility or liability for advising any Bidder on whether such Bidder is eligible to acquire the Units. The Investment Manager, the Trustee, the Lead Managers and Syndicate Members do not accept any responsibility for the completeness and accuracy of the information stated in this chapter and are not liable for any amendment, modification or change in the applicable law which may occur after the date hereof.

Authority for the Issue

The InvIT is eligible for the Issue in accordance with Regulation 14(4) of the SEBI InvIT Regulations. The Issue was authorized and approved by the IM Board on September 16, 2022.

The Investment Manager has received the in-principle approval of BSE and NSE for the listing of the Units on BSE and NSE vide letters dated [●] and [●] from the BSE and NSE respectively. The Investment Manager has filed a copy of the Draft Offer Document and will file a copy of the Offer Document and Final Offer Document with SEBI and the Stock Exchanges.

The Units have not been and will not be registered, listed or otherwise qualified in any other jurisdiction outside India and may not be offered or sold, and Bids may not be made by persons in any such jurisdiction, except in compliance with the applicable laws of such jurisdiction. The Units shall not be offered or sold where such offer or sale would require registration, qualification or listing.

Bidders should note that Allotment to successful Bidders will only be in the dematerialized form. Application Forms which do not have the details of the Bidders' demat accounts including DP ID, PAN and Client ID will be treated as incomplete and rejected. Bidders will not have the option of receiving Allotment in physical form. On Allotment, the Units will be traded only on the dematerialized segment of BSE and NSE.

Issue Procedure

This section applies to all Bidders. All Bidders other than Anchor Investors shall mandatorily participate in the Issue through the ASBA process. Bidders applying in the Issue should carefully read the provisions applicable to them before submitting a Bid through the ASBA process. All Bidders are required to pay the full Bid Amount at the time of Bidding, by way of instructing the relevant SCSB to block the full Bid Amount at the time of Bidding, or in the case of Anchor Investors, by making payment by electronic methods.

By making a Bid (including any revision thereof), the Bidder will be deemed to have represented to the Investment Manager, the Trustee, the Lead Managers and the Syndicate Members that it is eligible to participate in the Issue and be Allotted Units under applicable law. Bidders are also advised to make their independent investigations and ensure that their Bids are submitted in accordance with applicable laws and do not exceed the investment limits or maximum number of Units that can be held by them under applicable law or as specified herein.

Book Building Procedure

The Issue is being made through the Book Building Process, wherein not more than 75% of the Net Issue shall be

available for allocation to Institutional Investors on a proportionate basis, provided that the Investment Manager may, in consultation with the Lead Managers, allocate up to 60% of the Institutional Investor Portion to Anchor Investors on a discretionary basis, in accordance with the SEBI InvIT Regulations and the SEBI Guidelines. Further, not less than 25% of the Net Issue shall be available for allocation on a proportionate basis to Non-Institutional Investors, subject to valid Bids being received at or above the Issue Price. In case of under-subscription in any category, the unsubscribed portion in any category may be Allotted to Bidders in the other category at the discretion of the Investment Manager, in consultation with the Lead Managers and the Designated Stock Exchange.

Bidders do not have the right to withdraw or lower their Bid (in terms of number of Units or the Bid Amount) at any stage.

Bidders should note that Allotment to successful Bidders will be only in the dematerialized form. Bid cum Application Forms which do not have the details of the Bidders' depository accounts including DP ID, PAN and Client ID will be treated as incomplete and rejected. Bidders will not have the option of receiving Allotment in physical form. On Allotment, the Units will be traded only on the dematerialized segment of the Stock Exchanges.

Bid cum Application Form

Copies of the Bid cum Application Form and the abridged offer document will be available at the offices of the Lead Managers, the Syndicate Members, the principal place of business of the InvIT and the Designated Intermediaries at the Bidding Centres. An electronic copy of the Bid cum Application Form will also be available on the websites of the SCSBs, NSE (www.nseindia.com) and BSE (www.bseindia.com). The Anchor Investor Application Forms will be made available at the principal place of business of the InvIT and the registered office of the Investment Manager and the Lead Managers.

Bidders should use only the specified Bid cum Application Form bearing the stamp of a Designated Intermediary submitted at Bidding Centres (except in case of electronic Bid cum Application Forms), for the purpose of making a Bid in terms of the Offer Document. Bid cum Application Forms not being such specified stamp are liable to be rejected. Before being issued to Bidders, the Bid cum Application Form will be serially numbered.

All Bidders (other than Anchor Investors) shall mandatorily participate in the Issue only through the ASBA process. Anchor Investors are not permitted to participate in the Issue through the ASBA process. Bidders (other than Anchor Investors) must provide bank account details and authorisation to block funds in the relevant space provided in the Bid cum Application Form and Bid cum Application Forms that do not contain such details will be rejected.

UPI Bidders using the UPI Mechanism must provide the UPI ID in the relevant space provided in the ASBA Form. ASBA Forms for such UPI Bidders, that do not contain the UPI ID are liable to be rejected. UPI Bidders using the UPI Mechanism may also apply through the SCSBs and mobile applications using the UPI handles as provided on the website of SEBI. UPI Bidders using the UPI Mechanism may submit the Bid cum Application with SCSBs, Syndicate Members, Registered Stock Brokers, RTAs and Depository Participants along with details of their bank account for blocking of funds. The relevant intermediary is required to the upload the Bid on the Stock Exchange bidding platform and forward the Bid cum Application Form to an SCSB for blocking of funds.

The Bid cum Application Form will contain information about the Bidder and the price and number of Units that the Bidder wishes to Bid for. Bidders will have the option to make a maximum of three Bids in the Bid cum Application Form and such options will not be considered multiple Bids.

On filing of the Final Offer Document with SEBI and the Stock Exchanges, the Bid cum Application Form will be treated as a valid application form for Allotment of the Units. On submission of the completed Bid cum Application Form to a Designated Intermediary or the Lead Managers (in case of Anchor Investors), the Bidder is deemed to have authorized the Investment Manager to make the necessary changes in the Offer Document as may be required under the SEBI InvIT Regulations, the SEBI Guidelines and other applicable laws, for filing the Final Offer Document with SEBI and the Stock Exchanges without prior or subsequent notice of such changes to the Bidder.

The prescribed colour of the Bid cum Application Forms for various categories is as follows:

Category	Colour of Bid cum Application Form including Bid cum Application Form*
Resident Indians	White
Non-Residents including Eligible NRIs and FPIs and multilateral and bilateral development financial institutions, excluding Anchor Investors	Blue
Anchor Investors*	White

* *Bid cum Application Forms for Anchor Investors will be made available at the principal place of business of the InvIT and the registered office of the Lead Managers.*

Designated Intermediaries shall submit/deliver the Bid cum Application Forms of Bidders (other than Anchor Investors and ASBA Forms submitted by UPI Bidders using the UPI Mechanism) to the respective SCSBs where the Bidder has a bank account and shall not submit it to any non-SCSB Bank or Escrow Collection Bank (unless such Escrow Collection Bank is also an SCSB). For UPI Bidders using the UPI Mechanism, the Stock Exchanges shall share the Bid details (including UPI ID) with the Sponsor Bank(s) on a continuous basis to enable the Sponsor Bank(s) to initiate a UPI Mandate Request to such UPI Bidders for blocking of funds. Designated Intermediaries (other than SCSBs) shall not accept any ASBA Form from a UPI Bidder who is not Bidding using the UPI Mechanism.

Stock Exchanges shall validate the electronic bids with the records of the depository for DP ID/Client ID and PAN, on a real time basis through API integration and bring inconsistencies to the notice of the relevant Designated Intermediaries, for rectification and re-submission within the time specified by Stock Exchanges. Stock Exchanges shall allow modification of either DP ID/Client ID or PAN ID (but not both), bank code and location code in the Bid details already uploaded. For UPI Bidders using UPI Mechanism, the Stock Exchanges shall share the Bid details (including UPI ID) with the Sponsor Bank(s) on a continuous basis through API integration to enable the Sponsor Bank(s) to initiate UPI Mandate Request to UPI Bidders for blocking of funds. The Sponsor Bank(s) shall initiate request for blocking of funds through NPCI to UPI Bidders, who shall accept the UPI Mandate Request for blocking of funds on their respective mobile applications associated with UPI ID linked bank account. The Sponsor Bank(s) will undertake a reconciliation of Bid responses received from Stock Exchanges and sent to NPCI and will also ensure that all the responses received from NPCI are sent to the Stock Exchanges platform with detailed error code and description, if any.

Who can Bid?

Each Bidder should check if it is eligible to Bid under applicable law. Furthermore, certain categories of Bidders may not be permitted to Bid in the Net Issue or hold Units in excess of the limits specified under applicable law. Each Bidder (other than Anchor Investor) is required to Bid for a Minimum Bid Size in the range of ₹10,000 and ₹15,000.

The Units have not been and will not be registered, listed or otherwise qualified in any other jurisdiction outside India and may not be offered or sold, and Bids may not be made by persons in any such jurisdiction, except in compliance with the applicable laws of such jurisdiction.

Participation by Associates and affiliates of the Lead Managers and Syndicate Members

The Lead Managers and the Syndicate Members are not entitled to Bid for Units in this Issue in any manner except towards fulfilling their underwriting obligations. However, associates and affiliates of the Lead Managers and Syndicate Members may Bid for Units in the Issue, either in the Institutional Investor Portion (excluding the Anchor Investor Portion) or in the Non- Institutional Investor Portion, where allocation will be on a proportionate basis, either on their own account or on behalf of their clients. All categories of investors, including associates or affiliates of the Lead Managers shall be treated equally for the purpose of allocation to be made on a proportionate basis. Neither the Lead Managers nor any persons related to the Lead Managers (other than mutual funds, pension funds and insurance companies sponsored by entities related to the Lead Managers, AIFs sponsored by entities which are associates of the Lead Managers and FPIs sponsored by entities which are associates of the Lead Managers, subject to applicable law) can apply in the Issue under the Anchor Investor Portion.

Bids by Anchor Investors

The Investment Manager, in consultation with the Lead Managers may allocate up to 60% of the Institutional Investor Portion on a discretionary basis to the Anchor Investors, in accordance with the SEBI InvIT Regulations and the SEBI Guidelines. The Institutional Investor Portion will be reduced in proportion to the allocation under the

Anchor Investor Portion. Only Institutional Investors are eligible to invest in the Anchor Investor Portion. In the event of under-subscription in the Anchor Investor Portion, the balance Units will be added to the Institutional Investor Portion. Strategic Investors may participate in the Anchor Investor Portion. In accordance with the SEBI InvIT Regulations and the SEBI Guidelines, the key terms for participation in the Anchor Investor Portion are provided below.

(i) Anchor Investors are not permitted to participate in the Issue through the ASBA process. Anchor Investor Application Forms will be made available for the Anchor Investor Portion at the principal place of business of the InvIT, and the registered offices of the Investment Manager and the Lead Managers. A Strategic Investor may participate in the Net Issue under the Anchor Investor category.

(ii) A Bid by an Anchor Investor must be for a minimum of such number of Units so that the Bid Amount is at least ₹ 100 million. A Bid cannot be submitted for more than 60% of the Institutional Investor Portion. Bids by Strategic Investors shall not be less than 5% of the Net Issue, subject to compliance with applicable law.

(iii) The Bidding for Anchor Investors will open one Working Day before the Bid/ Issue Opening Date and Allocation to Anchor Investors will be completed on the same day.

(iv) The Investment Manager, in consultation with the Lead Managers, will finalize allocation to the Anchor Investors on a discretionary basis, provided that the minimum number of Allottees in the Anchor Investor Portion will not be less than:

- two, where the allocation under Anchor Investor Portion is up to ₹ 2,500 million; and
- five, where the allocation under Anchor Investor Portion is over ₹ 2,500 million.

(v) Allocation to Anchor Investors will be completed on the Anchor Investor Bidding Date. The number of Units allocated to Anchor Investors and the Anchor Investor Allocation Price, will be made available on the websites of the Stock Exchanges, the Sponsor, the Investment Manager and the Lead Managers, prior to the Bid/Issue Opening Date.

(vi) If the Issue Price is higher than the Anchor Investor Allocation Price, the additional amount being the difference between the Issue Price and the Anchor Investor Allocation Price will be payable by the Anchor Investors within two Working Days of the Bid/ Issue Closing Date. If the Issue Price is lower than the Anchor Investor Allocation Price, Allotment to successful Anchor Investors will be at the higher price, i.e., the Anchor Investor Allocation Price and the amount in excess of the Issue Price paid by Anchor Investors will not be refunded to them.

(vii) The Units Allotted in the Anchor Investor Portion will be locked in for a period of 30 days from the date of Allotment. The Units Allotted to Strategic Investors shall be locked in a period of one year from the date of Allotment.

(viii) None of the Lead Managers or any person related to the Lead Managers (except mutual funds, insurance companies and pension funds sponsored by the Lead Managers or entities related to the Lead Managers, subject to applicable law) are permitted to participate in the Anchor Investor Portion. The parameters for selection of Anchor Investors will be clearly identified by the Lead Managers.

(ix) Bidding under both the Anchor Investor Portion and the Institutional Investor Portion will not be considered as multiple Bids.

(x) The Investment Manager, in consultation with the Lead Managers, reserves the right to reject any Bid received from Anchor Investors without assigning any reasons.

(xi) Neither the Lead Managers nor any their Associates, other than mutual funds sponsored by entities which are Associates of the Lead Managers, insurance companies promoted by entities which are Associates of the Lead Managers or pension funds of entities which are Associates of the Lead Managers or AIFs sponsored by the entities which are Associates of the Lead Managers or FPIs other than category III sponsored by the entities which are Associates of the Lead Managers, shall apply under the Anchor Investors Portion.

All Non-Resident Investors including Eligible NRIs and FPIs should note that refunds, dividends and other

distributions, if any, will be payable in Indian Rupees only and net of bank charges and / or commission. **There is no reservation for NRIs, FPIs and FVCIs and all Bidders will be treated on the same basis with other categories for the purpose of allocation.**

Anchor Investors cannot withdraw or lower the size of their Bids (in terms of number of Units or the Bid Amount) at any stage after submission of the Bid.

Bids by SEBI registered VCFs and AIFs

The SEBI VCF Regulations prescribe, amongst others, the investment restrictions on VCFs registered with SEBI under the said regulations. Further, the SEBI AIF Regulations prescribe, amongst others, the investment restrictions on AIFs. Further, VCFs which have not re-registered as an AIF under the SEBI AIF Regulations shall continue to be regulated by the SEBI VCF Regulations until the existing fund or scheme managed by the fund is wound up and such funds shall not launch any new scheme after the notification of the SEBI AIF Regulations. Additionally, VCFs and AIFs are subject to certain investment restrictions, including with respect to the percentage of investible funds held in each investee entity. Under the SEBI AIF Regulations, Category I and II AIFs are permitted to invest not more than 25% of the investable funds in one "investee company" (which includes an InvIT) and Category III AIFs are permitted to invest not more than 10% of the investable funds in one "investee company". Allotments made to VCFs and AIFs in the Issue are subject to the rules and regulations that are applicable to each of them respectively.

Bids by Banking Companies

Bids may be made by banks as permitted by the RBI and is subject to conditions specified in the Prudential Guidelines – Banks' investment in units of REITs and InvITs dated April 18, 2017. In case of Bids made by banking companies registered with the RBI, certified copies of (i) the certificate of registration issued by the RBI, and (ii) the approval of such banking company's investment committee are required to be attached to the Application Form. Banks may participate in public issuances by InvITs within the overall ceiling of 20% of their net worth permitted for direct investments in shares, convertible bonds/ debentures, units of equity-oriented mutual funds and exposures to VCFs, subject to the following conditions: (i) Banks should put in place a board approved policy on exposures to the InvIT which lays down an internal limit on such investments within the overall exposure limits in respect of the real estate sector and infrastructure sector; (ii) Banks shall not invest more than 10% of the unit capital of an InvIT; (iii) Banks should ensure adherence to the prudential guidelines issued by RBI from time to time on Equity investments by Banks, Classification and Valuation of Investment Portfolio, Basel III Capital requirements for Commercial Real Estate Exposures and Large Exposure Framework, as applicable. Failing this, the Investment Manager, in consultation with the Lead Managers, reserves the right to reject the Bid.

Bids by LLPs

In case of Bids made by limited liability partnerships registered under the Limited Liability Partnership Act, 2008, a certified copy of certificate of registration issued under the Limited Liability Partnership Act, 2008, must be attached to the Bid cum Application Form. Failing this, the Bid(s) may be rejected.

Bids by Provident Funds/Pension Funds

On March 2, 2015, the Ministry of Finance issued a notification allowing investments by non-government provident funds, super-annuation funds and gratuity funds up to 5% in infrastructure investment trusts, as specified. On May 29, 2015, the Ministry of Labour and Employment issued a notification allowing investments by provident funds up to 5% in infrastructure investment trusts, as specified. The Pension Fund Regulatory and Development Authority issued circulars dated June 3, 2015 and September 2, 2015, respectively, allowing investments by national pension funds up to 5% in infrastructure investment trusts, as specified. However such investments by provident funds and pension funds will be subject to, amongst others, the sponsor having a minimum of AA or equivalent rating from at least two credit rating agencies registered with SEBI. In case of Bids made by provident funds/ pension funds, subject to applicable laws, with minimum corpus of ₹ 250 million, a certified copy of certificate from a chartered accountant certifying the corpus of the provident fund/pension fund must be attached to the Bid cum Application Form. Failing this, the Bid(s) may be rejected.

Bids by NPS Schemes

The Pension Fund Regulatory and Development Authority issued circulars dated June 3, 2015 and September 2, 2015, respectively, allowing investments by national pension fund schemes ("**NPS Schemes**") up to 5% in infrastructure investment trusts, as specified. However, in accordance with the circular dated May 4, 2017

(effective from May 8, 2017), as amended by the circular dated May 8, 2018, issued by PFRDA, such investments by NPS Schemes will be subject to, amongst others, such securities having a minimum of AA or equivalent rating in the applicable rating scale from at least two credit rating agencies registered with SEBI. In case of Bids made by NPS Schemes, subject to applicable laws, with minimum corpus of ₹250 million, a certified copy of certificate from a chartered accountant certifying the corpus of the provident fund/pension fund must be attached to the Bid cum Application Form. Failing this, the Investment Manager, in consultation with the Lead Managers, reserves the right to reject the Bid.

Bids by Insurance Companies

Bids may be made by insurance companies as permitted by the Insurance Regulatory and Development Authority of India in terms of the Master Circular – Investments, 2016 and the circular issued by the IRDAI titled 'Investment in Units of Real Estate Investment Trusts (REIT) & Infrastructure Investment Trusts (InvIT)' and dated March 14, 2017. In case of Bids made by insurance companies registered with the IRDAI, a certified copy of the certificate of registration issued by IRDAI must be attached to the Bid cum Application Form. Failing this, the Investment Manager, in consultation with the Lead Managers, reserves the right to reject the Bid. An insurer can invest not more than 3% of respective fund size of the insurer or not more than 5% of the units issued by a single InvIT, whichever is lower.

Bids by Mutual Funds

Bids may be made by mutual funds under all its schemes, existing and future, subject to the investment conditions and other restrictions prescribed under the Securities and Exchange Board of India (Mutual Funds) Regulations, 1996 (including, the circular on mutual funds dated February 28, 2017 and any other circulars, notifications and guidelines issued thereunder). A mutual fund may invest in the Units subject to the following:

(a). No mutual fund under all its schemes shall own more than 10% of the units; and

(b). A mutual fund scheme shall not invest:

(i). more than 10% of its NAV in the units issued by InvITs; and

(ii). More than 5% of its NAV in the units,

provided that the limits mentioned in sub-clauses (i) and (ii) above shall not be applicable for investments in case of index fund or sector or industry specific scheme pertaining to InvITs.

Bids by Eligible NRIs

In accordance with Schedule IV of the FEMA Rules, Eligible NRIs, including companies, trusts and partnership firms incorporated outside India which are owned and controlled by NRIs, are permitted to purchase units issued by an 'investment vehicle' without any limit, either on the stock exchange or outside it. The FEMA Rules define an 'investment vehicle' to mean an entity registered and regulated under the regulations framed by the SEBI or any other authority designated for that purpose, including an InvIT governed by the SEBI.

Investments by Eligible NRIs in the Units shall be on a non-repatriation basis, and shall be deemed to be domestic investment at par with investments made by residents of India.

Bids by FPIs

Foreign Portfolio Investors (other than individuals, corporate bodies and family offices) are permitted to participate in the Issue subject to compliance with Schedule VIII of FEMA Rules. In case of Bids by FPIs the payment should be paid as inward remittance from abroad through banking channels or out of funds held in NRE, SNRR or FCNR(B) account maintained in accordance with the Foreign Exchange Management (Deposit) Regulations, 2016, along with documentary evidence in support of the remittance. In case of Bids made by FPIs, a verified true copy of the certificate of registration issued by the designated depository participant under the SEBI FPI Regulations is required to be attached along with the Application Form, failing which the Investment Manager, in consultation with the Lead Managers, reserves the right to reject the Bid.

It is hereby clarified that bids received from FPIs bearing the same PAN shall be treated as multiple Bids and are liable to be rejected, except for Bids from FPIs that utilize the multiple investment manager structure in accordance with the operational guidelines for FPIs and designated Depository Participants issued to facilitate implementation

of SEBI FPI Regulations (such structure referred to as "**MIM Structure**"), provided such Bids have been made with different beneficiary account numbers, Client IDs and DP IDs. Accordingly, it should be noted that multiple Bids received from FPIs, who do not utilize the MIM Structure, and bear the same PAN, are liable to be rejected. In order to ensure valid Bids, FPIs making multiple Bids using the same PAN, and with different beneficiary account numbers, Client IDs and DP IDs, are required to provide a confirmation in the Bid cum Application Forms that the relevant FPIs making multiple Bids utilize the MIM Structure. In the absence of such confirmation from the relevant FPIs, such multiple Bids shall be rejected.

Please note that, the maximum Bid by any Bidder including a QIB Bidder should not exceed the investment limits prescribed for them under applicable laws. Further, multiple Bids by a FPI Bidder utilising the MIM Structure shall be aggregated for determining the permissible maximum Bid.

Bids by SCSBs

SCSBs participating in the Issue are required to comply with the terms of the SEBI circulars dated September 13, 2012 (CIR/CFD/DIL/12/2012) and January 2, 2013 (CIR/CFD/DIL/1/2013). Such SCSBs are required to ensure that for making applications on their own account using ASBA, they should have a separate account in their own name with any other SCSBs. Further, such account shall be used solely for the purpose of making application in public issues and clear demarcated funds should be available in such account for such applications.

Bids under Power of Attorney

In case of Bids made pursuant to a power of attorney by Institutional Investors or bodies corporate, a certified copy of the power of attorney or the relevant resolution or authority, as the case may be, along with a certified copy of the memorandum of association and articles of association and/or bye laws must be submitted along with the Bid cum Application Form. Failing this, the Bid is liable to be rejected.

The Investment Manager, in consultation with the Lead Managers, in its absolute discretion, reserves the right to relax the above condition of simultaneous lodging of the power of attorney along with the Bid cum Application Form.

Allotments, if any, made to FVCIs in the Issue are subject to the respective rules and regulations that are applicable to each of them.

The above information is given for the benefit of the Bidders. Each Bidder should check whether it is eligible to apply under applicable law and ensure that any prospective Allotment to it in the Issue is in compliance with the investment restrictions under applicable law. Certain categories of Bidders may not be allowed to Bid in the Issue or hold Units exceeding certain limits specified under applicable law.

The Parties to the InvIT, and the Lead Managers are not liable for any amendments or modification or changes in applicable laws or regulations, which may occur after the date of this Draft Offer Document. Bidders are advised to make their independent investigations and ensure that any single Bid from them does not exceed the applicable investment limits or maximum number of the Units that can be held by them under applicable law or regulation or as specified herein.

Maximum and Minimum Bid Size

(i) Each Bidder (other than an Anchor Investor) is required to Bid for a Minimum Bid Size in the range of ₹10,000 and ₹15,000 and in multiples of [●] thereafter.

(ii) No Bidder shall Bid for such number of Units which exceeds the Issue Size.

(iii) The maximum Bid by any Bidder including Institutional Investors should not exceed the investment limits prescribed for them under the applicable law.

The price and quantity options submitted by a Bidder in the Bid cum Application Form may be treated as optional bids from the Bidder and may not be cumulated. After determination of the Issue Price, the highest number of Units Bid for by a Bidder at or above the Issue Price may be considered for Allotment and the rest of the Bid(s), irrespective of the Bid Amount may automatically become invalid.

Information for the Bidders:

(i) The Offer Document will be filed by the Investment Manager with SEBI and the Stock Exchanges at least five Working Days before the Bid/Issue Opening Date.

(ii) After the filing of the Offer Document with SEBI and the Stock Exchanges, the Lead Manager/ Investment Manager shall make a pre-Issue advertisement on the websites of the InvIT, the Sponsor, the Investment Manager and the Stock Exchanges. Further, such pre-Offer advertisement will also be published in all editions of Financial Express (a widely circulated English national daily newspaper) and in all editions of [●] (a Hindi national daily newspaper with wide circulation in Haryana).

(iii) Any Bidder (who is eligible to invest in the Units) may obtain the abridged offer document or the Bid cum Application Form or both from the principal place of business of the InvIT or from any Designated Intermediary at the Bidding Centres. Anchor Investor Application Forms will be made available at the principal place of business of the InvIT and the registered office of the Investment Manager and the Lead Managers.

(iv) The Bid/Issue Period shall be for a minimum of three Working Days. In case the Price Band is revised, the Bid/Issue Period shall be extended for a minimum period of one Working Day, subject to the total Bid/Issue Period not exceeding 30 Working Days. In case of *force majeure*, banking strike or similar circumstances, the Bid/Issue Period may be extended for a minimum period of three Working Days, subject to the total Bid/Issue Period not exceeding 30 Working Days. The revised Price Band and Bid/Issue Period will be widely disseminated by notification to the SCSBs and Stock Exchanges, and also by indicating the change on the websites of the InvIT, the Lead Managers, the Sponsor, the Investment Manager and the Stock Exchanges and at the terminals of the members of the Syndicate. In accordance with the SEBI InvIT Regulations and the SEBI Guidelines, the Price Band cannot be revised more than two times.

(v) The Designated Intermediaries will accept Bids during the Bid/Issue Period in accordance with the terms of the Offer Document, provided that the Lead Managers will accept the Bids from Anchor Investors only on the Anchor Investor Bidding Date.

(vi) The Bids should be submitted on the prescribed Bid cum Application Form only. Bids by ASBA Bidders will be accepted by the Designated Intermediaries at the Bidding Centres in accordance with applicable law and any circulars issued by SEBI in this regard. Bid cum Application Forms should bear the stamp of a Designated Intermediary. Bid cum Application Forms (except electronic Bid cum Application Forms) which do not bear the stamp of a Designated Intermediary are liable to be rejected.

(vii) The Bidding Centres will acknowledge the receipt of the Bid cum Application Forms by stamping and returning to the Bidder the Acknowledgement Slip. This Acknowledgement Slip will serve as the duplicate of the Bid cum Application Form for the records of the Bidder.

Instructions for completing the Bid Cum Application Form

Bidders may note that Bid cum Application Forms not filled completely or correctly as per instructions provided in the Offer Document and the Bid cum Application Form are liable to be rejected.

Bids must be:

(i) made only in the prescribed Bid cum Application Form or Revision Form, as applicable;

(ii) completed in full, in BLOCK LETTERS in ENGLISH and in accordance with the instructions contained here and in the Bid cum Application Form. Incomplete Bid cum Application Forms or Revision Forms are liable to be rejected. Bidders must provide details of valid and active DP ID, Client ID and PAN clearly and without error. Invalid accounts, suspended accounts or where such account is classified as invalid or suspended shall not be considered for Allotment. Bidders should note that the members of the Syndicate and/or the SCSBs (as appropriate) will not be liable for errors in data entry due to incomplete or illegible Bid cum Application Forms; and

(iii) in a single name or in joint names (not more than three, and in the same order as their Depository Participant details).

Bidders should also note that:

(i) information provided by Bidders will be uploaded in the online system by the Designated Intermediaries and the electronic data will be used to make allocation/Allotment. Bidders are advised to ensure that the details are correct and legible;

(ii) only the First Bidder is required to sign the Bid cum Application Form. Bidders should ensure that thumb impressions and signatures other than in the languages specified in the Eighth Schedule to the Constitution of India are attested by a Magistrate or a Notary Public or a Special Executive Magistrate under official seal; and

(iii) if the ASBA Account holder is different from the ASBA Bidder, the Bid cum Application Form should also be signed by the account holder as provided in the Bid cum Application Form.

General Instructions

Dos:

(i) Check if you are eligible to apply as per the terms of the Offer Document and under Applicable Laws and approvals;

(ii) Ensure that you have Bid within the Price Band;

(iii) Read all the instructions carefully and complete the relevant Bid cum Application Form;

(iv) Ensure that the details about the PAN, DP ID, Client ID and UPI ID (where applicable) are correct, and the Beneficiary Account is activated, as Allotment will be in dematerialized form only;

(v) Ensure that the Bids are submitted at the Bidding Centres only on the Bid cum Application Forms bearing the stamp of a Designated Intermediary;

(vi) Ensure that you have mentioned the correct ASBA Account number (for all Bidders other than UPI Bidders using the UPI Mechanism) in the Bid cum Application Form (with a maximum length of 45 characters) and such ASBA account belongs to you and no one else. Further, UPI Bidders using the UPI Mechanism must also mention their UPI ID and shall use only his/her own bank account which is linked to his/her UPI ID;

(vii) UPI Bidders using the UPI Mechanism through the SCSBs and mobile applications shall ensure that the name of the bank appears in the list of SCSBs which are live on UPI, as displayed on the SEBI website. UPI Bidders shall ensure that the name of the app and the UPI handle which is used for making the application appears on the list displayed on the SEBI website. An application made using incorrect UPI handle or using a bank account of an SCSB or bank which is not mentioned on the SEBI website is liable to be rejected;

(viii) Ensure that your Bid is submitted at a Bidding Centre of a Designated Intermediary. Further, ensure that the Bid cum Application Form is signed by the ASBA Account holder if the Bidder is not the ASBA Account holder;

(ix) Ensure that the full Bid Amount is paid for Bids submitted by Anchor Investors and funds equivalent to the Bid Amount are blocked by the SCSBs in case of Bids submitted through the ASBA process;

(x) Ensure that you have correctly checked the authorization/undertaking box in the Bid cum Application Form, or have otherwise provided an authorization to the SCSB via the electronic mode for the Designated Branch to block funds in the ASBA Account equivalent to the Bid Amount mentioned in the Bid cum Application Form at the time of submission of the Bid;

(xi) Instruct your respective banks to not release the funds other than in relation to the Issue, blocked in the ASBA Accounts;

(xii) Ensure that you request for and have received an Acknowledgement Slip for all your Bid options;

(xiii) Ensure that you receive an Acknowledgement Slip from the Designated Intermediary for the submission of your Bid cum Application Form;

(xiv) Submit revised Bids at the same Bidding Centre of a Designated Intermediary, through which the original Bid was placed and obtain a revised Acknowledgement Slip, as the case may be;

(xv) Except for Bids (i) on behalf of the Central or State Governments and the officials appointed by the courts, who, in terms of the SEBI circular dated June 30, 2008, may be exempt from specifying their PAN for transacting in the securities market, and (ii) Bids by persons resident in the state of Sikkim, who, in terms of a SEBI circular dated July 20, 2006, may be exempted from specifying their PAN for transacting in the securities market, all Bidders should mention their PAN allotted under the IT Act. The exemption for the Central or the State Government and officials appointed by the courts and for Bidders residing in the State of Sikkim is subject to (a) the Demographic Details received from the respective depositories confirming the exemption granted to the beneficiary owner by a suitable description in the PAN field and the beneficiary account remaining in "active status"; and (b) in the case of residents of Sikkim, the address as per the Demographic Details evidencing the same. All other applications in which the PAN is not mentioned will be rejected;

(xvi) In cases where the PAN is same, such Bids will be treated as multiple applications. Bidders should not submit the GIR number instead of the PAN as the Bid is liable to be rejected on this ground. With effect from August 16, 2010, the demat accounts of Bidders for whom PAN details have not been verified shall be "suspended for credit" and no credit of Units pursuant to the Issue will be made into the accounts of such Bidders;

(xvii) Ensure that your PAN is linked with Aadhaar and are in compliance with Central Board of Direct Taxes notification dated February 13, 2020 and press release dated June 25, 2021;

(xviii) Ensure that the Demographic Details (as defined below) are updated, true and correct in all respects;

(xix) In case of joint Bids, the Bid cum Application Form should contain the name of only the First Bidder whose name should also appear as the first holder of the beneficiary account held in joint names. Ensure that the signature of the First Bidder in case of joint Bids, is included in the Bid cum Application Forms;

(xx) Ensure that the name(s) given in the Bid cum Application Form is exactly the same as the name(s) in which the beneficiary account is held with the Depository Participant;

(xxi) Ensure that the category and the Bidder status is indicated;

(xxii) Bidders (except UPI Bidders using the UPI Mechanism) should instruct their respective banks to release the funds blocked in the ASBA Account under the ASBA process. UPI Bidders using the UPI Mechanism, should ensure that they approve the UPI Mandate Request generated by the Sponsor Bank(s) to authorise blocking of funds equivalent to Bid Amount and subsequent debit of funds in case of Allotment, in a timely manner;

(xxiii) Ensure that in case of Bids under power of attorney or by limited companies, corporates, trusts, etc., relevant documents are submitted;

(xxiv) UPI Bidders using the UPI Mechanism shall ensure that details of the Bid are reviewed and verified by opening the attachment in the UPI Mandate Request and then proceed to authorise the UPI Mandate Request using his/her UPI PIN. Upon the authorization of the mandate using his/her UPI PIN, the UPI Bidders may be deemed to have verified the attachment containing the application details of the UPI Bidders using the UPI Mechanism in the UPI Mandate Request and have agreed to block the entire Bid Amount and authorized the Sponsor Bank(s) to issue a request to block the Bid Amount mentioned in the ASBA Form in his/her ASBA Account;

(xxv) UPI Bidders using the UPI Mechanism should mention valid UPI ID of only the Bidder (in case of single account) and of the first Bidder (in case of joint account) in the ASBA Form;

(xxvi) UPI Bidders using the UPI Mechanism, who have revised their Bids subsequent to making the initial Bid, should also approve the revised UPI Mandate Request generated by the Sponsor Bank(s) to authorise blocking of funds equivalent to the revised Bid Amount in their account and subsequent debit of funds in case of allotment in a timely manner;

(xxvii) Ensure that Bids submitted by any person outside India are in compliance with applicable foreign and Indian laws; and

(xxviii) With respect to Bids by SCSBs, ensure that you have a separate account in your own name with any other SCSB having clear demarcated funds for applying under the ASBA process and that such separate account (with any other SCSB) is used as the ASBA Account with respect to your Bid.

The Bid cum Application Form is liable to be rejected if the above instructions, as applicable, are not complied with.

Don'ts:

(i) Do not Bid for lower than the Minimum Bid Size;

(ii) Do not submit a Bid without payment of the entire Bid Amount;

(iii) Do not Bid less than the Floor Price or higher than the Cap Price;

(iv) Do not Bid on another Bid cum Application Form after you have submitted a Bid;

(v) If you are a UPI Bidder and are using the UPI Mechanism, do not submit more than one Form from each UPI ID;

(vi) Do not pay the Bid Amount in cash, by money order or postal order and in relation to ABSA Bidders, in any other mode other than blocked amounts in the ASBA Accounts;

(vii) Do not send Bid cum Application Forms by post and only submit the same to a Designated Intermediary at a Bidding Centre;

(viii) Do not fill up the Bid cum Application Form such that the Units Bid for exceed, the Issue Size or investment limits, or the maximum number of Units that can be held or the maximum amount permissible under applicable laws or under the terms of the Offer Document;

(ix) Do not submit more than five Bid cum Application Forms per ASBA Account;

(x) Do not submit the GIR number instead of the PAN as the Bid is liable to be rejected on this ground;

(xi) Do not submit incorrect details of DP ID, Client ID and PAN or give details for which demat account is suspended or for which such details cannot be verified by the Registrar;

(xii) Do not instruct your respective banks to release the funds blocked in the ASBA Account under the ASBA process, other than in relation to the Issue;

(xiii) Do not submit the Bid for an amount more than funds available in your ASBA Account;

(xiv) Do not submit Bids on plain paper or on incomplete or illegible Bid cum Application Forms or on Bid cum Application Forms in a colour prescribed for another category of Bidders;

(xv) Do not submit a Bid in case you are not eligible to acquire Units under applicable law or your relevant constitutional documents or otherwise;

(xvi) Do not Bid if you are not competent to contract under the Indian Contract Act, 1872 (other than minors having valid depository accounts as per demographic details provided by the Depository;

(xvii) Anchor Investors should not Bid through the ASBA process;

(xviii) Do not withdraw your Bid or lower the size of your Bid (in terms of quantity of the Units or the Bid Amount) at any stage.

Method and Process of Bidding

(i) The Investment Manager and the Lead Managers will declare the Bid/Issue Opening Date and Bid/Issue Closing Date at the time of filing the Offer Document with SEBI and the Stock Exchanges.

(ii) Post filing of the Offer Document with SEBI and the Stock Exchanges, the Lead Managers/ Investment Manager shall make a pre-Issue advertisement on the websites of the Sponsor, the Investment Manager

and the Stock Exchanges. Further, such pre-Issue will also be published in all editions of Financial Express (a widely circulated English national daily newspaper) and in all editions of [●] (a Hindi national daily newspaper with wide circulation in Haryana).

(iii) The Price Band will be decided by the Investment Manager in consultation with the Lead Managers and shall be disclosed at least two Working Days prior to the Bid/Offer Opening Date on the websites of the InvIT, the Sponsor, the Investment Managers and the Stock Exchanges and in the newspapers where the pre-Issue advertisement was published.

(iv) The Lead Managers will accept Bids from the Anchor Investors on the Anchor Investor Bidding Date, *i.e.* one Working Day prior to the Bid/Issue Opening Date. Bidders, except Anchor Investors, who are interested in subscribing to the Units should approach any of the Designated Intermediaries at Bidding Centres to register their Bids during the Bid/Issue Period. The Designated Intermediaries will accept Bids from all Bidders and will have the right to vet the Bids during the Bid/Issue Period in accordance with the terms of the Syndicate Agreement and/or the Offer Document. The Bid/Issue Period will be for at least three Working Days and not exceeding 30 Working Days (*including* the days for which the Issue is open in case of revision in Price Band). If the Price Band is revised, the revised Price Band and the Bid/Issue Period will disclosed on the websites of the InvIT, the Sponsor, the Investment Managers, Lead Managers, Syndicate Members, SCSBs and the Stock Exchanges and in the newspapers where the pre-Issue advertisement will be published.

(v) UPI Bidders may submit the Bid cum Application form with the Designated Intermediaries and use their bank account linked with UPI ID for the purpose of blocking funds. The Designated Intermediaries shall upload the Bid on the Stock Exchange bidding platform and the application amount would be blocked through the UPI Mechanism.

(vi) Each Bid cum Application Form will give the Bidder the choice to Bid for up to three optional prices within the Price Band and specify the demand (*i.e.*, the number of Units Bid for) in each option. The price and demand options submitted by the Bidder in the Bid cum Application Form will be treated as optional demands from the Bidder and will not be cumulated. In case of an upward revision in the Price Band, in the event the Bidder does not either revise the Bid or make additional payment and the Issue Price is higher than the Cap Price prior to revision, the number of Units Bid for will be adjusted downwards for the purpose of Allotment, such that no additional payment will be required from the Bidder and the Bidder shall be deemed to have approved such revised Bid. The Bidder can Bid at any price within the Price Band. The Bidder has to Bid for the desired number of Units at a specific price.

(vii) No Bidder shall either withdraw or lower its Bid at any stage.

(viii) After determination of the Issue Price, the maximum number of Units Bid for by a Bidder at or above the Issue Price will be considered for allocation/Allotment and the rest of the Bid(s), irrespective of the Bid Amount, will become automatically invalid.

(ix) Except in relation to the Bids received from the Anchor Investors, the Designated Intermediary will enter each Bid option into the electronic Bidding system as a separate Bid and generate an Acknowledgement Slip, and SCSBs will generate an Acknowledgement Slip for each price and demand option and will, on demand, give the same to the Bidder. Therefore, a Bidder can receive up to three Acknowledgement Slips for each Bid cum Application Form.

(x) On receipt of the Bid cum Application Form (whether in physical or electronic mode) the Designated Branch of the SCSB will verify if sufficient funds equal to the Bid Amount are available in the ASBA Account, as mentioned in the ASBA Bid cum Application Form, prior to uploading such Bids with the Stock Exchanges. If sufficient funds are not available in the ASBA Account, the Designated Branch of the SCSB will reject such Bids and will not upload such Bids with the Stock Exchanges. If sufficient funds are available in the ASBA Account, the SCSB will block an amount equivalent to the Bid Amount mentioned in the ASBA Bid cum Application Form and will enter each Bid option into the electronic bidding system as a separate Bid.

(xi) Along with the Bid cum Application Form, all Bidders will make payment in the manner described under the paragraph titled "– *Payment Instructions*" in this section.

Bidders' Depository Account and Bank Account Details

Bidders should note that on the basis of Bidders' PAN, DP ID and Client ID provided by them in the Bid cum Application Form and as entered into the electronic bidding system of the Stock Exchanges by the Members of the Syndicate and the SCSBs as the case may be, the Registrar will obtain from the Depository the demographic details including the Bidders' address, occupation and bank account details (including the nine-digit Magnetic Ink Character Recognition ("**MICR**") code as appearing on a cheque leaf (the "**Demographic Details**"), from the Depository. The Demographic Details will be used for giving refunds and allocation advice (including through physical refund warrants, direct credit, NACH, NEFT and RTGS) to Anchor Investors. Hence, Bidders are advised to immediately update their bank account details, PAN and Demographic Details as appearing on the records of the Depository Participant and ensure that they are true and correct. Accordingly, Bidders should carefully fill in their depository account details in the Bid cum Application Form.

By signing the Bid cum Application Form, the Bidder is deemed to have authorized the Depositories to provide to the Registrar, on request, the required Demographic Details as available in their records.

Bids with no corresponding record available with the Depositories matching the three parameters (namely, PAN (in case of joint Bids, PAN of First Bidder), the DP ID and Client ID), are liable to be rejected.

Payment mechanism for ASBA Bidders

The ASBA Bidders will specify the ASBA Account in the Bid cum Application Form and the SCSB will block an amount equivalent to the Bid Amount in the ASBA Account so specified. The SCSB will keep the Bid Amount in the relevant ASBA Account blocked until finalization of the Basis of Allotment and consequent transfer of the Bid Amount to the Public Offer Account, or until withdrawal/failure of the Issue or until rejection of the Bid, as the case may be.

In the event of rejection of the Bid cum Application Form, failure of the Issue or for unsuccessful Bid cum Application Forms, the Registrar will give instructions to the SCSB to unblock the Bid Amount in the relevant ASBA Account and the SCSBs will unblock the Bid Amount on receipt of such instruction.

Payment Instructions

The Investment Manager and the Syndicate will open Escrow Accounts with one or more Escrow Collection Bank(s) in whose favour Anchor Investors will issue payment instruments. The payment instruments for payment into the Escrow Account(s) should be drawn in favour of:

In case of resident Anchor Investors: "[●]"

In case of non-resident Anchor Investors: "[●]"

The Investors should note that the escrow mechanism is not prescribed by SEBI and has been established as an arrangement amongst the Investment Manager, the Trustee (acting on behalf of the InvIT), the Syndicate, the Escrow Collection Banks and the Registrar to facilitate collections from Investors.

The Escrow Collection Banks will act in terms of the Offer Document and the Escrow Agreement. The monies deposited in the Escrow Account(s) will be held for the benefit of the Anchor Investors until the Designated Date. On the Designated Date, the Escrow Collection Banks will transfer the funds from the Escrow Account(s) as per the terms of the Escrow Agreement into the Public Offer Account with the Escrow Collection Banks and the Refund Account. The Escrow Collection Banks will not exercise any lien whatsoever over the monies deposited therein and will hold the monies therein in trust for the Anchor Investors. The balance amount after transfer to the Public Offer Account will be transferred to the Refund Account. Payments of refund to the Anchor Investors will be made from the Refund Account are per the terms of the Escrow Agreement and the Offer Document.

Payments should be made by Anchor Investors only in electronic mode through direct credit/NEFT/NACH/RTGS. Cheques or bank drafts, cash, money orders or postal orders will not be accepted and is liable to be rejected.

Payment Mechanism for UPI Bidders

In relation to UPI Bidders, the Sponsor Bank shall initiate a UPI Mandate Request on the UPI Bidder, i.e., request the UPI Bidder to authorize blocking of funds equivalent to application amount and subsequent debit of funds in case of Allotment. The request raised by the Sponsor Bank would be electronically received by the UPI Bidder as

an SMS / intimation on their mobile number / mobile application associated with the UPI ID linked bank account. The UPI Bidder shall be able to view the details of the request in their UPI application and authorize the transaction. In UPI, the SCSBs / UPI applications eligible for public issues shall send SMS alerts to UPI Bidders for all ASBA applications and may also provide invoices in the inbox as an additional feature to verify the UPI mandate details. After reviewing the details properly, the UPI Bidder shall be required to authorize the mandate, which shall be a one-time mandate for each application in the Issue. The payment accompanied with any upward revision of the Bid shall be adjusted against the payment made at the time of the original Bid or previously revised Bid.

Other Instructions

Joint Bids in case of Individuals

Bids may be made in single or joint names (not more than three). In the case of joint Bids, all payments will be made out in favour of the Bidder whose name appears first in the Bid cum Application Form or Revision Form. All communications will be addressed to the First Bidder and will be dispatched to his or her address as per the Demographic Details received from the Depository.

Multiple Bids

A Bidder should submit only one Bid for the total number of the Units required. Two or more Bids will be deemed to be multiple Bids if the sole or First Bidder is the same. However, a Bidder can revise the Bid through the Revision Form.

In case of a mutual fund, subject to investment conditions as per applicable law, a separate Bid can be made in respect of each scheme of the mutual fund registered with SEBI and such Bids in respect of more than one scheme of the mutual fund will not be treated as multiple Bids, provided that the Bids clearly indicate the scheme concerned for which the Bid is made. Bids by QIBs under the Anchor Investor Portion and Institutional Investor Portion (excluding Anchor Investor Portion) will not be considered as multiple Bids.

More than one ASBA Bidder may Bid for Units using the same ASBA Account, provided that the SCSBs will not accept a total of more than five Bid cum Application Forms from ASBA Bidders with respect to any single ASBA Account.

The Investment Manager, in consultation with the Lead Managers, reserves the right to reject, in its absolute discretion, all or any multiple Bids in any or all categories. A check will be carried out for the same PAN. In cases where the PAN is same, such Bids will be treated as multiple applications.

Right to Reject Bids

In case of QIBs Bidding in the Institutional Investor Portion and Anchor Investors, the members of the Syndicate may reject Bids provided that such rejection will be made at the time of acceptance of the Bid and the reasons for rejecting such Bids will be provided to such Bidder in writing. The Members of the Syndicate may also reject Bids if all information required is not provided and the Bid cum Application Form is incomplete in any respect.

Grounds for Technical Rejections

Bidders are advised that incomplete or illegible Bid cum Application Forms will be rejected by Designated Intermediaries. Bidders are advised to note that Bids are liable to be rejected on technical grounds including the following:

(i) The amounts mentioned in the Bid cum Application Form does not tally with the amount payable for the value of the Units Bid for;

(ii) Application on plain paper;

(iii) In case of partnership firms, Units may be registered in the names of the individual partners and no firm as such will be entitled to apply;

(iv) Bid by persons not competent to contract under the Indian Contract Act, 1872, as amended, including minors;

(v) PAN not stated (except for Bids on behalf of the Central or State Government, residents of Sikkim and the officials appointed by the courts);

(vi) GIR number furnished instead of PAN;

(vii) Where PAN details are not verified by demat accounts, i.e. where the demat account is "suspended for credit";

(viii) Bids for lower value of Units than specified for that category of Bidders;

(ix) Bids at a price less than the Floor Price;

(x) Bids at a price over the Cap Price;

(xi) Submission of more than five Bid cum Application Forms per ASBA Account;

(xii) Bids for a value of less than ₹ 0.10 million and Bids by UPI Bidders for a value of more than ₹ 0.50 million;

(xiii) Bidder category not specified;

(xiv) Multiple Bids as described in the Offer Document;

(xv) In case of Bids under power of attorney or by limited companies, corporate, trust etc., relevant documents not being submitted;

(xvi) Bids accompanied by cash, stockinvest, money order or postal order;

(xvii) Signature of sole and/or the First Bidder (in case of joint Bids) is missing;

(xviii) The Bid cum Application form not being signed by the ASBA Account holder, if the ASBA Account holder is different from the Bidder;

(xix) Bid cum Application Form does not have the stamp of a Designated Intermediary (except for electronic ASBA Bids), as the case may be;

(xx) Bid cum Application Forms are not submitted within the time prescribed as per the Bid cum Application Form, Bid/Issue Opening Date advertisement and the Offer Document and as per the instructions in the Offer Document and the Bid cum Application Forms;

(xxi) Inadequate funds in the ASBA Account to block the Bid Amount specified in the Bid cum Application Form at the time of blocking such Bid Amount in the ASBA Account;

(xxii) Authorisation for blocking funds in the ASBA Account not provided;

(xxiii) Bids for amounts greater than the maximum permissible amounts prescribed by Applicable Law;

(xxiv) Bids by OCBs;

(xxv) Bids by persons prohibited from buying, selling or dealing in the Units directly or indirectly by SEBI or any other regulatory authority;

(xxvi) Bids by persons who are not eligible to acquire Units under applicable law or their relevant constitutional documents or otherwise; and

(xxvii) Bids that do not comply with the securities laws of their respective jurisdictions.

IN CASE THE DP ID, CLIENT ID, PAN AND UPI ID (WHERE APPLICABLE) MENTIONED IN THE BID CUM APPLICATION FORM AND ENTERED INTO THE ELECTRONIC BIDDING SYSTEM OF THE STOCK EXCHANGES BY THE LEAD MANAGER/THE DESIGNATED INTERMEDIARIES DO NOT MATCH WITH THE DP ID, CLIENT ID AND PAN AVAILABLE IN THE RECORDS WITH THE DEPOSITORIES THE APPLICATION IS LIABLE TO BE REJECTED.

Electronic Registration of Bids

(i) The Designated Intermediaries will register the Bids received, except Bids received from Anchor Bidders, using the online facilities of the Stock Exchanges. Details of Bids in the Anchor Investor Portion will not be registered on the online facilities of the Stock Exchanges. The Lead Managers, the Investment Manager and the Registrar are not responsible for any acts, mistakes or errors or omission and commissions in relation to (i) the Bids accepted by Designated Intermediaries, (ii) the Bids uploaded by Designated Intermediaries, (iii) the Bids accepted but not uploaded by the Designated Intermediaries or (iv) Bids accepted and uploaded without blocking funds in the ASBA Accounts. It will be presumed that for the Bids uploaded by the SCSBs, the Bid Amount has been blocked in the relevant ASBA Account.

(ii) The Stock Exchanges will offer a screen-based facility for registering such Bids for the Issue. This facility will be available on the terminals of the Designated Intermediaries during the Bid/Issue Period. The Designated Intermediaries can also set up facilities for offline electronic registration of Bids subject to the condition that it will upload the offline data file into the on-line facilities for book building on a regular basis.

(iii) On the Bid/Issue Closing Date, the Designated Intermediaries will upload the Bids until such time as may be permitted by the Stock Exchanges. This information will be available with the Lead Managers on a regular basis. In order to ensure that the data uploaded is accurate, the Syndicate may be permitted one Working Day after the Bid/Issue Closing Date to amend some of the data fields (currently DP ID, Client ID and PAN) entered by them in the electronic bidding system, after which the Registrar will proceed with the Allotment of the Units. Bidders are cautioned that a high inflow of Bids is typically experienced on the last Working Day of the Bidding, which may lead to some Bids received on the last Working Day not being uploaded due to lack of sufficient uploading time. Such Bids that could not uploaded will not be considered for allocation. Bids will only be accepted on Working Days (excluding any public holiday).

(iv) Based on the aggregate demand and price for Bids registered on the electronic facilities of the Stock Exchanges a graphical representation of consolidated demand and price will be made available at the Bidding Centres and on the websites of each of the Stock Exchanges during the Bid/Issue Period.

(v) At the time of registering each Bid, the Designated Intermediaries will enter the following details of the Bidder in the electronic system:

- Name of the infrastructure investment trust;
- Bid cum Application Form number;
- Bidder Category – QIB, Eligible NRI, FPI, etc;
- PAN of the first applicant;
- DP ID;
- UPI ID (for UPI Bidders);
- Client ID;
- Number of Units Bid for; and
- Price option.

(vi) A system generated Acknowledgement Slip will be given to the Bidder (only on demand) as a proof of the registration of each of the Bidding options. It is the Bidders' responsibility to obtain the Acknowledgement Slip from Designated Intermediaries. The registration of the Bid by Designated Intermediaries does not guarantee that the Units will be allocated/Allotted. Such Acknowledgement Slip will be non-negotiable and by itself will not create any obligation of any kind.

(vii) In relation to Bids by UPI Bidders, once the Bid details are entered on the Stock Exchange platform, the Stock Exchange shall validate the PAN and demat account combination details of the Bidder with the Depository. The Depository shall validate the PAN and demat account details on a near real time basis and send responses to the Stock Exchanges which would be shared by the Stock Exchanges with the

Designated Intermediaries through its platforms for corrections, if any. Once Bid details are uploaded on the platforms of the Stock Exchanges, the Stock Exchanges shall send an SMS to the UPI Bidder on their mobile number associated with demat account regarding submission of their Bid cum Application Form at the end of the day during the Bidding period. For the last day of Bidding, the SMS may be sent the next Working Day.

(viii) The permission given by the Stock Exchanges to use their network and software of the online IPO system should not in any way be deemed or construed to mean that the compliance with various statutory and other requirements by the Investment Manager and/or the Lead Managers are cleared or approved by the Stock Exchanges; nor does it in any manner warrant, certify or endorse the correctness or completeness of any of the compliance with the statutory and other requirements nor does it take any responsibility for the financial or other soundness of the InvIT, the management of the Investment Manager or the Trustee or any project of the InvIT nor does it in any manner warrant, certify or endorse the correctness or completeness of any of the contents of the Offer Document; nor does it warrant that the Units will be listed or will continue to be listed on the Stock Exchanges.

Build-up of the book and revision of Bids

(i) Bids received from various Bidders through the Designated Intermediaries will be electronically uploaded to the Stock Exchanges mainframe on a regular basis.

(ii) The book gets built up at various price levels. This information will be available with the Lead Managers at the end of the Bid/Issue Period.

(iii) During the Bid/Issue Period, any Bidder who has registered his or her interest in the Units at a particular price level is free to revise the Bid upwards within the Price Band using the printed Revision Form, which is a part of the Bid cum Application Form.

(iv) Upward revisions can be made in both the desired number of Units and the Bid Amount by using the Revision Form. Apart from mentioning the revised options in the Revision Form, the Bidder must also mention the details of all the options in his or her Bid cum Application Form or its previous Revision Form. For example, if a Bidder has Bid for three options in the Bid cum Application Form and such Bidder is changing only one of the options in the Revision Form, he must still fill the details of the other two options that are not being revised, in the Revision Form. The Members of the Syndicate and the Designated Branches will not accept incomplete or inaccurate Revision Forms.

(v) The Bidder can make this upward revision any number of times during the Bid/Issue Period. However, for any revision(s) in the Bid, the Bidders will have to use the services of the same Designated Intermediary through which such Bidder had placed the original Bid. Bidders are advised to retain copies of the blank Revision Form and the revised Bid must be made only in such Revision Form or copies thereof.

(vi) If revision of the Bids results in an incremental amount, the relevant SCSB will block the additional Bid Amount. The Registrar will reconcile the Bid data and consider the revised Bid data for preparing the Basis of Allotment.

(vii) When a Bidder revises his or her Bid, he or she will surrender the earlier Acknowledgement Slip and will, on demand, receive a revised Acknowledgement Slip from the Designated Intermediary. It is the responsibility of the Bidder to request for and obtain the revised Acknowledgement Slip, which will act as proof of his or her having revised the previous Bid.

Price Discovery and Allocation

(i) Based on the Bids received and demand generated at various price levels, the Investment Manager, in consultation with the Lead Managers, will finalize the Issue Price and the Anchor Investor Issue Price.

(ii) Allocation to Anchor Investors will be at the discretion of the Investment Manager in consultation with the Lead Managers, subject to compliance with the SEBI InvIT Regulations, the SEBI Guidelines and other Applicable Laws. In the event of under-subscription in the Anchor Investor Portion, the balance Units will be added to the Institutional Investor Portion. The number of Units allocated to Anchor Investors and the Anchor Investor Allocation Price, will be made available in public domain by the Lead Managers before the Bid/Issue Opening Date.

(iii) In case of under-subscription in any category, the unsubscribed portion in either the Institutional Investor category or the Non-Institutional Investor Portion may be allotted to applicants in the other categories.

(iv) Allocation to Non-Residents, including Eligible NRIs and FPIs will be subject to applicable law.

(v) The Investment Manager in consultation with the Lead Managers reserves the right to withdraw the Issue any time after the Bid/Issue Opening Date but before the Allotment, without assigning any reasons whatsoever.

(vi) No Bidders can withdraw or lower their Bids at any time.

Sponsor Contribution

Pursuant to the Commitment Letter, subject to certain conditions specified therein, the Sponsor has agreed contribute such amount towards subscription of such number of Units, prior to the Bid/ Issue Opening Date (but after announcement of the Price Band), which shall be equivalent to at least 15% of the total Units of the InvIT on a post-Issue basis, to comply with the requirement under Regulation 12(3) of the SEBI InvIT Regulations ("**Sponsor Contribution**"). Upon Sponsor Contribution, the Issue Size will be reduced to the extent of such Sponsor Contribution.

While the Sponsor shall subscribe to the Units prior to the Bid/ Issue Closing Date, such Units shall be allotted to the Sponsor on the date of Allotment.

Subsequently, the Investment Manager (on behalf of the InvIT) may utilize the Sponsor Contribution towards the objects of the Issue specified in the section titled "***Use of Proceeds***" on page 70.

Signing of Underwriting Agreement

(i) the InvIT (acting through the Trustee), the Sponsor, the Investment Manager, the Lead Managers and the Syndicate Members will enter into an Underwriting Agreement on or immediately after the finalization of the Issue Price.

(ii) After signing the Underwriting Agreement, the Investment Manager and the Sponsor will update and file the updated Offer Document with SEBI and the Stock Exchanges in terms of the SEBI InvIT Regulations and the SEBI Guidelines, which then will be termed the "Final Offer Document". The Final Offer Document will contain details of the Issue Price and Issue Size if any, underwriting arrangements and will be complete in all material respects.

Issuance of Allotment Advice

(i) Upon approval of the Basis of Allotment by the Designated Stock Exchange, the Registrar shall send to the Syndicate a list of the Bidders who have been Allotted Units in the Issue.

(ii) The Registrar will then dispatch an Allotment Advice to the Bidders who have been Allotted Units in the Issue. The dispatch of an Allotment Advice shall be deemed a valid, binding and irrevocable contract for the Bidder.

(iii) The issuance of Allotment Advice is subject to "***Notice to Anchor Investors: Allotment Reconciliation and Confirmation of Allocation Note***" below.

Notice to Anchor Investors: Allotment Reconciliation and Confirmation of Allocation Note ("CAN")

(i) A physical book will be prepared by the Registrar on the basis of the Bid cum Application Forms received from Anchor Investors. Based on the physical book and at the discretion of the Investment Manager in consultation with the Lead Managers, selected Anchor Investors will be sent a CAN or, if required, the revised CAN.

(ii) **In the event that the Issue Price is higher than the Anchor Investor Allocation Price**: Anchor Investors will be sent a revised CAN within one day of the Pricing Date indicating the number of Units allocated to such Anchor Investor and the pay-in date for payment of the balance amount. Anchor Investors are then required to pay any additional amounts, being the difference between the Issue Price and the Anchor Investor Allocation Price, as indicated in the revised CAN within the pay-in date referred

to in the revised CAN. Thereafter, the Allotment Advice will be issued to such Anchor Investors.

(iii) **In the event the Issue Price is lower than the Anchor Investor Allocation Price:** Anchor Investors and who have been Allotted Units will directly receive Allotment Advice and will not receive a refund for the difference between the Issue Price and the Anchor Investor Allocation Price.

Designated Date and Allotment

On the Designated Date, the Registrar to the Issue shall instruct the SCSBs to transfer funds represented by allocation of Units from ASBA Accounts into Public Offer Account. The balance amount after transfer to the Public Offer Account shall be unblocked by the relevant SCSB. Whilst the Investment Manager shall ensure all steps for the completion of the necessary formalities for the listing and the commencement of trading of the Units on the Stock Exchanges are completed within 6 Working Days of the Bid/Issue Closing Date, the timetable may be extended due to various factors, such as extension of the Bid/Issue Period by the Investment Manager, revision of the Price Band or any delay in receiving the final listing and trading approval from the Stock Exchanges. The commencement of trading of the Units will be entirely at the discretion of the Stock Exchanges and in accordance with the Applicable Laws.

Bidders are advised to instruct their Depository Participant to accept the Units that may be Allotted to them in this Issue.

Basis of Allotment

For other than Anchor Investors

(i) The Allotment to Bidders other than Anchor Investors shall be on proportionate basis within the specified investor categories and the number of Units Allotted shall be rounded off to the nearest integer, subject to minimum Allotment as per the SEBI InvIT Regulations and the SEBI Guidelines.

(ii) In case of under-subscription in any investor category, the unsubscribed portion in either the Institutional Investor category or the Non-Institutional Investor category may be allotted to applicants in the other category.

(iii) The aggregate Allotment to Institutional Investors will not exceed 75% of the Net Issue.

(iv) The aggregate Allotment to Non-Institutional Investors shall not be less than 25% of the Net Issue.

(v) The identity of Institutional Investors shall not be made public.

(vi) In relation to UPI Bidders, the RTA shall prepare the basis of Allotment based on information of Bidding and blocking received from the Stock Exchange and after undertaking reconciliation of the Bid data and block confirmations corresponding to the Bids by all Investor category applications (with and without the use if UPI). Upon approval of the basis of Allotment, the RTA shall share the 'debit' file with the Sponsor Bank and SCSBs, as applicable, for credit of funds in the Public Offer Account and unblocking of excess funds in the UPI Bidder's account. The Sponsor Bank, based on the mandate approved by the Bidder at the time of blocking of funds, shall raise the debit / collect request from the Bidder's bank account, whereupon funds will be transferred from investor's account to the public issue account and remaining funds, if any, will be unblocked without any manual intervention by investor or their bank.

For Anchor Investor Portion

Allocation to Anchor Investors at the Anchor Investor Allocation Price will be at the discretion of the Investment, in consultation with the Lead Managers, subject to compliance with the following requirements:

- not more than 60% of the Institutional Investor Portion will be available for allocation to Anchor Investors;

- allocation to Anchor Investors will be on a discretionary basis and subject to a minimum number of two Anchor Investors for allocation up to ₹ 2,500 million and minimum number of five Anchor Investors for allocation more than ₹ 2,500 million. The identity of the Anchor Investors shall be made public.

The number of Units Allocated to Anchor Investors and the Anchor Investor Allocation Price will be made

available on the websites of the Stock Exchanges, the Sponsor, the Investment Manager and the Lead Managers, prior to the Bid/Issue Opening Date.

Method of Proportionate Basis of Allotment in the Issue

Except in relation to Anchor Investors, in the event of the Issue being over-subscribed, the Investment Manager will finalize the Basis of Allotment in consultation with the Designated Stock Exchange. The Designated Stock Exchange along with the Lead Managers and the Registrar will be responsible for ensuring that the Basis of Allotment is finalized in a fair and proper manner.

Except in relation to Anchor Investors, the Allotment will be made in marketable lots, on a proportionate basis as explained below:

(i) Bidders will be categorized according to the number of Units applied for.

(ii) The total number of Units to be allotted to each category as a whole will be arrived at on a proportionate basis, which is the total number of Units applied for in that category (number of Investors in the category multiplied by the number of Units applied for) multiplied by the inverse of the over-subscription ratio.

Number of Units to be allotted to the successful Bidders will be arrived at on a proportionate basis, which is total number of Units applied for by each Bidder in that category multiplied by the inverse of the over-subscription ratio.

Units in Dematerialized Form with NSDL or CDSL

As per the SEBI InvIT Regulations and SEBI Guidelines, the Allotment will be only in dematerialized form.

In this context, two agreements have been signed amongst the Trustee (on behalf of the InvIT), the respective Depositories and the Registrar:

(i) Agreement dated October 7, 2022, between NSDL, the Trustee (on behalf of the InvIT) and the Registrar.

(ii) Agreement dated November 3, 2022, between CDSL, the Trustee (on behalf of the InvIT) and the Registrar.

(iii) Bids from any Bidder without relevant details of his or her depository account are liable to be rejected.

(i) A Bidder applying for Units must have at least one valid beneficiary account with either of the Depository Participants of either NSDL or CDSL prior to making the Bid.

(ii) Allotment to a successful Bidder will be credited in electronic form directly to the beneficiary account (with the Depository Participant) of the Bidder.

(iii) Bid cum Application Forms or Revision Forms containing incomplete or incorrect details under the heading "Bidder's Depository Account Details" are liable to be rejected.

(iv) Units in electronic form can be traded only on the stock exchanges having electronic connectivity with NSDL and CDSL. The Stock Exchanges where the Units are proposed to be listed have electronic connectivity with CDSL and NSDL.

Communications

All future communications in connection with Bids made in this Issue should be addressed to the Registrar quoting the full name of the sole or First Bidder, Bid cum Application Form number, PAN, Bidders depository account details, number of Units applied for, date of Bid cum Application Form, name and address of the member of the Syndicate where the Bid was submitted and cheque or draft number and issuing bank thereof or with respect to ASBA Bids, the bank account number in which an amount equivalent to the Bid Amount was blocked.

Bidders can contact the Compliance Officer or the Registrar in case of any pre-Issue or post-Issue related problems such as non-receipt of letters of allotment, credit of allotted Units in the respective beneficiary accounts, refund orders etc. In case of ASBA Bids submitted with the Designated Intermediaries, Bidders can contact the relevant Designated Intermediary.

Payment of Refunds

Payment of refunds will be made in the manner described below.

Mode of Refunds

For Anchor Investors

For Anchor Investors, any payment of refund will be made electronically through NACH, Direct Credit, RTGS or NEFT. For all other Anchor Investors, including those who have not updated their bank particulars with the MICR code, refund orders through speed or registered post for refund orders of ₹ 1,500 and above. Such refunds will be made by cheques, pay orders or demand drafts drawn on the Refund Bank and payable at par at places where Bids are received. Any bank charges for cashing such cheques, pay orders or demand drafts at other centres will be payable by the respective Investors. Please note that refunds through the abovementioned modes shall be credited only to the bank account from which the Bid Amount was remitted.

Refunds for ASBA Bidders

In the case of ASBA Bidders, the Registrar will instruct the relevant SCSBs to unblock the funds in the relevant ASBA Accounts to the extent of the Bid Amounts specified in the Bid cum Application Forms for withdrawn, rejected or unsuccessful or partially successful ASBA Bids, within 6 Working Days of the Bid/Issue Closing Date.

Refunds for UPI Bidders

For UPI Bidders, Units would be credited to the Bidder's account after confirmation of receipt of funds in the Public Offer Account. The Bidder will be notified for full / partial Allotment. For partial Allotment, the remaining funds shall be unblocked. For no Allotment, the UPI mandate would be revoked and application amount would be unblocked for the Bidder. The Registrar shall ensure refund of application amount or excess application amount in the bank account of the Bidder as stated in its demat account.

Disposal of Applications and Application Moneys

With respect to Bidders other than ASBA Bidders, the Investment Manager will ensure dispatch of Allotment Advice, refund orders (except for Anchor Investors who receive refunds through electronic transfer of funds) and give benefit to the beneficiary account with Depository Participants and submit the documents pertaining to the Allotment to the Stock Exchanges after the Allotment.

In case of Anchor Investors who receive refunds through NACH, NEFT, direct credit or RTGS, the refund instructions will be given to the clearing system within 6 Working Days from the Bid/Issue Closing Date. A suitable communication will be sent to the Anchor Investors receiving refunds through this mode within 6 Working Days from the Bid/Issue Closing Date, giving details of the bank where refunds will be credited along with amount and expected date of electronic credit of refund.

Refund Orders or instructions to the SCSBs

With respect to Anchor Investors, the Investment Manager will ensure dispatch of Allotment Advice and refund orders (except for Anchor Investors who receive refunds through electronic transfer of funds), give benefit to the beneficiary account with the Depository Participants and submit documents pertaining to the Allotment to the Stock Exchanges after the Allotment.

In the case of ASBA Bidders, the Registrar will instruct the relevant SCSBs to unblock the funds in the relevant ASBA Accounts to the extent of the Bid Amounts specified in the Bid cum Application Forms for withdrawn, rejected or unsuccessful or partially successful ASBA Bids, within 6 Working Days of the Bid Closing Date.

Interest in case of delay in dispatch of Allotment Letters or Refund Orders/instruction to SCSB by the Registrar

Allotment, including the credit of Allotted Units to the beneficiary accounts of the Depository Participants, will be made not later than 6 Working Days of the Bid/Issue Closing Date. If Allotment letters/refund orders have not been dispatched to the Bidders or if, in a case where the refund or portion thereof is made in electronic manner through direct credit, NEFT, RTGS or NACH, or unblocking of ASBA Accounts or the refund instructions have not been issued to the clearing system in the disclosed manner and/or demat credits are not made to Bidders within

6 Working Days from the Bid/ Issue Closing Date, the Investment Manager will be liable to pay interest at 15% per annum, as prescribed under the SEBI InvIT Regulations and other applicable law.

The InvIT, the Investment Manager shall not have recourse to the Issue Proceeds until the final approval for listing and trading of the Units from all the Stock Exchanges where listing is sought has been received.

Withdrawal of the Issue

The Investment Manager, in consultation with the Trustee and the Lead Managers, reserves the right not to proceed with the Issue at any time after the Bid/Issue Opening Date but before Allotment. If the Investment Manager, in consultation with the Lead Managers, withdraw the Issue, they will issue a public notice within two days or such other time as may be prescribed by SEBI in this regard, providing reasons for not proceeding with the Issue. The Lead Managers, through the Registrar, will notify the SCSBs to unblock the ASBA Accounts within one Working Day or such other time as may be prescribed by SEBI, from the day of receipt of such notification. The notice of withdrawal will be made available on the websites of the Stock Exchanges, the InvIT, the Sponsor, the Investment Manager and will also be issued in the same newspapers where the pre-Issue advertisements have appeared.

If the Investment Manager withdraws the Issue after the Bid/Issue Closing Date and thereafter determine that they will proceed with a further public offering of Units, they will file a fresh draft offer document with SEBI or the Stock Exchanges, as the case may be.

Notwithstanding the foregoing, the Issue is also subject to obtaining (i) the final listing and trading approvals of the Stock Exchanges, which the Investment Manager will apply for only after Allotment; and (ii) the final approval of the Final Offer Document after it is filed with SEBI and the Stock Exchanges.

In the event the InvIT does not receive listing permission from the Stock Exchanges or in the event of withdrawal of the observation letter issued by SEBI, the Units shall not be eligible for listing and the InvIT shall be liable to refund the subscription monies, if any, to the respective Bidders immediately, along with interest at the rate of 15% per annum, from the date of Allotment.

Minimum Subscription and Minimum Allotment

In case the InvIT does not receive (i) the minimum subscription of at least 90% of the Issue; or (ii) subscription for at least 10% of the total outstanding Units by public Unitholders, on a post-Issue basis; or (iii) if the number of prospective Allottees (other than the Sponsor, its related parties and Associates) is less than 20, the entire subscription money shall be refunded.

Undertakings of Investment Manager

The Investment Manager hereby undertakes on behalf of the InvIT that at any given time, there shall be only one denomination for the Units and that it shall comply with such disclosure and accounting norms specified by the SEBI from time to time.

PROJECTIONS OF REVENUE FROM OPERATIONS AND CASH FLOWS FROM OPERATING ACTIVITIES

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INDEPENDENT AUDITOR'S REPORT ON THE PROJECTIONS OF REVENUE FROM OPERATIONS AND CASH FLOW FROM OPERATING ACTIVITIES AND UNDERLYING ASSUMPTIONS

The Board of Directors
GR Highways Investment Managers Private Limited
(As an Investment Manager of Bharat Highways InvIT)
2nd Floor, Novus Tower Plot No. 18,
Sector-18, Gurgaon,
Haryana - 122015

Dear Sirs,

1. We have examined the accompanying Statement of Projections of revenue from operations and cash flow from operating activities and the underlying assumptions of Trust Group which consists of Bharat Highways InvIT ("Trust") and Varanasi Sangam Expressway Private Limited ("VSEPL"), Porbandar Dwarka Expressway Private Limited ("PDEPL"), GR Phagwara Expressway Limited ("GRPWL"), GR Gundugolanu Devarapalli Highway Private Limited ("GRGDHPL"), GR Akkalkot Solapur Highway Private Limited ("GRASHPL"), GR Sangli Solapur Highway Private Limited ("GRSSHPL") and GR Dwarka Devariya Highway Private Limited ("GDDHPL") (Individually referred to as "SPV" and together referred to as "SPV Group") and each of VSEPL, PDEPL, GRPWL, GRGDHPL, GRASHPL, GRSSHPL, GDDHPL for the years ending March 31, 2023, March 31, 2024 and March 31, 2025 along with the basis of preparation and other explanatory information and the significant assumptions (hereinafter referred to as "Statement of Projections") in accordance with the Standard on Assurance Engagement 3400, "The Examination of Prospective Financial Information", issued by the Institute of Chartered Accountants of India and the terms of our engagement agreed with you vide our engagement letter dated October 14, 2022 requesting us to carry out work on the projected information, proposed to be included in the Draft Offer Document/Offer Document/Final Offer Document as required under the Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014, as amended from time to time, including the circulars, notifications, clarifications and guidelines issued thereunder ("InvIT Regulations") in connection with the proposed initial public issue of unit of the Trust.

2. The preparation and presentation of Statement of Projections including the underlying assumptions and basis of preparation as set out in Note 2 to the Statement of Projections is the responsibility of the Investment Manager to the Trust and has been approved by the Board of Directors of the Investment Manager to the Trust. The Statement of Projections has been prepared by the Investment Manager using a set of assumptions that include hypothetical assumptions about future events, which are, by their nature are subject to significant risks and uncertainties. Consequently, users are cautioned that these projections may not be appropriate or meaningful for any purpose other than described above.

3. Our responsibility is to examine the evidence supporting the assumptions (excluding hypothetical assumptions) and other information in the Statement of Projections on test basis. Our responsibility does not include verification of the accuracy of the Statement of Projections (including quantitative details). Therefore, we do not vouch for the accuracy of the same. The assumptions and estimates (including technical estimates) used for the preparation of these Statement of Projections have been provided to us by the Investment Manager to the Trust and have been relied upon by us.

4. Based on our examination of the evidence supporting the assumptions, nothing has come to our attention which causes us to believe that these assumptions do not provide a reasonable basis for the Statement of Projections. Further, in our opinion, the Statement of Projections, read together with the basis of preparation and notes therein, is properly prepared on the basis of the assumptions as set out in Note 3 to the Statement of Projections and is on consistent basis with the accounting policies used for preparation of the historical Special Purpose Combined Financial Statements as required by the InvIT Regulations and included in the Draft Offer

Document/Offer Document/Final Offer Document, which are prepared in accordance with Indian Accounting Standards as defined in Rule 2(1)(a) of the Companies (Indian Accounting Standards) Rules, 2015 prescribed under Section 133 of the Companies Act, 2013 read with relevant rules and other accounting principles generally accepted in India and the InvIT Regulations.

5. Events and circumstances frequently do not occur as expected. Even if the events anticipated under the hypothetical assumptions described in the Statement of Projections occur, actual results are still likely to be different from those stated in the Statement of Projections since other anticipated events frequently do not occur as expected and the variation may be material. The actual results may therefore differ materially from those forecasted and projected. For the reasons set out above, we do not express any opinion as to the possibility of achievement of the projections stated in the Statement of Projections.

6. This report is required by InvIT Regulations requiring the independent auditor to issue a report on the Statement of Projections and is issued for the sole purpose of the proposed initial public issue under the InvIT Regulations. Our work has not been carried out in accordance with auditing or other standards and practices generally accepted in jurisdictions outside India, including in the United States of America, and accordingly should not be relied upon as if it had been carried out in accordance with those standards and practices. US securities regulations do not require profit forecasts to be reported on by a third party. This report should not be relied upon by prospective investors in the United States of America, including persons who are Qualified Institutional Buyers as defined under Rule 144A under the United States Securities Act of 1933 participating in the offering. We accept no responsibility and deny any liability to any person who seeks to rely on this report and who may seek to make a claim in connection with any offering of securities on the basis that they had acted in reliance on such information under the protections afforded by United States of America law and regulation.

7. We have no responsibility to update our report for events and circumstances occurring after the date of the report.

8. This report is addressed to and is provided to Investment Manager solely for inclusion in the Draft Offer Document/Offer Documents/Final Offer Document in connection with the proposed initial public offer of the Trust and is not to be used, referred to or distributed for any other purpose. Accordingly, we do not accept or assume any liability or any duty of care for any other purpose or to any other person to whom this report is shown or into whose hands it may come.

For S R B C & CO LLP
Chartered Accountants
Firm registration number: 324982E/E300003

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per Sukrut Mehta
Partner
Membership No.: 101974
UDIN: 22101974BFNHHT5952
Place: Ahmedabad
Date: December 15, 2022

Bharat Highways InvIT
Statement of Projections of Revenue from Operations and Cash Flow from Operating activities
All amounts are in rupees in millions unless otherwise stated

i. Combined projections of Revenue from Operations and Cash flow from operating activities of Trust Group:

Particulars	Revenue from Operations			Cash flow from operating activities*		
	Year ended March 31, 2023	Year ended March 31, 2024	Year ended March 31, 2025	Year ended March 31, 2023	Year ended March 31, 2024	Year ended March 31, 2025
Bharat Highways InvIT- Combined (refer note 4)	14,515.66	6,467.55	6,151.63	4,733.03	9,583.25	9,420.48

ii. Projections of Revenue from Operations and Cash flow from operating activities of individual SPVs and Trust:

Particulars	Revenue from Operations			Cash flow from operating activities*		
	Year ended March 31, 2023	Year ended March 31, 2024	Year ended March 31, 2025	Year ended March 31, 2023	Year ended March 31, 2024	Year ended March 31, 2025
i. Bharat Highways InvIT	-	-	-	(60.92)	(224.84)	(253.58)
ii. Varanasi Sangam Expressway Private Limited	2,699.42	1,632.15	1,546.45	2,167.10	2,497.01	2,466.52
iii. GR Phagwara Expressway Limited	978.12	723.48	672.89	1,203.56	1,216.16	1,193.65
iv. GR Akkalkot Solapur Highway Private Limited	1,011.05	508.24	487.61	406.58	727.66	714.44
v. GR Sangli Solapur Highway Private Limited	1,707.40	640.32	614.35	(13.79)	927.22	912.40
vi. Porbandar Dwarka Expressway Private Limited	1,729.58	901.18	856.66	1,376.82	1,434.46	1,415.67
vii. GR Gundugolanu Devarapalli Highway Private Limited	2,609.49	1,174.26	1,115.61	1,371.53	1,865.41	1,841.82
viii. GR Dwarka Devariya Highway Private Limited	3,780.60	887.92	858.06	(1,717.85)	1,140.17	1,129.58

*Cashflow from operating activities are reported before taxes (refer note 3(v) of Significant assumptions for the Projections).

Figure in bracket represent outflow

The above statement should be read with basis of preparation refer note 2 and significant assumptions for these projections and other explanatory information.

For and on behalf of Board of Directors of
GR Highways Investment Manager Private Limited
(as an Investment Manager to Bharat Highways InvIT)

Ajendra Kumar Agarwal
Director
DIN: 01147897
Place : Gurugram
Date : December 15, 2022

Amit Kumar Singh
CEO

Place : Gurugram
Date : December 15, 2022

Mohnish Dutta
Company Secretary
ICSI Mem. No. FCS10411
Place : Gurugram
Date : December 15, 2022

1. General information

G R Infraprojects Limited (“Settlor” or “GRIL”) has set up Bharat Highways InvIT (“Trust”) as an irrevocable trust under the Indian Trust Act 1882 pursuant to the Trust deed dated 16 June 2022. The Trust has been settled with an initial sum of ₹ 10,000. The Trust is registered as an Infrastructure Trust (‘InvIT’) with Securities Exchange Board of India (‘SEBI’) under the Securities Exchange Board of India (Infrastructure Investment Trust) Regulations, 2014, as amended (InvIT Regulation) vide Certificate of Registration (IN/InvIT/22-23/0023) dated 3 August 2022 with registration number IN/InvIT/22-23/0023. The registered office of the Trust is located at Novus Tower, Second Floor, Plot No. 18, Sector 18, Gurugram, Haryana-122015, India. The Trustee to the Trust is IDBI Trusteeship Services Limited (the “Trustee”) and Investment manager for the Trust is GR Highways Investment Manager Private Limited (the "Investment Manager”).

The object and purpose of the Trust, as described in the Trust Deed, is to carry out the activity of an infrastructure investment trust as permissible under the InvIT Regulations to raise funds through the Trust, to make investments in accordance with the InvIT Regulations and the investment strategy and to carry out the activities as may be required for operating the Trust, including incidental and ancillary matters thereto.

With effect from 8 December 2022, GRIL has discontinued to act as Sponsors of the Trust and Lokesh Builders Private Limited (the “Sponsor” or “LBPL”) became Sponsor of the Trust as per amended and restated trust deed dated 8 December 2022 executed by LBPL, GRIL (as the settlor) and the Trustee and the same has been intimated to SEBI by the Investment manager vide letter dated 1 December 2022. Lokesh Builders Private Limited is a private company registered under Companies Act 1956 and having register office located 80, Shahi Complex, Hiran Magri, Sector no. 11, Udaipur, Rajasthan. LBPL is also designated project manager of the Trust.

GRIL and LBPL entity forming part of the GR Group. GRIL is the flagship entity of GR Group and associate enterprise of LBPL. GRIL is engaged in integrated engineering, procurement and construction of various infrastructure projects. Currently, GRIL owns 100% shareholding in Varanasi Sangam Expressway Private Limited (“VSEPL”), Porbandar Dwarka Expressway Private Limited (“PDEPL”), GR Phagwara Expressway Limited (“GRPWL”), GR Gundugolanu Devarapalli Highway Private Limited (“GRGDHPL”), GR Akkalkot Solapur Highway Private Limited (“GRASHPL”), GR Sangli Solapur Highway Private Limited (“GRSSHPL”) and GR Dwarka Devariya Highway Private Limited (“GDDHPL”) (Individually referred to as “SPV” and together referred to as "SPV Group"). GRIL proposes to transfer 100% of its shareholding in SPV Group to the Trust except in GDDHPL where Trust will initially acquire 49% stake and the remaining 51% will be acquired upon completion of six months from the date of Commercial Operation Date (COD) and after taking approval from NHAI as per requirement of concession agreement and NHAI circular no NH-24028/14/2014-H(Vol.II) dated November 27,2020. These SPVs have entered into concession agreement with National Highways Authorities of India (NHAI) to design, build, finance, operates and transfer (DBFOT) or build, operates and transfer (BOT) national highways at various location on hybrid annuity model (HAM) basis whereby the concessionaire has an unconditional right to receive fixed annuity after completion of construction during the operations period.

SPV group along with Trust are collectively referred as “Trust Group”.

2. Basis of preparation of projections of revenue from operations and cash flow from operating activities

The projection of revenue from operations and cash flows from operating activities of Trust Group, Trust and SPV Group (“Projections”) for the years ended March 31, 2023, March 31, 2024 and March 31, 2025 (“Projected period”) along with the basis of preparation, other explanatory information and the significant assumptions (the “Statement of Projections”) have been compiled by Investment Manager to the Trust and has been approved by the Board of Directors of the Investment Manager to the Trust solely for inclusion in the draft offer document/ offer document/ final offer document in connection with the proposed initial public issue of units of the Trust in accordance with requirement of SEBI (Infrastructure Investment Trusts) Regulation, 2014, as amended and SEBI Circular dated October 20, 2016. Therefore, the use of these Statement of Projections is not appropriate and should not be used or relied upon for any purpose other than as described above.

The Statement of Projections have been prepared based on the accounting policies for recognition and measurement used for preparation of the historical Special Purpose Combined Financial Statements of the SPV Group in accordance with Indian Accounting Standards as defined in Rule 2(1)(a) of the Companies (Indian Accounting Standards) Rules, 2015 prescribed under Section 133 of the Companies Act, 2013 ("Ind AS") except for Ind AS 33: Earning per share read with SEBI (Infrastructure Investment Trusts) Regulations, 2014 as amended from time to time including circulars notifications, clarifications and guidelines issued thereunder ("InvIT Regulations") and the circulars issued thereunder ("InvIT

Regulations") and the Guidance Note on Combined and Carve-Out Financial Statements issued by the Institute of Chartered Accountants of India ("Guidance Note").

Though the aforesaid Projections are prepared under the Ind AS framework, they do not provide for all the detailed disclosures as required under Ind AS.

Projected operating cash flows of the Trust Group, Trust and SPV Group have been calculated using the direct method under Ind AS 7 - Statement of Cash Flows and is computed by deducting the projected operating expenses from the projected revenue from operations and adjusted for projected working capital changes and non-cash expenses (if any). Projected cash flow from operations do not include any items pertaining to financing or investing nature. Cash flow from operating activities are reported before taxes.

The Statement of Projections are presented in INR which is also the functional currency of the Trust Group. All values are rounded to the nearest Million rupees, unless otherwise indicated.

The Statement of Projections have been prepared based on the assumption that once the proposed initial public issue of units of the Trust is complete, the Trust will acquire equity interests in the SPV group. Thus, the net proceeds of the issue will be used as to provide loans to the SPV Group for repayment/ pre-payment of outstanding loans from banks (including any accrued interest and prepayment penalty, if applicable) availed by SPV Group and for issue related expenses and general corporate purpose expenses to be incurred by Sponsor/Investment Manager/GRIL.

The Trust Group follows March 31 as its accounting year end. Accordingly, the Projections are prepared for the financial years ending March 31, 2023, March 31, 2024 and March 31, 2025. However, the assumed date of acquisition may be postponed and accordingly, the actual result in the first financial period post completion of listing process may be different from the Projections Period in the Statement of Projections. Further, the Statement of Projections has been prepared on assumption that 100% stake in all SPV entities is held by Trust from period beginning from April 1, 2022 regardless of above including stake in GDDHPL where Trust will initially acquire 49% stake and the remaining 51% will be acquired upon completion of six months from the date of Commercial Operation Date (COD) and after taking approval from NHAI as per requirement of concession agreement and NHAI circular no NH-24028/14/2014-H (Vol.II) dated November 27, 2020.

It is clarified that the Statement of Projections have been prepared on the basis of best-estimate (i.e. assumptions as to future events which are expected to take place and the actions expected to take place as of the date the information is prepared) and hypothetical assumptions (about future events and actions which may or may not necessarily take place), which are, by their nature, subject to significant risks and uncertainties. Events and circumstances may not occur as expected. Even if the events anticipated under the hypothetical assumptions described in the Statement of Projections occur, actual results are still likely to be different from those stated in the Statement of Projections since other anticipated events frequently do not occur as expected and the variation may be material. The actual results may therefore differ materially from those forecasted and projected.

3. Significant assumptions for the projections:

The Projections have been prepared based on the significant assumptions summarized below. These are Investment Manager's best estimate assumptions and have been prepared by the Investment Manager solely for inclusion in the draft offer document/ offer document/ final offer document in connection with the proposed initial public issue of units of the Trust in accordance with the requirements of the InvIT Regulations. The Investment Manager considers the assumptions to be appropriate and reasonable as at the date of the report. However, the investors should consider these assumptions as well as the Projections and make their own assessment of the future performance of Trust.

i. Revenue from operations

SPV Group

Revenue from operations of the SPV Group primarily consist of Construction Income, Operation and maintenances income and finance income on financial assets recognised in accordance with Ind AS 109.

Construction Income

All the SPVs have received Provision Completion Certificate (PCOD) from National Highway Authorities of India. Further, final Completion Certificate (COD) is received for GPEL and PDEPL. As per concession agreement and PCOD issued to each SPV, the balance construction work has to be completed post PCOD once the work front is provided by the authority.

Accordingly, the investment manager had estimated that the balance work will be completed in financial year 2022-23 as per their estimate of the required time limit and hence, construction income of Rs 4,324.62 million has been considered in financial year 2022-23 towards completion of balance work. The above amount is as per EPC agreement entered between the SPVs and GRIL.

Operation and maintenances Income

Operation and maintenances income estimated after taking into considering operation and maintenances cost, other cost, share service charges expected to be increased and charged by GRIL to the SPVs. The estimated amount is Rs 565.54 million, Rs 640.35 million and Rs 667.81 million for the year ended March 31, 2023, March 31, 2024 and March 31, 2025 respectively.

Finance Income on financial assets

SPV group constructs or upgrades infrastructure (construction) used to provide to public service and operates and maintains that infrastructure (operation service) for a specified period of time as per the concession agreement. Such arrangement consists of Design-Build-Operate-Transfer (DBOT) contracts on hybrid annuity Model (HAM) basis whereby the concessionaire provides unconditional right to receive fixed annuity after the construction period including interest thereon.

Considering above, SPV group recognised financial asset to the extent that it has an unconditional contractual right to receive fixed annuity including interest thereon as per the requirement of Appendix C to Ind AS 115 – Service Concession Arrangements whereby Finance Income to be recognised on the financial assets is based on effective interest rate. To determine effective interest rate, contractual inflow and outflow for entire concession period are estimated. Accordingly, the Investment manager has estimated contractual inflow after considering the inflow from milestone, annuity, interest on annuity, Operation & Maintenance, GST claim etc as specified in concession agreement and other communications by NHAI in relation to the HAM assets. Further, Outflow is estimated after considering the outflow on account of Construction cost as per EPC agreement with GRIL, Operation & maintenance cost taken from Technical Due Diligence Report carried by Independent Technical Consultation, Share service charges as per agreement with GRIL and labour cess @ 1% of O&M inflow.

Basis of above, the investment manager has estimated finance income of Rs 9,625.50 million, Rs 5,827.20 million and Rs 5,483.82 million for year ended March 31, 2023, March 31, 2024 and March 31, 2025 respectively considering effective interest rate in the range of 10.61% to 15.34% p.a. for projects of individual SPVs.

Revenue projections do not include any other income (operating or otherwise) or income from interest / dividend from short term investments as these sources of revenue have not been material historically and not likely to be material in projected future as part of operating revenue.

Trust

The Trust being only a holding entity of the SPV group, revenue from operations for Trust have been assumed to be Nil over the Projection period.

ii. Construction Cost

All the SPVs have received Provision Completion Certificate (PCOD) from National Highway Authorities of India. Further, final Completion Certificate (COD) is received for GPEL and PDEPL. As per provision of concession agreement, the remaining work has to be completed post PCOD as and when encumbrance free land is provided by the authorities and as per specific time limit given by authorities. Accordingly, the investment manager has estimated that the remaining work will be completed in financial year 2022-23 as per required time limit. SPV has entered fixed price EPC cost with GRIL and accordingly, construction cost of Rs 4,324.62 million as per EPC agreement considered in financial year 2022-23 toward completion of balance work. The above amount is as per EPC agreement entered between the SPVs and GRIL.

iii. Operation and Maintenance Cost:

SPV Group

Operation and maintenance expenses and major repair cost

The operation and maintenance cost includes routine maintenance costs, insurance costs, electricity charges, manpower costs, independent engineer's cost, project management fees and administrative charges, including, but not limited to, road and site work expenses, employee benefit expenses and other operating and maintenance costs. These costs are projected

based on the Investment Manager's estimates of costs assumptions considering the inputs and other factors from the reports provided by the Independent Technical Consultant (the "Technical Due Diligence Report") for the respective SPVs.

Shared Services Agreement Charges:

The Trust is paid Shared Services Charges of amounting to 0.25% of the aggregate cash flow of the Trust group on an annual (pro-rata) basis in accordance with the Shared Services Agreement ("SSA"). The investment manager has considered amount of Rs 5.86 million only for one quarter as Trust plans to acquired SPV towards end of financial year ending March 31, 2023 and Rs. 23.04 million and Rs 22.80 million considered for, FY23-24 and FY 2024-25 respectively.

Labour cess expenses considered @ 1% of O&M amount receivable from authorities.

The O&M cost including shared service agreement charges and labour cess is estimated to be Rs 571.40 million, Rs 663.39 million and Rs 690.61 million for the year ended March 31, 2023, March 31, 2024 and March 31, 2025 respectively.

For Trust

Investment Manager fees
The Investment Manager is paid an Investment Manager fee of an amount equivalent to 1.50 % of the aggregate cash flow of the Trust group on an annual (pro-rata) basis in accordance with the Investment Manager Agreement. This amount is Rs. 56.11 million for one quarter of FY 22-23 considering listing of Trust will be done towards end of the financial year 2023. The amount is escalated on a year on year by 10%, as per the Investment Management Agreement between IDBI Trusteeship Services Limited (Trustee) and GR Highways Investment Manager Private Limited (Investment Manager).

Other Trust Expenses:
Trust is required to incur other expenses including Trustee fees of Rs. 0.15 million, Annual listing fees of Rs. 0.75 million and other operating expenses of Rs. 3.90 million including Annual General Meeting cost, Audit Expenses, Valuation Expenses, Unitholders meeting cost, SEBI compliance cost, Depository Charges, Rating fee for the one quarter of FY23. These amounts are escalated at rate of 5% per annum.

iv. Changes in working capital

SPV Group

We confirm that the changes in working capital are the difference in the net working capital amount from one accounting period to the next. Net working capital is defined as Receivable under service concession, Contract assets, other financial and non-financial assets minus Trade payable, other financial and non-financial liabilities.

For Trust

Changes in working Capital for the Trust has been considered as Nil during the project period.

v. Direct Taxes (net of refunds)

The actual outflow on account of direct taxation would be dependent on various factors and hence, the cash flow from operating activities have been reported before taxes.

vi. Indirect Taxes:

GST on annuities, Interest on annuities, O&M payments etc have been considered at 12% upto June-22 and 18% w.e.f July-22.

vii. Other Assumptions:

The Investment Manager has made following additional assumptions in preparing the Statement of Projections:

a. The initial portfolio of SPV group is assumed to remain unchanged throughout the Projection period. No further assets (apart from SPV group) are assumed to be acquired or no assets are assumed to be divested during the projections period.
b. It has been assumed that no outflows on account of any litigation related matters including current pending litigations /contingent liabilities is expected to become due during the Projection Period.

c. It has been assumed that no liability or liquidated damages on account of default in concession agreement shall devolve upon the Trust/SPV group during the Projections Period.
d. We confirm that, it has been assumed for the purpose of Projections that there will be no material change in taxation legislation or other applicable legislation during Projection Period.
e. No change in fair value of all financial instruments has been assumed during the Projection Period.
f. We confirm that, the relevant tax exemptions and tax provision, remain valid and applicable and that the terms and conditions thereto are complied with.
g. We confirm that the Projections have been prepared using Ind AS standards and interpretations that are effective for the Ind AS financial statements for the three-months period ended June 30, 2022. The Statement of Projections do not take into account the impact of any new Ind AS standards or interpretation not effective as on June 30, 2022. Ind AS standards or interpretations issued but not effective or not issued as on June 30, 2022 which may become effective during the Projections period may have an impact on the Projections and to that extent the actual figures may vary from the Projections.
h. The data considered based on independent technical due diligence report may differ from that considered therein.
i. The Projections are based on assumptions and are subject to a number of factors. Investors should be aware that future events, which cannot be predicted with any certainty and there may be deviations from the figures projected in the Projections.

4. The Combined Cash flow from operating activities of the Bharat Highways InvIT – Combined is derived by considering the following:

Particulars	**Year ended March 31, 2023**	**Year ended March 31, 2024**	**Year ended March 31, 2025**
Construction and Operation & Maintenance Income	4,890.16	640.35	667.81
Finance Income on financial assets	9,625.50	5,827.20	5,483.82
Total revenue from operation	**14,515.66**	**6,467.55**	**6,151.63**
Working capital adjustment excluding change in financial assets	(339.15)	1,254.56	1,245.29
Change in financial assets	(4,486.55)	2,749.38	2,967.75
Balance construction cost and operating and maintenance cost	(4,890.16)	(640.35)	(667.81)
Management expenses	(61.97)	(227.74)	(255.26)
Other expenses	(4.80)	(20.15)	(21.12)
Cash generated from operations	**4,733.03**	**9,583.25**	**9,420.48**

For and on behalf of Board of Directors of
GR Highways Investment Manager Private Limited
(as an Investment Manager to Bharat Highways InvIT)

Ajendra Kumar Agarwal
Director
DIN: 01147897
Place : Gurugram
Date : December 15, 2022

Amit Kumar Singh
CEO

Place : Gurugram
Date : December 15, 2022

Mohnish Dutta
Company Secretary
ICSI Mem. No. FCS10411
Place : Gurugram
Date : December 15, 2022

MATERIAL CONTRACTS AND DOCUMENTS FOR INSPECTION

The following contracts, which are or may be deemed material have been entered or are to be entered into in due course. These contracts and also the documents for inspection referred to hereunder, may be inspected at the principal place of business of the InvIT, from 10:00 A.M. to 5:00 P.M., on all Working Days from the date of the Offer Document until the date of listing of the Units pursuant to this Issue. Subject to compliance with applicable law, any of the contracts or documents mentioned in this Draft Offer Document may be amended or modified at any time if so required in the interest of the InvIT or if required by the other parties, without reference to the Unitholders.

1. Original Trust Deed entered into between GRIL (as the Settlor) and the Trustee dated June 16, 2022.

2. Amended and Restated Trust Deed entered into between the Sponsor, GRIL (as the Settlor) and the Trustee dated December 8, 2022.

3. SEBI registration certificate for the InvIT bearing registration number IN/InvIT/22-23/0023 dated August 3, 2022 as an infrastructure investment trust.

4. Investment management agreement dated July 21, 2022, entered into between the Trustee (on behalf of the InvIT) and Investment Manager.

5. Project management agreement dated [•], entered into between the Trustee (on behalf of the InvIT), the Investment Manager, Project Manager and the Project SPVs.

6. Issue agreement dated December 21, 2022 entered into among the Trustee (on behalf of the InvIT), the Investment Manager, the Sponsor, and the Lead Managers.

7. Escrow agreement dated [•] entered into among the Trustee (on behalf of the InvIT), the Investment Manager, the Escrow Collection Banks, the Refund Banks, the Registrar to the Issue and the Lead Managers.

8. Syndicate Agreement dated [•] entered into among the Lead Managers, the Syndicate Members, the Trustee (on behalf of the InvIT), the Investment Manager, and the Registrar to the Issue.

9. Underwriting agreement dated [•], entered into among the Underwriters, the Trustee (on behalf of the InvIT), the Investment Manager, the Trustee and the Sponsor.

10. Registrar Agreement dated December 21, 2022, entered into among the Registrar to the Issue, the Trustee (on behalf of the InvIT), the Investment Manager and the Sponsor.

11. Agreement dated October 7, 2022 , between NSDL, the InvIT (acting through the Investment Manager) and the Registrar to the Issue.

12. Agreement dated November 3, 2022, between CDSL, the InvIT (acting through the Investment Manager) and the Registrar to the Issue.

13. Share Purchase Agreement dated [•] entered into between the Trustee (on behalf of the InvIT), Investment Manager, GRIL and GDHPL.

14. Share Purchase Agreement dated [•] entered into between the Trustee (on behalf of the InvIT), Investment Manager, GRIL and GPEL.

15. Share Purchase Agreement dated [•] entered into between the Trustee (on behalf of the InvIT), Investment Manager, GRIL and PDEPL.

16. Share Purchase Agreement dated [•] entered into between the Trustee (on behalf of the InvIT), Investment Manager, GRIL and GASHPL.

17. Share Purchase Agreement dated [•] entered into between the Trustee (on behalf of the InvIT), Investment Manager, GRIL and VSEPL.

18. Share Purchase Agreement dated [•] entered into between the Trustee (on behalf of the InvIT), Investment Manager, GRIL and GSSHPL.

19. Assignment Agreement dated [•] entered into between the Trustee (on behalf of the InvIT), Investment Manager, GRIL and GDDHPL.

20. Assignment Agreement dated [•] entered into between the Trustee (on behalf of the InvIT), Investment Manager, GRIL and GDHPL.

21. Assignment Agreement dated [•] entered into between the Trustee (on behalf of the InvIT), Investment Manager, GRIL and GPEL.

22. Assignment Agreement dated [•] entered into between the Trustee (on behalf of the InvIT), Investment Manager, GRIL and PDEPL.

23. Assignment Agreement dated [•] entered into between the Trustee (on behalf of the InvIT), Investment Manager, GRIL and GASHPL.

24. Assignment Agreement dated [•] entered into between the Trustee (on behalf of the InvIT), Investment Manager, GRIL and VSEPL.

25. Assignment Agreement dated [•] entered into between the Trustee (on behalf of the InvIT), Investment Manager, GRIL and GSSHPL.

26. Assignment Agreement dated [•] entered into between the Trustee (on behalf of the InvIT), Investment Manager, GRIL and GDDHPL.

27. Commitment letter dated December 21, 2022 between the Investment Manager (on behalf of the InvIT) and the Sponsor.

28. Right of first offer agreement dated [•] between GRIL, the Trustee (on behalf of the InvIT) and the Investment Manager.

29. Concession Agreement dated April 26, 2018 entered into between GDHPL and NHAI.

30. Concession Agreement dated October 5, 2016 entered into between GPEL and NHAI.

31. Concession Agreement dated August, 2017 entered into between PDEPL and NHAI.

32. Concession Agreement dated June 20, 2018 entered into between GASHPL and NHAI.

33. Concession Agreement dated May 15, 2017 entered into between VSEPL and NHAI.

34. Concession Agreement dated June 20, 2018 entered into between GSSHPL and NHAI.

35. Concession Agreement dated May 22, 2019 entered into between GDDHPL and NHAI.

36. Shared Services Agreement dated [•] between GRIL, GDHPL and the Investment Manager.

37. Shared Services Agreement dated [•] between GRIL, GPEL and the Investment Manager.

38. Shared Services Agreement dated [•] between GRIL, PDEPL and the Investment Manager.

39. Shared Services Agreement dated [•] between GRIL, GASHPL and the Investment Manager.

40. Shared Services Agreement dated [•] between GRIL, VSEPL and the Investment Manager.

41. Shared Services Agreement dated [•] between GRIL, GSSHPL and the Investment Manager.

42. Shared Services Agreement dated [•] between GRIL, GDDHPL and the Investment Manager.

43. On-lending Agreement(s) [•] dated to be entered into among the InvIT (acting through the Investment Manager), the Trustee and each of the Project SPVs

44. Certified copies of the memorandum and articles of association of the Investment Manager, as amended from time to time.

45. Loan agreement dated April 18, 2018 entered into between GRIL and GSSHPL;

46. Loan agreement dated December 18, 2018 entered into between GRIL and GASHPL;

47. Loan agreement dated April 8, 2017 entered into between GRIL and VSEPL;

48. Loan agreement dated May 29, 2017 entered into between GRIL and PDEPL;

49. Loan agreement dated August 23, 2016 entered into between GRIL and GPEL;

50. Loan agreement dated March 17, 2018 entered into between GRIL and GDHPL;

51. Loan agreement dated March 18, 2019 entered into between GRIL and GSSHPL;

52. Board resolutions of the Investment Manager dated September 16, 2022, authorising this Issue.

53. Consents from the (i) Lead Managers; (ii) Legal counsel to the InvIT and to the Sponsor as to Indian law; (iii) Legal counsel as to the Lead Managers as to Indian law; (iv) Legal counsel as to U.S. Federal Securities Law; (v) Valuer; (vi) Registrar to the Issue; (vii) Escrow Collection Banks; (viii) Refund Banks; and (ix) the Compliance Officer, as referred to in their respective capacities.

54. Special Purpose Combined Financial Statements and the report dated December 15, 2022 thereon.

55. Projections of Revenue from Operations and Cash Flow from Operating Activities and the report dated December 15, 2022 thereon.

56. The report on statement of tax benefits dated December 15, 2022 from the Auditors.

57. Due diligence certificate dated December 21, 2022 addressed to SEBI from the Lead Managers.

58. In principle listing approvals dated [•] and [•] issued by BSE and NSE, respectively.

59. SEBI observation letter bearing number [•] dated [•].

DECLARATION

The Investment Manager hereby declares and certifies that all relevant provisions of the SEBI InvIT Regulations, regulations and guidelines issued by the GoI or SEBI (as the case may be) have been complied with and no statement made in this Draft Offer Document is contrary to the provisions of the SEBI InvIT Regulations, the SCRA, the SEBI Guidelines, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Investment Manager further certifies that all the statements and disclosures in this Draft Offer Document are material, true, correct, not misleading and are adequate in order to enable the investors to make an informed decision.

SIGNED BY THE DIRECTOR OF THE INVESTMENT MANAGER

Ajendra Kumar Agarwal

Chairman and Non-executive Director

Date: December 21, 2022
Place: Gurugram

DECLARATION

The Investment Manager hereby declares and certifies that all relevant provisions of the SEBI InvIT Regulations, regulations and guidelines issued by the GoI or SEBI (as the case may be) have been complied with and no statement made in this Draft Offer Document is contrary to the provisions of the SEBI InvIT Regulations, the SCRA, the SEBI Guidelines, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Investment Manager further certifies that all the statements and disclosures in this Draft Offer Document are material, true, correct, not misleading and are adequate in order to enable the investors to make an informed decision.

SIGNED BY THE DIRECTOR OF THE INVESTMENT MANAGER

Siba Narayan Nayak

Non-executive director

Date: December 21, 2022
Place: Gurugram

DECLARATION

The Investment Manager hereby declares and certifies that all relevant provisions of the SEBI InvIT Regulations, regulations and guidelines issued by the GoI or SEBI (as the case may be) have been complied with and no statement made in this Draft Offer Document is contrary to the provisions of the SEBI InvIT Regulations, the SCRA, the SEBI Guidelines, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Investment Manager further certifies that all the statements and disclosures in this Draft Offer Document are material, true, correct, not misleading and are adequate in order to enable the investors to make an informed decision.

SIGNED BY THE DIRECTOR OF THE INVESTMENT MANAGER

Raghav Chandra

Additional Independent Director

Date: December 21, 2022
Place: Indore

DECLARATION

The Investment Manager hereby declares and certifies that all relevant provisions of the SEBI InvIT Regulations, regulations and guidelines issued by the GoI or SEBI (as the case may be) have been complied with and no statement made in this Draft Offer Document is contrary to the provisions of the SEBI InvIT Regulations, the SCRA, the SEBI Guidelines, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Investment Manager further certifies that all the statements and disclosures in this Draft Offer Document are material, true, correct, not misleading and are adequate in order to enable the investors to make an informed decision.

SIGNED BY THE DIRECTOR OF THE INVESTMENT MANAGER

Deepak Maheshwari

Additional Independent Director

Date: December 21, 2022
Place: Mumbai

DECLARATION

The Sponsor hereby declares and certifies that all relevant provisions of the SEBI InvIT Regulations, regulations and guidelines issued by the GoI or SEBI (as the case may be) have been complied with and no statement made in this Draft Offer Document is contrary to the provisions of the SEBI InvIT Regulations, the SCRA, the SEBI Guidelines, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Sponsor further certifies that all the statements and disclosures in this Draft Offer Document are material, true, correct, not misleading and are adequate in order to enable the investors to make an informed decision.

SIGNED BY THE DIRECTOR OF LOKESH BUILDERS PRIVATE LIMITED

Purushottam Agarwal

Non-executive director

Date: December 21, 2022
Place: Gurugram

DECLARATION

The Sponsor hereby declares and certifies that all relevant provisions of the SEBI InvIT Regulations, regulations and guidelines issued by the GoI or SEBI (as the case may be) have been complied with and no statement made in this Draft Offer Document is contrary to the provisions of the SEBI InvIT Regulations, the SCRA, the SEBI Guidelines, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Sponsor further certifies that all the statements and disclosures in this Draft Offer Document are material, true, correct, not misleading and are adequate in order to enable the investors to make an informed decision.

SIGNED BY THE DIRECTOR OF LOKESH BUILDERS PRIVATE LIMITED

Lokesh Agarwal

Non-executive director

Date: December 21, 2022
Place: Gurugram

DECLARATION

The Sponsor hereby declares and certifies that all relevant provisions of the SEBI InvIT Regulations, regulations and guidelines issued by the GoI or SEBI (as the case may be) have been complied with and no statement made in this Draft Offer Document is contrary to the provisions of the SEBI InvIT Regulations, the SCRA, the SEBI Guidelines, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Sponsor further certifies that all the statements and disclosures in this Draft Offer Document are material, true, correct, not misleading and are adequate in order to enable the investors to make an informed decision.

SIGNED BY THE DIRECTOR OF LOKESH BUILDERS PRIVATE LIMITED

Sachin Kumar Agarwal

Non-executive director

Date: December 21, 2022
Place: Gurugram

ANNEXURE I - VALUATION REPORT

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Prepared for:
Bharat Highways InvIT ("the Trust")

GR Highways Investment Manager Private Limited
("the Investment Manager")

Valuation as per SEBI (Infrastructure Investment Trusts) Regulations, 2014 as amended

Fair Enterprise Valuation

Valuation Date: 30th June 2022

Mr. S Sundararaman,
Registered Valuer,
IBBI Registration No - IBBI/RV/06/2018/10238

S. SUNDARARAMAN
Registered Valuer
Registration No - IBBI/RV/06/2018/10238

RV/SSR/R/2023/13 13th December 2022

Bharat Highways InvIT
(acting through IDBI Trusteeship Services Limited [in its capacity as "the Trustee" of the Trust])
2nd Floor, Novus Tower, Plot No. 18,
Sub. Major Laxmi Chand Road, Sector-18,
Gurugram, Haryana – 122 015.

GR Highways Investment Manager Private Limited
(acting as the Investment Manager to Bharat Highways InvIT)
2nd Floor, Novus Tower, Plot No. 18,
Sub. Major Laxmi Chand Road, Sector-18,
Gurugram, Haryana – 122 015.

Sub: Financial Valuation as per SEBI (Infrastructure Investment Trusts) Regulations, 2014, as amended ("the SEBI InvIT Regulations")

Dear Sir(s)/ Madam(s),

I, Mr. S. Sundararaman ("**Registered Valuer**" or "**RV**" or "**I**" or "**My**" or "**Me**") bearing IBBI registration number IBBI/RV/06/2018/10238, have been appointed vide letter dated 19th September 2022 as an independent valuer, as defined as per Regulation 2(zzf) of the SEBI InvIT Regulations, by **GR Highways Investment Manager Private Limited** ("**GHIMPL**" or "**the Investment Manager"**) acting as the investment manager for **Bharat Highways InvIT** ("**the Trust**" or "**Bharat InvIT**"), an infrastructure investment trust, registered with the **Securities Exchange Board of India** (**"SEBI"**) with effect from 3rd August 2022, bearing registration number IN/InvIT/22-23/0023 and **IDBI Trusteeship Services Limited** ("**the Trustee**") acting on behalf of the for the purpose of the financial valuation of the special purpose vehicles (defined below and hereinafter together referred as "**the SPVs"**) of **G R Infraprojects Limited** ("**the Transferor**" or "**GR Infra**") as per the requirements of the Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014, as amended ("**SEBI InvIT Regulations**"). The SPVs to be valued are proposed to be transferred to the Trust set up under the SEBI InvIT Regulations, where GHIMPL is acting as the Investment Manager and **Lokesh Builders Private Limited** ("**the Sponsor**" or "**LBPL")** is the Sponsor as per the extant provisions of the SEBI InvIT Regulations.

I am enclosing the Report providing opinion on the fair enterprise value of the SPVs as defined hereinafter on a going concern basis as at 30th June 2022 ("**Valuation Date**").

Enterprise Value ("**EV**") is described as the total value of the equity in a business plus the value of its debt and debt related liabilities, minus any cash or cash equivalents to meet those liabilities. The attached Report details the valuation methodologies used, calculations performed and the conclusion reached with respect to this valuation.

I was further requested by the Investment Manager to provide the adjusted enterprise value of the SPVs as at 30th June 2022, where the adjusted enterprise value ("**Adjusted EV**") is derived as EV as defined above plus cash or cash equivalents of the SPVs as at 30th June 2022.

I have relied on explanations and information provided by the Investment Manager. Although, I have reviewed such data for consistency, those are not independently investigated or otherwise verified. My team and I have no present or planned future interest in the Trust, the SPVs or the Investment Manager except to the extent of this appointment as an independent valuer and the fee for this Valuation Report ("**Report**") which is not contingent upon the values reported herein. The valuation analysis should not be construed as investment advice, specifically, I do not express any opinion on the suitability or otherwise of entering into any financial or other transaction with the Trust.

The SPVs are expected to be acquired by the Trust and are to be valued as per Regulation 21 read with Chapter V of the SEBI InvIT Regulations.

This Report has been prepared solely for the purpose of inclusion as part of the Draft Offer Document, Offer Document and the Final Offer Document and such other documents as may be required in accordance with the independent valuation required as per the SEBI InvIT Regulations.

Following Special Purpose Vehicles are proposed to be transferred to the Trust:

Sr. No.	Name of the SPV	Term
1	GR Phagwara Expressway Limited	GPEL
2	Porbandar Dwarka Expressway Private Limited	PDEPL
3	GR Gundugolanu Devarapalli Highway Private Limited	GDHPL
4	GR Akkalkot Solapur Highway Private Limited	GASHPL
5	Varanasi Sangam Expressway Private Limited	VSEPL
6	GR Sangli Solapur Highway Private Limited	GSSHPL
7	GR Dwarka Devariya Highway Private Limited	GDDHPL

(Hereinafter all the seven companies mentioned above are together referred to as "**the SPVs"**)

The analysis must be considered as a whole. Selecting portions of any analysis or the factors that are considered in this Report, without considering all factors and analysis together could create a misleading view of the process underlying the valuation conclusions. The preparation of a valuation is a complex process and is not necessarily susceptible to partial analysis or summary description. Any attempt to do so could lead to undue emphasis on any particular factor or analysis.

The information provided to me by the Investment Manager in relation to the SPVs included but not limited to historical financial statements, forecasts/projections, other statements and assumptions about future matters like forward-looking financial information prepared by the Investment Manager. The forecasts and projections as supplied to me are based upon assumptions about events and circumstances which are yet to occur.

I have not tested individual assumptions or attempted to substantiate the veracity or integrity of such assumptions in relation to the forward-looking financial information, however, I have made sufficient enquiry to satisfy myself that such information has been prepared on a reasonable basis.

Notwithstanding anything above, I cannot provide any assurance that the forward looking financial information will be representative of the results which will actually be achieved during the cash flow forecast period.

The valuation provided by RV and the valuation conclusion are included herein and the Report complies with the SEBI InvIT Regulations and guidelines, circular or notification issued by the Securities and Exchange Board of India ("**SEBI**") thereunder.

Please note that all comments in the Report must be read in conjunction with the caveats to the Report, which are contained in Section 11 of this Report. This letter, the Report and the summary of valuation included herein can be provided to Trust's advisors and may be made available for the inspection to the public and with the SEBI, the stock exchanges and any other regulatory and supervisory authority, as may be required.
RV draws your attention to the limitation of liability clauses in Section 11 of this Report.

This letter should be read in conjunction with the attached Report.

Yours faithfully,

SWAMINATHAN SUNDARARAMAN
Digitally signed by SWAMINATHAN SUNDARARAMAN
Date: 2022.12.13 16:34:54 +05'30'

S. Sundararaman
Registered Valuer
IBBI Registration No.: IBBI/RV/06/2018/10238
Asset Class: Securities or Financial Assets
Place: Chennai
UDIN: 22028423BFHZQY9742

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Definition, abbreviation & glossary of terms

Abbreviations	Meaning
BOT	Build, Operate and Transfer
Capex	Capital Expenditure
CCM	Comparable Companies Multiples
COD	Commercial Operation Date
CTM	Comparable Transactions Multiples
DBFOT	Design, Build, Finance, Operate and Transfer
DCF	Discounted Cash Flow
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
EV	Enterprise Value
FCFF	Free Cash Flow to the Firm
FDI	Foreign Direct Investment
FY	Financial Year Ended 31st March
GASHPL	GR Akkalkot Solapur Highway Private Limited
GDDHPL	GR Dwarka Devariya Highway Private Limited
GGDHPL	GR Gundugolanu Devarapalli Highway Private Limited
GPEL	GR Phagwara Expressway Limited
GR Infra/ Transferor	GR Infraprojects Limited
GSSHPL	GR Sangli Solapur Highway Private Limited
HAM	Hybrid Annuity Model
Ind AS	Indian Accounting Standards
INR	Indian Rupee
Investment Manager/ GHIMPL	GR Highways Investment Manager Private Limited
IVS	ICAI Valuation Standards 2018
Kms	Kilometres
MMR	Major Maintenance and Repairs
Mn	Million
MoRTH	Ministry of Road Transport and Highways
NAV	Net Asset Value Method
NCA	Net Current Assets Excluding Cash and Bank Balances
NH	National Highway
NHAI	National Highways Authority of India
NHDP	National Highways Development Project
NS-EW	North- South and East-West Corridors
O&M	Operation & Maintenance
PDEPL	Porbandar Dwarka Expressway Private Limited
PPP	Public Private Partnership
RFID	Radio Frequency Identification
RV	Registered Valuer
SEBI	Securities and Exchange Board of India
SEBI InvIT Regulations	SEBI (Infrastructure Investment Trusts) Regulations, 2014, as amended
SH	State Highway
Sponsor/ LBPL	Lokesh Builders Private Limited
SPV	Special Purpose Vehicle
Trustee	IDBI Trusteeship Services Limited
VSEPL	Varanasi Sangam Expressway Private Limited

1. Executive Summary

1.1. Background

The Sponsor

1.1.1. G R Infraprojects Limited ("**the Transferor**" or "**GR Infra**") has floated an infrastructure investment trust under the SEBI InvIT Regulations called "**Bharat Highways InvIT**" ("**Bharat InvIT"** or "**the Trust**") as an irrevocable trust under the provisions of the Indian Trusts Act, 1882, pursuant to the trust deed dated 16th June 2022.

1.1.2. Lokesh Builders Private Limited ("**the Sponsor**" or "**LBPL**"), an associate of GR Infra, is the new sponsor of Bharat InvIT as per the amended & restated trust deed of Bharat InvIT dated 8th December 2022 and the same has been intimated to SEBI by the Investment Manager, i.e. GR Highways Investment Manager Private Limited, vide letter dated 13th December 2022.

1.1.3. The Sponsor is a private company, limited by shares, forming part of GR Group and was incorporated on 12th September 2001 under the Companies Act, 1956. The Sponsor holds ~31.83% of the issued, subscribed and paid-up equity share capital of GR Infra as on 30th June 2022, and is an identified promoter of GR Infra. GR Infra is an associate of the Sponsor.

1.1.4. Shareholding of the Sponsor as on the Report Date is as under :

Sr. No.	Particulars	No. of shares	%
1	Vinod Kumar Agarwal HUF	2,000	2.31%
2	Devki Nandan Agarwal	3,000	3.46%
3	Vinod Kumar Agarwal	8,400	9.68%
4	Suman Agarwal	13,205	15.22%
5	Purshottam Agarwal HUF	2,000	2.31%
6	Ritu Agarwal	7,619	8.78%
7	Kiran Agarwal	9,142	10.54%
8	Purshottam Agarwal	6,300	7.26%
9	Ajendra Kumar Agarwal HUF	1,500	1.73%
10	Ajendra Kumar Agarwal	3,000	3.46%
11	Lalita Agarwal	6,095	7.03%
12	Mahendra Kumar Agarwal	7,800	8.99%
13	Harish Agarwal HUF	1,000	1.15%
14	Laxmi Devi Agarwal	4,063	4.68%
15	Puja Agarwal	3,500	4.03%
16	Sangeeta Agarwal	8,126	9.37%
	Total	**86,750**	**100.00%**

Source: Investment Manager

The Transferor

1.1.5. G R Infraprojects Limited ("**the Transferor**" or "**GR Infra**") was incorporated on 22nd December 1995 under the Companies Act, 1956.

1.1.6. GR Infra is engaged in integrated road engineering, procurement and construction with an experience of over 25 years in design and construction of various road / highway projects across 16 states in India.

1.1.7. The equity shares of GR Infra are listed on the National Stock Exchange of India Limited and BSE Limited since 19th July 2021. GR Infra is an associate of the Sponsor.

The Trust

1.1.8. Bharat Highways InvIT ("**Bharat InvIT"** or "**the Trust**") was established on 16th June 2022 as an irrevocable trust pursuant to the trust deed under the provisions of the Indian Trusts Act, 1882. The Trust is registered as an Indian infrastructure investment trust with the Securities and Exchange Board of India ("**SEBI**") with effect from 3rd August 2022, bearing registration number IN/InvIT/22-23/0023, pursuant to the SEBI (Infrastructure Investment Trusts) Regulations, 2014, as amended from time to time ("**the SEBI InvIT Regulations**").

1.1.9. IDBI Trusteeship Services Limited ("**the Trustee**") has been appointed as the Trustee of Bharat InvIT.

The Investment Manager

1.1.10. GR Highways Investment Manager Private Limited ("**GHIMPL**" or "**the Investment Manager**") has been appointed as the Investment Manager to the Trust by the Trustee and will be responsible to carry out the duties of such person as mentioned under the SEBI InvIT Regulations.

1.1.11. Shareholding of the Investment Manager as on 30th June 2022 ("**the Valuation Date**") is as under :

Sr. No.	Particulars	No. of shares	%
1	G R Infraprojects Limited	9,990	99.90%
2	Vinod Kumar Agarwal	10	0.10%
	Total	**10,000**	**100.00%**

Source: Investment Manager

1.1.12. Shareholding of the Investment Manager as on the Report Date is as under :

Sr. No.	Particulars	No. of shares	%
1	Lokesh Builders Private Limited	1,49,99,990	99.99%
2	Purshottam Agarwal	10	Negligible
	Total	**1,50,00,000**	**100.00%**

Source: Investment Manager

1.1.13. I understand that Bharat InvIT, acting through the Trustee, shall acquire the equity held by the Transferor or/and other shareholders in its SPVs (as defined in para 1.1.15), following which units will be issued to the Transferor by the Trust, which are to be listed on the National Stock Exchange of India Limited and BSE consequent to the proposed Initial Public Offer the Trust ("**the Proposed Transaction**").

1.1.14. In this regard, the Investment Manager intends to undertake an independent valuation of the SPVs (as defined in para 1.1.15) as per the extant provisions of the SEBI InvIT Regulations issued by Securities and Exchange Board of India ("**SEBI**").

1.1.15. **Financial Assets to be Valued**

The financial assets under consideration are valued at Enterprise Value and Adjusted Enterprise Value of the following:

Sr. No.	Name of the SPV
1	GR Phagwara Expressway Limited ("GPEL")
2	Porbandar Dwarka Expressway Private Limited ("PDEPL")
3	GR Gundugolanu Devarapalli Highway Private Limited ("GDHPL")
4	GR Akkalkot Solapur Highway Private Limited ("GASHPL")
5	Varanasi Sangam Expressway Private Limited ("VSEPL")
6	GR Sangli Solapur Highway Private Limited ("GSSHPL")
7	GR Dwarka Devariya Highway Private Limited ("GDDHPL")

(Together referred to as "the **SPVs**")

1.1.16. In this regard, the Investment Manager has appointed me, S. Sundararaman ("**Registered Valuer**" or "**RV**" or "**I**" or "**My**" or "**Me**") bearing IBBI registration number IBBI/RV/06/2018/10238 to undertake fair valuation of the SPVs at the enterprise level as per the extant provisions of the SEBI InvIT Regulations issued by SEBI. Enterprise Value ("**EV**") is described as the total value of the equity in a business plus the value of its debt and debt related liabilities, minus any cash or cash equivalents to meet those liabilities.

1.1.17. Further, on the request of the Investment Manager, I have calculated Adjusted Enterprise Value of the SPVs which is derived as the EV as defined above plus cash or cash equivalents of the SPVs as at the Valuation Date.

1.1.18. I declare that:

i. I am competent to undertake the financial valuation in terms of the SEBI InvIT Regulations;

ii. I am not an associate of the Sponsor(s) or Investment Manager or Trustee and I have not less than five years of experience in valuation of infrastructure assets;

iii. I am independent and have prepared the Report on a fair and unbiased basis;

iv. I have valued the SPVs based on the valuation standards as specified / applicable as per SEBI InvIT Regulations.

1.1.19. This Report covers all the disclosures required as per the SEBI InvIT Regulations and the Valuation of the SPVs is impartial, true and fair and in compliance with the SEBI InvIT Regulations.

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1.2. Scope of Valuation

1.2.1. Nature of the Asset to be Valued

The RV has been mandated by the Investment Manager to arrive at the Enterprise Value ("EV") of the SPVs. Enterprise Value is described as the total value of the equity in a business plus the value of its debt and debt related liabilities, minus any cash or cash equivalents to meet those liabilities.

1.2.2. Valuation Base

Valuation Base means the indication of the type of value being used in an engagement. In the present case, I have determined the fair value of the SPVs at the enterprise level. Fair Value Bases defined as under:

Fair Value

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the valuation date. It is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction in the principal (or most advantageous) market at the measurement date under current market conditions (i.e. an exit price) regardless of whether that price is directly observable or estimated using another valuation technique. Fair value or Market value is usually synonymous to each other except in certain circumstances where characteristics of an asset translate into a special asset value for the party(ies) involved.

1.2.3. Valuation Date

Valuation Date is the specific date at which the value of the assets to be valued gets estimated or measured. Valuation is time specific and can change with the passage of time due to changes in the condition of the asset to be valued. Accordingly, valuation of an asset as at a particular date can be different from other date(s).

The Valuation Date considered for the fair enterprise valuation of the SPVs is 30th June 2022 ("**Valuation Date**"). The attached Report is drawn up by reference to accounting and financial information as on 30th June 2022. The RV is not aware of any other events having occurred since 30th June 2022 till date of this Report ("**Report Date**") which he deems to be significant for his valuation analysis, except for those events disclosed by the Investment Manager during the valuation exercise.

1.2.4. Premise of Value

Premise of Value refers to the conditions and circumstances how an asset is deployed. In the present case, RV has determined the fair enterprise value of the SPVs on a Going Concern Value defined as under:

Going Concern Value

Going Concern value is the value of a business enterprise that is expected to continue to operate in the future. The intangible elements of going concern value result from factors such as having a trained work force, an operational plant, necessary licenses, systems, and procedures in place etc.

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1.3. Summary of Valuation

I have assessed the fair enterprise value of each of the SPVs on a stand-alone basis by using the Discounted Cash Flow ("**DCF**") method under the income approach. Following table summarizes my explaination on the usage or non usage of different valuation methods:

Valuation Approach	Valuation Methodology	Used	Explanation
Cost Approach	Net Asset Value	No	NAV does not capture the future earning potential of the business. Hence NAV method is considered only for background reference.
Income Approach	Discounted Cash Flow	Yes	The revenue of all the SPVs is mainly derived from the annuity fees that are typically pre-determined with the relevant government authority and cannot be modified to reflect prevailing circumstances, other than annual adjustments to account for inflation and interest rate changes as applicable, as specified in the concession agreements. Accordingly, since all the SPVs are generating income based on pre-determined agreements / mechanism and since the Investment Manager has provided me the financial projections for the balance tenor of the concessions agreements, DCF Method under the income approach has been considered as the appropriate method for the present valuation exercise.
Market Approach	Market Price	No	The equity shares of the SPVs are not listed on any recognized stock exchange in India. Hence, I was unable to apply the market price method.
	Comparable Companies	No	In the absence of any exactly comparable listed companies with characteristics and parameters similar to that of the SPVs, I am unable to consider this method for the current valuation.
	Comparable Transactions	No	In the absence of adequate details about the Comparable Transactions, I was unable to apply the CTM method.

Under the DCF Method, the Free Cash Flow to Firm ("**FCFF**") has been used for the purpose of valuation of each of the SPVs. In order to arrive at the fair EV of the individual SPVs under the DCF Method, I have relied on unaudited financial statements as at 30th June 2022 prepared in accordance with the Indian Accounting Standards (Ind AS) and the financial projections of the respective SPVs prepared by the Investment Manager as at the Valuation Date based on their best judgement.

The discount rate considered for the respective SPVs for the purpose of this valuation exercise is based on the Weighted Average Cost of Capital ("**WACC**") for each of the SPVs. As all the SPVs under considerations have executed projects under the DBOT model, the operating rights of the underlying assets shall be transferred back to the appointing authority after the expiry of the concession period. At the end of the agreed concession period, the operating rights in relation to the roads and the obligation to maintain the road revert to the government entity that granted the concession by the SPVs. Accordingly, terminal period value i.e. value on account of cash flows to be generated after the expiry of concession period has not been considered.

Based on the methodology and assumptions discussed further, RV has arrived at the fair enterprise value of the SPVs as on the Valuation Date:

Sr. No.	SPVs	Approximate Projection Period (Balance Concession Period) as on Valuation Date	WACC	Fair Value of EV* (INR Mn)	Fair Value of Adjusted EV** (INR Mn)
1	GPEL	~12 Years 8 Months	7.07%	6,776	7,320
2	PDEPL	~12 Years 10 Months	7.07%	9,455	10,150
3	GDHPL	~14 Years 0 Months	7.07%	11,619	12,626
4	GASHPL	~13 Years 9 Months	7.07%	4,784	5,455
5	VSEPL	~13 Years 4 Months	7.07%	15,794	16,868
6	GSSHPL	~14 Years 0 Months	7.07%	5,910	6,798
7	GDDHPL	~15 Years 1 Months	7.07%	6,585	6,613
Total				**60,923**	**65,831**

** Enterprise Value ("**EV**") is described as the total value of the equity in a business plus the value of its debt and debt related liabilities, minus any cash or cash equivalents to meet those liabilities.*

*** Further, on the request of the Investment Manager, I have calculated Adjusted Enterprise Value of the SPVs which is derived as the EV as defined above plus cash or cash equivalents of the SPVs as at the Valuation Date.*
(Refer Appendix 1 & 2 for the detailed workings)

Further to above, considering that present valuation exercise is based on the future financial performance and based on opinions on the future credit risk, cost of debt assumptions, etc., which represent reasonable expectations at a particular point of time, but such information, estimates or opinions are not offered as predictions or as assurances that a particular level of income or profit will be achieved, a particular event will occur or that a particular level of income or profit will be achieved, a particular event will occur or that a particular price will be offered or accepted. Actual results achieved during the period covered by the prospective financial analysis will vary from these estimates and variations may be material. Accordingly, a quantitative sensitivity analysis is considered on the following unobservable inputs:

a. WACC by increasing / decreasing it by 0.5%
b. WACC by increasing / decreasing it by 1.0%
c. Total Expenses by increasing / decreasing it by 20%

1. Fair Enterprise Valuation Range based on

a. WACC parameter (0.5%)

INR Mn

Sr. No.	SPVs	WACC +0.5%	EV	Base WACC	EV	WACC -0.5%	EV
1	GPEL	7.57%	6,633	7.07%	6,776	6.57%	6,925
2	PDEPL	7.57%	9,225	7.07%	9,455	6.57%	9,695
3	GDHPL	7.57%	11,334	7.07%	11,619	6.57%	11,916
4	GASHPL	7.57%	4,656	7.07%	4,784	6.57%	4,918
5	VSEPL	7.57%	15,389	7.07%	15,794	6.57%	16,217
6	GSSHPL	7.57%	5,744	7.07%	5,910	6.57%	6,084
7	GDDHPL	7.57%	6,362	7.07%	6,585	6.57%	6,818
	Total of all SPVs		**59,344**		**60,923**		**62,573**

b. WACC parameter (1.0%)

INR Mn

Sr. No.	SPVs	WACC +1.0%	EV	Base WACC	EV	WACC -1.0%	EV
1	GPEL	8.07%	6,494	7.07%	6,776	6.07%	7,080
2	PDEPL	8.07%	9,004	7.07%	9,455	6.07%	9,945
3	GDHPL	8.07%	11,061	7.07%	11,619	6.07%	12,227
4	GASHPL	8.07%	4,534	7.07%	4,784	6.07%	5,058
5	VSEPL	8.07%	15,002	7.07%	15,794	6.07%	16,659
6	GSSHPL	8.07%	5,586	7.07%	5,910	6.07%	6,265
7	GDDHPL	8.07%	6,151	7.07%	6,585	6.07%	7,063
	Total of all SPVs		**57,831**		**60,923**		**64,297**

c. Expenses parameter (20%)

INR Mn

Sr. No.	SPVs	EV at Expenses +20%	EV at Base Expenses	EV at Expenses -20%
1	GPEL	6,346	6,776	7,187
2	PDEPL	9,261	9,455	9,649
3	GDHPL	11,187	11,619	12,050
4	GASHPL	4,675	4,784	4,894
5	VSEPL	15,282	15,794	16,306
6	GSSHPL	5,791	5,910	6,026
7	GDDHPL	6,449	6,585	6,721
	Total of all SPVs	**58,991**	**60,923**	**62,834**

2. Adjusted Enterprise Valuation Range based on

a. WACC parameter (0.5%)

INR Mn

Sr. No.	SPVs	WACC +0.5%	Adjusted EV	Base WACC	Adjusted EV	WACC -0.5%	Adjusted EV
1	GPEL	7.57%	7,176	7.07%	7,320	6.57%	7,469
2	PDEPL	7.57%	9,920	7.07%	10,150	6.57%	10,390
3	GDHPL	7.57%	12,341	7.07%	12,626	6.57%	12,924
4	GASHPL	7.57%	5,327	7.07%	5,455	6.57%	5,589
5	VSEPL	7.57%	16,464	7.07%	16,868	6.57%	17,291
6	GSSHPL	7.57%	6,633	7.07%	6,798	6.57%	6,972
7	GDDHPL	7.57%	6,391	7.07%	6,613	6.57%	6,846
	Total of all SPVs		**64,251**		**65,831**		**67,480**

b. WACC parameter (1.0%)

INR Mn

Sr. No.	SPVs	WACC +1.0%	Adjusted EV	Base WACC	Adjusted EV	WACC -1.0%	Adjusted EV
1	GPEL	8.07%	7,038	7.07%	7,320	6.07%	7,624
2	PDEPL	8.07%	9,699	7.07%	10,150	6.07%	10,640
3	GDHPL	8.07%	12,069	7.07%	12,626	6.07%	13,234
4	GASHPL	8.07%	5,204	7.07%	5,455	6.07%	5,729
5	VSEPL	8.07%	16,076	7.07%	16,868	6.07%	17,733
6	GSSHPL	8.07%	6,474	7.07%	6,798	6.07%	7,153
7	GDDHPL	8.07%	6,179	7.07%	6,613	6.07%	7,091
	Total of all SPVs		**62,738**		**65,831**		**69,204**

c. Expenses parameter (20%)

INR Mn

Sr. No.	SPVs	Adjusted EV at Expenses +20%	Adjusted EV at Base Expenses	Adjusted EV at Expenses -20%
1	GPEL	6,889	7,320	7,731
2	PDEPL	9,956	10,150	10,344
3	GDHPL	12,195	12,626	13,058
4	GASHPL	5,346	5,455	5,565
5	VSEPL	16,357	16,868	17,380
6	GSSHPL	6,680	6,798	6,915
7	GDDHPL	6,477	6,613	6,749
	Total of all SPVs	**63,898**	**65,831**	**67,741**

3. 100% Equity Valuation Range based on

a. WACC parameter (0.5%)

INR Mn

Sr. No.	SPVs	WACC +0.5%	Equity Value	Base WACC	Equity Value	WACC -0.5%	Equity Value
1	GPEL	7.57%	1,585	7.07%	1,729	6.57%	1,878
2	PDEPL	7.57%	2,628	7.07%	2,858	6.57%	3,098
3	GDHPL	7.57%	2,672	7.07%	2,957	6.57%	3,254
4	GASHPL	7.57%	1,310	7.07%	1,438	6.57%	1,572
5	VSEPL	7.57%	5,023	7.07%	5,427	6.57%	5,850
6	GSSHPL	7.57%	1,875	7.07%	2,040	6.57%	2,214
7	GDDHPL	7.57%	2,158	7.07%	2,380	6.57%	2,613
	Total of all SPVs		**17,251**		**18,830**		**20,480**

b. WACC parameter (1.0%)

INR Mn

Sr. No.	SPVs	WACC +1.0%	Equity Value	Base WACC	Equity Value	WACC -1.0%	Equity Value
1	GPEL	8.07%	1,447	7.07%	1,729	6.07%	2,033
2	PDEPL	8.07%	2,408	7.07%	2,858	6.07%	3,348
3	GDHPL	8.07%	2,399	7.07%	2,957	6.07%	3,565
4	GASHPL	8.07%	1,188	7.07%	1,438	6.07%	1,712
5	VSEPL	8.07%	4,635	7.07%	5,427	6.07%	6,292
6	GSSHPL	8.07%	1,716	7.07%	2,040	6.07%	2,395
7	GDDHPL	8.07%	1,946	7.07%	2,380	6.07%	2,858
	Total of all SPVs		**15,738**		**18,830**		**22,203**

c. Expenses parameter (20%)

INR Mn

Sr. No.	SPVs	Equity Value at Expenses +20%	Equity Value at Base Expenses	Equity Value at Expenses -20%
1	GPEL	1,298	1,729	2,140
2	PDEPL	2,665	2,858	3,052
3	GDHPL	2,525	2,957	3,389
4	GASHPL	1,329	1,438	1,548
5	VSEPL	4,916	5,427	5,939
6	GSSHPL	1,922	2,040	2,157
7	GDDHPL	2,244	2,380	2,516
	Total of all SPVs	**16,898**	**18,830**	**20,741**

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2. Procedures adopted for current valuation exercise

2.1. I have performed the valuation analysis, to the extent applicable, in accordance with ICAI Valuation Standards 2018 ("**IVS**") issued by the Institute of Chartered Accountants of India.

2.2. In connection with this analysis, I have adopted the following procedures to carry out the valuation analysis:

2.2.1. Requested and received financial and qualitative information relating to the SPVs;

2.2.2. Obtained and analyzed data available in public domain, as considered relevant by me;

2.2.3. Discussions with the Investment Manager on:

- Understanding of the business of the SPVs – business and fundamental factors that affect its earning-generating capacity including strengths, weaknesses, opportunities and threats analysis and historical and expected financial performance;

2.2.4. Undertook industry analysis:

- Research publicly available market data including economic factors and industry trends that may impact the valuation;
- Analysis of key trends and valuation multiples of comparable companies/comparable transactions, if any, using proprietary databases subscribed by me;

2.2.5. Analysis of other publicly available information;

2.2.6. Selection of valuation approach and valuation methodology/(ies), in accordance with IVS, as considered appropriate and relevant by me;

2.2.7. Conducted physical site visit of the road stretch of the SPVs;

2.2.8. Determination of fair value of the EV of the SPVs on a going concern basis till the end of the concession period as at the Valuation Date and determination of fair value of the Adjusted EV of the SPVs on a going concern basis till the end of the concession period as at the Valuation Date on request of the Investment Manager.

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3. Overview of Sponsor, InvIT and SPVs

3.1. Sponsor / Lokesh Builders Private Limited ("LBPL")

3.1.1. Lokesh Builders Private Limited is the Sponsor of Bharat InvIT. The Sponsor was incorporated on 12th September 2001 under the Companies Act, 1956.

3.1.2. The Sponsor is a private company, limited by shares, and an entity forming part of the GR Group. The Sponsor holds approximately 31.83% of the issued, subscribed and paid-up equity share capital of the Transferor, GR Infra as on 30th June 2022, and is an identified promoter of GR Infra.

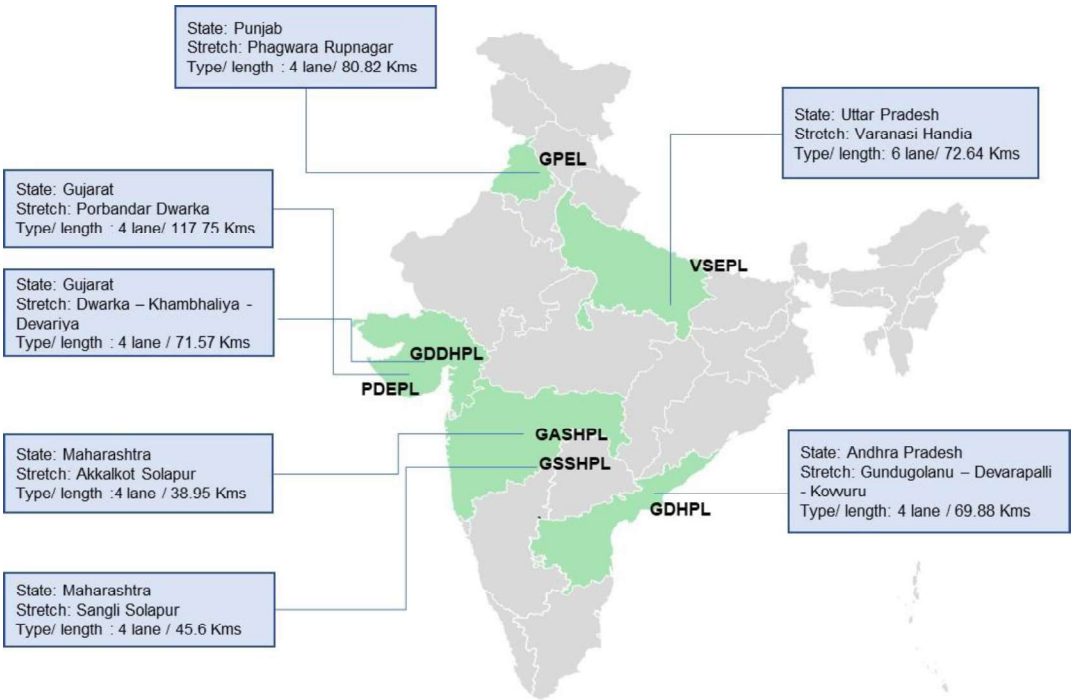
3.1.3. The associate of the Sponsor, i.e GR Infra is engaged in integrated road engineering, procurement and construction ("EPC") with an experience of over 25 years in design and construction of various road / highway projects across 16 states in India. GR Infra's principal business operations are broadly divided into three categories: (i) civil construction activities, under which it provides EPC services; (ii) development of roads, highways on a Build Operate Transfer ("BOT") basis, including under annuity and Hybrid Annuity Model ("HAM"); and (iii) manufacturing activities, under which it processes bitumen, manufactures thermoplastic road-marking paint, electric poles and road signage and fabricates and galvanizes metal crash barriers.

3.2. InvIT / Bharat Highways InvIT ("Trust")

3.2.1. Bharat Highways InvIT was established on 16th June 2022 as an irrevocable trust pursuant to the trust deed under the provisions of the Indian Trusts Act, 1882. The Trust is registered as an Indian infrastructure investment trust with the SEBI with effect from 3rd August 2022, bearing registration number IN/InvIT/22-23/0023, pursuant to the SEBI InvIT Regulations.

3.2.2. IDBI Trusteeship Services Limited has been appointed as the Trustee of Bharat InvIT. GR Highways Investment Manager Private Limited has been appointed as the Investment Manager to the Trust by the Trustee and will be responsible to carry out the duties of such person as mentioned under the SEBI InvIT Regulations.

3.3. Following is a map of India showing the area covered by the proposed SPVs of the Trust:



Source: Investment Manager

Background of the SPVs

3.2. GR Phagwara Expressway Limited ("GPEL")

3.2.1. GPEL was incorporated on September 21, 2016 as a public limited company under the Companies Act, 2013 pursuant to certificate of incorporation issued by the Registrar of Companies, Central Registration Centre. The registered office of GPEL is located at GR House, Hiran Magri, Sector – 11, Udaipur, Rajasthan 313 002, India.

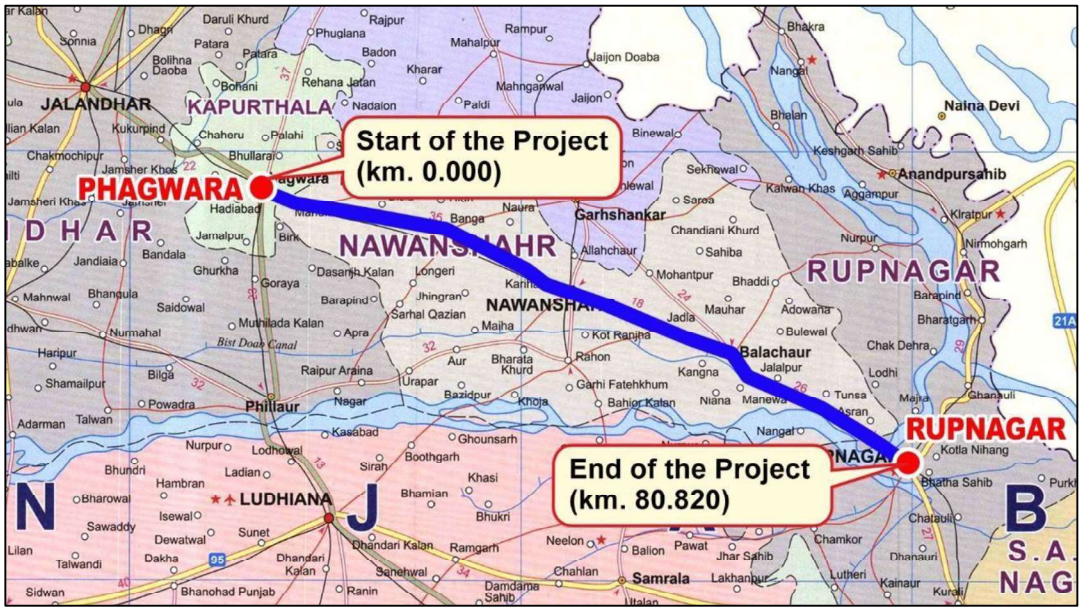
3.2.2. GPEL was incorporated to identify, formulate, aid, promote, finance, establish, build, construct, erect, equip, operate, maintain, control, upgrade, regulate, modify, takeover, and / or to undertake development of four laning of Phagwara to Rupnagar section of NH-344A from km. 0.00 (design chainage) to km. 80.820 (design chainage).

3.2.3. The project highway Phagwara to Rupnagar (NH-344A), starts from km. 0.000 at Phagwara Town and terminates at km. 80.820 at Rupnagar Town. The design length of the project highway is 80.820 kms. The project stretch is the important link connecting important cities in Punjab State such as Amritsar, Jalandhar and Chandigarh. The project involved development of existing 2 lane carriageway to 4 lane divided carriageway with 1.5 m wide paved shoulder and 2.0 m earthen shoulder on either side.

3.2.4. GPEL has received final completion certificate on 26th May 2021 by completing all the works as mentioned in the technical schedules of concession agreement. There are no balance works to be executed as per concession agreement.

3.2.5. The project highway passes through the Districts of Nawanshahr and Kapurthala. The project highway passes through the built-up areas of towns and villages enroute. Important towns along the alignment are Mehli, Bahar Majara, Jasso Majara, Behram, Malha Sodhian, Dhahan, Banga, Kahma, Nawanshahr, Langroya, Garhi Kanugoan, and Bachhwan.

3.2.6. The map below illustrates the location of the Project and the corridor it covers:



Source: Investment Manager

3.2.7. Summary of project details of GPEL are as follows:

Parameters	Details
Total Length	323.3 Lane Kms
Nos. of Lanes	4
NH / SH	NH 344A
State Covered	Punjab
Area (Start and End)	Phagwara - Rupnagar
Bid Project Cost	INR 13,670 Mn
PPP Model	DBOT
Project Type	HAM
Concession Granted by	NHAI
PCOD Date	25-Feb-20
COD Date	26-May-21
Nos. of Annuities	30
Construction Period	910 days from Appointed date
Operational Period	15 years from PCOD date

Source: Investment Manager

3.2.8. The corridor starts from 0.00 Km to 80.820 Km connecting Phagwara – Rupnagar on NH 344A.

Sr. No.	Salient Features	As per Site
1	Total Length of the Project Highway	80.82 Km
2	Total length of Service Roads	70.037 Km
3	Widening	71.573 Km
4	New Alignment including bypass	11.247 Km
5	Approaches to underpasses	0 Km
6	No of Bypass Roads	2 Nos.
7	Flexible Pavement for Main carriageway	69.56 Km
8	Total length of Slip Roads	0 Km
9	Toll Plaza	2 Nos.
10	Bus Bays / Bus Shelters	43 Nos.
11	Truck Lay Bays	2 Nos.
12	No of Rest Areas	2 Nos.
13	Major Junction	7 Nos.
14	Minor Junctions	102 Nos.
15	No of Vehicular underpasses	3 Nos.
16	Vehicle overpass	0 Nos.
17	No of Subways	0 Nos.
18	Elevated Structure	1 Nos.
19	No of Flyovers	4 Nos.
20	Pedestrian/Cattle Underpass	1 Nos.
21	ROB	1 Nos.
22	Major Bridges	1 Nos.
23	Minor Bridges for Main Carriageway	22 Nos.
24	Box/Slab Culverts	51 Nos.
25	Pipe Culverts	41 Nos.

Source: Investment Manager

3.2.9. The shareholding of GPEL as on Valuation Date is as follows:

Sr. No.	Particulars	No. of Shares	%
1	G R Infraprojects Limited	2,02,99,940	99.99%
2	Devki Nandan Agarwal*	10	Negligible
3	Vinod Kumar Agarwal*	10	Negligible
4	Mahendra Kumar Agarwal*	10	Negligible
5	Ajendra Agarwal*	10	Negligible
6	Purshottam Agarwal*	10	Negligible
7	Vikas Agarwal*	10	Negligible
	Total	**2,03,00,000**	**100%**

**Shares held by nominee of GR Infra*
Source: Investment Manager

I have been represented by the Investment Manager that there is no change in shareholding pattern from the Valuation Date till the date of this Report.

3.2.10. My team had conducted physical site visit of the road stretch of GPEL on 28th October 2022. Refer below for the pictures of the road stretch:






3.3. Porbandar Dwarka Expressway Private Limited ("PDEPL")

3.3.1. PDEPL was incorporated on June 9, 2017 as a private limited company under the Companies Act, 2013 pursuant to certificate of incorporation issued by the Registrar of Companies, Central Registration Centre. The registered office of PDEPL is located at GR House, Hiran Magri, Sector No. 11, Udaipur, Rajasthan 313 002, India.

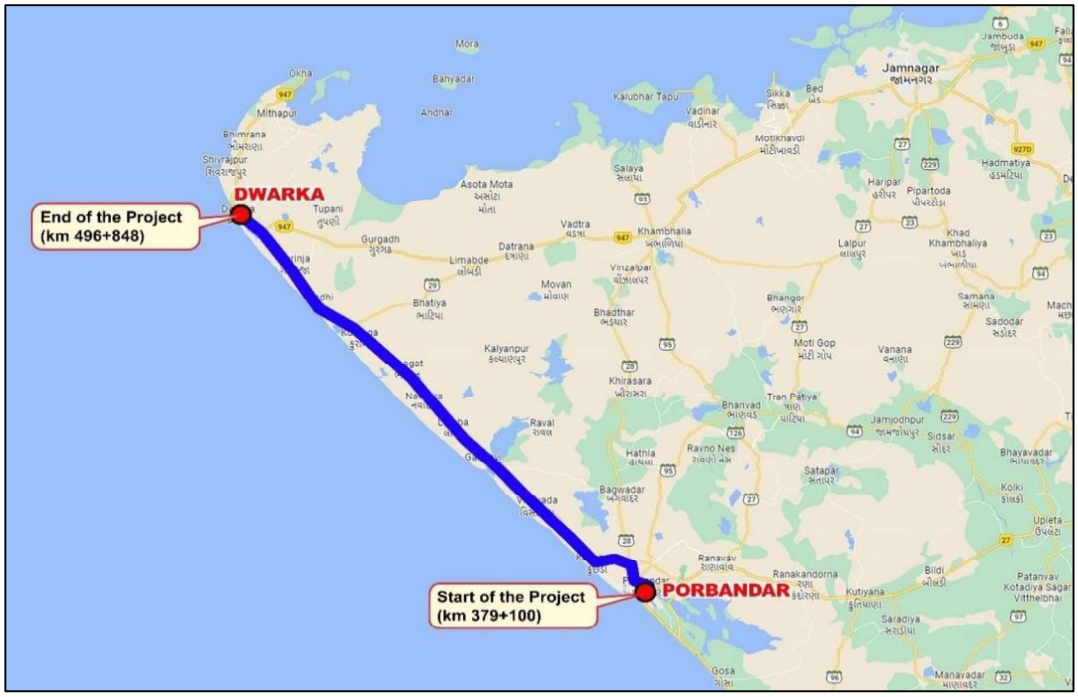
3.3.2. PDEPL was incorporated for the purpose of four laning with paved shoulder of Porbandar - Dwarka section of NH-8E (Ext.) from km 356.766 (design chainage km. 379.100) to km 473.000 (Design Chainage km 496.848) through public-private partnership.

3.3.3. The project highway is a section of National Highway Number 08E, NH-08E in the State of Gujarat which starts from km. 379+100 near Porbandar Bypass and ends at km. 496+848 in Dev Bhumi Dwarka. Existing length of the project highway was 116.234 kms whereas design length measures to be 117.748 kms.

3.3.4. PDEPL has received final completion certificate on 13th October 2021, with minor balance works to be executed.

3.3.5. The project highway passes through the built-up areas of towns and villages enroute. Important towns along the alignment are Visawada, Miyami, Bhavpuru, Jodhpur etc.

3.3.6. The map below illustrates the location of the Project and the corridor it covers:



Source: Investment Manager

3.3.7. Summary of project details of PDEPL are as follows:

Parameters	Details
Total Length	471.0 Lane Kms
Nos. of Lanes	4
NH / SH	NH 08E
State Covered	Gujarat
Area (Start and End)	Porbandar – Dwarka
Bid Project Cost	INR 16,000 Mn
PPP Model	DBOT
Project Type	HAM

Concession Granted by	NHAI
PCOD Date	18-Apr-20
COD Date	13-Oct-21
Nos. of Annuities	30
Construction Period	1,095 days from Appointed date
Operational Period	15 years from PCOD date

Source: Investment Manager

3.3.8. The corridor forms a part of existing road from KM 379+100 to Km 496+848 of NH-08E connecting Porbandar and Dwarka.

Sr. No.	Salient Features	As per Site
1	Total Length of the Project Highway	117.748 Km
2	Total length of Service Roads	11.676 Km
3	Widening	0 Km
4	New Alignment including bypass	23.3 Km
5	Approaches to underpasses	0 Km
6	No of Bypass Roads	2 Nos.
7	Flexible Pavement for Main carriageway	2.968 Km
8	Total length of Slip Roads	4.95 Km
9	Toll Plaza	2 Nos.
10	Bus Bays / Bus Shelters	4 Nos.
11	Truck Lay Bays	0 Nos.
12	No of Rest Areas	0 Nos.
13	Major Junction	5 Nos.
14	Minor Junctions	42 Nos.
15	Vehicular underpasses	8 Nos.
16	Light Vehicular underpasses	1 Nos.
17	Vehicle overpass	0 Nos.
18	No of Subways	0 Nos.
19	No of Flyovers	2 Nos.
20	Pedestrian/Cattle Underpass	6 Nos.
21	ROB	1 Nos.
22	Major Bridges	11 Nos.
23	Minor Bridges	34 Nos.
24	Box/Slab Culverts	31 Nos.
25	Pipe Culverts	196 Nos.

Source: Investment Manager

3.3.9. The shareholding of PDEPL as on Valuation Date is as follows:

Sr. No.	Particulars	No. of Shares	%
1	G R Infraprojects Limited	4,19,99,990	99.99%
2	Vinod Kumar Agarwal*	10	Negligible
	Total	**4,20,00,000**	**100.00%**

**Shares held by nominee of GR Infra*
Source: Investment Manager

3.3.10. My team had conducted physical site visit of the road stretch of PDEPL on 14th October 2022. Refer below for the pictures of the road stretch:









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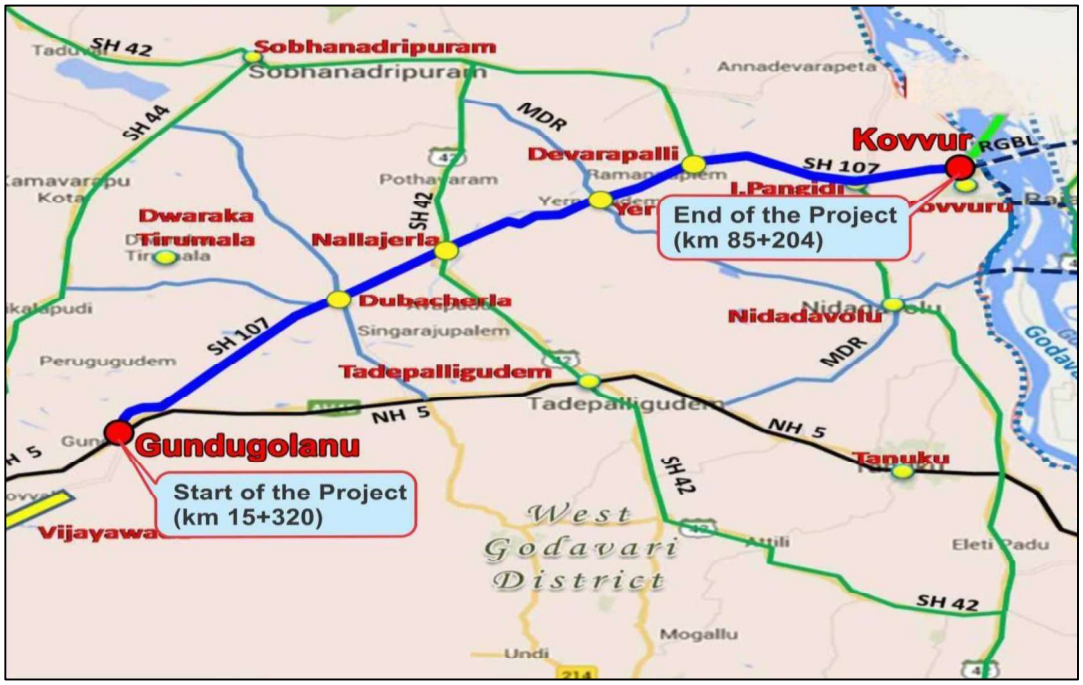
3.4. GR Gundugolanu Devarapalli Highway Private Limited ("GDHPL")

3.4.1. GDHPL was incorporated on March 28, 2018 as a private limited company under the Companies Act, 2012 pursuant to certificate of incorporation issued by the Registrar of Companies, Central Registration Centre. The registered office of GDHPL is located at GR House, Hiran Magri, Sector 11, Udaipur, Rajasthan 313 002, India.

3.4.2. GDHPL was incorporated for the purpose of four laning of the Gundugolanu – Devarapalli – Kovvuru section of NH-16 from Km. 15.320 (existing Km. 15.700) to Km. 85.204 (existing Km. 81.400) in the state of Andhra Pradesh under Bharatmala Pariyojana.

3.4.3. GDHPL has received provisional completion certificate (PCOD certificate) on 10th July 2021, with minor balance works to be executed.

3.4.4. The map below illustrates the location of the Project and the corridor it covers:



Source: Investment Manager

3.4.5. Summary of project details of GDHPL are as follows:

Parameters	Details
Total Length	279.5 Lane Kms
Nos. of Lanes	4
NH / SH	NH 16
State Covered	Andra Pradesh
Area (Start and End)	Gundugolanu – Kovvur
Bid Project Cost	INR 18,270 Mn
PPP Model	DBOT
Project Type	HAM
Concession Granted by	NHAI
PCOD Date	10-Jul-21
Nos. of Annuities	30
Construction Period	910 days from Appointed date
Operational Period	15 years from PCOD date

Source: Investment Manager

3.4.6. The corridor forms a part of existing road from KM 15.70 to KM 81.40 (Approx. 69.88 Kms) from Gundugolanu to Kovvur in NH-16

Sr. No.	Salient Features	As per Site
1	Total Length of the Project Highway	69.884 Km
2	Total length of Service Roads	54.308 Km
3	Widening	0 Km
4	New Alignment including bypass	46.644 Km
5	Approaches to underpasses	0 Km
6	No of Bypass Roads	6 Nos.
7	Flexible Pavement for Main carriageway	69.154 Km
8	Total length of Slip Roads	47.87 Km
9	Toll Plaza	1 Nos.
10	Bus Bays / Bus Shelters	56 Nos.
11	Truck Lay Bays	2 Nos.
12	No of Rest Areas	4 Nos.
13	Interchange	1 Nos.
14	Major Junction	11 Nos.
15	Minor Junctions	10 Nos.
16	Vehicular underpasses	2 Nos.
17	Light Vehicular underpasses	11 Nos.
18	Vehicle overpass	1 Nos.
19	No of Subways	0 Nos.
20	No of Flyovers	16 Nos.
21	Pedestrian/Cattle Underpass	5 Nos.
22	ROB	1 Nos.
23	Major Bridges	9 Nos.
24	Minor Bridges	22 Nos.
25	Box/Slab Culverts	122 Nos.
26	Pipe Culverts	28 Nos.

Source: Investment Manager

3.4.7. The shareholding of GDHPL as on Valuation Date is as follows:

Sr. No.	Particulars	No. of Shares	%
1	G R Infraprojects Limited	4,94,99,990	99.99%
2	Vinod Kumar Agarwal*	10	Negligible
	Total	**4,95,00,000**	**100.00%**

**Shares held by nominee of GR Infra*
Source: Investment Manager

3.4.8. My team had conducted physical site visit of the road stretch of GDHPL on 21st October 2022. Refer below for the pictures of the road stretch:









3.5. GR Akkalkot Solapur Highway Private Limited ("GASHPL")

3.5.1. GASHPL was incorporated on April 26, 2018 as a private limited company under the Companies Act, 2013 pursuant to certificate of incorporation issued by the Registrar of Companies, Central Registration Centre. The registered office of GASHPL is located at GR House, Hiran Magri, Sector 11, Udaipur, Rajasthan 313 002, India.

3.5.2. GASHPL was incorporated for the purpose of four laning of Akkalkot – Solapur section –f NH - 150E with paved shoulders from design chainage km. 99.400 to km. 138.352 / existing chainage from km. 102.819 to km. 141.800 (design length 38.952 km.) including Akkalkot bypass (design length 7.350 km.).

3.5.3. The project highway is part of National Highway No. 150E of Barshi - Gulbarga section in the state of Maharashtra and Karnataka. The total project length is 38.952 kms which starts from km. 99.400 near Akkalkot Bypass and ends at km. 138.352 in Solapur City.

3.5.4. GASHPL has received provisional completion certificate (PCOD certificate) on 31st March 2021, with an undertaking for completion of minor balance works.

3.5.5. The project highway passes through the built-up areas of towns and villages Karjal, Walsung, Chincholi, Rajanpur, Togarhalli, Akkalkot and Kumbhari.

3.5.6. The map below illustrates the location of the Project and the corridor it covers:



Source: Investment Manager

3.5.7. Summary of project details of GASHPL are as follow

Parameters	Details
Total Length	155.8 Lane Kms
Nos. of Lanes	4
NH / SH	NH 150E
State Covered	Maharashtra
Area (Start and End)	Akkalkot – Solapur
Bid Project Cost	INR 8,070 Mn
PPP Model	DBOT
Project Type	HAM
Concession Granted by	NHAI
PCOD Date	31-Mar-21
Nos. of Annuities	30
Construction Period	730 days from Appointed date
Operational Period	15 years from PCOD date

Source: Investment Manager

3.5.8. The corridor forms a part of existing road from KM 99.40 to 138.35 (Approx. 38.95 Kms) near Akkalkot to Solapur City in NH-150E.

Sr. No.	Salient Features	For SPV
1	Total Length of the Project Highway	38.952 Km
2	Total length of Service Roads	16.16 Km
3	Widening	0 Km
4	New Alignment including bypass	7.126 Km
5	Approaches to underpasses	0 Km
6	No of Bypass Roads	1 Nos.
7	Flexible Pavement for Main carriageway	0 Km
8	Total length of Slip Roads	8.82 Km
9	Toll Plaza	1 Nos.
10	Bus Bays / Bus Shelters	6 Nos.
11	Truck Lay Bays	0 Nos.
12	No of Rest Areas	1 Nos.
13	Major Junction	3 Nos.
14	Minor Junctions	22 Nos.
15	No of Vehicular underpasses	6 Nos.
16	Vehicle overpass	0 Nos.
17	No of Subways	0 Nos.
18	No of Flyovers	7 Nos.
19	Pedestrian/Cattle Underpass	1 Nos.
20	ROB	0 Nos.
21	Major Bridges	2 Nos.
22	Minor Bridges	20 Nos.
23	Box/Slab Culverts	26 Nos.
24	Pipe Culverts	21 Nos.

Source: Investment Manager

3.5.9. The shareholding of GASHPL as on Valuation Date is as follows:

Sr. No.	Particulars	No. of Shares	%
1	G R Infraprojects Limited	1,25,99,990	99.99%
2	Vinod Kumar Agarwal*	10	Negligible
	Total	**1,26,00,000**	**100.00%**

**Shares held by nominee of GR Infra*
Source: Investment Manager

3.5.10. My team had conducted physical site visit of the road stretch of GASHPL on 21st October 2022. Refer below for the pictures of the road stretch:









3.6. <u>Varanasi Sangam Expressway Private Limited ("VSEPL")</u>

3.6.1. VSEPL was incorporated on April 17, 2017 as a private limited company under the Companies Act, 2013 pursuant to certificate of incorporation issued by the Registrar of Companies, Central Registration Centre. The registered office of VSEPL is located at GR House, Hiran Magri, Sector No. 11, Udaipur, Rajasthan 313 002, India.

3.6.2. VSEPL which of six laning of Handia to Varanasi section of NH-2 from km 713.146 to km 785.544 in the state of Uttar Pradesh under NHDP phase–V.

3.6.3. The project stretch is linking Delhi and Kolkata, traverses through 6 States namely Delhi, Haryana, Uttar Pradesh, Bihar, Jharkhand and West Bengal and connects a number of major urban cities on its way like Delhi, Agra, Kanpur, Allahabad, Varanasi, Dhanbad, Durgapur & Howrah. The project road from Khokhraj approximately 42 kms from Allahabad towards Kanpur to Varanasi i.e., Allahabad bypass to Varanasi.

3.6.4. VSEPL has received Provisional Completion Certificate (PCOD certificate) on 2nd November 2020, with minor balance works to be executed.

3.6.5. The project highway passes through the built-up areas of towns and villages enroute. Important towns along the alignment are Rajatalab, Aurai, Gopigunj and Handia.

3.6.6. The map below illustrates the location of the Project and the corridor it covers:



Source: Investment Manager

3.6.7. Summary of project details of VSEPL are as follows:

Parameters	Details
Total Length	434.39 Lane Kms
Nos. of Lanes	6
NH / SH	NH 2
State Covered	Uttar Pradesh
Area (Start and End)	Handia - Varanasi
Bid Project Cost	INR 24,470 Mn
PPP Model	DBOT
Project Type	HAM
Concession Granted by	NHAI
PCOD Date	02-Nov-20
Nos. of Annuities	30
Construction Period	910 days from Appointed date
Operational Period	15 years from PCOD date

Source: Investment Manager

3.6.8. The corridor forms a part of existing road from KM 713.21 to 785.70 from Haldia to Varanasi in NH-2.

Sr. No.	Salient Features	As per Site
1	Total Length of the Project Highway	72.644 Km
2	Total length of Service Roads	78.535 Km
3	Widening	0 Km
4	New Alignment including bypass	0 Km
5	Approaches to underpasses	0 Km
6	No of Bypass Roads	0 Nos.
7	Flexible Pavement for Main carriageway	52.938 Km
8	Total length of Slip Roads	65.44 Km
9	Toll Plaza	2 Nos.
10	Bus Bays / Bus Shelters	36 Nos.
11	Truck Lay Bays	4 Nos.
12	No of Rest Areas	4 Nos.
13	Major Junction	4 Nos.

14	Minor Junctions	167 Nos.
15	No of Vehicular underpasses	11 Nos.
16	Vehicle overpass	0 Nos.
17	No of Subways	0 Nos.
18	Elevated Structure	5 Nos.
19	No of Flyovers	3 Nos.
20	Pedestrian/Cattle Underpass	12 Nos.
21	Foot Over Bridge	2 Nos.
22	ROB	0 Nos.
23	Major Bridges	0 Nos.
24	Minor Bridges	3 Nos.
25	Box/Slab Culverts	34 Nos.
26	Pipe Culverts	15 Nos.

Source: Investment Manager

3.6.9. The shareholding of VSEPL as on Valuation Date is as follows:

Sr. No.	Particulars	No. of Shares	%
1	G R Infraprojects Limited	3,88,89,990	99.99%
2	Vinod Kumar Agarwal*	10	Negligible
	Total	**3,88,90,000**	**100.00%**

**Shares held by nominee of GR Infra*
Source: Investment Manager

3.6.10. My team had conducted physical site visit of the road stretch of VSEPL on 29th October 2022. Refer below for the pictures of the road stretch:







3.7. GR Sangli Solapur Highways Private Limited ("GSSHPL")

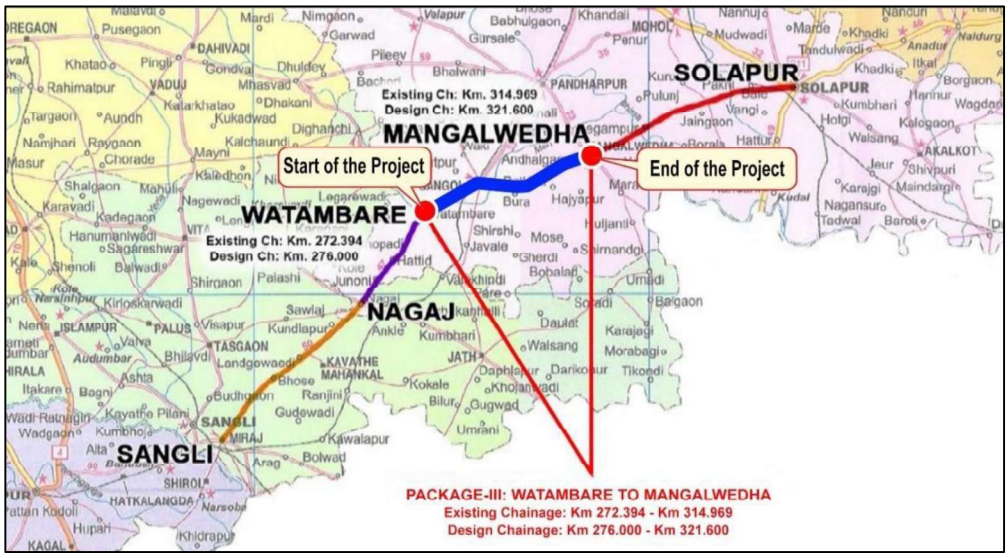
3.7.1. GSSHPL was incorporated on April 26, 2018 as a private limited company under the Companies Act, 2013 pursuant to certificate of incorporation issued by the Registrar of Companies, Central Registration Centre. The registered office of GSSHPL is located at GR House, Hiran Magri, Sector 11, Udaipur, Rajasthan 313 002, India.

3.7.2. GSSHPL was incorporated for the purpose of four-laning of Sangli – Solapur (Package- III: Watambare to Mangalwedha) Section of NH-166 from existing Ch. Km 272.394 to Ch. km 314.969 (Design Ch. km. 276.000 to Ch. km. 321.600).

3.7.3. GSSHPL has received Provisional Completion Certificate (PCOD certificate) on 28th June 2021, with minor balance works to be executed.

3.7.4. The project highway (Package-III) starts at Watambare at km. 276.000 and ends at Mangalwedha at km. 321.600. This entire package lies in Solapur District. The project highway passes through the built-up sections of Watambare, Yalgarmangewadi, Kamlapur, Godsewadi, Vasud, Sangola, Wadegaon, Rajapur, Landevenchinchole, Lakshmidahiwadi, Andhalgaon, Ganeshwadi and Mangalwedha.

3.7.5. The map below illustrates the location of the Project and the corridor it covers:



Source: Investment Manager

3.7.6. Summary of project details of GSSHPL are as follows:

Parameters	Details
Total Length	182.4 Lane Kms
Nos. of Lanes	4
NH / SH	NH 166
State Covered	Maharashtra
Area (Start and End)	Watambare – Mangalwedha
Bid Project Cost	INR 9,570 Mn
PPP Model	DBOT
Project Type	HAM
Concession Granted by	NHAI
PCOD Date	28-Jun-21
Nos. of Annuities	30
Construction Period	730 days from Appointed date
Operational Period	15 years from PCOD date

Source: Investment Manager

3.7.7. The corridor forms a part of existing road from Km 276.00 and ends at Km 321.60 in NH-116 connecting Watambare and Mangalwedha.

Sr. No.	Salient Features	As per Site
1	Total Length of the Project Highway	45.60 Km
2	Total length of Service Roads	28.51 Km
3	Widening	29.04 Km
4	New Alignment including bypass	16.56 Km
5	Approaches to underpasses	0 Km
6	No of Bypass Roads	1 Nos.
7	Flexible Pavement for Main carriageway	0 Km
8	Total length of Slip Roads	8.022 Km
9	Toll Plaza	0 Nos.
10	Bus Bays / Bus Shelters	34 Nos.
11	Truck Lay Bays	0 Nos.
12	No of Rest Areas	1 Nos.
13	Major Junction	1 Nos.
14	Minor Junctions	39 Nos.
15	Vehicular underpasses	6 Nos.
16	Light Vehicular underpasses	13 Nos.
17	Vehicle overpass	0 Nos.
18	No of Subways	0 Nos.
19	No of Flyovers	0 Nos.
20	Pedestrian/Cattle Underpass	0 Nos.
21	ROB	1 Nos.
22	Major Bridges	2 Nos.
23	Minor Bridges for Main Carriageway	11 Nos.
24	Box/Slab Culverts	6 Nos.
25	Pipe Culverts	64 Nos.

Source: Investment Manager

3.7.8. The shareholding of GSSHPL as on Valuation Date is as follows:

Sr. No.	Particulars	No. of Shares	%
1	G R Infraprojects Limited	1,49,99,990	99.99%
2	Vinod Kumar Agarwal*	10	Negligible
	Total	**1,50,00,000**	**100.00%**

**Shares held by nominee of GR Infra*
Source: Investment Manager

3.7.9. My team had conducted physical site visit of the road stretch of GSSHPL on 21st October 2022. Refer below for the pictures of the road stretch:









3.8. GR Dwarka Devariya Highway Private Limited ("GDDHPL")

3.8.1. GDDHPL was incorporated on March 26, 2019 as a private limited company under the Companies Act, 2013 pursuant to certificate of incorporation issued by the Registrar of Companies, Central Registration Centre. The registered office of GDDHPL is located at GR House, Hiran Magri, Sector 11, Udaipur, Rajasthan 313 002, India.

3.8.2. GDDHPL was incorporated for the purpose of four laning of Dwarka (Kuranga) – Khambhaliya – Devariya section of NH 151A in the state of Gujarat under Bharatmala Project.

3.8.3. The project corridor road is a section of National Highway Number 151A (Old NH-08E), NH-151A in the state of Gujarat which starts near Kuranga village from km. 0+000 and end at km. 76+270 in Jakhar Patia and total design length as per Concession Agreement is 67.12 kms and the length of the project highway including COS is 71.57 kms.

3.8.4. GDDHPL has received provisional completion certificate (PCOD certificate) on 2nd August 2022 with minor balance works to be executed.

3.8.5. The project highway passes through the built-up areas of towns and villages enroute. Important towns along the alignment are Bhatia, Kuvadia, Bamnsa, Dhandusar, Vadinar and Devariya etc.

3.8.6. The map below illustrates the location of the Project and the corridor it covers:



Source: Investment Manager

3.8.7. Summary of project details of GDDHPL are as follows:

Parameters	Details
Total Length	287.56 Lane Kms
Nos. of Lanes	4
NH / SH	NH 151A
State Covered	Gujarat
Area (Start and End)	Dwarka – Khambhaliya - Devariya
Bid Project Cost	INR 11,010 Mn
PPP Model	DBOT
Project Type	HAM
Concession Granted by	NHAI
PCOD Date	02-Aug-22
Nos. of Annuities	30
Construction Period	912 days from Appointed date
Operational Period	15 years from PCOD date

Source: Investment Manager

3.8.8. The corridor forms a part of existing road from Km 0+00 near Kuranga village and ends at Km 76+270 in Jakhar Patia in NH-151A in the state of Gujarat.

Sr. No.	Salient Features	As per Site
1	Total Length of the Project Highway	71.57 Km
2	Total length of Service Roads	18.18 Km
3	Widening	0 Km
4	New Alignment including bypass	0 Km
5	Approaches to underpasses	0 Km
6	No of Bypass Roads	0 Nos.
7	Flexible Pavement for Main carriageway	0 Km
8	Total length of Slip Roads	0 Km
9	Toll Plaza	1 Nos.
10	Bus Bays / Bus Shelters	50 Nos.
11	Truck Lay Bays	1 Nos.
12	No of Rest Areas	1 Nos.
13	Major Junction	0 Nos.
14	Minor Junctions	55 Nos.
15	No of Vehicular underpasses	5 Nos.
16	Vehicle overpass	0 Nos.
17	No of Subways	0 Nos.
18	No of Flyovers	0 Nos.
19	Pedestrian/Cattle Underpass	0 Nos.
20	ROB	1 Nos.
21	Major Bridges	4 Nos.
22	Minor Bridges	20 Nos.
23	Box/Slab Culverts	32 Nos.
24	Pipe Culverts	92 Nos.

Source: Investment Manager

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3.8.9. The shareholding of GDDHPL as on Valuation Date is as follows:

Sr. No.	Particulars	No. of Shares	%
1	G R Infraprojects Limited	94,99,990	99.99%
2	Vinod Kumar Agarwal*	10	Negligible
	Total	**95,00,000**	**100.00%**

**Shares held by nominee of GR Infra*
Source: Investment Manager

3.8.10. My team had conducted physical site visit of the road stretch of GDDHPL on 15th October 2022. Refer below for the pictures of the road stretch:

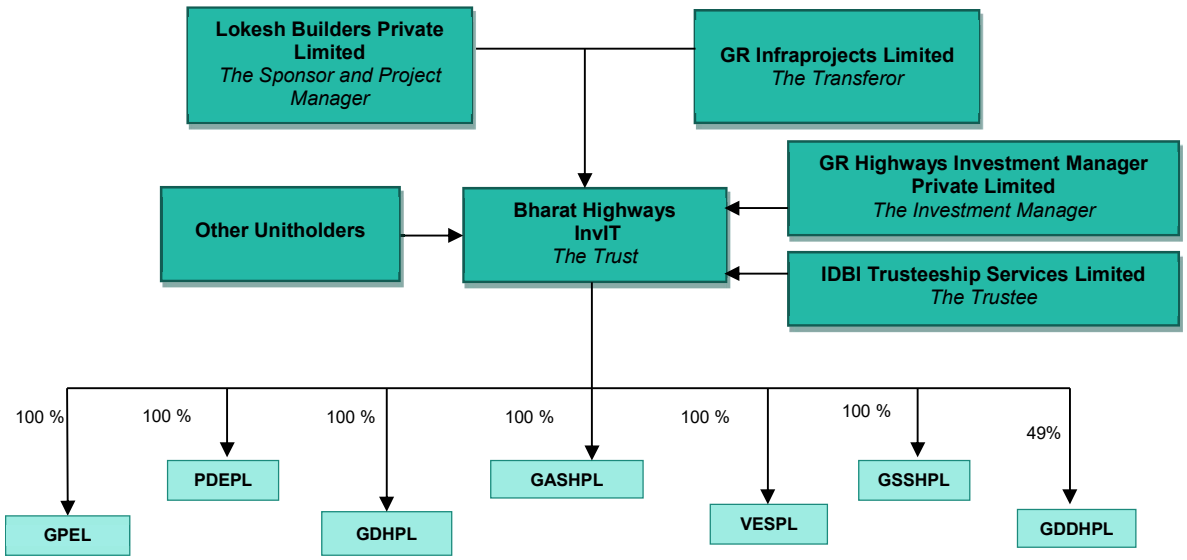




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4. Proposed Transaction

4.1. Following is the proposed structure of Bharat InvIT after completion of the Proposed Transaction:



Source: Investment Manager

4.2. Proposed Acquisition of stake in the SPVs by the Trust:

Sr. No.	SPV	As on Report Date	Post Proposed Transaction
		GR Infra Holding	Equity Stake proposed to be acquired by Trust prior to listing
1	GPEL	100.0%	100.0%
2	PDEPL	100.0%	100.0%
3	GDHPL	100.0%	100.0%
4	GASHPL	100.0%	100.0%
5	VSEPL	100.0%	100.0%
6	GSSHPL	100.0%	100.0%
7	GDDHPL	100.0%	49.0%*

** Remaining 51% equity shareholding of GDDHPL will be transferred to the Trust subsequently*

Source: Investment Manager

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5. Overview of the Industry

5.1 Introduction

5.1.1 The road infrastructure is an important determinant of economic growth in India and it plays a significant role in the economy's overall development process.

5.1.2 Creation and operation of quality road infrastructure continue to be major requirements for enabling overall growth and development of India in a sustained manner.

5.1.3 Bridging of existing infrastructure gaps and creating additional facilities to cater to the increasing population are equally important. Apart from providing connectivity in terms of enabling movement of passengers and freight, roads act as force multipliers in the economy.

5.1.4 Further, roads play a significant role in times of natural calamities, wars and other such events in terms of timely evacuation of the impacted population, carriage of relief material and other associated movements. Government takes cognisance of this requirement and road infrastructure remains to be a focus area.

5.2 Road Network in India

5.2.1 India has the second largest road network in the world, spanning over 6.37 million kms. Over 64.5% of all goods in the country are transported through roads, while 90% of the total passenger traffic uses road network to commute.



Source: IBEF Roads Report, July 2022

5.2.2 Out of this around 1.41 lakh km are National Highways ("NHs"). Significantly, NHs constitute around 2 per cent of the total road network in the country but carry about 40% of the road traffic. The density of India's highway network at 1.89 km of roads per square kilometer of land – is similar to that of the France (1.98) and much greater than China's (0.49) or USA's (0.68).

5.3 Government Agencies for Road Development

5.3.1 The Ministry of Road Transport & Highway ("**MoRTH**") is responsible for development of Road Transport and Highways in general and construction & maintenance of National Highways.

5.3.2 The National Highways Authority of India ("**NHAI**") is an autonomous agency of the Government of India, set up in 1988 and is responsible for implementation of National Highways Development Project ("**NHDP**").

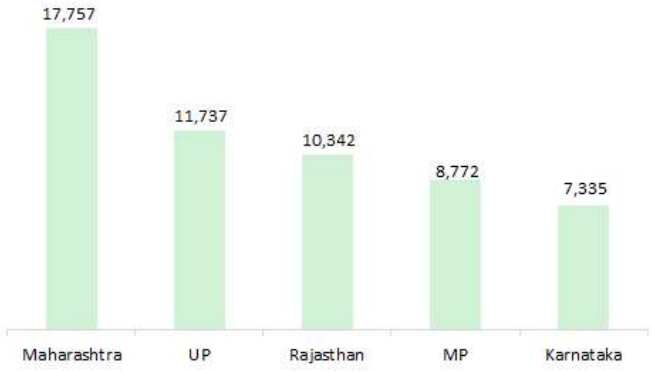
5.3.3 The NHDP in the context of NHs is nearing completion- in seven phases. Later, the other highway development programmes like Special Accelerated Road Development Programme for Development of Road Network in North Eastern States (SARDP- NE) and National Highways Interconnectivity Improvement Project (NHIIP) were also taken up by MoRTH. Further, BharatImala Pariyojana is ongoing. For majority of the projects under NHDP and Bharatmala Pariyojana, NHAI is the implementation agency. Other NH related programmes/works are being implemented

through agencies like National Highways Infrastructure Development Corporation Limited (NHIDCL), State Public Works Departments (PWDs), State Road Development Corporations and the Border Road Organization.

5.3.4 Roads in the jurisdiction of state governments are under different categories like State Highways ("SHs") and Major District Roads. They are being developed/ upgraded through State PWDs and State Road Development Corporations. Pradhan Mantri Gramm Sadak Yojana is being implemented for rural roads through the Ministry of Rural Affairs with active participation by state governments. Further, roads within urban areas are maintained/ developed mostly with PWDs and Urban Local Bodies.

5.3.5 State Governments have a significant role to play in developing the SHs, Major District Roads, Other District Roads to ensure the last mile connectivity. States have varying levels of maturity in terms of road infrastructure development due to issues such as inadequate identification and prioritization of projects, funding shortfall, limited institutional capacity to implement projects, etc.

Top 5 states by length of NHs in India (in Km)



Source: MoRTH, Government of India.

5.4 Trend of Road and Highways Construction

5.4.1 The length of National Highways awarded has almost doubled in the years FY15 to FY18 compared to FY11 to FY14. Length of NHs constructed has increased by 70% during the same period. This pace is expected to gain further ground, with the ambitious targets set by the ministry and the implementation of the Bharatmala Pariyojana as MORTH is planning to construct around 83,677 km of national highways at an estimated cost of Rs 10.63 trillion (US$ 130 billion) after factoring in cost escalations up to December 2021 and is 99% higher than the initial estimates owing to substantial rise in land acquisition cost, and steep increase in input costs.

5.4.2 India has become the fastest highway developer in the world with 28.64 kms of highways built each day in 2021-22 and plans to construct 18,000 kilometres of national highways in 2022-23 at a record speed of 50 kms per day.

5.4.3 Under the Union Budget 2022-23, the Government of India has allocated Rs. 199,107 crore (US$ 26.04 billion) to the Ministry of Road Transport and Highways.

5.4.4 The GST on construction equipment has been reduced to 18% from 28%, which is expected to give a boost to infrastructure development in the country.

5.4.5 The NHDP is a program to upgrade, rehabilitate and widen major highways in India to a higher standard. The project was started in 1998 to be implemented in 7 phases.

5.4.6 With the launch of Bharatmala project, 10,000 km of highway construction left under NHDP was merged with Phase I of the Bharatmala project.

5.4.7 The Indian government launched Gati Shakti-National Master Plan, which has consolidated a list of 81 high impact projects, out of which road infrastructure projects were the top priority. The major highway projects include the Delhi-Mumbai expressway (1,350 kilometres), Amritsar-Jamnagar expressway (1,257 kilometres) and Saharanpur-Dehradun expressway (210 kilometres).

5.4.8 The main aim of this program is a faster approval process by digitizing the process through a dedicated Gati shakti portal.

5.4.9 In December 2021, the government set a highway monetization target of Rs. 2 trillion (US$ 26.20 billion) for the next 3 years.

5.4.10 The Ministry of Road Transport and Highways awarded road projects with a total length of 12,731 kms in FY 22 as against 10,964 km in FY 21.

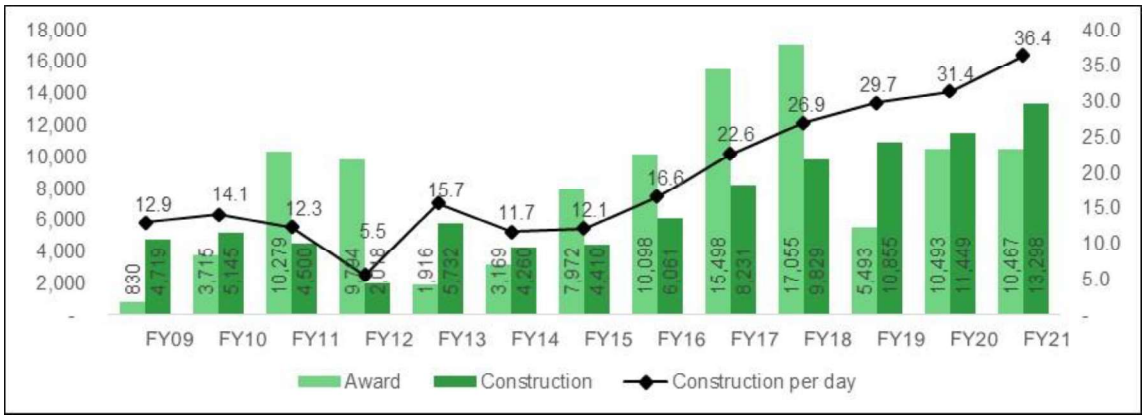
5.4.11 In FY 22, 10,457 kms of highways have been constructed as against 13,298 kms of highway constructed in FY 21 across India.

5.4.12 The Government of India has allocated Rs. 111 lakh crore (US$ 13.14 billion) under the National Infrastructure Pipeline for FY 2019-25. The Roads sector is expected to account for 18% capital expenditure over FY 2019-25.

5.4.13 NHAI is planning to raise Rs. 40,000 crore (US$ 5.72 billion) to monetise its highway assets through Infrastructure Investment Trust (InvIT). The InvIT of NHAI, National Highways Infra Trust, has raised more than Rs 8,000 crore from foreign and Indian institutional investors till October 2022.

5.4.14 The development of market for roads and highways is projected to exhibit a CAGR of 36.16% during 2016-2025, on account of growing government initiatives to improve transportation infrastructure in the country.

Details of national highways awarded (by NHAI) and constructed in India (KMs):



5.5 Implementation of important projects and expressways:

5.5.1 <u>Bharatmala Pariyojna</u>

Bharatmala Pariyojana is a new umbrella program for the highways sector that focuses on optimizing efficiency of freight and passenger movement across the country by bridging critical infrastructure gaps through effective interventions like development of Economic Corridors, Inter Corridors and Feeder Routes, National Corridor Efficiency Improvement, Border and International connectivity roads, Coastal and Port connectivity roads and Green-field expressway.

The Bharatmala Pariyojana envisages development of about 24,800 km length of Economic Corridors, which along with Golden Quadrilateral (GQ) and North-South and East-West (NS-EW) Corridors are expected to carry majority of the Freight Traffic on roads.

A total length of 34,800 km in road projects have been proposed to be constructed with an estimated outlay of Rs 5.35 trillion under Bharatmala Pariyojana Phase-I over a five year period (2017-18 to 2021-22).

Components under Bharatmala Pariyojana Phase-I are as given below:

Component	Length (Km)	Original Cost Estimate (INR Crs)
Economic corridors development	9,000	1,20,000
Inter-corridor & feeder roads	6,000	80,000
National Corridors Efficiency	5,000	1,00,000
Border & International connectivity	2,000	25,000
Coastal & port connectivity roads	2,000	20,000
Expressways	800	40,000
Sub Total	**24,800**	**3,85,000**
Other works - under NHDP	10,000	1,50,000
Total	**34,800**	**5,35,000**

Source: Ministry of Road Transport and Highways, Government of India

The completion cost of Phase-I is now estimated 10.63 trillion (US$ 130 billion) after factoring in cost escalations up to December 2021 and is 99% higher than the initial estimates owing to substantial rise in land acquisition cost, and steep increase in input costs. It is expected to be completed in FY2028, a delay of six years from the initial envisaged completion date of FY2022. During the last seven years, around 60% (20,632 km vs 34,800 km) of highway length has been awarded as of December 2021, and ~23% of the total length completed till March 2022

5.5.2 Char Dham Vikas Mahamarg Pariyojna:

This project envisages development of easy access to the four dhams in India – Gangotri, Yamunotri, Kedarnath and Badrinath. Development of this route of 889 km route us expected at an estimated cost of INR 12,000 Crores.

5.5.3 Eastern peripheral and western peripheral expressway

These two projects will connect NH-1 and NH-2 from western and eastern side of Delhi.

5.5.4 Setu Bharatam:

This project aims to replace crossings on NHs with Road Over Bridges and Road Under Bridges. It is projected to construct 174 such structures.

5.5.5 To further augment road infrastructure, more economic corridors are also being planned by Government of India as revealed in Budget 2021-22.

a. 3,500 km of National Highway works in the state of Tamil Nadu at an investment of INR 1.03 lakh Crores. These include Madurai-Kollam corridor, Chittoor-Thatchur corridor. Construction will start next year.

b. 1,100 km of National Highway works in the State of Kerala at an investment of INR 65,000 Crores including 600 km section of Mumbai Kanyakumari corridor in Kerala.

c. 675 km of highway works in the state of West Bengal at a cost of INR 25,000 Crores including upgradation of existing road-Kolkata –Siliguri.

d. National Highway works of around INR 19,000 Crores are currently in progress in the State of Assam. Further works of more than INR 34,000 Crores covering more than 1300 kms of National Highways will be undertaken in the State in the coming three years.

e. In the Union Budget of 2022-23, the increase in Budget was a whopping 68% compared to the last year and the government plans to complete 25,000 kilometres of National highways.

5.6 Opportunities in road development & maintenance in India

a. India has joined the league of 15 of global alliance which will work towards the ethical use of smart city technologies

b. The Government aims to construct 65,000 kms of national highways at a cost of Rs. 5.35 lakh crore (US$ 741.51 billion).

c. The government also aims to construct 23 new national highways by 2025.

d. Road building in India is second least expensive in Asia.

e. Andhra Pradesh will spend US$ 296.05 million to build 8,970 kms of roads.

f. In February 2022, NHAI rolled out a plan to construct 5,795 kilometres of highways that will connect 117 districts. The plan was worth Rs. 1 trillion (US$ 13.09 billion).

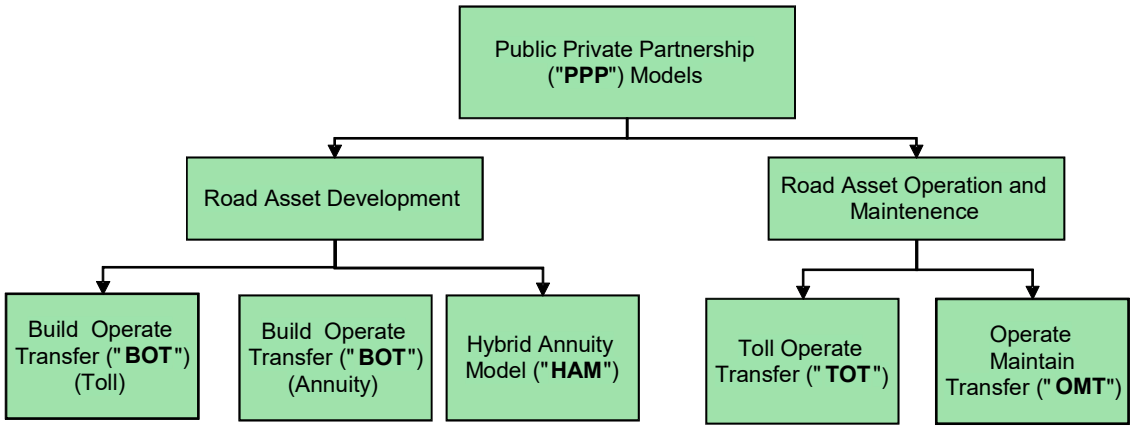
5.7 Public Private Partnership (“PPP”) Models of road development and maintenance in India

5.7.1 India has a well-developed framework for Public-Private-Partnerships (PPP) in the highway sector. PPP has been a major contributor to the success story of the roads and highway sector in India. With the emergence of private players over the last decade, the road construction market has become fragmented and competitive. Players bidding for projects also vary in terms of size.PPP modes have been used in India for both development and operation & maintenance of road assets.

5.7.2 In FY21, there were 125 PPP projects worth US$ 23.25 billion in India.

5.7.3 NHAI targets 450 kilometres of the Build-operate-transfer (BOT) projects in FY22 and is looking forward to bidding out 600-1000 kilometres of highway stretch under the Build-operate-transfer (BOT) model as of November 2021.

5.7.4 In August 2020, the Government of India revised the Model Concession Agreement for BOT projects to plug delays by imposing a deadline on the NHAI and incentivising timely work by concessionaires. According to revised norms, the NHAI will have to hand over 90% of the project land (vacant and ready to build) to private developers, thus creating a more market-friendly sector and attracting more private players.



5.7.5 **Road Asset Development Models**

- **BOT Toll**
  - In a BOT toll project, the concessionaire is responsible for designing, building, financing, operating, maintaining, tolling and transferring the project to the relevant authority at the end of the concession period. The concession period is project specific but is usually for 20-25 years. In BOT Toll model, the concessionaire earns revenue primarily in the form of toll revenue which in turns depends on the traffic on the road stretch. Toll rates are regulated by the government through rules.
- **BOT Annuity**
  - Similar to a BOT Toll projects, in BOT Annuity project, the concessionaire is responsible for designing, building, financing, operating, maintaining, tolling and transferring the project to the relevant authority at the end of the concession period. However, in these projects, the right to collect toll on road stretch lies with the government. The concessionaire earns revenue in the form of pre-determined semi-annual annuity payments.
- **HAM**
  - Similar to a BOT projects, in HAM project, the concessionaire is responsible for designing, building, financing, operating, maintaining, tolling and transferring the project to the relevant authority at the end of the concession period. However, in these projects, the right to collect toll on road stretch lies with the government. The construction period for HAM projects is project specific and a fixed operation period of 15 years.

5.8 Government Investment in the Sector

5.8.1 Under Union Budget 2022-23, the Government of India has allocated Rs. 199,107 crore (US$ 26.04 billion) to the Ministry of Road Transport and Highways.

5.8.2 During 2019-23, NHAI is expected to generate Rs. 1 trillion (US$ 14.30 billion) annually from toll and other sources.

5.8.3 NHAI is planning to raise Rs. 40,000 crore (US$ 5.72 billion) to monetize its highway assets through Infrastructure Investment Trust (InvIT). Five operational roads with an estimated enterprise value of INR 5,000 crores have been transferred to the NHAI InvIT.

5.9 Growth Drivers

5.9.1 Robust Demand :

Growing domestic trade flows have led to rise in commercial vehicles and freight movement; supported by rise in production of commercial vehicles to 752,022 in FY20 which commands stronger road network in India. Higher individual discretionary spending has led to increased spending on two and four wheelers. Domestic sales of passenger vehicles, three-wheelers and two-wheelers, reached 3,069,499, 260,995, and 13,466,412 units, respectively, in FY22. Road's traffic share of the total traffic in India has grown from 13.8% to 65% in freight traffic and from 32% to 90% in passenger traffic over 1951–2019.

5.9.2 Increasing Investment :

Huge investment have been made in the sector with total investment increasing more than three times from Rs. 51,914 crore (US$ 7.43 billion) in 2014-15 to Rs. 158,839 crore (US$ 22.73 billion) in 2018- 19. Between FY16 and FY21, budget outlay for road transport and highways increased at a robust CAGR of 13.10%. In 2019-20. Under the Union Budget 2022-23, the Government of India has allocated Rs. 199,107.71 crore (US$ 26.04 billion) to the Ministry of Road Transport and Highways.

5.9.3 Policy Support :

100% FDI is allowed under automatic route subject to applicable laws and regulations, standardized process for bidding and tolling. Under Union Budget 2020-21, the Government of India has allocated Rs. 19,500 crore (US$ 2.79 billion) for Pradhan Mantri Gram Sadak Yojana (PMGSY) which is a scheme for development of rural roads in India. Government of India has set up India Infrastructure Finance Company (IIFCL) to provide long-term funding for infrastructure projects.

5.10 Challenges & Issues in the Sector

5.10.1 Land Acquisition Delays & Cost :

- Land acquisition cost has increased more than 30% since 2017, primarily due to enhanced compensation payment requirements as per 'The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013'.
- Delay in pre-construction activities (such as land acquisition, relocation) affects project timelines. Land acquisition for road projects involves various stages. Each stage involves a number of stakeholders and regulatory bodies. Thus processes consume considerable time.

5.10.2 Regulatory Approvals & Disputes :

- Road development process requires a number of approvals such as environmental clearance, forest clearance, railways clearance, etc. Each of these activities takes considerable time and non-adherence to timelines result in cost overruns due to delays.
- Claims arising out of disputes between the concessionaire/ contractor and the government authorities are also a significant cost which can lead to large liabilities.

5.10.3 Operational Issues :

- Uncertainty of toll revenue collection and variation of collected toll revenue compared to projected levels as Actual traffic is much less than the anticipated traffic.
- Often unforeseen weather conditions require unplanned O&M, over and above the routine and periodic maintenance activities. This results in enhanced O&M expenses. The increase in O&M costs is also affecting the project returns.

5.10.4 Financing road construction projects :

- In the case of toll motorways, the challenge of financing construction projects is different but still remains. Traditionally, the construction of toll motorways is a profitable investment but in the times of recession, funding may be rare or non existent.
- Powerful national economies may be able to efficiently tackle the problem but weaker economies can hardly find the financing sources for road construction projects.

5.10.5 Climate Change

- The road sector is vulnerable to climate change impacts. Climate change and extreme weather events pose a significant challenge to the safety, reliability, effectiveness and sustainability of road transportation systems. Tsunami waves, wildfires, floods and hurricanes constitute a big risk for passengers, vehicles and goods, as well as for the integrity of the transport infrastructure.
- Since reliable road transport is an essential driver of economic growth and social wellbeing worldwide, national road authorities and motorway operators must adapt the infrastructure to climate change and increase the resilience of road transport to extreme weather

5.10.6 Economy and cost effectiveness :

- Among all transport modes, road transport occupies a significant place in short- and medium distance travel operations. However, the unit cost of transportation (per ton × km), compared with other modes of transport, remains high and is getting higher and cost-ineffective as the travel distance increases.
- Road transport cost comprises direct costs (fuel, capital depreciation, maintenance, motorway tolls, ferry fares and wages) and external costs (noise, congestion, infrastructure damages, health and environmental issues).

5.11 Recent Initiatives by Government

5.11.5 Bhoomi Rashi – Land Acquisition Portal

The ministry has corroborated with the National Informatics Centre, to create Bhoomirashi, a web portal which digitises the cumbersome land acquisition process, and also helps in processing notifications relating to land acquisition online. Processing time, which was earlier two to three months has come down to one to two weeks now.

5.11.6 FASTag – Electronic Toll Collection

National Electronic Toll Collection (NETC) system, has been implemented on pan India basis in order to remove bottlenecks and ensure seamless movement of traffic and collection of user fee as per the notified rates, using passive Radio Frequency Identification (RFID) technology. In Q2 2022, NETC processed about 829 million transactions worth INR 129 billion. The transactions volume increased by 89% while value increased by 72% as compared to Q2 2021. As of March 2022, the total number of banks live with NETC FASTag were 36 while about 52.9 million NETC FASTags have been issued since the inception of the NETC program.

5.11.7 Revival of languishing projects

Projects which were languishing for a number of years have been attempted to be revived, with the help of a number of policy measures taken by the government. Some of the policy measures like Premium deferment in stressed projects, extension of concession period for languishing projects to the extent of delay not attributable to concessionaires, One Time Capital Support for physical completion of languishing projects that have achieved at least 50 per cent physical progress, through one time fund infusion by NHAI, subject to adequate due diligence on a case to case basis.

5.11.8 Rural development

Under the Union Budget 2021-22, the Government of India allocated Rs. 19,000 (US$ 2.37 billion) for Pradhan Mantri Gram Sadak Yojana (PMGSY), a 36% rise over the earlier estimate of 2021-22. Under the Union Budget 2020-21, the Government of India has allocated Rs. 19,500 crore (US$ 2.79 billion) for Pradhan Mantri Gram Sadak Yojana (PMGSY).

5.11.9 Improve safety standards

In October 2021, the government announced rules to improve road safety, such as fixed driving hours for commercial truck drivers and a mandate to install sleep detection sensors in commercial vehicles. In October 2020, a memorandum of understanding (MoU) has been signed with the National Highways Authority of India (NHAI) by Guru Nanak Dev University (GNDU) to conduct advanced research on various aspects, including highway architecture, protection and revitalisation. The GNDU will undertake studies on ~137 km length of the National Highways passing through Pathankot, Gurdaspur and Amritsar districts.

5.11.10 Portfolios in roads & highways sector

In October 2020, the National Investment and Infrastructure Fund (NIIF) is making progress towards integrating its road and highway portfolio. The NIIF has acquired Essel Devanahalli Tollway and Essel Dichpally Tollway through the NIIF master fund. These road infra-projects will be supported by Athaang Infrastructure, NIIF's proprietary road network, assisted by a team of established professionals with diverse domain expertise in the transport field.

5.11.11 International Tie-ups

In December 2020, the Ministry of Road Transport and Highways signed an MoU with the Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology of the Republic of Austria on technology cooperation in the road infrastructure sector.

5.11.12 Encourage private funding to reduce finance constraints

- Cumulative FDI inflows in construction development stood at US$ 26.21 billion between April 2000-March 2022. Maif 2 Investments India Pvt. Ltd. became the first-largest foreign investment in Indian roads sector under toll-operate-transfer (TOT) mode worth Rs. 9,681.5 crore (US$ 1.50 billion).
- In October 2020, the Asian Development Bank (ADB) and the Government of India signed a US$ 177 million loan to upgrade 450 kms of state highways and major district roads in Maharashtra.
- In January 2021, the Government of India and New Development Bank (NDB) signed two loan agreements for US$ 646 million for upgrading the state highway and district road networks in Andhra Pradesh.
- In August 2020, the Government of India revised the Model Concession Agreement for BOT projects to plug delays by imposing a deadline on the NHAI and incentivising timely work by concessionaires.
- According to revised norms, the NHAI will have to hand over 90% of the project land (vacant and ready to build) to private developers, thus creating a more market-friendly sector and attracting more private players.

Sources: IBEF Roads Report, July 2022; KPMG Report - Roads and Highway Sector; ICRA reports, website of Ministry of Road Transport and Highways, Government of India.

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6. Valuation Methodology and Approach

6.1. The present valuation exercise is being undertaken in order to derive the fair EV of the SPVs.

6.2. The valuation exercise involves selecting a method suitable for the purpose of valuation, by exercise of judgment by the valuers, based on the facts and circumstances as applicable to the business of the company to be valued.

6.3. There are three generally accepted approaches to valuation:

(a) "Cost" approach
(b) "Market" approach
(c) "Income" approach

6.4. **Cost Approach**

The cost approach values the underlying assets of the business to determine the business value. This valuation method carries more weight with respect to holding companies than operating companies. Also, cost value approaches are more relevant to the extent that a significant portion of the assets are of a nature that could be liquidated readily if so desired.

Net Asset Value ("**NAV**") Method

The NAV Method under Cost Approach considers the assets and liabilities, including intangible assets and contingent liabilities. The Net Assets, after reducing the dues to the preference shareholders, if any, represent the value of a company.

The NAV Method is appropriate in a case where the main strength of the business is its asset backing rather than its capacity or potential to earn profits. This valuation approach is also used in cases where the firm is to be liquidated, i.e. it does not meet the "Going Concern" criteria.

As an indicator of the total value of the entity, the NAV method has the disadvantage of only considering the status of the business at one point in time.

Additionally, NAV does not properly take into account the earning capacity of the business or any intangible assets that have no historical cost. In many aspects, NAV represents the minimum benchmark value of an operating business.

6.5. **Market Approach**

Under the Market approach, the valuation is based on the market value of the company in case of listed companies, and comparable companies' trading or transaction multiples for unlisted companies. The Market approach generally reflects the investors' perception about the true worth of the company.

Comparable Companies Multiples ("**CCM**") Method

The value is determined on the basis of multiples derived from valuations of comparable companies, as manifest in the stock market valuations of listed companies. This valuation is based on the principle that market valuations, taking place between informed buyers and informed sellers, incorporate all factors relevant to valuation. Relevant multiples need to be chosen carefully and adjusted for differences between the circumstances.

Comparable Transactions Multiples ("**CTM**") Method

Under the CTM Method, the value is determined on the basis of multiples derived from valuations of similar transactions in the industry. Relevant multiples need to be chosen carefully and adjusted for differences between the circumstances. Few of such multiples are EV/Earnings before Interest, Taxes, Depreciation & Amortization ("**EBITDA**") multiple and EV/Revenue multiple.

Market Price Method

Under this method, the market price of an equity share of the company as quoted on a recognized stock exchange is normally considered as the fair value of the equity shares of that company where such quotations are arising from the shares being regularly and freely traded. The market value generally reflects the investors' perception about the true worth of the company.

6.6. **Income Approach**

The income approach is widely used for valuation under "Going Concern" basis. It focuses on the income generated by the company in the past as well as its future earning capability. The Discounted Cash Flow Method under the income approach seeks to arrive at a valuation based on the strength of future cash flows.

DCF Method

Under DCF Method value of a company can be assessed using the FCFF or Free Cash Flow to Equity Method ("**FCFE**"). Under the DCF method, the business is valued by discounting its free cash flows for the explicit forecast period and the perpetuity value thereafter. The free cash flows represent the cash available for distribution to both, the owners and creditors of the business. The free cash flows in the explicit period and those in perpetuity are discounted by the WACC. The WACC, based on an optimal vis-à-vis actual capital structure, is an appropriate rate of discount to calculate the present value of future cash flows as it considers equity-debt risk by incorporating debt-equity ratio of the firm.

The perpetuity (terminal) value is calculated based on the business' potential for further growth beyond the explicit forecast period. The "Constant Growth Model" is applied, which implies an expected constant level of growth for perpetuity in the cash flows over the last year of the forecast period.

The discounting factor (rate of discounting the future cash flows) reflects not only the time value of money, but also the risk associated with the business' future operations. The EV (aggregate of the present value of explicit period and terminal period cash flows) so derived, is further reduced by the value of debt, if any, (net of cash and cash equivalents) to arrive at value to the owners of the business.

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Conclusion on Valuation Approach

6.7. It is pertinent to note that the valuation of any company or its assets is inherently imprecise and is subject to certain uncertainties and contingencies, all of which are difficult to predict and are beyond my control. In performing my analysis, I have made numerous assumptions with respect to industry performance and general business and economic conditions, many of which are beyond the control of the SPVs. In addition, this valuation will fluctuate with changes in prevailing market conditions, and prospects, financial and otherwise, of the SPVs, and other factors which generally influence the valuation of companies and their assets.

6.8. The goal in selection of valuation approaches and methods for any business is to find out the most appropriate method under particular circumstances on the basis of available information. No one method is suitable in every possible situation. Before selecting the appropriate valuation approach and method, I have considered various factors, inter-alia, the basis and premise of current valuation exercise, purpose of valuation exercise, respective strengths and weaknesses of the possible valuation approach and methods, availability of adequate inputs or information and its reliability and valuation approach and methods considered by the market participants.

Cost Approach

The existing book value of EV of the SPVs comprising of the value of its Net fixed assets, Net intangible assets, Other non-current assets and working capital based on the unaudited financial statements as at 30th June 2022 and audited financial statements as at 31st March 2022 prepared as per Indian Accounting Standards (Ind AS) are as under :

INR Mn

Sr No.	SPVs	Book EV*		Adjusted EV**	
		Unaudited	Audited	Unaudited	Audited
		30th June 2022	31st March 2022	30th June 2022	31st March 2022
1	GPEL	6,040	5,748	6,584	6,345
2	PDEPL	8,011	8,188	8,706	8,837
3	GDHPL	9,724	8,969	10,731	10,060
4	GASHPL	4,002	3,808	4,672	4,567
5	VSEPL	12,284	12,659	13,358	13,613
6	GSSHPL	4,790	4,302	5,678	5,366
7	GDDHPL	4,656	3,546	4,684	3,576
	Total	**49,506**	**47,220**	**54,413**	**52,366**

** Enterprise Value ("**EV**") is described as the total value of the equity in a business plus the value of its debt and debt related liabilities, minus any cash or cash equivalents to meet those liabilities.*

*** Adjusted Enterprise Value of the SPVs is derived as the EV as defined above plus cash or cash equivalents of the SPVs as at the Valuation Date.*

In the present case, the SPVs operate and maintain the project facilities in accordance with the terms and conditions under the relevant concession agreement(s). During the concession period, the SPVs operate and maintain their respective road assets and earn revenues through annuity payment that are pre-determined as per the respective concession agreement. In such scenario, the true worth of the business is reflected in its future earning capacity rather than the cost of the project. Accordingly, I have not considered the cost approach for the current valuation exercise.

Market Approach

The present valuation exercise is to undertake fair EV of the SPVs engaged in the road infrastructure projects for a predetermined tenure. Further, the tariff revenue and expenses are very specific to the SPVs depending on the nature of their geographical location, stage of project, terms of profitability. In the absence of any exactly comparable listed companies with characteristics and parameters similar to that of the SPVs, I have not considered CCM method in the present case. In the absence of adequate details about the Comparable Transactions, I was unable to apply the CTM method. Currently, the equity shares of the SPVs are not listed on any recognized stock exchange of India. Hence, I was unable to apply market price method.

Income Approach

Each of the SPVs operates under a DBOT based concession agreement with NHAI.

Currently, each of the SPVs are completed and are revenue generating. The revenue of the SPVs is based on tenure, annuity payments, operations and other factors that are unique to each of the SPVs. The revenue of the SPVs is mainly derived from the annuity payments (annuity fees), interest income on balance annuity payments (which is linked to bank rate) and O&M payments (adjusted for inflation), that is defined under respective Concession Agreement for operation period.

The annuity fees are typically pre-determined with the relevant government authority (NHAI in this case) and cannot be modified to reflect prevailing circumstances. Interest on balance annuity payments are linked to bank rate, which is changed by RBI based on prevailing market conditions. The rights in relation to the underlying assets of all the SPVs shall be transferred after the expiry of the Concession Period. Accordingly, since all the SPVs are generating income based on pre-determined agreements / mechanism and since the Investment Manager has provided me with the financial projections of the SPVs for the balance tenor of the concession agreements, DCF Method under the income approach has been considered as the appropriate method for the present valuation exercise.

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7. Valuation of the SPVs

7.1. I have estimated the fair EV and Adjusted Enterprise Value of the SPVs using the DCF Method. While carrying out this engagement, I have relied extensively on the information made available to me by the Investment Manager. I have considered projected financial statement of the SPVs as provided by the Investment Manager.

Valuation

7.2. The key assumptions of the projections provided to me by the Investment Manager are:

Key Assumptions:

7.2.1. **Revenue cash flows**

The Cash flow for the SPVs can be divided into two segments:

Payment NHAI during the Construction Period:

Each SPV was eligible to receive 40% of the Bid Project Cost, adjusted for the price index multiple, in 5 equal installments during the construction period. I have been represented by the Investment Manager that all the SPVs have received the agreed portion of the inflation adjusted bid project cost (of 40%) as per their respective concession agreement. Hence, no further cash flow receipts are attributable towards this segment of cash flows.

Payment by NHAI during the Operation Period: Accordingly, the revenue of the SPVs would mainly consists of the following receipts:

a. **Annuity payments**: The Bid Project Cost remaining, adjusted for the price index multiple, to be paid in pursuance of the respective concession agreements (i.e. the Balance Completion Cost) is eligible to be received by the respective SPVs by way of specified biannual installments as mentioned in their respective concession agreement for the balance period of operations.

Following table represents the balance number of biannual annuity installments expected to be received by the respective SPVs after the Valuation Date:

Sr. No.	SPVs	No. of balance annuities
1	GPEL	26
2	PDEPL	26
3	GDHPL	29
4	GASHPL	28
5	VSEPL	27
6	GSSHPL	29
7	GDDHPL	30

b. **Interest**: As per the concession agreements, the SPVs are entitled to receive interest on reducing Balance Completion Cost equal to applicable Bank Rate (as decided by the Monetary Policy Committee and published by the Reserve Bank of India) + 3.00% spread. Such interest is due and payable along with each of the biannual installments as mentioned above; and

c. **Operation and Maintenance Revenue**: In lieu of O&M expenses to be incurred by SPV, SPVs are eligible for certain O&M income (as defined in the respective concession agreement) at each biannual installment date, duly adjusted for an appropriate inflation rate.

7.2.2. **Expenditure:**

Since all the SPVs (except GDDHPL, which got operational on 2nd August 2022) are operational on the Valuation Date, following are the major costs incurred by the SPV:

Operation and Maintenance Costs (Routine) ("O&M Costs")

These are routine costs incurred every year. These costs are related to the normal wear and tear of the road and hence involve repairing the patches damaged mainly due to heavy traffic movement. O&M Costs also includes staff salaries, project management fees, professional fees, insurance, security expenses, electricity, etc. The primary purpose of these expenses is to maintain the road as per the specifications mentioned in the respective concession agreement. SPV is generally responsible for carrying out operation and maintenance activities at its road during its concession period**.** Within the scope of such operation and maintenance obligations, the SPV may be required to undertake routine maintenance of project roads, maintain and comply with safety standards to ensure smooth and safe traffic movement, deploy adequate human resources for incident management, maintain proper medical and sanitary arrangements for personnel deployed at the site, prevent any unauthorized entry to and exit from the project as may be required.

The Investment Manager has provided the estimated O&M costs for the projected period and I have corroborated the said expenses with the Technical Due Diligence report of the respective SPV prepared by the external professional agency (FP India Project Management Consultancy Services Private Limited) for estimating major maintenance expenses and O&M Costs for the projected period.

I understand from the Investment Manager that after acquisition of the SPVs by the Trust there will be a new O&M contract with the associate of Sponsor of the Trust, i.e. GR Infra, covering the respective balance concession life of the SPVs.

Major Maintenance and Repairs Costs ("MMR Costs")

Estimating the MMR Costs

Period maintenance expenses will be incurred on periodic basis say every 5 years or more. These are the costs incurred to bring the road assets back to its earlier condition or keep the road assets in its present condition. These expenses are primarily related to the construction or re-laying of the top layer of the road. Accordingly such costs includes considerable amounts of materials and labour.

The Investment Manager has provided the estimated MMR cost for the projected period and I have corroborated the said expenses with the Technical Due Diligence report of the respective SPV prepared by the external professional agency (FP India Project Management Consultancy Services Private Limited) for estimating major maintenance expenses and O&M Costs for the projected period.

I understand from the Investment Manager that after acquisition of the SPVs by the Trust there will be a new O&M contract with the associate of Sponsor of the Trust, i.e. GR Infra, covering the respective balance concession life of the SPVs, for Major Maintenance and Repairs as well.

7.2.3. **Capital Expenditure ("Capex"):** As represented by the Investment Manager, regarding the maintenance Capex, the same has already been considered in the Operation & Maintenance expenditure and Major Maintenance and Repairs expenditure for the projected period.

I understand that there are some balance work pending in PDEPL as per Technical Due Diligence report dated November 2022 but Investment Manager has clarified that the expense will be carried out by GR Infra, hence no capex has been considered for the same in the projection for the future period. Additionally, minor balance work pending in other SPVs have been considered for which appropriate capex is projected in future period.

7.2.4. **Direct Taxes**: As per the discussions with the Investment Manager, the new provisions of Income Tax Act, 1961 (Section 115BAA) have been considered for the projected period of all SPVs. The SPVs have been filing their income tax returns basis the IND AS Income, adjusted for adjustments prescribed by Income Computation and Deduction Standards IV i.e Revenue Recognition, which

can be substantiated from the tax audit reports of the respective SPVs. I have relied on the representation of the Investment Manager for the projected tax outflow for the projected period.

7.2.5. **Working Capital:**

The Investment Manager has provided projected financial information on biannual basis for all the SPVs. The biannual period are based on the annuity dates of the respective SPVs. The amount of O&M expenses payable to GR Infra by the SPVs on the basis of their respective O&M Agreements is also due and payable on the basis of the annuity amount and date on which annuities are received. Hence, for all the SPVs where annuity payments are material component of revenue, there are no receivables and payables estimated to be outstanding at their respective annuity dates during the biannually prepared projected period. Other working capital items outstanding as at the Valuation Date mainly represents the advance income tax, GST input tax (and cash) credit, prepaid expenses, etc. that are separately adjusted in the calculation of the enterprise values of the SPVs. The Investment Manager has provided projected Working Capital information for all the SPVs. I have relied on the same.

7.2.6. **GST Claim:** The Investment Manager has informed us that due to the changes in extant provision of the Goods & Services Tax ("GST") laws, the SPVs are eligible to receive GST claim from NHAI which are as follows:

i. **On Annuity:** As per the clarification notification of Ministry of Road Transport & Highways as on 27th August 2021 vis-à-vis Ministry of Finance circular dated 17th June 2021, SPVs are eligible to claim reimbursement of GST on annuity, considering change in law, after adjusting GST input credit lying with the SPVs.

ii. **On Interest on Annuity:** As per the Ministry of Finance circular dated 17th June 2021, GST will be applicable on annuity (deferred payments) paid for construction of roads i.e. annuity plus interest, additionally Ministry of Road Transport & Highways issued clarification dated 17th June 2021 that the SPVs will be eligible to claim reimbursement of GST on interest.

iii. **Change in GST rates:** Ministry of Finance vide notification no. 03/2022 dated 13th July 2022, increased the GST rates applicable on road construction services from 12% to 18%. As per the clarification of Ministry of Road Transport & Highways dated 20th September 2022, the above increase in GST rates are eligible for reimbursement from NHAI as it is considered as change in law (i.e. change of rate).

7.3. **Impact of Ongoing Material Litigation on Valuation**

As on 30th June 2022, there are no ongoing material litigations, except indirect tax litigations as shown in Appendix 4. Further, Investment Manager has informed us that majority of the tax litigations are low to medium risk and accordingly no material outflow is expected against the litigations, hence no impact has been factored on the valuation of the SPVs. Further, I have been informed by the Investment Manager that the tax litigations prior to acquisition of SPVs by the Trust shall be covered by an indemnity given by the Transferor (GR Infra) for a period of eight years (from date of such transfer) through the Share Purchase Agreement ("SPA") to be executed between the Trust and the Transferor.

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7.4. Calculation of Weighted Average Cost of Capital for the SPVs

7.4.1. Cost of Equity:

Cost of Equity (CoE) is a discounting factor to calculate the returns expected by the equity holders depending on the perceived level of risk associated with the business and the industry in which the business operates.

For this purpose, I have used the Capital Asset Pricing Model (CAPM), which is a commonly used model to determine the appropriate cost of equity for the SPVs.

K(e) = Rf + [ERP* Beta] + CSRP

Wherein:
K(e) = cost of equity
Rf = risk free rate
ERP = Equity Risk Premium
Beta = a measure of the sensitivity of assets to returns of the overall market
CSRP = Company Specific Risk Premium (In general, an additional company-specific risk premium will be added to the cost of equity calculated pursuant to CAPM).
For valuation exercise, I have arrived at adjusted cost of equity of the SPVs based on the above calculation (Refer Appendix 2).

7.4.2. Risk Free Rate:

I have applied a risk free rate of return of 7.44% on the basis of the zero coupon yield curve as on 30th June 2022 for government securities having a maturity period of 10 years, as quoted on the website of Clearing Corporation of India Limited.

7.4.3. Equity Risk Premium ("ERP"):

Equity Risk Premium is a measure of premium that investors require for investing in equity markets rather than bond or debt markets. The equity risk premium is estimated based on consideration of historical realised returns on equity investments over a risk-free rate as represented by 10 year government bonds. Based on the aforementioned, a 7% equity risk premium for India is considered appropriate.

7.4.4. Beta:

Beta is a measure of the sensitivity of a company's stock price to the movements of the overall market index. In the present case, I find it appropriate to consider the beta of companies in similar business/ industry to that of the SPVs for an appropriate period.

For the valuation of the SPVs, I find it appropriate to consider the beta of MEP Infrastructure Developers Limited and Sadbhav Infrastructure Project Limited for an appropriate period. The beta so arrived, is further adjusted based on the factors of mentioned SPVs like completion of projects, revenue certainty, past collection trend, lack of execution uncertainty, etc. to arrive at the adjusted unlevered beta appropriate to the SPVs.

I have further unlevered the beta of such companies based on market debt-equity of the respective company using the following formula:
Unlevered Beta = Levered Beta / [1 + (Debt / Equity) *(1-T)]

Further I have re-levered it based on debt-equity at 70:30 based on the industry Debt: Equity ratio of HAM based projects using the following formula:
Re-levered Beta = Unlevered Beta * [1 + (Debt / Equity) *(1-T)]

Accordingly, as per above, I have arrived at re-levered betas of the SPVs. (Refer Appendix 2)

7.4.5. **Company Specific Risk Premium ("CSRP"):**

Discount Rate is the return expected by a market participant from a particular investment and shall reflect not only the time value of money but also the risk inherent in the asset being valued as well as the risk inherent in achieving the future cash flows. In the present case, considering the counter-party risk for certain SPVs, considering the length of the explicit period for the SPVs, and basis my discussion with Investment Manager, I found it appropriate to 0% CSRP for the SPVs.

7.4.6. **Cost of Debt:**

The calculation of Cost of Debt post-tax can be defined as follows:
K(d) = K(d) pre-tax * (1 - T)

Wherein:
K(d) = Cost of debt
T = tax rate as applicable

For valuation exercise, pre-tax cost of debt has been considered as 7.50%, as representation by the Investment Manager.

7.4.7. **Weighted Average Cost of Capital (WACC):**

The discount rate, or the WACC, is the weighted average of the expected return on equity and the cost of debt. The weight of each factor is determined based on the company's optimal capital structure.

Formula for calculation of WACC:
WACC = [K(d) * Debt /(Debt + Equity)] + [K(e) * (1 - Debt /(Debt + Equity))]

Accordingly, as per above, I have arrived the WACC for the explicit period of the SPVs.
(Refer Appendix 2 for detailed workings).

7.5. At the end of the agreed concession period, the rights in relation to the underlying assets, its operations and the obligation to maintain the road reverts to the government authority that granted the concession. Hence, SPVs are not expected to generate cash flow after the expiry of their respective concession agreements. Accordingly, I found it appropriate not to consider terminal period value, which represents the present value at the end of explicit forecast period of all subsequent cash flows to the end of the life of the asset or into perpetuity if the asset has an indefinite life, in this valuation exercise.

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8. Valuation Conclusion

8.1. The current valuation has been carried out based on the discussed valuation methodology explained herein earlier. Further, various qualitative factors, the business dynamics and growth potential of the business, having regard to information base, management perceptions, key underlying assumptions and limitations were given due consideration.

8.2. I have been represented by the Investment Manager that there is no potential devolvement on account of the contingent liability as of valuation date; hence no impact has been factored in to arrive at fair EV of the SPVs.

8.3. Based on the above analysis, the fair EV and Adjusted Enterprise Value as on the Valuation Date of the SPVs is as mentioned below:

INR Mn

Sr. No.	SPVs	End of Projected Period	Approximate Balance Period	Enterprise Value	Adjusted Enterprise Value
1	GPEL	25-Feb-35	~12 Years 8 Months	6,776	7,320
2	PDEPL	18-Apr-35	~12 Years 10 Months	9,455	10,150
3	GDHPL	10-Jul-36	~14 Years 0 Months	11,619	12,626
4	GASHPL	31-Mar-36	~13 Years 9 Months	4,784	5,455
5	VSEPL	30-Oct-35	~13 Years 4 Months	15,794	16,868
6	GSSHPL	28-Jun-36	~14 Years 0 Months	5,910	6,798
7	GDDHPL	02-Aug-37	~15 Years 1 Months	6,585	6,613
	Total of all SPVs			**60,923**	**65,831**

(Refer Appendix 1 for detailed workings)

8.4. EV is described as the total value of the equity in a business plus the value of its debt and debt related liabilities, minus any cash or cash equivalents to meet those liabilities.

8.5. Adjusted Enterprise Value is derived as EV as defined above plus cash or cash equivalents of the SPVs as at 30th June 2022.

8.6. On request of the Investment Manager, I have also calculated the 100% Equity Value of the SPVs as on the Valuation Date. For arriving at the 100% Equity Value, I have adjusted the EV arrived under DCF method for cash & cash equivalents, borrowings from lenders and Subordinated debts from holding company (G R Infraprojects Limited) based on the provisional balance sheet of the SPVs as on the Valuation Date to arrive at the 100% Equity Value of the SPVs.

8.7. Calculation of Equity Value of the SPVs as on the Valuation Date:

INR in Mn	GPEL	PDEPL	GDHPL	GASHPL	VSEPL	GSSHPL	GDDHPL
Fair Enterprise Value	**6,776**	**9,455**	**11,619**	**4,784**	**15,794**	**5,910**	**6,585**
Adjustments :							
Cash & Cash Equivalents	543	695	1,008	671	1,074	888	28
Borrowings from lenders	(3,584)	(5,742)	(4,988)	(3,124)	(10,603)	(3,833)	(3,151)
Non-Convertible Debentures	(972)	-	(2,666)	-	-	-	-
100% Equity Value inclusive of subordinated debt from GR Infra	**2,764**	**4,408**	**4,972**	**2,331**	**6,265**	**2,966**	**3,463**
Less: Subordinated debt from GR Infra	(1,035)	(1,550)	(2,015)	(893)	(838)	(925)	(1,083)
100% Equity Value as on 30-Jun-22	**1,729**	**2,858**	**2,957**	**1,438**	**5,427**	**2,040**	**2,380**
49% Equity Value as on 30-Jun-22	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**1,166**

8.8. The fair EV of the SPVs is estimated using DCF method. The valuation requires Investment Manager to make certain assumptions about the model inputs including forecast cash flows, discount rate, and credit risk.

8.9. Valuation is based on estimates of future financial performance or opinions, which represent reasonable expectations at a particular point of time, but such information, estimates or opinions are not offered as predictions or as assurances that a particular level of income or profit will be achieved, a particular event will occur or that a particular price will be offered or accepted. Actual results achieved during the period covered by the prospective financial analysis will vary from these estimates and the variations may be material.

8.10. Accordingly, I have conducted a quantitative sensitivity analysis on certain model inputs, the results of which are as indicated below:

a. WACC by increasing / decreasing it by 0.5%
b. WACC by increasing / decreasing it by 1.0%
c. Total Expenses by increasing / decreasing it by 20%

1. Fair Enterprise Valuation Range based on

a. WACC parameter (0.5%)

INR Mn

Sr. No.	SPVs	WACC +0.5%	EV	Base WACC	EV	WACC -0.5%	EV
1	GPEL	7.57%	6,633	7.07%	6,776	6.57%	6,925
2	PDEPL	7.57%	9,225	7.07%	9,455	6.57%	9,695
3	GDHPL	7.57%	11,334	7.07%	11,619	6.57%	11,916
4	GASHPL	7.57%	4,656	7.07%	4,784	6.57%	4,918
5	VSEPL	7.57%	15,389	7.07%	15,794	6.57%	16,217
6	GSSHPL	7.57%	5,744	7.07%	5,910	6.57%	6,084
7	GDDHPL	7.57%	6,362	7.07%	6,585	6.57%	6,818
	Total of all SPVs		**59,344**		**60,923**		**62,573**

b. WACC parameter (1.0%)

INR Mn

Sr. No.	SPVs	WACC +1.0%	EV	Base WACC	EV	WACC -1.0%	EV
1	GPEL	8.07%	6,494	7.07%	6,776	6.07%	7,080
2	PDEPL	8.07%	9,004	7.07%	9,455	6.07%	9,945
3	GDHPL	8.07%	11,061	7.07%	11,619	6.07%	12,227
4	GASHPL	8.07%	4,534	7.07%	4,784	6.07%	5,058
5	VSEPL	8.07%	15,002	7.07%	15,794	6.07%	16,659
6	GSSHPL	8.07%	5,586	7.07%	5,910	6.07%	6,265
7	GDDHPL	8.07%	6,151	7.07%	6,585	6.07%	7,063
	Total of all SPVs		**57,831**		**60,923**		**64,297**

c. Expenses parameter (20%)

INR Mn

Sr. No.	SPVs	EV at Expenses +20%	EV at Base Expenses	EV at Expenses -20%
1	GPEL	6,346	6,776	7,187
2	PDEPL	9,261	9,455	9,649
3	GDHPL	11,187	11,619	12,050
4	GASHPL	4,675	4,784	4,894
5	VSEPL	15,282	15,794	16,306
6	GSSHPL	5,791	5,910	6,026
7	GDDHPL	6,449	6,585	6,721
	Total of all SPVs	**58,991**	**60,923**	**62,834**

2. Adjusted Enterprise Valuation Range based on

a. WACC parameter (0.5%)

INR Mn

Sr. No.	SPVs	WACC +0.5%	Adjusted EV	Base WACC	Adjusted EV	WACC -0.5%	Adjusted EV
1	GPEL	7.57%	7,176	7.07%	7,320	6.57%	7,469
2	PDEPL	7.57%	9,920	7.07%	10,150	6.57%	10,390
3	GDHPL	7.57%	12,341	7.07%	12,626	6.57%	12,924
4	GASHPL	7.57%	5,327	7.07%	5,455	6.57%	5,589
5	VSEPL	7.57%	16,464	7.07%	16,868	6.57%	17,291
6	GSSHPL	7.57%	6,633	7.07%	6,798	6.57%	6,972
7	GDDHPL	7.57%	6,391	7.07%	6,613	6.57%	6,846
	Total of all SPVs		**64,251**		**65,831**		**67,480**

b. WACC parameter (1.0%)

INR Mn

Sr. No.	SPVs	WACC +1.0%	Adjusted EV	Base WACC	Adjusted EV	WACC -1.0%	Adjusted EV
1	GPEL	8.07%	7,038	7.07%	7,320	6.07%	7,624
2	PDEPL	8.07%	9,699	7.07%	10,150	6.07%	10,640
3	GDHPL	8.07%	12,069	7.07%	12,626	6.07%	13,234
4	GASHPL	8.07%	5,204	7.07%	5,455	6.07%	5,729
5	VSEPL	8.07%	16,076	7.07%	16,868	6.07%	17,733
6	GSSHPL	8.07%	6,474	7.07%	6,798	6.07%	7,153
7	GDDHPL	8.07%	6,179	7.07%	6,613	6.07%	7,091
	Total of all SPVs		**62,738**		**65,831**		**69,204**

c. Expenses parameter (20%)

INR Mn

Sr. No.	SPVs	Adjusted EV at Expenses +20%	Adjusted EV at Base Expenses	Adjusted EV at Expenses -20%
1	GPEL	6,889	7,320	7,731
2	PDEPL	9,956	10,150	10,344
3	GDHPL	12,195	12,626	13,058
4	GASHPL	5,346	5,455	5,565
5	VSEPL	16,357	16,868	17,380
6	GSSHPL	6,680	6,798	6,915
7	GDDHPL	6,477	6,613	6,749
	Total of all SPVs	**63,898**	**65,831**	**67,741**

3. 100% Equity Valuation Range based on

a. WACC parameter (0.5%)

INR Mn

Sr. No.	SPVs	WACC +0.5%	Equity Value	Base WACC	Equity Value	WACC -0.5%	Equity Value
1	GPEL	7.57%	1,585	7.07%	1,729	6.57%	1,878
2	PDEPL	7.57%	2,628	7.07%	2,858	6.57%	3,098
3	GDHPL	7.57%	2,672	7.07%	2,957	6.57%	3,254
4	GASHPL	7.57%	1,310	7.07%	1,438	6.57%	1,572
5	VSEPL	7.57%	5,023	7.07%	5,427	6.57%	5,850
6	GSSHPL	7.57%	1,875	7.07%	2,040	6.57%	2,214
7	GDDHPL	7.57%	2,158	7.07%	2,380	6.57%	2,613
	Total of all SPVs		**17,251**		**18,830**		**20,480**

b. WACC parameter (1.0%)

INR Mn

Sr. No.	SPVs	WACC +1.0%	Equity Value	Base WACC	Equity Value	WACC -1.0%	Equity Value
1	GPEL	8.07%	1,447	7.07%	1,729	6.07%	2,033
2	PDEPL	8.07%	2,408	7.07%	2,858	6.07%	3,348
3	GDHPL	8.07%	2,399	7.07%	2,957	6.07%	3,565
4	GASHPL	8.07%	1,188	7.07%	1,438	6.07%	1,712
5	VSEPL	8.07%	4,635	7.07%	5,427	6.07%	6,292
6	GSSHPL	8.07%	1,716	7.07%	2,040	6.07%	2,395
7	GDDHPL	8.07%	1,946	7.07%	2,380	6.07%	2,858
	Total of all SPVs		**15,738**		**18,830**		**22,203**

c. Expenses parameter (20%)

INR Mn

Sr. No.	SPVs	Equity Value at Expenses +20%	Equity Value at Base Expenses	Equity Value at Expenses -20%
1	GPEL	1,298	1,729	2,140
2	PDEPL	2,665	2,858	3,052
3	GDHPL	2,525	2,957	3,389
4	GASHPL	1,329	1,438	1,548
5	VSEPL	4,916	5,427	5,939
6	GSSHPL	1,922	2,040	2,157
7	GDDHPL	2,244	2,380	2,516
	Total of all SPVs	**16,898**	**18,830**	**20,741**

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9. Additional Procedures to be complied with in accordance with InvIT regulations

Scope of Work

9.1 The Schedule V of the SEBI InvIT Regulations prescribes the minimum set of mandatory disclosures to be made in the valuation report. In this reference, the minimum disclosures in valuation report may include following information as well, so as to provide the investors with the adequate information about the valuation and other aspects of the underlying assets of the InvIT.

The additional set of disclosures, as prescribed under Schedule V of InvIT Regulations, to be made in the valuation report of the SPVs are as follows:

- List of one-time sanctions/approvals which are obtained or pending;
- List of up to date/overdue periodic clearances;
- Statement of assets;
- Estimates of already carried as well as proposed major repairs and improvements along with estimated time of completion;
- Revenue pendencies including local authority taxes associated with InvIT asset and compounding charges, if any;
- On-going material litigations including tax disputes in relation to the assets, if any;
- Vulnerability to natural or induced hazards that may not have been covered in town planning/ building control.

Limitations

9.2 This Report is based on the information provided by the representatives of the Investment Manager. The exercise has been restricted and kept limited to and based entirely on the documents, records, files, registers and information provided to me. I have not verified the information independently with any other external source.

9.3 I have assumed the genuineness of all signatures, the authenticity of all documents submitted to me as original, and the conformity of the copies or extracts submitted to me with that of the original documents.

9.4 I have assumed that the documents submitted to me by the representatives of Investment Manager in connection with any particular issue are the only documents related to such issue.

9.5 I have reviewed the documents and records from the limited perspective of examining issues noted in the scope of work and I do not express any opinion as to the legal or technical implications of the same.

Analysis of Additional Set of Disclosures for the SPVs

A. <u>List of one-time sanctions/approvals which are obtained or pending:</u>

As informed by the Investment Manager, there are no pending applications for government sanctions/ approvals by the SPVs (related to the road stretches of the SPVs) which are pending as on 30th June 2022. The list of sanctions/ approvals obtained by the SPVs till 30th June 2022 is provided in Appendix 3.1 to Appendix 3.7.

B. <u>List of up to date/ overdue periodic clearances:</u>

The Investment Manager has confirmed that the SPVs are not required to take any periodic clearances and hence there are no up to date/ overdue periodic clearances as on 30th June 2022.

C. Statement of assets included:

The details of assets of the SPVs as per the Unaudited financial statements at 30th June 2022 are as mentioned below:

INR Mn

Sr. No.	SPVs	Net Fixed Assets	Non-Current Assets	Current Assets
1	GPEL	-	5,735	1,172
2	PDEPL	-	7,678	1,428
3	GDHPL	-	9,505	1,694
4	GASHPL	-	3,941	1,108
5	VSEPL	-	11,665	2,273
6	GSSHPL	-	4,387	1,702
7	GDDHPL	-	9,505	1,694
	Total of all SPVs	**-**	**52,417**	**11,069**

Source: Investment Manager

D. Estimates of already carried and proposed major repairs and improvements along with estimated time of completion:

I have been informed that maintenance is regularly carried out by SPVs in order to maintain the working condition of the assets.

Forecasted major repairs

INR Mn

SPVs	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30
GPEL	-	-	-	-	524	550	-	-
PDEPL	-	-	-	-	108	113	-	-
GDHPL	-	-	-	-	-	-	627	658
GASHPL	-	-	-	-	-	38	40	-
VSEPL	-	-	-	-	770	808	-	-
GSSHPL	-	-	-	-	-	51	53	-
GDDHPL	-	-	-	-	-	-	61	64

SPVs	FY 31	FY 32	FY 33	FY 34	FY 35	FY 36	FY 37
GPEL	-	-	-	737	774	-	-
PDEPL	-	-	-	152	159	-	-
GDHPL	-	-	-	-	840	882	-
GASHPL	-	-	-	-	53	56	-
VSEPL	-	-	-	679	712	-	-
GSSHPL	-	-	-	-	71	75	-
GDDHPL	-	-	-	-	-	85	90

Source: Investment Manager

E. Revenue pendencies including local authority taxes associated with InvIT asset and compounding charges, if any:

Investment Manager has informed me that there are no material dues including local authority taxes (such as Municipal Tax, Property Tax, etc.) pending to be payable to the government authorities with respect to the SPVs (InvIT assets).

F. On-going material litigations including tax disputes in relation to the assets, if any:

As informed by the Investment Manager, as on 30th June 2022, there are no ongoing material litigations, except indirect tax litigations as shown in Appendix 4. Further, Investment Manager has informed us that majority of the tax litigations are low to medium risk and accordingly no material outflow is expected against the litigations, hence no impact has been factored on the valuation of the SPVs. Further, I have been informed by the Investment Manager that the tax litigations prior to acquisition of SPVs by the Trust shall be covered by an indemnity given by the Transferor (GR Infra) for a period of eight years (from date of such transfer) through the Share Purchase Agreement ("SPA") to be executed between the Trust and the Transferor.

G. Vulnerability to natural or induced hazards that may not have been covered in town planning/ building control:

Investment Manager has confirmed to me that there are no such natural or induced hazards which have not been considered in town planning/ building control.

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10. Sources of Information

For the purpose of undertaking this valuation exercise, I have relied on the following sources of information provided by the Investment Manager:

10.1. Audited Financial Statements of the SPVs for Financial Year ("FY") ended 31st March 2019, 31st March 2020, 31st March 2021 and 31st March 2022;

10.2. Unaudited Financial Statements of the SPVs for the period ended 30th June 2022;

10.3. Projected financial information for the remaining project life for each of the SPVs;

10.4. Details of projected Major Maintenance & Repairs (MMR) Expenditure and Capital Expenditure (Capex);

10.5. Technical Due Diligence Study Report dated November 2022 for all the SPVs, prepared by M/s FP India Project Management Consultancy Services Private Limited for projected MMR and O&M Costs;

10.6. Details of brought forward losses (as per Income Tax Act) of the SPVs as at 31st March 2022;

10.7. Concession Agreement of each of the SPVs with the respective authority;

10.8. List of licenses / approvals, details of tax litigations, civil proceeding and arbitrations of the SPVs;

10.9. Shareholding pattern as on 30th June 2022 of the SPVs and other entities mentioned in this Report;

10.10. Management Representation Letter by the Investment Manager dated 8th December 2022;

10.11. Relevant data and information about the SPVs provided by the Investment Manager either in written or oral form or in the form of soft copy;

10.12. Information provided by leading database sources, market research reports and other published data.

The information provided to me by the Investment Manager in relation to the SPVs included but not limited to historical financial statements, forecasts/projections, other statements and assumptions about future matters like forward-looking financial information prepared by the Investment Manager. The forecasts and projections as supplied to me are based upon assumptions about events and circumstances which are yet to occur.

I have not tested individual assumptions or attempted to substantiate the veracity or integrity of such assumptions in relation to the forward-looking financial information, however, I have made sufficient enquiries to satisfy myself that such information has been prepared on a reasonable basis.

Notwithstanding anything above, I cannot provide any assurance that the forward looking financial information will be representative of the results which will actually be achieved during the cash flow forecast period.

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11. Exclusions and Limitations

11.1. My Report is subject to the limitations detailed hereinafter. This Report is to be read in totality, and not in parts, in conjunction with the relevant documents referred to herein.

11.2. Valuation analysis and results are specific to the purpose of valuation and is not intended to represent value at any time other than the valuation date of 30th June 2022 ("Valuation Date") mentioned in the Report and as per agreed terms of my engagement. It may not be valid for any other purpose or as at any other date. Also, it may not be valid if done on behalf of any other entity.

11.3. This Report, its contents and the results are specific to (i) the purpose of valuation agreed as per the terms of my engagements; (ii) the Valuation Date and (iii) are based on the financial information of the SPVs till 30th June 2022. The Investment Manager has represented that the business activities of the SPVs have been carried out in normal and ordinary course between 30th June 2022 and the Report Date and that no material changes have occurred in the operations and financial position between 30th June 2022 and the Report date, except for those events disclosed by the Investment Manager during the valuation exercise

11.4. The scope of my assignment did not involve me performing audit tests for the purpose of expressing an opinion on the fairness or accuracy of any financial or analytical information that was provided and used by me during the course of my work. The assignment did not involve me to conduct the financial or technical feasibility study. I have not done any independent technical valuation or appraisal or due diligence of the assets or liabilities of the SPVs or any of other entity mentioned in this Report and have considered them at the value as disclosed by the SPVs in their regulatory filings or in submissions, oral or written, made to me.

11.5. In addition, I do not take any responsibility for any changes in the information used by me to arrive at my conclusion as set out here in which may occur subsequent to the date of my Report or by virtue of fact that the details provided to me are incorrect or inaccurate.

11.6. I have assumed and relied upon the truth, accuracy and completeness of the information, data and financial terms provided to me or used by me; I have assumed that the same are not misleading and do not assume or accept any liability or responsibility for any independent verification of such information or any independent technical valuation or appraisal of any of the assets, operations or liabilities of the SPVs or any other entity mentioned in the Report. Nothing has come to my knowledge to indicate that the material provided to me was misstated or incorrect or would not afford reasonable grounds upon which to base my Report.

11.7. This Report is intended for the sole use in connection with the purpose as set out above. It can however be relied upon and disclosed in connection with any statutory and regulatory filing in connection with the provision of SEBI InvIT Regulations. However, I will not accept any responsibility to any other party to whom this Report may be shown or who may acquire a copy of the Report, without my written consent.

11.8. It is clarified that this Report is not a fairness opinion under any of the stock exchange/ listing regulations. In case of any third party having access to this Report, please note this Report is not a substitute for the third party's own due diligence/ appraisal/ enquiries/ independent advice that the third party should undertake for his purpose.

11.9. Further, this Report is necessarily based on financial, economic, monetary, market and other conditions as in effect on, and the information made available to me or used by me up to, the date hereof. Subsequent developments in the aforementioned conditions may affect this Report and the assumptions made in preparing this Report and I shall not be obliged to update, revise or reaffirm this Report if information provided to me changes.

11.10. This Report is based on the information received from the sources as mentioned in Section 9 of this Report and discussions with the Investment Manager. I have assumed that no information has been withheld that could have influenced the purpose of my Report.

11.11. Valuation is not a precise science and the conclusions arrived at in many cases may be subjective and dependent on the exercise of individual judgment. There is, therefore, no indisputable single value. I have arrived at an indicative EV based on my analysis. While I have provided an assessment of the value based on an analysis of information available to me and within the scope of my engagement, others may place a different value on this business.

11.12. Any discrepancies in any table / appendix between the total and the sums of the amounts listed are due to rounding-off.

11.13. Valuation is based on estimates of future financial performance or opinions, which represent reasonable expectations at a particular point of time, but such information, estimates or opinions are not offered as predictions or as assurances that a particular level of income or profit will be achieved, a particular event will occur or that a particular price will be offered or accepted. Actual results achieved during the period covered by the prospective financial analysis will vary from these estimates and the variations may be material.

11.14. I do not carry out any validation procedures or due diligence with respect to the information provided/extracted or carry out any verification of the assets or comment on the achievability and reasonableness of the assumptions underlying the financial forecasts, save for satisfying ourselves to the extent possible that they are consistent with other information provided to me in the course of this engagement.

11.15. My conclusion assumes that the assets and liabilities of the SPVs, reflected in their respective latest balance sheets remain intact as of the Report date.

11.16. Whilst all reasonable care has been taken to ensure that the factual statements in the Report are accurate, neither myself, nor any of my associates, officers or employees shall in any way be liable or responsible either directly or indirectly for the contents stated herein. Accordingly, I make no representation or warranty, express or implied, in respect of the completeness, authenticity or accuracy of such factual statements. I expressly disclaim any and all liabilities, which may arise based upon the information used in this Report. I am not liable to any third party in relation to the issue of this Report.

11.17. The scope of my work has been limited both in terms of the areas of the business & operations which I have reviewed and the extent to which I have reviewed them. There may be matters, other than those noted in this Report, which might be relevant in the context of the transaction and which a wider scope might uncover.

11.18. For the present valuation exercise, I have also relied on information available in public domain; however the accuracy and timelines of the same has not been independently verified by me.

11.19. In the particular circumstances of this case, my liability (in contract or under any statute or otherwise) for any economic loss or damage arising out of or in connection with this engagement, however the loss or damage caused, shall be limited to the amount of fees actually received by me from the Investment Manager, as laid out in the engagement letter for such valuation work.

11.20. In rendering this Report, I have not provided any legal, regulatory, tax, accounting or actuarial advice or opinion and accordingly I do not assume any responsibility or liability in respect thereof.

11.21. This Report does not address the relative merits of investing in InvIT as compared with any other alternative business transaction, or other alternatives, or whether or not such alternatives could be achieved or are available.

11.22. I am not an advisor with respect to legal, tax and regulatory matters for the proposed transaction. No investigation of the SPVs' claim to title of assets has been made for the purpose of this Report and the SPVs' claim to such rights have been assumed to be valid. No consideration has been given to liens or encumbrances against the assets, beyond the loans disclosed in the accounts. Therefore, no responsibility is assumed for matters of a legal nature.

11.23. I have no present or planned future interest in the Trustee, Investment Manager or the SPVs and the fee for this Report is not contingent upon the values reported herein. My valuation analysis should not be construed as investment advice; specifically, I do not express any opinion on the suitability or otherwise of entering into any financial or other transaction with the Investment Manager or SPVs.

11.24. I have submitted the draft valuation report to the Trust and Investment Manager for confirmation of accuracy of the factual data used in my analysis and to prevent any error or inaccuracy in this Report.

11.25. **Limitation of Liabilities**

i. It is agreed that, having regard to the RV's interest in limiting the personal liability and exposure to litigation of its personnel, the Sponsor, the Transferor, the Investment Manager and the Trust will not bring any claim in respect of any damage against any of RV personally.

ii. In no circumstances RV shall be responsible for any consequential, special, direct, indirect, punitive or incidental loss, damages or expenses (including loss of profits, data, business, opportunity cost, goodwill or indemnification) in connection with the performance of the services whether such damages are based on breach of contract, tort, strict liability, breach of warranty, negligence, or otherwise, even if the Investment Manager had contemplated and communicated to RV the likelihood of such damages. Any decision to act upon the deliverables (including this Report) is to be made by the Investment Manager and no communication by RV should be treated as an invitation or inducement to engage the Investment Manager to act upon the deliverable(s).

iii. It is clarified that the Investment Manager will be solely responsible for any delays, additional costs, or other liabilities caused by or associated with any deficiencies in their responsibilities, misrepresentations, incorrect and incomplete information including information provided to determine the assumptions.

iv. RV will not be liable if any loss arises due to the provision of false, misleading or incomplete information or documentation by the Investment Manager.

11.26. **Limitation on account of COVID-19 and Uncertainty in Valuation**

i. It is important to highlight that the COVID-19 pandemic has created uncertainty in valuation. The mitigation in the spread of COVID-19 and commencement of vaccination process has led to relaxation of restrictions and consequent opening up of the economy. Accordingly, the impact assessment of COVID-19 is a continuing process given the uncertainties associated with its nature and durations.

ii. I have been informed by the Investment Manager, that the forecasts / projections provided for the valuation exercises are prepared after reasonably evaluating and incorporating the impact of outbreak of COVID-19 pandemic as per prevalent conditions as on date, if any. The estimates and judgement made by the Investment Manager, could vary on future developments, including, among other things, any new information concerning the impact created by the COVID-19 pandemic on the economy and consequent effect on the business and on the customer's ability to make the payment. Accordingly, I would recommend a degree of caution to the values arrived under current circumstances.

11.27. Further, this Report is necessarily based on financial, economic, monetary, market and other conditions as in effect on, and the information made available to me or used by me up to, the date hereof. Subsequent developments in the aforementioned conditions may affect this Report and the assumptions made in preparing this Report and I shall not be obliged to update, revise or reaffirm this Report if information provided to me changes.

Yours faithfully,

SWAMINATHAN SUNDARARAMAN

Digitally signed by SWAMINATHAN SUNDARARAMAN
Date: 2022.12.13 16:35:32 +05'30'

S. Sundararaman
Registered Valuer
IBBI Registration No.: IBBI/RV/06/2018/10238
Asset Class: Securities or Financial Assets
Place: Chennai
UDIN: 22028423BFHZQY9742

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Appendix 1 – Valuation of SPVs as on 30th June 2022

Abbreviations	Meaning
O&M	Operation and Maintenance
EBITDA	Operating Earnings Before Interest, Taxes, Depreciation and Amortization
MME	Major Maintenance and Repairs Expenditure
Capex	Capital Expenditure
Wcap	Incremental Working Capital
FCFF	Free Cash Flow to the Firm
CAF	Cash Accrual Factor
DF	Discounting Factor
PVFCFF	Present value of Free Cash Flow to the Firm

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Appendix 1.1 – Valuation of GPEL as on 30th June 2022 under the DCF Method

WACC	7.07%													INR Mn
Period	Financial Income	O&M Income	Changes in Financial Asset	Total Inflow from NHAI	Routine O&M Exp	Cash EBITDA	MME	Capex	Wcap	Tax	FCFF	CAF	DF	PVFCFF
	A	B	C	D=A+B+C	F	G=D-F	H	I	J	K	L=G-H-I-J-K		M	N=L*M
Aug-22	501	49	-21	529	27	502	-	-	(35)	69	468	0.16	0.99	463
Feb-23	324	54	221	599	54	545	-	-	(98)	79	564	0.67	0.96	539
Aug-23	311	57	227	595	57	538	-	-	(97)	77	558	1.16	0.92	515
Feb-24	298	57	237	592	57	534	-	-	(97)	75	557	1.67	0.89	497
Aug-24	284	60	244	588	60	528	-	-	(75)	72	530	2.16	0.86	457
Feb-25	269	60	255	584	60	524	-	-	(74)	70	528	2.67	0.83	440
Aug-25	254	63	263	580	63	517	-	-	(19)	68	468	3.16	0.81	377
Feb-26	238	63	275	576	63	513	-	-	-	65	448	3.67	0.78	348
Aug-26	226	328	18	572	66	506	262	-	-	62	181	4.16	0.75	136
Feb-27	225	328	14	567	66	501	262	-	-	60	179	4.67	0.73	130
Aug-27	224	345	-6	562	69	493	275	-	-	57	161	5.16	0.70	113
Feb-28	224	345	-11	558	69	488	275	-	-	54	159	5.67	0.68	108
Aug-28	221	73	259	553	73	480	-	-	-	51	429	6.17	0.66	282
Feb-29	206	73	269	548	73	475	-	-	-	48	427	6.67	0.63	271
Aug-29	190	76	277	543	76	467	-	-	-	45	422	7.17	0.61	258
Feb-30	173	76	338	587	76	511	-	-	-	42	469	7.67	0.59	278
Aug-30	153	80	352	585	80	505	-	-	-	38	467	8.17	0.57	267
Feb-31	132	80	369	581	80	501	-	-	-	35	466	8.67	0.55	257
Aug-31	110	84	382	577	84	493	-	-	-	32	461	9.17	0.53	247
Feb-32	88	84	401	572	84	488	-	-	-	28	460	9.67	0.52	238
Aug-32	64	88	411	563	88	474	-	-	-	24	450	10.17	0.50	225
Feb-33	39	88	419	546	88	458	-	-	-	20	438	10.67	0.48	211
Aug-33	20	461	66	548	92	455	369	-	8	17	62	11.17	0.47	29
Feb-34	16	461	78	555	92	463	369	-	7	13	75	11.67	0.45	34
Aug-34	12	484	45	541	97	444	387	-	13	9	36	12.17	0.44	16
Feb-35	9	484	30	523	97	426	387	-	(63)	4	98	12.67	0.42	41
Enterprise Value														**6,776**
Adjustments:														
Cash & Cash Equivalents														543
Adjusted Enterprise Value														**7,320**

Appendix 1.2 – Valuation of PDEPL as on 30th June 2022 under the DCF Method

WACC	7.07%													INR Mn
Period	Financial Income	O&M Income	Changes in Financial Asset	Total Inflow from NHAI	Routine O&M Exp	Cash EBITDA	MME	Capex	Wcap	Tax	FCFF	CAF	DF	PVFCFF
	A	B	C	D=A+B+C	F	G=D-F	H	I	J	K	L=G-H-I-J-K		M	N=L*M
Oct-22	424	64	150	637	96	541	-	-	(69)	83	527	0.31	0.98	516
Apr-23	414	42	221	678	42	635	-	-	(138)	90	683	0.81	0.95	647
Oct-23	403	42	228	673	42	631	-	-	(138)	88	681	1.31	0.91	623
Apr-24	390	44	234	669	44	625	-	-	(137)	85	677	1.81	0.88	598
Oct-24	378	44	243	665	44	620	-	-	(89)	83	627	2.31	0.85	535
Apr-25	365	46	249	660	46	614	-	-	(88)	80	622	2.81	0.83	513
Oct-25	352	46	257	655	46	609	-	-	(87)	77	619	3.31	0.80	494
Apr-26	339	102	209	650	49	602	54	-	(32)	74	506	3.81	0.77	390
Oct-26	328	102	215	646	49	597	54	-	-	71	472	4.31	0.74	352
Apr-27	316	107	216	640	51	589	57	-	-	68	465	4.81	0.72	335
Oct-27	305	107	222	634	51	584	57	-	-	65	462	5.31	0.70	321
Apr-28	292	53	284	629	53	576	-	-	-	62	514	5.81	0.67	346
Oct-28	277	53	293	624	53	570	-	-	-	58	512	6.31	0.65	333
Apr-29	262	56	300	617	56	562	-	-	-	55	507	6.81	0.63	318
Oct-29	246	56	310	612	56	556	-	-	-	51	505	7.31	0.61	306
Apr-30	229	59	323	611	59	552	-	-	-	48	504	7.81	0.59	296
Oct-30	210	59	391	660	59	601	-	-	-	44	557	8.31	0.57	316
Apr-31	190	61	403	654	61	593	-	-	-	40	553	8.81	0.55	303
Oct-31	168	61	420	650	62	588	-	-	-	36	552	9.31	0.53	292
Apr-32	146	64	434	644	64	580	-	-	-	32	548	9.81	0.51	280
Oct-32	123	64	446	633	64	569	-	-	-	28	541	10.32	0.49	267
Apr-33	100	143	371	614	68	547	76	-	-	23	448	10.81	0.48	214
Oct-33	80	143	392	615	68	548	76	-	-	19	453	11.32	0.46	209
Apr-34	59	150	414	624	71	553	80	-	-	14	459	11.81	0.45	205
Oct-34	37	150	420	607	71	536	80	-	-	10	447	12.32	0.43	193
Apr-35	14	38	534	586	38	548	-	-	(70)	5	613	12.81	0.42	256
Enterprise Value														**9,455**
Adjustments:														
Cash & Cash Equivalents														695
Adjusted Enterprise Value														**10,150**

Appendix 1.3 – Valuation of GDHPL as on 30th June 2022 under the DCF Method

WACC	7.07%													INR Mn
Period	Financial Income	O&M Income	Changes in Financial Asset	Total Inflow from NHAI	Routine O&M Exp	Cash EBITDA	MME	Capex	Wcap	Tax	FCFF	CAF	DF	PVFCFF
	A	B	C	D=A+B+C	F	G=D-F	H	I	J	K	L=G-H-I-J-K		M	N=L*M
Jul-22	1,454	420	-1,118	756	21	735	-	151	143	96	345	0.04	1.00	344
Jan-23	551	41	259	851	41	810	-	-	(115)	112	814	0.55	0.96	784
Jul-23	536	59	254	848	59	790	-	-	(112)	109	793	1.04	0.93	738
Jan-24	521	59	266	846	59	787	-	-	(112)	106	792	1.55	0.90	713
Jul-24	505	62	276	842	62	781	-	-	(111)	104	788	2.05	0.87	685
Jan-25	488	62	289	839	62	777	-	-	(111)	101	787	2.55	0.84	661
Jul-25	470	65	301	836	65	771	-	-	(110)	98	784	3.05	0.81	636
Jan-26	452	65	316	833	65	768	-	-	(110)	95	783	3.55	0.78	614
Jul-26	433	68	328	829	68	761	-	-	(109)	92	779	4.05	0.76	591
Jan-27	413	68	344	825	68	757	-	-	(24)	88	693	4.55	0.73	508
Jul-27	392	71	358	822	71	751	-	-	-	85	666	5.05	0.71	471
Jan-28	371	71	376	818	71	747	-	-	-	82	665	5.55	0.68	455
Jul-28	352	388	73	814	74	739	313	-	-	78	348	6.05	0.66	230
Jan-29	348	388	73	809	74	735	313	-	-	75	347	6.55	0.64	222
Jul-29	344	407	54	805	78	727	329	-	-	71	327	7.05	0.62	202
Jan-30	341	407	53	801	78	723	329	-	-	67	327	7.55	0.60	195
Jul-30	332	82	382	796	82	714	-	-	-	63	651	8.05	0.58	376
Jan-31	309	82	401	792	82	710	-	-	-	59	651	8.55	0.56	363
Jul-31	285	86	430	801	86	715	-	-	-	55	660	9.05	0.54	356
Jan-32	259	86	506	851	86	765	-	-	-	50	715	9.55	0.52	372
Jul-32	228	90	529	848	90	757	-	-	-	46	712	10.05	0.50	358
Jan-33	196	90	558	844	90	754	-	-	-	41	713	10.56	0.49	347
Jul-33	163	94	584	841	94	746	-	-	-	37	710	11.05	0.47	334
Jan-34	127	94	609	830	94	736	-	-	-	32	704	11.56	0.45	320
Jul-34	97	519	196	812	99	713	420	-	-	27	266	12.05	0.44	117
Jan-35	85	519	212	816	99	717	420	-	-	22	275	12.56	0.42	117
Jul-35	72	545	211	828	104	724	441	-	-	17	267	13.05	0.41	109
Jan-36	60	545	207	812	104	708	441	-	-	11	256	13.56	0.40	101
Jul-36	40	109	641	791	109	682	-	-	(106)	6	782	14.05	0.38	299
Enterprise Value														**11,619**
Adjustments:														
Cash & Cash Equivalents														1,008
Adjusted Enterprise Value														**12,626**

Appendix 1.4 – Valuation of GASHPL as on 30th June 2022 under the DCF Method

WACC	7.07%													INR Mn
Period	Financial Income	O&M Income	Changes in Financial Asset	Total Inflow from NHAI	Routine O&M Exp	Cash EBITDA	MME	Capex	Wcap	Tax	FCFF	CAF	DF	PVFCFF
	A	B	C	D=A+B+C	F	G=D-F	H	I	J	K	L=G-H-I-J-K		M	N=L*M
Sep-22	444	306	-394	356	14	343	-	163	116	46	17	0.28	0.98	17
Mar-23	234	26	91	352	26	326	-	-	(66)	49	343	0.78	0.95	325
Sep-23	229	28	93	350	28	322	-	-	(72)	48	346	1.28	0.92	317
Mar-24	223	28	96	348	28	319	-	-	(59)	47	331	1.78	0.89	293
Sep-24	217	30	98	345	30	316	-	-	(45)	45	315	2.29	0.86	269
Mar-25	211	30	102	343	30	314	-	-	(44)	44	314	2.78	0.83	260
Sep-25	205	31	105	341	31	310	-	-	(44)	43	311	3.29	0.80	249
Mar-26	199	31	109	338	31	307	-	-	(44)	41	310	3.78	0.77	239
Sep-26	192	33	111	336	33	303	-	-	(43)	40	307	4.29	0.75	229
Mar-27	185	33	116	333	33	301	-	-	(9)	38	272	4.78	0.72	196
Sep-27	178	53	99	331	34	297	19	-	-	37	241	5.29	0.70	168
Mar-28	172	53	103	328	34	294	19	-	-	35	240	5.79	0.67	162
Sep-28	166	56	103	325	36	289	20	-	-	33	236	6.29	0.65	153
Mar-29	160	56	107	322	36	287	20	-	-	32	235	6.79	0.63	148
Sep-29	153	38	129	319	38	282	-	-	-	30	252	7.29	0.61	153
Mar-30	145	38	133	316	38	279	-	-	-	28	250	7.79	0.59	147
Sep-30	137	39	137	313	39	274	-	-	-	26	247	8.29	0.57	140
Mar-31	129	39	142	310	39	271	-	-	-	25	246	8.79	0.55	135
Sep-31	120	41	173	335	41	294	-	-	-	23	271	9.29	0.53	144
Mar-32	110	41	184	335	41	294	-	-	-	21	273	9.79	0.51	140
Sep-32	99	43	190	332	43	289	-	-	-	19	270	10.29	0.49	134
Mar-33	87	43	199	330	43	286	-	-	-	16	270	10.79	0.48	129
Sep-33	75	45	203	324	45	278	-	-	-	14	264	11.29	0.46	122
Mar-34	62	45	206	314	45	269	-	-	-	12	257	11.79	0.45	115
Sep-34	50	74	190	315	48	267	27	-	-	10	230	12.29	0.43	99
Mar-35	39	74	206	319	48	271	27	-	-	7	237	12.79	0.42	99
Sep-35	26	78	206	310	50	260	28	-	-	5	227	13.29	0.40	92
Mar-36	14	78	208	299	50	249	28	-	(67)	2	286	13.79	0.39	111
Enterprise Value														**4,784**
Adjustments:														
Cash & Cash Equivalents														671
Adjusted Enterprise Value														**5,455**

Appendix 1.5 – Valuation of VSEPL as on 30th June 2022 under the DCF Method

WACC	7.07%													INR Mn
Period	Financial Income	O&M Income	Changes in Financial Asset	Total Inflow from NHAI	Routine O&M Exp	Cash EBITDA	MME	Capex	Wcap	Tax	FCFF	CAF	DF	PVFCFF
	A	B	C	D=A+B+C	F	G=D-F	H	I	J	K	L=G-H-I-J-K		M	N=L*M
Nov-22	774	68	271	1,114	104	1,010	-	63	(146)	140	953	0.35	0.98	930
May-23	755	72	346	1,173	72	1,101	-	-	(157)	150	1,108	0.85	0.94	1,045
Nov-23	733	72	363	1,168	72	1,096	-	-	(156)	146	1,106	1.35	0.91	1,009
May-24	710	76	378	1,163	76	1,087	-	-	(155)	142	1,100	1.85	0.88	969
Nov-24	685	76	397	1,158	76	1,083	-	-	(155)	138	1,099	2.36	0.85	936
May-25	660	79	414	1,153	79	1,074	-	-	(154)	134	1,094	2.85	0.82	900
Nov-25	634	79	435	1,147	79	1,068	-	-	(153)	129	1,092	3.36	0.80	869
May-26	612	468	61	1,141	83	1,058	385	-	(17)	125	565	3.85	0.77	435
Nov-26	608	468	60	1,136	83	1,053	385	-	-	120	548	4.36	0.74	407
May-27	605	491	34	1,130	87	1,043	404	-	-	115	524	4.85	0.72	376
Nov-27	603	491	29	1,124	87	1,037	404	-	-	110	522	5.36	0.69	362
May-28	595	91	430	1,117	91	1,026	-	-	-	105	920	5.85	0.67	617
Nov-28	568	91	452	1,111	91	1,019	-	-	-	100	919	6.36	0.65	595
May-29	539	96	469	1,104	96	1,008	-	-	-	94	914	6.85	0.63	572
Nov-29	509	96	492	1,096	96	1,000	-	-	-	89	912	7.36	0.60	551
May-30	477	100	534	1,111	100	1,011	-	-	(0)	83	928	7.85	0.58	542
Nov-30	440	101	637	1,178	100	1,077	-	-	(0)	77	1,000	8.36	0.56	565
May-31	400	105	667	1,172	105	1,067	-	-	(0)	71	996	8.85	0.55	544
Nov-31	357	105	704	1,166	105	1,061	-	-	(0)	65	996	9.36	0.53	525
May-32	312	110	739	1,161	110	1,050	-	-	(0)	58	992	9.86	0.51	506
Nov-32	264	110	780	1,155	110	1,044	-	-	(0)	52	993	10.36	0.49	489
May-33	220	455	464	1,140	116	1,024	339	-	(0)	45	640	10.86	0.48	305
Nov-33	191	455	466	1,112	116	997	339	-	(0)	38	620	11.36	0.46	285
May-34	161	478	478	1,117	121	996	356	-	(0)	31	609	11.86	0.44	271
Nov-34	130	478	526	1,134	121	1,013	356	-	(0)	23	633	12.36	0.43	272
May-35	91	127	892	1,110	127	983	-	-	(0)	16	967	12.86	0.42	402
Nov-35	33	5	1,041	1,079	5	1,074	-	-	(216)	8	1,282	13.36	0.40	515
Enterprise Value														**15,794**
Adjustments:														
Cash & Cash Equivalents														1,074
Adjusted Enterprise Value														**16,868**

Appendix 1.6 – Valuation of GSSHPL as on 30th June 2022 under the DCF Method

WACC	7.07%													INR Mn
Period	Financial Income	O&M Income	Changes in Financial Asset	Total Inflow from NHAI	Routine O&M Exp	Cash EBITDA	MME	Capex	Wcap	Tax	FCFF	CAF	DF	PVFCFF
	A	B	C	D=A+B+C	F	G=D-F	H	I	J	K	L=G-H-I-J-K		M	N=L*M
Jun-22	781	596	-997	380	15	365	-	524	84	53	(297)	0.01	1.00	(296)
Dec-22	302	28	110	440	30	411	-	-	(58)	63	407	0.52	0.97	393
Jun-23	295	28	114	438	28	410	-	-	(63)	61	412	1.01	0.93	384
Dec-23	289	28	119	435	28	407	-	-	(63)	60	410	1.52	0.90	370
Jun-24	281	30	122	433	30	403	-	-	(62)	58	407	2.02	0.87	355
Dec-24	274	29	126	429	30	400	-	-	(62)	57	405	2.52	0.84	341
Jun-25	266	31	129	427	31	396	-	-	(62)	55	403	3.02	0.81	328
Dec-25	259	31	134	424	31	393	-	-	(24)	53	364	3.52	0.79	286
Jun-26	250	32	138	421	32	388	-	-	-	52	337	4.02	0.76	256
Dec-26	242	32	143	417	32	385	-	-	-	50	335	4.52	0.73	246
Jun-27	234	59	121	414	34	380	25	-	-	48	307	5.02	0.71	218
Dec-27	226	59	125	411	34	377	25	-	-	46	306	5.52	0.69	210
Jun-28	219	62	126	408	36	372	27	-	-	44	301	6.02	0.66	200
Dec-28	211	62	130	404	36	368	27	-	-	42	300	6.52	0.64	192
Jun-29	203	37	160	400	37	363	-	-	-	40	323	7.02	0.62	200
Dec-29	193	37	166	396	37	359	-	-	-	38	321	7.52	0.60	192
Jun-30	183	39	170	392	39	353	-	-	-	35	318	8.02	0.58	184
Dec-30	173	39	185	397	39	358	-	-	-	33	325	8.52	0.56	182
Jun-31	161	41	221	422	41	381	-	-	-	31	351	9.02	0.54	189
Dec-31	147	41	231	419	41	378	-	-	-	28	350	9.52	0.52	183
Jun-32	133	43	239	416	43	372	-	-	-	26	347	10.02	0.50	175
Dec-32	119	43	250	412	43	369	-	-	-	23	346	10.52	0.49	169
Jun-33	104	45	260	409	45	363	-	-	-	21	343	11.02	0.47	161
Dec-33	88	45	268	401	45	356	-	-	-	18	338	11.52	0.46	154
Jun-34	72	83	234	389	47	342	36	-	-	15	291	12.02	0.44	128
Dec-34	58	83	248	389	47	342	36	-	-	12	294	12.52	0.43	125
Jun-35	43	87	265	395	50	345	38	-	-	9	298	13.02	0.41	123
Dec-35	27	87	270	384	50	334	38	-	-	6	291	13.52	0.40	115
Jun-36	10	27	333	370	27	344	-	-	(51)	3	392	14.02	0.38	150
Enterprise Value														**5,910**
Adjustments:														
Cash & Cash Equivalents														888
Adjusted Enterprise Value														**6,798**

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Appendix 1.7 – Valuation of GDDHPL as on 30th June 2022 under the DCF Method

WACC	7.07%													INR Mn
Period	Financial Income	O&M Income	Changes in Financial Asset	Total Inflow from NHAI	Routine O&M Exp	Cash EBITDA	MME	Capex	Wcap	Tax	FCFF	CAF	DF	PVFCFF
	A	B	C	D=A+B+C	F	G=D-F	H	I	J	K	L=G-H-I-J-K		M	N=L*M
Jan-23	421	25	94	540	25	515	-	1,097	234	80	(895)	0.62	0.96	(858)
Jul-23	414	34	89	538	33	505	-	-	(71)	78	498	1.12	0.93	461
Jan-24	407	32	96	535	33	502	-	-	(71)	76	497	1.62	0.89	445
Jul-24	400	33	100	532	33	499	-	-	(71)	74	495	2.12	0.86	428
Jan-25	392	34	104	529	33	496	-	-	(70)	73	493	2.63	0.84	412
Jul-25	384	34	107	526	35	491	-	-	(70)	71	490	3.12	0.81	396
Jan-26	376	35	111	522	35	487	-	-	(69)	69	488	3.63	0.78	381
Jul-26	367	36	116	519	36	482	-	-	(57)	67	472	4.12	0.75	356
Jan-27	358	37	121	515	36	479	-	-	-	65	414	4.63	0.73	302
Jul-27	348	38	125	511	38	473	-	-	-	62	411	5.12	0.70	289
Jan-28	339	39	130	507	38	469	-	-	-	60	409	5.63	0.68	278
Jul-28	329	70	105	504	40	464	30	-	-	58	375	6.13	0.66	247
Jan-29	321	71	108	500	40	460	30	-	-	56	373	6.63	0.64	237
Jul-29	312	73	110	495	42	453	32	-	-	53	368	7.13	0.61	226
Jan-30	304	74	113	491	42	449	32	-	-	51	366	7.63	0.59	217
Jul-30	295	43	149	486	44	443	-	-	-	48	394	8.13	0.57	226
Jan-31	283	44	154	482	44	438	-	-	-	46	392	8.63	0.55	217
Jul-31	271	45	185	501	46	455	-	-	-	43	412	9.13	0.54	221
Jan-32	257	47	214	517	46	471	-	-	-	40	431	9.63	0.52	223
Jul-32	240	48	226	514	48	465	-	-	-	37	428	10.13	0.50	214
Jan-33	222	49	238	509	48	461	-	-	-	35	427	10.63	0.48	206
Jul-33	204	50	252	505	51	454	-	-	-	31	423	11.13	0.47	198
Jan-34	184	51	266	501	51	450	-	-	-	28	422	11.63	0.45	191
Jul-34	163	52	281	497	53	444	-	-	-	25	419	12.13	0.44	183
Jan-35	141	54	293	488	53	435	-	-	-	22	413	12.63	0.42	174
Jul-35	119	98	256	473	56	417	43	-	-	18	356	13.13	0.41	145
Jan-36	99	99	275	473	56	418	43	-	-	15	360	13.63	0.39	142
Jul-36	78	102	300	480	58	422	45	-	-	11	366	14.13	0.38	139
Jan-37	54	104	309	467	58	408	45	-	-	8	356	14.64	0.37	131
Jul-37	29	60	360	450	60	390	-	-	(50)	4	435	15.13	0.36	155
Enterprise Value														**6,585**
Adjustments:														
Cash & Cash Equivalents														28
Adjusted Enterprise Value														**6,613**

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Appendix 2 – Weighted Average Cost of Capital (WACC) of the SPVs as on 30th June 2022

Particulars	GPEL	PDEPL	GDHPL	GASHPL	VSEPL	GSSHPL	GDDHPL	Remarks
Risk Free Rate (Rf)	7.44%	7.44%	7.44%	7.44%	7.44%	7.44%	7.44%	Risk Free Rate has been considered based on zero coupon yield curve as at 30th June 2022 of Government Securities having maturity period of 10 years, as quoted on the website of Clearing Corporation of India Ltd (CCIL)
Equity Risk Premium (ERP)	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	Based on historical realized returns on equity investments over a risk free rate represented by 10 years government bonds, a 7% equity risk premium is considered appropriate for India
Beta (relevered)	0.43	0.43	0.43	0.43	0.43	0.43	0.43	Beta has been considered based on the beta of companies operating in the similar kind of business in India
Base Cost of Equity	**10.48%**	**10.48%**	**10.48%**	**10.48%**	**10.48%**	**10.48%**	**10.48%**	**Base Ke = Rf + ERP * β**
Company Specific Risk Premium (CSRP)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	Based on SPV specific risk(s)
Adjusted Cost of Equity (Ke)	**10.48%**	**10.48%**	**10.48%**	**10.48%**	**10.48%**	**10.48%**	**10.48%**	**Adjusted Ke = Rf + ERP * β + CSRP**
Pre-tax Cost of Debt (Kd)	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	As represented by the Investment Manager
Tax rate of SPV	25.17%	25.17%	25.17%	25.17%	25.17%	25.17%	25.17%	Tax Rate Applicable to SPVs is considered
Post-tax Cost of Debt	**5.61%**	**5.61%**	**5.61%**	**5.61%**	**5.61%**	**5.61%**	**5.61%**	**Post-tax Kd = Pre-tax Kd * (1-Tax rate)**
Debt / (Debt + Equity)	70%	70%	70%	70%	70%	70%	70%	Debt : Equity ratio computed as [D/(D+E)] is considered as 70%
WACC	**7.07%**	**7.07%**	**7.07%**	**7.07%**	**7.07%**	**7.07%**	**7.07%**	**WACC = [Ke * (1 - D/(D+E))] + [Kd * (1-t) * D/(D+E)]**

Appendix 3.1 – GPEL: Summary of approval and licences

Sr. No.	Approvals	Date of Issue	Valid upto	Issuing Authority
1	Approval of labour license under the provisions of the Contract Labour Act	21-Nov-16	20-Nov-22	Assistant Labour Commissioner (Central) Jalandhar
2	Registration Certificate under the provisions of the Building and other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996.	21-Nov-16	Valid	Assistant Labour Commissioner (Central) Jalandhar
3	Consent to operate-water and operate-air from pollution control board	25-Aug-22	Valid	Punjab Pollution Control Board
4	Grant of 'Consent to Establish'(NOC) for an industrial unit u/s 25 of Water (Prevention & Control of Pollution) Act, 1974 and u/s 21 of Air (Prevention & Control of Pollution) Act, 1981.	05-Dec-17	04-Dec-18	Punjab Pollution Control Board
5	Renewal of 'Consent to Operate' u/s 21 of Air (Prevention & Control of Pollution) Act, 1981 for discharge of emissions arising out of premises	01-Mar-19	30-May-20	Punjab Pollution Control Board
6	Renewal of 'Consent to Operate' u/s 25/26 of Water (Prevention & Control of Pollution) Act, 1981 for discharge of effluents.	01-Mar-19	30-May-20	Punjab Pollution Control Board
7	Renewal of 'Consent to Operate' u/s 21 of Air (Prevention & Control of Pollution) Act, 1981 for discharge of emissions arising out of premises	05-Apr-18	12-Oct-19	Punjab Pollution Control Board
8	Renewal of 'Consent to Operate' u/s 21 of Air (Prevention & Control of Pollution) Act, 1981 for discharge of emissions arising out of premises	03-Mar-17	04-Oct-19	Punjab Pollution Control Board
9	Renewal of 'Consent to Operate' u/s 25/26 of Water (Prevention & Control of Pollution) Act, 1981 for discharge of effluents.	05-Apr-18	12-Oct-19	Punjab Pollution Control Board
10	Renewal of 'Consent to Operate' u/s 25/26 of Water (Prevention & Control of Pollution) Act, 1981 for discharge of effluents.	03-Mar-17	04-Oct-19	Punjab Pollution Control Board
11	Grant of 'Consent to Establish'(NOC) for an industrial unit u/s 25 of Water (Prevention & Control of Pollution) Act, 1974 and u/s 21 of Air (Prevention & Control of Pollution) Act, 1981.	03-Mar-17	02-Mar-18	Punjab Pollution Control Board

Source: Investment Manager

Appendix 3.2 – PDEPL: Summary of approval and licences

Sr. No.	Approvals	Date of Issue	Valid upto	Issuing Authority
1	Approval of labour license under the provisions of the Contract Labour Act	19-Sep-18	18-Sep-23	Assistant Labour Commissioner (Central) Rajkot
2	Registration Certificate under the provisions of the Building and other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996.	19-Sep-18	Valid	Assistant Labour Commissioner (Central) Rajkot
3	License for Contract Work of "Four Laning with paved shoulder of Porbandar-Dwarka Section of NH-8E From KM 356 +766 (Design Chainage Km 379+100) to KM 473+000 (Design Chainage Km 496.848) In the State Of Gujarat	05-Dec-17	04-Dec-18	Assistant Labour Commissioner (Central) Rajkot
4	Grant of 'Consent to Operate for an industrial unit u/s 25 of Water (Prevention & Control of Pollution) Act, 1974 and u/s 21 of Air (Prevention & Control of Pollution) Act, 1981.	25-Jan-18	24-Jan-23	Gujarat Pollution Control Board, Porbandar
5	Consolidated Consent And Authorisation (CC & A) For The Discharge of Trade Effluent and Emission due to operation of industrial plant u/s 25 of Water (Prevention & Control of Pollution) Act, 1974 and u/s 21 of Air (Prevention & Control of Pollution) Act, 1981.	24-Jan-19	09-Apr-21	Gujarat Pollution Control Board,Jamnagar
6	Grant of 'Consent to Operate for an industrial unit u/s 25 of Water (Prevention & Control of Pollution) Act, 1974 and u/s 21 of Air (Prevention & Control of Pollution) Act, 1981.	20-Jan-18	19-Jan-23	Gujarat Pollution Control Board, Porbandar
7	Consolidated Consent And Authorisation (CC & A) For The Discharge of Trade Effluent and Emission due to operation of industrial plant u/s 25 of Water (Prevention & Control of Pollution) Act, 1974 and u/s 21 of Air (Prevention & Control of Pollution) Act, 1981.	08-May-18	09-Apr-21	Gujarat Pollution Control Board, Jamnagar
8	Grant of 'Consent to Operate for an industrial unit u/s 25 of Water (Prevention & Control of Pollution) Act, 1974 and u/s 21 of Air (Prevention & Control of Pollution) Act, 1981.	13-Feb-18	12-Feb-21	Gujarat Pollution Control Board, Porbandar

Source: Investment Manager

Appendix 3.3 – GDHPL: Summary of approval and licences

Sr. No.	Approvals	Date of Issue	Valid upto	Issuing Authority
1	Approval of labour license under the provisions of the Contract Labour Act	21-Dec-18	20-Dec-22	Office Of Alc (Central), Vijayawada
2	Registration Certificate under the provisions of the Building and other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996.	22-Sep-18	Valid	Office Of Alc (Central), Vijayawada
3	Approval under Factories act, 1948-Plans-M/S GR Infra Projects Ltd	19-Sep-18	Valid	Factories Department, Andhra Pradesh
4	No Objection Certificate from Gram Panchayat of Bandu Ram to M/S GR Infraprojects ltd	06-Aug-18	Valid	Gram Panchayat of Bandpuram
5	Consent to Establish Wet-Mix Macadam Plant, R.S.No.77, Bituminous Hot mix Batch Type Plant, R.S.No.71, Concrete Batch Mix Plant, Devarapali	18-Sep-18	18-Sep-21	Andhra Pradesh Pollution Control Board
6	Grant of Temporary permit for gravel over an extent of 3.970 hect in S.no's 7/1,7/2,8/1,8/2,12/1,12/2 and 13/2B of Decherla Village	27-Sep-18	Valid	Department of Mines and Geology, Andhra Pradesh
7	No Objection Certificate for Water Draining from Gram Panchayat of Bandu Ram to M/S GR Infraprojects ltd	06-Aug-18	Valid	Gram Panchayat of Bandpuram

Source: Investment Manager

Appendix 3.4 – GASHPL: Summary of approval and licences

Sr. No.	Approvals	Date of Issue	Valid upto	Issuing Authority
1	Approval of labour license under the provisions of the Contract Labour Act	24-Feb-22	28-Mar-23	Regional Labour Commissioner (Central) Pune
2	Registration Certificate under the provisions of the Building and other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996.	29-Mar-19	Valid	Regional Labour Commissioner (Central) Pune
3	Tree cutting permission in Akkalkot-Solapur section of NH-150	07-Dec-18	06-Jan-19	National Highway Authority of India
5	Village panchayat approval for installation of Crusher	02-Jul-18		Gram Panchayat
7	PCB approval for crusher installation	25-Jun-18	Commissioning of the unit or 5 years whichever is earlier	Maharashtra Pollution Control Board
8	Licence for setting of Batching Plant	02-Nov-18	Commissioning of the unit or 5 years whichever is earlier	Maharashtra Pollution Control Board
9	Transport explosives in a road van	07-Sep-11	31-Mar-16	The Petroleum and Explosives Safety Organization (PESO)
10	Permission required for Borrow Earth Murrum-Reg.	05-Nov-18		National Highway Authority of India
11	State Support Agreement Maharashtra	18-Apr-10	Valid till Termination of Concession Agreement	Central Govt or NHAI
12	LOI Pratap Infra for Aggregate	25-Jun-18		
13	Storage of Explosives	13-Dec-12	31-Mar-16	The Petroleum and Explosives Safety Organization (PESO)
14	Shot Firer's Certificate	27-May-13	27-May-18	The Petroleum and Explosives Safety Organization (PESO)

Source: Investment Manager

Appendix 3.5 – VSEPL: Summary of approval and licences

Sr. No.	Approvals	Date of Issue	Valid upto	Issuing Authority
1	Consent to Establish for New Unit/Expansion/Diversification under the provisions of Water (Prevention and control of pollution) Act, 1974 as amended and Air (Preventionand control of Polution) Act, 1981	07-Feb-22	05-Feb-26	Uttar Pradesh Pollution Control Board
2	Consolidated Consent to Operate and Authorisation hereinafter referred to as the CCA (ConsolidatedConsent & authorization) (Fresh) under Section-25 of the Water (Prevention & Control of Pollution)Act, 1974 and under Section-21 of the Air (Prevention & Control of Pollution) Act, 1981	11-May-22	31-Jul-26	Uttar Pradesh Pollution Control Board
3	Registration Certificate under the provisions of the Building and other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996.	03-Jul-17	Valid	Assistant Labour Commissioner (Central) Allahabad
4	Approval of labour license under the provisions of the Contract Labour Act	30-Jun-22	29-Jun-23	Assistant Labour Commissioner (Central) Allahabad
5	Consent under section 21/22 of the Air (Prevention and control of Pollution) Act, 1981 (as amended) from U.P. Pollution Control Board	07-May-19	31-Jul-21	U.P. Pollution Control Board
6	Approval of labour license under the provisions of the Contract Labour Act	21-Jun-19	02-Jul-20	Assistant Labour Commissioner (Central) Allahabad
7	Approval for digging of ponds/nalas/Water Bodies/Rivers and uttilization of soil thereof for projects of water conservation in the drought-affected areas of the country	31-Aug-17	Valid	Ministry of Road Transport & Highways
8	Consent under section 25/26 of the water (Prevention and control of pollution) Act, 1974 (as amended) for discharge of effluents to M/S G R Infra projects Ltd	17-Jan-19	31-Mar-21	U.P. Pollution Control Board
9	Consent under section 25/26 of the water (Prevention and control of pollution) Act, 1974 (as amended) for discharge of effluents to M/S G R Infra projects Ltd	22-Dec-17	31-Dec-19	U.P. Pollution Control Board
10	Consent under section 25/26 of the water (Prevention and control of pollution) Act, 1974 (as amended) for discharge of effluents to M/S G R Infra projects Ltd (RMC Plant-30 CUM/H)	30-Dec-17	31-Dec-18	U.P. Pollution Control Board
11	Consent under section 21/22 of the Air (Prevention and control of pollution) Act, 1981 (as amended) for discharge of effluents to M/S G R Infra projects Ltd	17-Dec-17	31-Dec-19	U.P. Pollution Control Board
12	Consent under section 21/22 of the Air (Prevention and control of pollution) Act, 1981 (as amended) for discharge of effluents to M/S G R Infra projects Ltd (Unit- III)	17-Dec-17	31-Dec-19	U.P. Pollution Control Board
13	Consent under section 21/22 of the Air (Prevention and control of pollution) Act, 1981 (as amended) for discharge of effluents to M/S G R Infra projects Ltd	17-Dec-17	31-Dec-19	U.P. Pollution Control Board

Source: Investment Manager

Appendix 3.6 –GSSHPL: Summary of approval and licences

Sr. No.	Approvals	Date of Issue	Valid upto	Issuing Authority
1	Approval of labour license under the provisions of the Contract Labour Act	25-Nov-21	11-Dec-22	Regional Labour Commissioner (Central), Pune
2	Registration Certificate under the provisions of the Building and other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996.	22-Apr-19	Valid	Regional Labour Commissioner (Central), Pune
3	Approval for petroleum class B Consumer pump at Gut no 518/B/2, village lendave Chinchale, Mangalvedhe, District- Solapur.	10-Oct-18	Valid	Ministry of commerce & Industry
4	Consent to Establish under section 25 of the water (Prevention and control of pollution) Act, 1974; under section 21 of the Air (Prevention and control of pollution) Act,1981.	28-Sep-18		Maharashtra pollution control board, Solapur
5	Consent to Establish under section 25 of the water (Prevention and control of pollution) Act, 1974; under section 21 of the Air (Prevention and control of pollution) Act,1981.	03-Nov-18		Maharashtra pollution control board, Solapur
6	Extension for tree cutting in sangola taluka (under jurisdiction of RFO, Sangola) -Reg	03-Dec-18		National Highways Authority of India

Source: Investment Manager

Appendix 3.7 –GDDHPL: Summary of approval and licences

Sr. No.	Approvals	Date of Agreement	Date of Issue	Valid upto	Issuing Authority
1	Approval of labour license under the provisions of the Contract Labour Act		30-Jul-19	29-Jul-23	Assistant Labour Commissioner (Central) Rajkot
2	Consent to Establish (NOC) under Section 25 of Water Act,1974 and section 21 of Air Act,1981. For site S.No 464, Village Bhatiya, Pin 361315, Tal. Kalyanpur, Dist Devboomi Dwarka		05-Aug-19	04-Aug-19	Gujarat Pollution Control Board
3	Consent to Establish (NOC) under Section 25 of Water Act,1974 and section 21 of Air Act,1981. For site S.No 490, Village Dharampur, Pin 361305, Tal. Khambhalia, Dist Devboomi Dwarka		08-Sep-20	07-Sep-27	Gujarat Pollution Control Board
4	Registration Certificate under the provisions of the Building and other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996.		30-Jul-19	Valid	Office Of Alc (Central), Rajkot

Source: Investment Manager

Appendix 4.1 – GDHPL: Summary of Ongoing Litigations

Sr. No.	Title	Pending Before	Particulars	Tax Amount Involved (INR Mn)	Tax Deposited (INR Mn)
1	Indirect Tax Matters -GST	Hon'ble High Court, Andhra Pradesh	**Background of the case:** M/s G R Gundugolanu Devarapalli Highway Private Limited ('SPV') had entered into a concession agreement for development of road with M/s National Highways Authority of India ('NHAI') on Hybrid Annuity Mode (HAM) basis. As per the concession agreement entered under HAM model fixed amount of consideration i.e. 40% is paid during construction phase and remaining consideration of 60% during Operational and Maintenance phase in the form of annuities. Annuities exempted in GST by virtue of Entry number of 23A of notification number 12/2017-Central Tax (Rate). However, on 17/06/2021 the CBIC released circular number 150/06/2021-GST Dt. 17/06/2021 on the taxability of annuities for construction, which has been interpreted by the authorities in a way that annuities paid under HAM projects are not exempted from GST. Prior to 17/06/2021 the GST authorities issued notices for reversal of input tax credit considering annuities as exempt from GST but after the issuance of said circular Dt. 17/06/2021 issued fresh show cause notices demanding GST on the entire amount of work completed and recognised in financial statements irrespective of the fact whether annuity payments fallen due or not. SPV had filed the Writ Petition before the Hon'ble Andhra Pradesh High Court. Pending Writ petition, the GST authority raised demand vide its order Dt. 23/03/2022 as per which demand of Rs. 147,44,31,064/- has been raised. Hon'ble Andhra Pradesh High court vide its order Dt. 05/05/2022 granted stay on the entire demand subject to payment of 5% of the demand and furnishing Bank Guarantee for 5% of demand. Stay order complied by the SPV with vide letter acknowledged Dt. 12/07/2022. **Current Status:** The matter is currently pending. The next hearing date is 15/12/2022.	1,474.40	a) 5% of Demand Amount Deposited i.e. INR 73.7 Mn b) Bank Guarantee Provided for 5% of Demand i.e. INR 73.7 Mn
2	Indirect Tax Matters -GST	Superintendent of Central Tax (AG-IV), Guntur Audit Circle.	**Background of the case:** Show Cause Notice issued in DRC 01 regarding audit observations of 2018-19. This notice is issued after filing reply in Form DRC 01A. Total GST of Rs. 8,72,680/- along with interest and penalty equivalent to tax was proposed to be deposited. Out of the total amount IGST under RCM of Rs. 6,91,470/- and IGST under RCM of Rs. 2,494/- on legal fees was already deposited vide DRC 03 dated 17/05/2022 alongwith interest of Rs. 4,07,937/- through DRC 03 dated 13/07/2022. The present SCN is seeking remaining IGST payment of Rs. 1,78,164/- under RCM on stamp duty charges and IGST of Rs. 552/- under RCM on other services recieved from ROC alongwith with applicable interest and penalty equivalent to tax. **Current Status:** Reply has been filed by the SPV on 26/09/2022 on GST portal. The matter is currently pending.	0.87	0.69

Source: Investment Manager

<< End of Report >>

ANNEXURE II - TECHNICAL REPORT

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Four Laning of Phagwara - Rupnagar Section of NH-344A from km. 0.000 to km. 80.820 in the State of Punjab on Hybrid Annuity Mode

Technical Due Diligence Study

Final Report

November 2022

Four Laning of Phagwara - Rupnagar Section of NH-344A from km. 0.000 to km. 80.820 in the State of Punjab on Hybrid Annuity Mode

Technical Due Diligence Study

Final Report

November 2022

REVISION RECORD					
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R0	Final Report	08-Nov-2022	VKS / TM / AK	CSB	SMA

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FOUR LANING OF PHAGWARA - RUPNAGAR SECTION OF NH-344A FROM KM. 0.000 (DESIGN CHAINAGE) TO KM. 80.820 (DESIGN CHAINAGE) IN THE STATE OF PUNJAB ON HYBRID ANNUITY MODE

TECHNICAL DUE DILIGENCE STUDY

FINAL REPORT

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1 INTRODUCTION

1.1 Background

The Government of India had entrusted National Highways Authority of India (NHAI) for the development, maintenance and management of National Highway No. 344A including the Section from km. 0.000 (Design Chainage) to km. 80.820 (Design Chainage) on the Phagwara - Rupnagar Section in the State of Punjab on design, build, operate and transfer (the "DBOT Annuity" or "Hybrid Annuity") basis. Total length of the project highway is 80.820 kms.

Based on competitive bid process completed, NHAI has signed Concession Agreement with **M/s. GR Phagwara Expressway Limited (GPEL)**, a Special Purpose Vehicle (SPV) formed for implementing this project.

The Appointed Date of the project was 06th October 2017. The concession period of the project highway is 17.5 years from the Appointed Date including construction period of 2.5 years. The project highway has received provisional completion certificate on 25th February 2020 and final completion certificate on 26th May 2021. The Scheduled Completion Date of the project highway was on 03rd April 2020.

During maintenance period of the project highway, **GR Highways Investment Manager Pvt. Ltd.** (in its capacity as the Investment Manager of Bharat Highways InvIT) has appointed **FP Project Management Consultancy Services Private Limited** [Formerly Frischmann Prabhu (I) Pvt. Ltd.] as Technical Consultant for carrying out techincal study and assessment of Opex and Major Maintenance requirement (MMR) for balance concession period. The scope includes review of operation and maintenance system and to prepare maintenance schedule for entire duration of concession period based on a technical analysis. In turn, FP Project Management undertook the site visits to carry out site inspection. The report is based on findings during this period.

1.2 Our Approach Philosophy

Composition of Team

Our team consists of well-qualified Engineers and other professionals, whose experience covers all the skills and specializations required for undertaking such assignments. All the team personnel are our regular employees and have a long and stable working relationship with our firm.

The Team Leader coordinates the activities between all the key staff who work closely together. The key staff is assisted by various support staff, who report to the respective key staff in their field of expertise. The Team Leader is the point of contact for Client on Technical Study.

The technical study includes review of all the available documents namely:

a) Concession Agreement including Technical Schedules
b) EPC Agreement
c) Pavement design reports
d) O&M Manual prepared by the Concessionaire
e) O&M Contract, work order and their provisions
f) Recent O&M Report submitted to Authority
g) Quality of construction based on available data, design and drawings
h) Documents on historical expenditure on operation and maintenance

i) Reports on past accidents
j) O&M cost schedule for the concession period
k) Completion / Provisional Completion and status of items in punch list items
l) Correspondence regarding scope of works and during O&M
m) Toll operation manual / ATMS related documents

The review of the above documents is the first step towards accomplishment of the assignment. This gives a complete idea of the project and is used as input data for preparation of report after necessary analysis.

Site Visit and Data Collection

A team of experts from various streams has carried out the preliminary site visit to understand the assessment of project assets mainly condition of the pavement and structures.

- The site visit is undertaken for detailed reconnaissance and visual pavement condition assessment
- The condition assessment of major structures by visual inspection
- The information like material sources and the probable cost is collected for the purpose of cost estimate.

The detailed design / drawings viz. Plan & L-sections, drainage design, structure design, layout drawings for project facilities like toll plaza, bus bay, truck lay-byes, highway lighting facilities etc., would be studied. Also, design / drawing and provision pertaining to road furniture are studied.

The adequacy of design is verified in accordance with the concession agreement, manual of specifications and standards as well as relevant IRC standards.

The information on availability of material in the vicinity is gathered. It has direct impact on cost of maintenance work and balance work if any.

The basic approach for preparation for cost estimates for operation and maintenance is as per the practice of State PWD / MoRT&H in respect of highways and structures.

Data Analysis

Based on the study of the available information and preliminary site visits, the consultants share their preliminary observations with the Client.

1.3 About this Report

This report has been prepared based on the information, reports and documents made available to us by the Company. We have also referred to publicly available reports, literature etc., and have made our best efforts to check the authenticity of the information available, analyse the same as per the best engineering / industry practices.

The site visit and inspection were carried out between the periods of **9th August 2022 to 12th August 2022**.

The report is organized with the following chapters for easy understanding of various issues.

- **Introduction -** This chapter gives an overview of the project background, approach and methodology of Due Diligence studies.

- **Project Description -** This chapter describes existing project features before proposed development.

- **Development of Project Highway -** This chapter gives an overview of project development.

- **Pavement Investigation and Proposal -** This chapter describes present condition of pavement, surveys and investigations carried out on site and proposals for maintenance as per contract requirements.

- **Balance works -** This chapter summarizes the details of balance works at Site if any.

- **Operation and Maintenance -** This chapter describes O&M set up as well as O&M cost over the concession period.

- **Review of Concession Agreement -** This chapter summarizes the observations on the executed concession agreement document.

- **Review of O&M Agreement -** This chapter summarizes the observations on the O&M Agreement executed.

- **Toll Plaza Equipment Status and ATMS -** This chapter summarizes assessment of Toll Plaza in terms of no of lanes, Toll Collection System installed and working status is presented under this section.

- **Accident Data Analysis -** This chapter deals with the analysis of nature of accidents occurring on the stretch and to identify blackspots.

- **Annexures**

2 PROJECT DESCRIPTION

2.1 Location

The project highway Phagwara to Rupnagar (NH-344A), starts from km. 0.000 at Phagwara Town and terminates at km. 80.820 at Rupnagar Town. The design length of the project highway is 80.820 kms. The project stretch is the important link connecting important cities in Punjab State such as Amritsar, Jalandhar and Chandigarh. The project involved development of existing 2 lane carriageway to 4 lane divided carriageway with 1.5 m wide paved shoulder and 2.0 m earthen shoulder on either side.

The project highway passes through the Districts of Nawanshahr and Kapurthala. The project highway passes through the built-up areas of towns and villages enroute. Important towns along the alignment are Mehli, Bahar Majara, Jasso Majara, Behram, Malha Sodhian, Dhahan, Banga, Kahma, Nawanshahr, Langroya, Garhi Kanugoan, and Bachhwan.

The Location Map of the project highway is presented below:

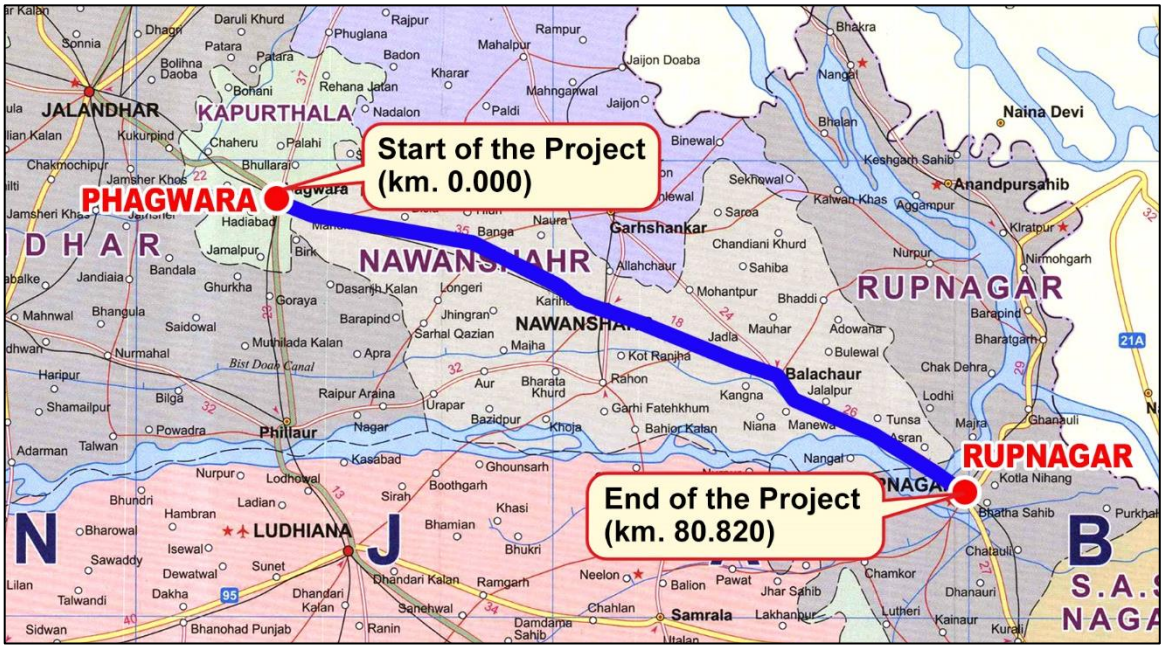


Figure 2-1 Location Map

2.2 Climate

The climate of project area is characterized by general dryness (except in the south west monsoon season), a hot summer and a cold winter. The year may be divided into four seasons. The period from about middle of November to February is the cold season. This is followed by the summer season from March to about the end of June. The south-west monsoon season commences late in June and continues up to about middle of September. The period from mid September to the middle of November constitutes the post-monsoon or transition season. The temperature ranges from a minimum of 1°C (34°F) in winter to 47°C (117°F) in summer. May and June are generally the hottest months and December and January are the coldest months. Relative humidity is high, averaging about 70% during monsoon. The average annual rainfall in the district is 775.6 millimeters (30.54 in). About 78% of the annual rainfall is received during June through September.

2.3 Terrain

This section of National Highway traverses through plain / rolling terrain.

2.4 Abutting Land Use

The land use along the project highway is predominantly agriculture with intermittent built-up area.

2.5 Right of Way

The width of existing Right of Way (RoW) for the project highway varies from 35.0 m to 62.0 m.

2.6 Existing Utilities

During widening of the project highway, various affected utility services located along the project road were shifted to the PROW. The different types of utilities found along the road include, electrical poles, telephone poles, OFC Cables, etc.

3 DEVELOPMENT OF PROJECT ROAD

As per Article 2 of Concession Agreement, the scope of the project defined in Schedule A and Schedule B, shall mean and include, during the concession period,

a. Construction of the project on the Site set forth in Schedule-A and as specified in Schedule-B together with provision of project facilities as specified in Schedule-C and in conformity with the Specification and Standards set forth in Schedule-D
b. Operation and maintenance of the project in accordance with the provisions of this Agreement and
c. Performance and fulfillment of all other obligations of the Concessionaire in accordance with the provisions of this Agreement and matters incidental thereto or necessary for the performance of any or all of the obligations of the Concessionaire under Concession Agreement.

3.1 Width of Carriageway

The paved carriageway is 18 m [(2 x 7.5 m) + (2 x 1.5 m)] wide excluding the median.

The cross section type along the project is tabulated below:

Design Chainage (km)		Length (km)	Proposed TCS Type	Remarks
From	To			
0.000	3.601	3.601	TCS-8	
3.601	4.748	1.147	TCS-9	Proposed Flyover
4.748	6.420	1.672	TCS-8	
6.420	7.380	0.960	TCS-9	VUP
7.380	8.694	1.314	TCS-8	
8.694	9.315	0.621	TCS-9	Proposed Flyover
9.315	9.920	0.605	TCS-9	Mehli
9.920	12.015	2.095	TCS-1	
12.015	12.565	0.550	TCS-5	Bahar Majara
12.565	13.415	0.850	TCS-1	
13.415	14.015	0.600	TCS-5	Jasso Majra
14.015	16.515	2.500	TCS-1	
16.515	17.715	1.200	TCS-5	Behram
17.715	19.265	1.550	TCS-1	
19.265	19.615	0.350	TCS-5	Malla Sodian
19.615	21.190	1.575	TCS-1	
21.190	21.390	0.200	TCS-7	Dhahan
21.390	21.715	0.325	TCS-1	
21.715	22.465	0.750	TCS-5	Dhahan
22.465	23.965	1.500	TCS-1	
23.965	24.465	0.500	TCS-7	Mazari
24.465	24.640	0.175	TCS-1	
24.640	25.319	0.679	TCS-12A	
25.319	28.319	3.000	TCS-12	Elevated Structure (km. 21.000 to km. 24.000) at Banga
28.319	28.890	0.571	TCS-12A	
28.890	30.215	1.325	TCS-1	
30.215	30.715	0.500	TCS-5	Khtkar Kalan
30.715	31.565	0.850	TCS-1	
31.565	32.065	0.500	TCS-5	Kahma
32.065	32.780	0.715	TCS-9	PUP

Design Chainage (km)		Length (km)	Proposed TCS Type	Remarks
From	To			
32.780	34.415	1.635	TCS-1	
34.415	35.115	0.700	TCS-5	Kariha
35.115	37.100	1.985	TCS-1	
37.100	38.550	1.450	TCS-3	
38.550	39.350	0.800	TCS-11A	ROB, Nawashahr Bypass
39.350	40.500	1.150	TCS-11	Flyover at Hoshiarpur Road Crossing of Bypass
40.500	47.100	6.600	TCS-3	Nawashahr Bypass
47.100	48.719	1.619	TCS-1	
48.719	48.969	0.250	TCS-7	Nai Mazara
48.969	55.369	6.400	TCS-1	
55.369	56.119	0.750	TCS-5	Garhi
56.119	56.219	0.100	TCS-4	
56.219	56.700	0.481	TCS-3A	Realignment
56.700	57.100	0.400	TCS-1	
57.100	57.866	0.766	TCS-3A	Realignment
57.866	59.525	1.659	TCS-2	
59.525	60.223	0.698	TCS-10	Proposed Flyover LHS at Balachaur
60.223	60.770	0.547	TCS-6	
60.770	64.220	3.450	TCS-2	
64.220	64.570	0.350	TCS-6	Sudha Majra
64.570	68.120	3.550	TCS-2	
68.120	68.370	0.250	TCS-6	Kathgarh
68.370	69.420	1.050	TCS-2	
69.420	69.670	0.250	TCS-6	Bharthala
69.670	72.720	3.050	TCS-2	
72.720	72.920	0.200	TCS-6	
72.920	75.420	2.500	TCS-2	
75.420	80.820	5.400	TCS-6	Rail Majra

The photographs taken at the time of site visit is presented as below:

Figure 3-1 Start of Project Road



Start of Project Road - Left Carriageway

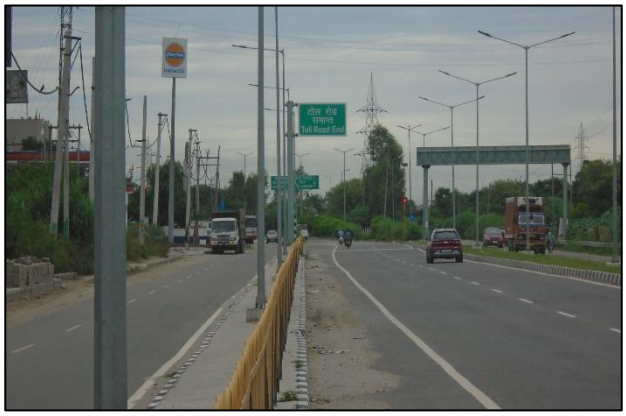


Start of Project Road - Right Carriageway

Figure 3-2 End of Project Road



Approach to End of Project Road



End of Project Road

3.2 Bypass / Realignment

There is one bypass and two re-alignments in the project highway. The details of bypass and re-alignments provided are as tabulated below:

Bypass:

Location of Bypass	Existing Chainage (km)		Existing length (km)	Design Chainage (km)		Design length (km)
	From	To		From	To	
Nawanshahr	32+760	42+231	9.471	37+100	47+100	10.000

Figure 3-3 Photographs of Bypass



Nawanshahr Bypass



Nawanshahr Bypass

Realignments:

Existing Chainage (km)		Existing length (km)	Design Chainage (km)		Design length (km)	Remarks
From	To		From	To		
51+350	51+908	0.558	56+219	56+700	0.481	Garhi
52+303	53+196	0.893	57+100	57+866	0.766	Garhi

3.3 Service Road

Service road are provided in lengths as tabulated below:

Sr. No.	Location (km)		Side	Length of Service Road (km)
	From	To		
1	3.601	4.748	Both Side	2.294
2	6.420	7.380	Both Side	1.920
3	8.694	9.315	Both Side	1.242
4	9.315	9.920	Both Side	1.210
5	12.015	12.565	Both Side	1.100
6	13.415	14.015	Both Side	1.200
7	16.515	17.715	Both Side	2.400
8	19.265	19.615	Both Side	0.700
9	21.190	21.390	RHS	0.200
10	21.715	22.465	Both Side	1.500
11	23.965	24.465	RHS	0.500
12	24.640	25.319	Both Side	1.358
13	25.319	28.319	Both Side	6.000
14	28.319	28.890	Both Side	1.142
15	30.215	30.715	Both Side	1.000
16	31.565	32.065	Both Side	1.000
17	32.065	32.780	Both Side	1.430
18	34.415	35.115	Both Side	1.400
19	39.350	40.500	Both Side	2.300
20	48.719	48.969	RHS	0.250
21	55.369	56.119	Both Side	1.500
22	59.525	60.223	LHS	0.698
23	60.223	60.770	LHS	0.547
24	64.220	64.570	LHS	0.350
25	68.120	68.370	LHS	0.250
26	69.420	69.670	LHS	0.250
27	72.720	72.920	LHS	0.200
28	75.420	80.820	LHS	5.400
Total Length				**39.341**

The photographs taken at the time of site visit is presented as below:

Figure 3-4 Photographs of Service Road



Service Road at km. 0+630 (LHS)



Service Road at km. 77+600 (LHS)

3.4 Right Of Way

The details of the proposed ROW for the development of project highway is as tabulated below:

Proposed Chainage (km)		Existing Chainage (km)		Old Name of Project Road	Existing ROW (m)	Proposed ROW (m)	Remarks
From	To	From	To				
0.000	9.312	17.673	27.003	Phagwara Bypass (SH- 18)	50	50	
9.312	13.427	5.003	9.117	MDR-56	33.54	48.5	
13.427	14.800	9.117	10.430		32.62	42.5	
14.800	14.877	10.430	10.597		32.62	40.9	
14.877	15.105	10.597	10.825		32.62	41.21	
15.105	15.160	10.825	10.880		32.62	64.705 / 104.405	
15.160	15.210	10.800	10.930		32.62	111	Proposed Toll Plaza
15.210	15.275	10.930	10.995		32.62	112	
15.275	15.389	10.995	11.079		32.62	108 / 85	
15.389	15.518	11.079	11.147		30	61	
15.518	15.650	11.147	11.289		30	61	
15.650	15.945	11.289	11.551		30	62	
15.945	16.185	11.551	11.147		30	38	
16.185	16.493	11.147	12.183		32.92	42.5	
16.493	18.985	12.183	14.675		32.62	42.5	
18.985	19.559	14.675	15.249		35.06	45	
19.559	21.773	15.249	17.463		34.44	43	
21.773	25.983	17.463	21.668		32.92	42.5	
25.983	28.833	21.668	24.518		33.53	42.5	
28.833	29.148	24.518	24.833		43.58	50	
29.148	37.100	24.833	32.760		33.53	48	
37.100	39.190	32.700				45	
39.190	40.625					60	Nawanshahr Bypass
40.625	47.100		42.010			45	
47.100	47.199	42.010	42.330		30.18	43	
47.199	54.764	42.330	49.980		27.75	44	
54.764	55.000	49.980			48	48	
55.000	56.219		51.350		15	48	
		Garhi Realignment					Garhi Re-Alignment
56.219	56.700					45	
56.700	57.000	51.908	52.203		33	50	
57.000	57.100	52.203	52.303		48	50	
57.100	57.866	Garhi Realignment				45	Garhi Re-Alionment
57.866	58.157	53.193	53.465		27.29	39.75	
58.157	60.300	53.465	27.000		32	49.5	
60.300	60.770	27.000	26.655		32	41.75	
60.770	61.340	26.655	26.085		30.5	38.25	
61.340	62.024	26.085	25.400		30.5	37.25	
62.024	62.360	25.400	25.064		17.71	37.25	

Proposed Chainage (km)		Existing Chainage (km)		Old Name of Project Road	Existing ROW (m)	Proposed ROW (m)	Remarks
From	To	From	To				
62.360	62.586	25.064	24.878		17.71	39.25	
62.586	62.605	24.878	24.819		21.06	39.25	
62.605	62.695	24.819	24.729		21.06	41	
62.695	62.975	24.729	24.449		21.06	36.5	
62.975	63.29	24.449	24.134		21.06	41	
63.290	63.334	24.134	24.085		22.06	45	
63.334	63.377	24.085	24.047		19.7	45	
63.377	63.644	24.047	23.780		19.7	47	
63.644	63.887	23.780	23.537		28.77	47	
63.887	63.945	23.537	23.475		42.18	47	
63.945	64.191	23.475	23.232		37.15	40.5	
64.191	64.252	23.232	23.170		42.68	42.68	
64.252	64.555	23.170	22.865	SH-24	39.33	40.5	
64.555	64.862	22.865	22.560		42.68	42.68	
64.862	65.442	22.560	21.982		20.2	40.5	
65.442	65.779	21.982	21.646		39.33	40.5	
65.779	66.065	21.646	21.360		34.3	40.5	
66.065	66.085	21.360	21.341		34.3	42	
66.085	66.236	21.341	21.189		27.89	42	
66.236	66.388	21.189	21.037		19.36	42	
66.388	66.555	21.037	20.870		19.21	42	
66.555	66.842	20.870	20.579		19.21	41	
66.842	67.147	20.579	20.274		25.92	41	
67.147	67.424	20.274	19.970		32.62	41	
67.424	67.604	19.970	19.817		22.56	41	
67.604	67.910	19.817	19.512		23.32	41	
67.910	68.061	19.512	19.360		24.24	41	
68.061	68.210	19.360	19.207		20.89	41	
68.210	69.000	19.207	18.422		19.21	41	
69.000	69.353	18.422	18.067		17.21	36	
69.353	69.637	18.067	17.782		17.21	52	
69.637	70.193	17.782	17.226		17.21	52	
70.193	70.250	17.226	17.173		18.89	37.5	
70.250	70.440	17.173	16.983		18.89	72.15 / 139.15	Proposed Toll Plaza
70.440	70.600	16.983	16.826		18.89, 17.51	92.93 / 141.2	
70.600	70.650	16.826	16.775		17.51	93.6	
70.650	70.960	16.775	16.463		17.510, 22.240	35	
70.960	71.425	16.463	15.995		22.24	35	
71.425	71.788	15.995	15.631		22.24	37.5	
71.788	72.295	15.631	15.125		22.24	44.5	
72.295	72.410	15.125	15.011		22.24	41.75	
72.410	72.630	15.011	14.792		22.24	36	
72.630	73.700	14.792	13.720		23.24	40	
73.700	74.000	13.720	13.415		28.27	40	
74.000	74.609	13.415	12.805		36.33	40	
74.609	75.223	12.805	12.195		36.65	40	
75.223	75.335	12.195	12.043		18.21	40	
75.335	79.221	12.043	8.157		50	50	

Proposed Chainage (km)		Existing Chainage (km)		Old Name of Project Road	Existing ROW (m)	Proposed ROW (m)	Remarks
From	To	From	To				
79.221	79.719	8.157	7.657		54.42	54.42	
79.719	79.969	7.657	7.407		41.01	41.01	
79.969	80.820	7.407	6.651		44.36	44.36	

3.5 At Grade Intersection

At grade intersections are provided at the intersection of service roads and all intersecting roads at locations as specified below:

Major Intersections (Junctions / Intersections):

Sr. No.	Location (km)	Type of Intersection	Cross Road		
			Side	Leading to	Width (m)
1	0+000	Y	Right	Phagwara	7.0
2	4+200	X	-	Hoshiarpur	7.5
3	9+300	Y	Right	Phagwara	7.0
4	37+400	Y	Right	Nawanshahr	10.0
5	46+800	Y	Right	Langroy	13.0
6	56+500	X	-	Balachaur	8.0
7	59+800	X	-	SH-24	7.0

The photographs taken at the time of site visit is presented as below:

Figure 3-5 Photographs of Major Junctions



Major Junction at km. 1+250 (LHS)



Major Junction at km. 57+260 (RHS)

Minor Junctions:

Sr. No.	Location (Existing)	Location (Design)	Name of Road	Type		Width (m)	Type of Surface	Side	Leading to
				Junction Type	Cross Road				
1	18+229	0+535	SH-18	X	Village	L (3.25) R (3.67)	BT	Both	Nangal Majra
2	18+807	1+100		X	Village	L (3.49) R (3.49)	BT	Both	Village Road
3	20+226	2+560		X	Village	L (6.4) R (7.0)	BT	Both	Palahi, Phagwara

Sr. No.	Location (Existing)	Location (Design)	Name of Road	Type		Width (m)	Type of Surface	Side	Leading to
				Junction Type	Cross Road				
4	22+205	4+521		Y	Village	R (3.1)	BT	RHS	Village Road
5	22+658	5+065		X	Village	L (4.7) R (5.2)	BT	Both	BhullaRai, Dana Mandi
6	23+948	6+258		X	Village	L (4.5) R (5.3)	BT	Both	Purewal Nagar
7	24+306	6+617		Y	Village	R (3.59)	BT	RHS	Shastri Nagar Gurunanak
8	24+579	6+895		X	Village	L (3.2) R (2.3)	BT	Both	Nagar, Sukhchain Nagar
9	25+507	7+800		X	Village	L (3.69) R (3.12)	BT	Both	Gonspur
10	5+948	10+259	MDR-56	T	Village	L (3.15)	BT	LHS	Bahua
11	6+171	10+483		Y	Village	L (2.9)	BT	LHS	Village Road
12	6+697	11+024		Y	Village	L (3.0)	BT	LHS	Village Road
13	7+944	11+269		Y	Village	L (3.5)	BT	LHS	Village Road
14	7+875	12+245		Y	Village	R (3.23)	BT	RHS	Village Road
15	8+143	12+513		T	Village	R (3.28)	BT	RHS	Kultham
16	8+572	12+941		Y	Village	L (3.0)	BT	LHS	Chak Mander
17	8+830	13+200		X	Village	L (3.5) R (3.7)	BT	Both	Chak Mander Kultham
18	9+189	13+560		Y	Village	L (3.0)	BT	LHS	JassoMajra JassoMajra,
19	9+410	13+782		X	Village	L (3.2) R (3.4)	BT	Both	Sarhala Ranuan
20	9+448	13+824		Y	Village	L (3.0)	BT	LHS	Jasso Majra
21	10+379	14+716		T	Village	R (3.3)	BT	RHS	Chak Mai das
22	12+123	16+443		Y	Village	R (2.5)	BT	RHS	Behram
23	12+456	16+775		Y	Village	L (3.18)	BT	LHS	Behram
24	12+520	16+838		Y	Village	R (3.18)	BT	RHS	Behram
25	12+625	16+943		Y	Village	L (3.12) R (4.01)	BT	HHS	Behram
26	12+885	17+200		Y	Village	R (3.25)	BT	RHS	Behram
27	12+995	17+300		Y	Village	L (7.58)	BT	LHS	Behram
28	13+046	17+363		Y	Village	L (3.07)	BT	RHS	Behram
29	13+133	17+450		Y	Village	L (2.48)	BT	LHS	Behram
30	13+835	18+144		T	Village	R (3.12)	BT	RHS	Chak Bilgan
31	14+988	19+300		Y	Village	L (3.09)	BT	LHS	Malla Sodhian
32	15+166	19+478		Y	Village	R (2.82)	BT	RHS	Malla Sodhian
33	15+283	19+597		Y	Village	L (3.09)	BT	LHS	Malla Sodhian
34	15+936	20+249		Y	Village	R (3.20)	BT	RHS	Lalpur
35	16+275	20+600		Y	Village	L (2.97)	BT	LHS	Bisla
36	17+061	21+386		Y	Village	R (2.83)	BT	RHS	Dhahan
37	17+815	22+143		Y	Village	L (4.95)	BT	LHS	Kaleran
38	18+591	22+920		Y	Village	R (2.78)	BT	RHS	MalluPotta
39	19+887	24+205		X	Village	L (2.9) R (2.65)	BT	Both	Mazari
40	20+022	24+348		Y	Village	R (3.48)	BT	RHS	Mazari
41	20+348	24+673			Village	L (2.08)	BT	Both	Village Road

Sr. No.	Location (Existing)	Location (Design)	Name of Road	Type		Width (m)	Type of Surface	Side	Leading to
				Junction Type	Cross Road				
				X		R (3.39)			
42	20+394	24+719		Y	Village	L (2.75)	BT	LHS	Village Road
43	21+161	25+490		Y	Town	R (3.75)	BT	RHS	Banga
44	21+237	25+563		Y	Town	L (4.3)	BT	LHS	Banga
45	21+413	25+739		Y	Town	R (2.4)	BT	RHS	Banga
46	21+535			Y	Town	R (3.51)	BT	RHS	Banga
47	21+722	26+060		X	Town	L (S.6) R (3.23)	BT	Both	Banga
48	22+160	26+300		X	Town	L (4.3) R)	BT	Both	Banga
49	22+329	26+480		X	Town	L (S.6) R (4.0)	BT	Both	Banga
so	22+620	26+500		Y	Town	R (6.17)	BT	RHS	Banga
51	22+826	26+538		Y	Town	L (6.9)	BT	LHS	Banga
52	23+556	26+621		X	Town	L (2.7) R (3.2)	BT	Both	Banga
53	23+995	26+713		Y	Town	L (3.4)	BT	LHS	Banga
54	24+167	26+952		Y	Town	R (3.2)	BT	RHS	Village Road
55	25+325	29+639		X	Village	L (2.9) R (4.6)	BT	Both	Village Road
56	26+053	30+358		X	Village	L (4.6) R (7.2)	BT	Both	Khatkar Kalan
57	26+230	30+535		Y	Village	R (4.6)	BT	RHS	Khatkar Kalan
58	26+766	31+072		X	Village	L (3.59) R (2.76)	BT	Both	Khatkar Kalan, Bhoot
59	27+434	31+734		X	Village	L (2.8) R (3.2)	BT	Both	Kahma, Bhoot
60	27+891	32+182		Y	Village	R (2.95)	BT	RHS	Kahma
61	28+167	32+459		X	Village	L (2.94) R (3.2)	BT	Both	Kahma
62	29+122	33+416		Y	Village	R (2.38)	BT	RHS	Kahma
63	29+314	33+608		X	Village	L (3.5) R (3.04)	BT	Both	Bainsa, Kariha
64	30+261	34+600		X	Village	L (3.0) R (4.5)	BT	Both	MalpurArkan, Kariha
65	30+660	34+990		Y	Village	L (2.9)	BT	LHS	MalpurArkan
66	30+885	35+217		Y	Village	R (2.9)	BT	RHS	Kariha
67	32+075	36+400		Y	Village	L (2.9)	BT	LHS	Village Road
68		42+060		X	Village	L (2.8) R (3.07)	BT	Both	L () R ()
69		46+920		Y	Village	L (2.9)	BT	LHS	L (Kishanpur)
70	42+777	47+683		X	Village	L (2.8) R (3.07)	BT	Both	Sajwalpur
71	43+329	48+234		Y	Village	R (3.14)	BT	RHS	Sanawa
72	43+433	48+337		Y	Village	R (2.5)	BT	RHS	Village Road
73	43+692	48+600		Y	Village	L (3.0)	BT	LHS	Kishanpura
74	43+863	48+920		Y	Village	R (3.3)	BT	RHS	Nai Majara
75	44+120	49+180		Y	Village	L (2.9)	BT	LHS	Daulatpur
76	44+313	49+373		Y	Village	R (2.72)	BT	RHS	Village Road
77	45+208	50+050		X	Village	L (3.43)	BT	Both	Daulatpur, Jadla

Sr. No.	Location (Existing)	Location (Design)	Name of Road	Type		Width (m)	Type of Surface	Side	Leading to
				Junction Type	Cross Road				
						R (2.92)			
78	45+574	50+414		X	Village	L (5.03) R (4.71)	BT	Both	Daulatpur, Jadla
79	46+302	51+134		X	Village	L (3.1) R (3.1)	BT	Both	Jadli, Jadla
80	47+799	52+600		Y	Village	R (2.4)	BT	RHS	Village Road
81	48+354	53+166		X	Village	L (2.5) R (3.2)	BT	Both	Thathiala Dhaha, Birowal
82	49+247	54+036		Y	Village	L (3.74)	BT	LHS	Garle
83	26+257	61+171	SH-24	X	Village	L (2.6) R (3.5)	BT	Both	Balachaur, Sojowal
84	23+849	63+570		X	Village	L (2.8) R (4.1)	BT	Both	Lohat, Lohgarh
85	23+133	64+287		Y	Village	L (3.12)	BT	LHS	Village Road
86	19+741	67+646		X	Village	L (2.8) R (2.3)	BT	Both	Jalalpur
87	19+096	68+289		Y	Village	L (5.65)	BT	LHS	Katgarh
88	18+089	69+296		Y	Village	L (2.9)	BT	LHS	Village Road
89	17+953	69+429		Y	Village	L (2.77)	BT	LHS	Bharthala
90	17+911	69+474		T	Village	R (2.75)	BT	RHS	Village Road
91	17+529	69+855		Y	Village	L (2.76)	BT	LHS	Village Road
92	16+668	70+723		Y	Village	L (3.63)	BT	LHS	Panayali Kalan
93	16+208	71+177		X	Village	L (3.2) R (2.9)	BT	Both	Panayali Khurd
94	16+060	71+324		Y	Village	L (2.5)	BT	LHS	Panayali Khurd
95	15+365	72+019		T	Village	L (2.8)	BT	LHS	Jamitgarh
96	14+840	72+544		X	Village	L (3.45) R (3.04)	BT	Both	Majra Jathan
97	14+070	73+315		T	Village	L (2.85)	BT	LHS	Village Road
98	13+190	74+181		Y	Village	L (4.13)	BT	LHS	Fatepur
99	12+507	74+867		Y	Village	L (3.09)	BT	LHS	Village Road
100	11+967	75+413		X	Village	L (3.0) R (3.3)	BT	Both	Tanusa
101	11+091	76+285		Y	Village	L (2.99)	BT	LHS	Dana Mandi
102	9+624	77+747		X	Village	L (3.29) R (3.37)	BT	Both	Majra

3.6 Grade Separated Intersection

The grade separated intersections provided are as tabulated below:

Grade separated structure:

Sr. No.	Location of structure (km)	Existing / Proposed	Proposed Span Arrangement (m)	Minimum Vertical Clearance (m)	Type
1	4+200	Proposed	1 x 25 + 1 x 40 + 1 x 25	5.5	6 lane as per Type-1
2	9+320	Proposed	1 x 25 + 1 x 30 + 1 x 25	5.5	6 lane as per Type-1
3	39+900	Proposed	1 x 25 + 1 x 30 + 1 x 25	5.5	6 lane as per Type-1
4	59+800	Proposed	1 x 25 + 1 x 30 + 1 x 25	5.5	3 lane as per Type-3

Elevated structure:

Sr. No.	Location of structure	Existing / Proposed	Proposed Span Arrangement (m)	Minimum Vertical Clearance above Service Road (m)	Type
1	25+319 to 28+319	Proposed	100 x 30	5.5	4 lane as per TYPE-4

3.7 Underpasses

Vehicular Underpass (VUP):

Vehicular Underpass are provided at location as tabulated below:

Sr. No.	Location (Chainage)	Span Arrangement (m)	Minimum Horizontal Clearance (m)	Minimum Vertical Clearance (m)	Type
1	6+894	1 x 19	12	5.5	6 lane as per TYPE-1

Cattle and Pedestrian Underpass / Overpass:

Cattle and Pedestrian Underpass / Overpass are constructed as tabulated below:

Sr. No.	Location (Chainage)	Minimum Horizontal Clearance (m)	Minimum Vertical Clearance (m)	Type
1	32+450	1 x 7	4.5	6 lane as per TYPE-2

3.8 Major Bridges

Reconstruction / New Construction of existing Major Bridge is as tabulated below:

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type Of Crossing	Proposed Structural Configuration	Proposed Structure Type	Proposed Span Arrangement (No. x Length)	Total Structure Width
1	54+721	59+370	Right	New 2-Lane bridge on LHS of existing bridge	RCC Girder + Slab	11 + 3 x 15.9 + 11	Additional 2 lane as per TYPE-8

Rehabilitation / Repair / Widening of existing Major Bridge is as tabulated below:

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Width (m)	Span Arrangement (No. x Length)	Type of Structure			Detail of Rehabilitation	Detail of Repair	Detail of Widening
					Foundation	Sub-Structure	Super-Structure			
1	54+721	59+370	2-lane	13 x 5.3	Open	Wall	Solid Slab	General Rehabilitation	Routine Maintenance	Nil

3.9 Minor Bridges

Reconstruction / New Construction of existing Minor Bridges are as tabulated below:

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type of Crossing	Proposed Structural Configuration	Proposed Structure Type	Proposed Span Arrangement (No. x Length)	Total Structure Width
1	31+470	35+790	26° Skew	New 2-Lane bridge on LHS of existing bridge	Box	1 x 10 (skew) (clear)	Additional 2 lane as per TYPE-8
2	39+844	38+305	38° Skew	New 4-Lane bridge	Box	3 x 7 (skew) (clear)	4 lane as per TYPE-5
3	43+441	48+292	51° Skew	New 2-Lane bridge on LHS of existing bridge	Box	3 x 8 (skew) (clear)	Additional 2 lane as per TYPE-8
4	53+300	57+967	Right	New 2-Lane bridge on LHS of existing bridge	PSC Girder	1 x 28	Additional 2 lane as per TYPE-8

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type of Crossing	Proposed Structural Configuration	Proposed Structure Type	Proposed Span Arrangement (No. x Length)	Total Structure Width
5	54+573	59+225	Right	New 2-Lane bridge on LHS of existing bridge	RCC Girder	3 x 16	Additional 2 lane as per TYPE-8
6	24+731	62+692	Right	New 3-Lane bridge on LHS of existing bridge	RCC Girder	1 x 18	Additional 3 lane as per TYPE-9
7	23+814	63+602	Right	New 3-Lane bridge on LHS of existing bridge	PSC Girder	1 x 26	Additional 3 lane as per TYPE-9
8	22+645	64+777	Right	New 3-Lane bridge on LHS+ Reconstruction from 9m width RHS of existing bridge	RCC Solid Slab	5 x 7.5	6 Lane as per TYPE-7
9	21+409	66+007	Right	New 3-Lane bridge on LHS of existing bridge	PSC Girder	1 x 35	Additional 3 lane as per TYPE-9
10	18+881	68+506	Right	New 3-Lane bridge on LHS of existing bridge	RCC Solid Slab	4 x 11	Additional 3 lane as per TYPE-7
11	17+583	69+802	Right	New 3-Lane bridge on LHS of existing bridge	Box	1 x 10 (clear)	Additional 3 lane as per TYPE-9
12	16+231	71+154	Right	New 3-Lane bridge on LHS+ Reconstruction by 9m width on RHS of existing bridge	RCC Solid Slab	11 + 12.8 + 11	6 Lane as per TYPE-7
13	15+676	71+708	Right	New 3-Lane bridge on LHS of existing bridge+ New 2-Lane bridge on RHS of new 3-Lane bridge & LHS to existing bridge	RCC Girder	1 x 18	Additional 3 lane as per TYPE-12
14	15+269	72+117	Right	New 3-Lane bridge on LHS + Reconstruction of 3- Lane bridge on RHS	RCC Girder	3 x 15	6 Lane as per TYPE-6
15	14+505	72+880	Right	New 3-Lane bridge on LHS + Reconstruction of 3- Lane bridge on RHS	Box	3 x 7 (clear)	6 Lane as per TYPE-6
16	13+227	74+148	Right	New 3-Lane bridge on LHS + Reconstruction of 3- Lane bridge on RHS	Box	3 x 8 (Clear)	6 Lane as per TYPE-6
17	13+039	74+336	Right	New 3-Lane bridge on LHS + Reconstruction of 3- Lane bridge on RHS	Box	2 x 8 (Clear)	6 Lane as per TYPE-6
18	12+393	74+987	Right	New 3-Lane bridge on LHS + Reconstruction of 3- Lane bridge on RHS	Box	2 x 9 (Clear)	6 Lane as per TYPE-6
19	10+558	76+793	Right	New 2-Lane bridge on LHS of existing bridge + New 2 Lane Service Road bridge on LHS of main carriageway	Box	1 x 6.5 (Clear)	Additional 2 lane as per TYPE-10

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type of Crossing	Proposed Structural Configuration	Proposed Structure Type	Proposed Span Arrangement (No. x Length)	Total Structure Width
20	9+786	77+591	Right	New 2-Lane bridge on Service Road + New 2 Lane Service Road bridge on LHS of main carriageway	Box	3 x 8 (Clear)	4 Lane as per TYPE-11
21	8+764	78+613	Right	New 2-Lane bridge on LHS of existing bridge + New 2 Lane Service Road bridge on LHS of main carriageway	RCC Girder	1 x 13	Additional 2 lane as per TYPE-10
22	7+353	80+018	Right	New 2-Lane bridge on LHS of existing bridge + New 2 Lane Service Road bridge on LHS of main carriageway	Box	1 x 8 (Clear)	Additional 2 lane as per TYPE-10

Rehabilitation / Repair / Widening of existing Minor Bridge are as tabulated below:

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Span Arrangement (No. x Length)	Side of Existing 2- lane Bridge	Type of Structure			Detail of Rehabilitation	Detail of Repair	Detail of Widening
					Foundation	Sub-Structure	Super-Structure			
1	31+470	35+790	2 x 4.9	-	Open	Wall	Solid Slab	General Rehabilitation	Routine Maintenance	Nil
2	43+441	48+292	3 x 9.4	-	Open	Wall	Solid Slab	General Rehabilitation	Routine Maintenance	Nil
3	53+300	57+967	7 x 3.9	-	Open	Box	Box	General Rehabilitation	Routine Maintenance	Nil
4	54+573	59+225	3 x 15.5	-	Open	Wall	Arch	General Rehabilitation	Routine Maintenance	Nil
5	24+731	62+692	1 x 18	-	Open	Wall	T girder	General Rehabilitation	Routine Maintenance	Nil
6	23+814	63+602	1 x 25.6	-	Open	Arch	T girder	General Rehabilitation	Routine Maintenance	Nil
7	22+645	64+777	5 X 7.3	LHS	Pile	Wall	Continuous Slab	General Rehabilitation	Routine Maintenance	Nil
8	21+409	66+007	1 x 35	-	Open	Box	T girder	General Rehabilitation	Routine Maintenance	Nil

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Span Arrangement (No. x Length)	Side of Existing 2- lane Bridge	Type of Structure			Detail of Rehabilitation	Detail of Repair	Detail of Widening
					Foundation	Sub-Structure	Super-Structure			
9	18+881	68+506	2 x 11 + 10.8 + 11 4 x 11	RHS LHS	Open	Wall	Solid Slab	General Rehabilitation	Routine Maintenance	Widening by 2 m on RHS of existing bridge on LHS to match the total proposed width of 16 m (Ref. Type-7)
10	17+583	69+802	1 x 11	-	Open	Wall	Solid Slab	General Rehabilitation	Routine Maintenance	Nil
11	16+231	71+154	11 + 12.8 + 11	LHS	Pile	Wall	Continuous Slab	General Rehabilitation	Routine Maintenance	Nil
12	15+676	71+708	1 x 18	-	Open	Wall	T girder	General Rehabilitation	Routine Maintenance	Widening by 9 m on LHS of existing bridge to match the total proposed width of 16 m (Ref. Type-12)
13	10+588	76+793	1 x 7.3	-	Open	Wall	Solid Slab	General Rehabilitation	Routine Maintenance	Nil
14	8+764	78+613	1 x 13	-	Open	Wall	RCC Girder	General Rehabilitation	Routine Maintenance	Nil
15	7+353	80+018	1 x 8.9	-	Open	Wall	Solid Slab	General Rehabilitation	Routine Maintenance	Nil

3.10 Culverts

Culverts provided, widened, reconstructed, or extended are as tabulated below:

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Proposal	Existing Type	Proposed Type	Proposed Size (m)	Remarks
1	18+200	0+516	Reconstruct	Pipe	Pipe	2.0 x 2.0	Cross Drainage
2	18+487	0+802	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
3	18+627	0+858	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
4	18+800	1+113	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Proposal	Existing Type	Proposed Type	Proposed Size (m)	Remarks
5	19+025	1+339	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
6	19+120	1+429	Reconstruct	Slab	Box	6.0 x 3.5	Cross Drainage
7	19+357	1+672	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
8	19+500	1+815	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
9	19+549	1+862	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
10	19+600	1+919	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
11	19+648	1+967	Reconstruct	Slab	Box	6.0 x 3.5	Cross Drainage
12	19+670	1+989	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
13	19+900	2+212	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
14	20+029	2+341	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
15	20+170	2+483	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
16	20+194	2+507	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
17	20+200	2+513	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
18	20+137	2+690	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
19	20+731	3+209	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
20	21+100	3+408	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
21	21+400	3+708	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
22	21+755	4+064	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
23	22+200	4+514	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
24	22+500	4+817	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
25	22+600	4+917	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
26	23+152	5+464	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
27	23+735	6+045	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
28	23+970	6+254	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
29	24+298	6+608	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
30	24+560	6+891	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
31	24+820	7+135	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
32	25+882	8+196	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
33	26+318	8+630	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
34	26+384	8+695	Reconstruct	Slab	Box	3.0 x 3.0	Cross Drainage
35	26+760	9+081	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
36	6+150	10+457	Widening	Slab	Box	3.0 x 3.0	Cross Drainage

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Proposal	Existing Type	Proposed Type	Proposed Size (m)	Remarks
37	9+403	13+774	Widening	Slab	Box	2.0 x 2.0	Cross Drainage
38	10+318	14+655	Widening	Slab	Box	4.0 x 4.0	Cross Drainage
39	12+615	16+932	Widening	Slab	Box	6.0 x 3.5	Cross Drainage
40	12+705	17+022	Widening	Slab	Box	4.0 x 4.0	Cross Drainage
41	13+615	17+924	Widening	Slab	Box	3.0 x 3.0	Cross Drainage
42	13+935	18+246	Widening	Slab	Box	4.0 x 4.0	Cross Drainage
43	14+010	18+321	Widening	Slab	Box	6.0 x 3.5	Cross Drainage
44	15+135	19+445	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
45	17+122	21+442	Widening	Slab	Box	6.0 x 3.5	Cross Drainage
46	20+607	24+929	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
47	26+088	30+392	Widening	Slab	Box	3.0 x 3.0	Cross Drainage
48	27+465	31+764	Widening	Slab	Box	3.0 x 3.0	Cross Drainage
49	32+580	36+928	Widening	Slab	Box	2.0 x 2.0	Cross Drainage
50	-	37+480	New Construction	-	Box	3.0 x 3.0	Cross Drainage
51	-	37+905	New Construction	-	Box	3.0 x 3.0	Cross Drainage
52	-	38+050	New Construction	-	Pipe	1.2 m dia	Cross Drainage
53	-	38+510	New Construction	-	Pipe	1.2 m dia	Cross Drainage
54	-	39+520	New Construction	-	Box	3.0 x 3.0	Cross Drainage
55	-	42+310	New Construction	-	Pipe	1.2 m dia	Cross Drainage
56	-	42+437	New Construction	-	Box	6.0 x 3.5	Cross Drainage
57	-	42+665	New Construction	-	Pipe	1.2 m dia	Cross Drainage
58	-	43+225	New Construction	-	Box	3.0 x 3.0	Cross Drainage
59	-	43+760	New Construction	-	Box	3.0 x 3.0	Cross Drainage
60	-	44+210	New Construction	-	Pipe	1.2 m dia	Cross Drainage
61	-	45+010	New Construction	-	Box	3.0 x 3.0	Cross Drainage
62	-	45+725	New Construction	-	Pipe	1.2 m dia	Cross Drainage
63	-	46+163	New Construction	-	Pipe	1.2 m dia	Cross Drainage
64	-	46+606	New Construction	-	Box	3.0 x 3.0	Cross Drainage
65	43+713	48+770	Widening	Slab	Box	3.0 x 3.0	Cross Drainage
66	43+828	48+885	Widening	Slab	Box	6.0 x 3.5	Cross Drainage
67	46+548	51+367	Widening	Slab	Box	2.0 x 2.0	Cross Drainage
68	47+350	52+160	Widening	Slab	Box	2.0 x 2.0	Cross Drainage

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Proposal	Existing Type	Proposed Type	Proposed Size (m)	Remarks
69	47+624	52+434	Widening	Slab	Box	2.0 x 2.0	Cross Drainage
70	47+822	52+632	Widening	Slab	Box	2.0 x 2.0	Cross Drainage
71	48+156	52+967	Widening	Slab	Box	2.0 x 2.0	Cross Drainage
72	48+437	53+226	Widening	Slab	Box	2.0 x 2.0	Cross Drainage
73	48+690	53+478	Widening	Slab	Box	2.0 x 2.0	Cross Drainage
74	48+811	53+599	Widening	Slab	Box	2.0 x 2.0	Cross Drainage
75	48+955	53+743	Widening	Slab	Box	2.0 x 2.0	Cross Drainage
76	50+800	55+590	Widening	Slab	Box	2.0 x 2.0	Cross Drainage
77	50+840	55+667	Widening	Pipe	Pipe	1 m dia	Cross Drainage
78	50+910	55+739	Widening	Pipe	Pipe	1 m dia	Cross Drainage
79	52+963	57+654	Reconstruct	Arch	Box	2.0 x 2.0	Cross Drainage
80	53+050	57+728	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
81	53+687	58+349	Widening	Pipe	Pipe	1 m dia	Cross Drainage
82	53+913	58+575	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
83	54+357	59+022	Widening	Pipe	Pipe	1 m dia	Cross Drainage
84	54+457	59+124	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
85	22+173	65+250	Widening	Pipe	Pipe	1 m dia	Cross Drainage
86	21+964	65+460	Widening	Pipe	Pipe	1 m dia	Cross Drainage
87	21+857	65+568	Widening	Pipe	Pipe	1 m dia	Cross Drainage
88	21+763	65+662	Widening	Pipe	Pipe	1 m dia	Cross Drainage
89	17+945	69+439	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
90	17+410	69+978	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage
91	6+900	80+477	Reconstruct	Pipe	Pipe	1.2 m dia	Cross Drainage

3.11 ROB / RUB

Road Over Bridges (ROB) provided is as tabulated below:

Sr. No.	Location	Design Chainage (km)	Existing / Proposed	Proposed Span	Type
1	Bypass	39+100	Proposed	1 x 19 + 1 x 37.28 + 1 x 19	4-lane as per TCS-13

3.12 Entry / Exit Ramps

Entry / exit ramps for entering into or exiting from the project highway are provided wherever necessary.

3.13 Slope Protection

The side slope is protected by using suitable slope protection measures wherever required along the present highway.

3.14 Utilities

Provision of accommodating utilities is made both over as well as underground wherever required.

3.15 Rainwater Harvesting

As per Ministry of Environment and Forests Notification, New Delhi dated 14.01.1997 (as amended on 13.01.1998, 05.01.1999 & 6.11.2000), the construction of rainwater, harvesting structure is mandatory in and around Water Crisis area, notified by the Central Ground Water Board.

Rainwater harvesting structures are provided all along the project road.

3.16 Project Facilities

a. Toll Plaza

The Concession Agreement requires construction of Toll Plaza at 2 Nos. of locations. Accordingly, Concessionaire has constructed 2 Nos. of Toll Plazas at following locations.

1. Toll Plaza-1 at km. 15+300

The construction of toll plaza is completed and is in operation. 8 Nos. of lanes [2 x (3+1)] has been constructed and all are under operation. Concessionaire has constructed administration, operation and maintenance facility at base camp. All required facilities are available at the toll plaza. Some of the photographs of toll plaza-1 are presented below.

Figure 3-6 Photographs of Toll Plaza-1



Behram Toll Plaza at km. 15+300



Behram Toll Plaza at km. 15+300

2. Toll Plaza-2 at km. 70+240

The construction of toll plaza is completed and is in operation. 8 Nos. of lanes [2 x (3+1)] has been constructed and all are under operation. Concessionaire has constructed administration, operation and maintenance facility at base camp. All required facilities are available at the toll plaza. Some of the photographs of toll plaza-2 are presented below.

Figure 3-7 Photographs of Toll Plaza-2



Bachhwan Toll Plaza at km. 70+240



Bachhwan Toll Plaza at km. 70+240

b. Roadside Furniture

Pavement Marking

Pavement marking for the project highway is done as per the design standards indicated in section 12 of Schedule-D. The painting is being done wherever is required on regular basis as a part of routine maintenance. Some of the photographs of road marking are presented below.

Figure 3-8 Photographs of Road Markings



Road Marking at km. 70+000 (RHS)



Road Marking at km. 15+800 (RHS)

Traffic Signage

Traffic signs includes roadside signs, overhead signs, kerb mounted signs and median signs along the project highway. The design for the traffic signs along the project highway is done as per the design standards indicated in section 11 of Schedule-D.

The height, lateral clearance, location and installation are as per relevant clauses of Schedule ‘D’. Overhead sign has been installed ahead of major intersections, toll plazas, start / end of project highway and urban areas as per detailed design requirements.

The sign boards, kilometer stones and hectometer stones are being replaced wherever damaged.

Some of the photographs of sign boards are presented below.

Figure 3-9 Photographs of Road Sign Boards



Overhead Gantry Sign Board at km. 8+400



Traffic Sign Board at km. 72+000



Foot Over Bridge (FOB) at km. 6+600



Kilometer Stone at km. 41+000

Highway Lighting

Highway lighting is provided at underpasses, flyovers, truck lay-byes, toll plaza, ROBs and built-up locations. High mast lighting is provided at both toll plaza locations.

At underpass and flyover locations, highway lighting is provided at the structure locations and at its approaches.

Solar amber blinker signals are provided at each at-grade intersections and at median opening locations. These lights are properly maintained and are in good working condition. Regular maintenance work is carried out to ensure their efficient operation. Some of the photographs of highway lightings are presented below.

Figure 3-10 Photographs of Highway Lighting



Street Lighting at Structure Approach



Street Lighting at Service Road

Crash Barriers

Metal beam crash barriers are provided at bridge approaches, locations of high embankment and sharp curves. All the crash barriers provided by the Concessionaire are well maintained at site. Some of the photographs of metal beam crash barriers are presented below. Some of the photographs of crash barriers are presented below.

Figure 3-11 Photographs of Crash Barriers



Crash Barrier at high embankment



Crash Barrier at curve location

Pedestrian Guard Rail

The pedestrian guard rails are provided between main road and service road at the built-up locations. Some of the photographs of pedestrian guard rails are presented below.

Figure 3-12 Photographs of Pedestrian Guard Rail



Pedestrian Guard Rail at km. 69+400



Pedestrian Guard Rail at km. 69+400

Road Land Boundary

Road land (ROW) boundary demarcation is required to be maintained by the Concessionaire on the project highway during the concession period. The road land boundary pillars are being fixed at required locations whenever required.

Avenue Plantation and Median Plantation

Avenue plantation and median plantation is available intermittently along the project highway. Variety of trees and plants are planted throughout the corridor at road side and at median side respectively. Median plantation is maintained along the project highway. The plantation is being done wherever required on regular basis. Some of the photographs of avenue plantation and median plantation are presented below.

Figure 3-13 Photographs of Avenue and Median Plantation



Median Plantation on project highway



Avenue Plantation at km. 72+900

c. Truck Lay Bye

Concession Agreement has proposed construction of truck lay-byes at 2 Nos. of locations. The work is completed as per requirement of Concession Agreement. Truck lay byes are provided at the following locations.

Table 3-1 Details of Truck Lay-Byes

Sr. No.	Design Chainage (km)	Carriageway (m)
1	1+600	7.5
2	45+500	7.5

The photographs taken at the time of site visit is presented as below:

Figure 3-14 Photographs of Truck Lay-Bye



Truck Lay-Bye at km. 1+600



Truck Lay-Bye at km. 1+600

d. Bus bay and passenger shelter

Bus bays and passenger shelters are constructed at the various locations along the project highway. 25 Nos. of bus bays with passenger shelters on LHS and 18 Nos. on RHS are provided along the project highway. Bus bays are equipped with all necessary signage as per relevant IRC guidelines mentioned in Schedule-D of Concession Agreement. The details of the bus bays and passenger shelters provided as below.

Table 3-2 Details of Bus Bays

Sr. No.	LHS	LHS Design Chainage (km)	RHS	RHS Design Chainage (km)
1	Bus Bay & Shelter	0+742	Bus Bay & Shelter	0+858
2	Bus Bay & Shelter	3+150	Bus Bay & Shelter	3+255
3	Bus Bay & Shelter	5+125	Bus Bay & Shelter	5+100
4	Bus Bay & Shelter	8+200	Bus Bay & Shelter	8+200
5	Bus Bay & Shelter	10+255	Bus Bay & Shelter	10+255
6	Bus Bay & Shelter	13+050	Bus Bay & Shelter	13+150
7	Bus Bay & Shelter	15+300	Bus Bay & Shelter	15+300
8	Bus Bay & Shelter	20+050	Bus Bay & Shelter	20+050
9	Bus Bay & Shelter	22+720	Bus Bay & Shelter	22+720
10	Bus Bay & Shelter	25+100	Bus Bay & Shelter	25+100
11	Bus Bay & Shelter	29+450	Bus Bay & Shelter	29+550
12	Bus Bay & Shelter	31+200	Bus Bay & Shelter	31+200
13	Bus Bay & Shelter	34+100	Bus Bay & Shelter	34+100
14	Bus Bay & Shelter	36+550	Bus Bay & Shelter	36+660
15	Bus Bay & Shelter	47+500	Bus Bay & Shelter	47+600
16	Bus Bay & Shelter	49+590	Bus Bay & Shelter	49+700
17	Bus Bay & Shelter	52+940	Bus Bay & Shelter	53+060

Sr. No.	LHS	LHS Design Chainage (km)	RHS	RHS Design Chainage (km)
18	Bus Bay & Shelter	55+000	Bus Bay & Shelter	55+100
19	Bus Bay & Shelter	60+200		
20	Bus Bay & Shelter	63+200		
21	Bus Bay & Shelter	69+525		
22	Bus Bay & Shelter	73+050		
23	Bus Bay & Shelter	75+600		
24	Bus Bay & Shelter	78+200		
25	Bus Bay & Shelter	80+550		

The photographs taken at the time of site visit is presented as below:

Figure 3-15 Photographs of Bus Bays



Bus Bay at km. 0+740



Bus Bay at km. 10+255



Bus Bay at km. 62+900



Bus Bay at km.69+200

3.17 Condition Survey of Bridges

The inventory of structures including major bridges, minor bridges, ROB, flyovers, elevated structure, underpasses and culverts is presented in table as below:

Table 3-3 Summary of Structures

Type of Structure	Total Number of Structures
Major Structures:	
Road Over Bridge (ROB)	01
Road Under Bridge (RUB)	-
Elevated Structure	01
Flyover	04
Vehicular Underpass (VUP)	03
Pedestrian Underpass (PUP)	01
Overpass	-
Major Bridges (MJB)	01
Minor Bridges (MNB)	22
Culverts:	
Pipe Culverts	42
Box Culverts	51
Total	**125**

The detailed condition survey of structures was carried out by visual inspection. The observations and findings are presented in table below:

Table 3-4 Condition Survey of Major Bridge

Sr. No.	Chainage (km)	Side	Span Arrangement (m)	Carriageway Width (m)	Type of Sub-structure	Type of Super-structure	Type of foundation	Remarks
1	59+381	LHS	1 x 11 + 3 x 15.9 + 1 x 11	1 x 9.5	RCC	RCC Girder	Open	**New Bridge -** Structure is in sound condition. Expansion Joint, crash barrier and slope protection are in good condition.
		RHS	13 x 5.3	1 x 12.4	Wall	Solid slab	Open	**Existing Bridge -** Open foundation, brick wall sub-structure and RCC solid slab-structure in fair condition. As informed, vegetation is being cleaned on regular basis.

Table 3-5 Condition Survey of Minor Bridge

Sr. No.	Design Chainage (km)	Structural Configuration	Structure Type	Span Arrangement (m) (No. x Length)	Total Structure Width (m)	Remarks
1	35+812	New 2-Lane bridge on LHS of existing bridge	Box	1 x 10 (skew)	Additional 2-lane	**Existing Bridge -** 2 x 4.9 m span, Open foundation, brick wall sub-structure and RCC slab - Structure is in sound condition. **New Bridge -** RCC box type - Structure is in sound condition.
2	38+326	New 4-Lane bridge	Box	3 x 7 (skew)	4-lane	**New Bridge -** RCC box type - Structure is in sound condition.
3	48+323	New 2-Lane bridge on LHS of existing bridge	Box	3 x 8 (skew)	Additional 2-lane	**Existing Bridge -** 3 x 9.4 m span**,** open foundation, brick wall sub-structure and RCC slab - Structure is in sound condition. As informed, vegetation is being cleaned on regular basis. **New Bridge -** RCC box type - Structure is in sound condition.
4	57+981	New 2-Lane bridge on LHS of existing bridge	PSC Girder	1 x 28	Additional 2-lane	**Existing Bridge -** 7 x 3.9 m span**,** Open foundation, RCC box type - Structure is in sound condition.

Sr. No.	Design Chainage (km)	Structural Configuration	Structure Type	Span Arrangement (m) (No. x Length)	Total Structure Width (m)	Remarks
						New Bridge - PSC Girder type - Structure is in sound condition.
5	59+237	New 2-Lane bridge on LHS of existing bridge	RCC Girder	3 x 16	Additional 2-lane	**Existing Bridge -** 3 x 9.4 m span**,** open foundation, brick wall sub-structure and RCC slab - Structure is in sound condition. As informed, vegetation is being cleaned on regular basis. **New Bridge -** RCC Girder type - Structure is in sound condition.
6	62+704	New 3-Lane bridge on LHS of existing bridge	RCC Girder	1 x 18	Additional 3-lane	**Existing Bridge -** 1 x 18 m span**,** open foundation, brick wall sub-structure T-Girder - Structure is in sound condition. As informed, vegetation is being cleaned on regular basis. **New Bridge -** RCC Girder type - Structure is in sound condition.
7	63+615	New 3-Lane bridge on LHS of existing bridge	PSC Girder	1 x 26	Additional 3-lane	**Existing Bridge -** 1 x 25.6 m span**,** open foundation, brick wall sub-structure T-Girder - Structure is in sound condition. As informed, vegetation is being cleaned on regular basis. **New Bridge -** PSC Girder type - Structure is in sound condition.
8	64+791	New 3-Lane bridge on LHS + Reconstruction from 9 m width RHS of existing bridge	RCC Solid Slab	7.250 + 7.580 + 9.930 + 7.580 + 7.250	6-Lane	**New Bridge -** RCC solid slab - Structure is in sound condition.
9	66+020	New 3-Lane bridge on LHS of existing bridge	PSC Girder	1 x 35	Additional 3-lane	**Existing Bridge -** 1 x 35 m span**,** open foundation, box sub-structure and solid slab - Structure is in sound condition. **New Bridge -** PSC Girder type - Structure is in sound condition.

Sr. No.	Design Chainage (km)	Structural Configuration	Structure Type	Span Arrangement (m) (No. x Length)	Total Structure Width (m)	Remarks
10	68+519	New 3-Lane bridge on LHS of existing bridge	RCC Solid Slab	4 x 11	Additional 3-lane	**Existing Bridge -** 4 x 11 m span**,** open foundation, wall type sub-structure and RCC solid - Structure is in fair condition. As informed, vegetation is being cleaned on regular basis. **New Bridge -** RCC solid slab type - Structure is in sound condition.
11	69+815	New 3-Lane bridge on LHS of existing bridge	Box	1 x 10	Additional 3-lane	**Existing Bridge -** 1 x 11 m span**,** open foundation, brick wall sub-structure solid Slab - Structure is in fair condition. As informed, vegetation is being cleaned on regular basis. **New Bridge -** RCC Solid Slab - Structure is in sound condition.
12	71+174	New 3-Lane bridge on LHS + Reconstruction by 9 m width on RHS of existing bridge	RCC Solid Slab	11 + 12.8 + 11	6-Lane	**New Bridge -** RCC Solid Slab type - Structure is in sound condition.
13	71+727	New 3-Lane bridge on LHS of existing bridge + New 2-Lane bridge on RHS of new 3-Lane bridge & LHS to existing bridge	RCC Girder	1 x 18	Additional 3-lane	**Existing Bridge -** 1 x 11 m span**,** open foundation, brick wall sub-structure T-Girder -Structure is in sound condition. **New Bridge -** RCC Girder Type - Structure is in sound condition.
14	72+134	New 3-Lane bridge on LHS + Reconstruction of 3- Lane bridge on RHS	RCC Girder	3 x 15	6-Lane	**New Bridge -** RCC Girder type - Structure is in sound condition. As informed, vegetation is being cleaned on regular basis.
15	72+900	New 3-Lane bridge on LHS + Reconstruction of 3-Lane bridge on RHS	Box	3 x 7	6-Lane	**New Bridge -** RCC Box type - Structure is in sound condition. As informed, vegetation is being cleaned on regular basis.
16	74+173	New 3-Lane bridge on LHS + Reconstruction of 3-Lane bridge on RHS	Box	3 x 8	6-Lane	**New Bridge -** RCC Box type - Structure is in sound condition. As informed, vegetation is being cleaned on regular basis.

Sr. No.	Design Chainage (km)	Structural Configuration	Structure Type	Span Arrangement (m) (No. x Length)	Total Structure Width (m)	Remarks
17	74+361	New 3-Lane bridge on LHS + Reconstruction of 3-Lane bridge on RHS	Box	2 x 8	6-Lane	**New Bridge -** RCC Box type - Structure is in sound condition.
18	75+009	New 3-Lane bridge on LHS + Reconstruction of 3-Lane bridge on RHS	Box	2 x 9	6-Lane	**New Bridge -** RCC Box type - Structure is in sound condition.
19	76+815	New 2-Lane bridge on LHS of existing bridge + New 2-Lane Service Road bridge on LHS of main carriageway	Box	1 x 6.5	Additional 2-lane	**Existing Bridge -** 1 x 7.3 m span**,** open foundation, brick wall sub-structure solid Slab - Structure is in fair condition. As informed, vegetation is being cleaned on regular basis. **New Bridge -** RCC Box type - Structure is in sound condition. As informed, vegetation is being cleaned on regular basis.
20	77+613	New 2-Lane bridge on Service Road + New 2-Lane bridge on LHS of main carriageway bridge + Reconstruction of new 3- Lane bridge on RHS	Box	3 x 8	4-Lane as per	**New Bridge -** RCC Box type - Structure is in sound condition. Vegetation needs to be cleaned**.**
21	78+636	New 2-Lane bridge on LHS of existing bridge + New 2-Lane Service Road bridge on LHS of main carriageway	RCC Girder	1 x 13	Additional 2-lane	**Existing Bridge -** 1 x 13 m span**,** open foundation, brick wall sub-structure RCC Girder - Structure is in sound condition. **New Bridge -** RCC Girder Type - Structure is in sound condition. Vegetation needs to be cleaned.
22	80+045	New 2-Lane bridge on LHS of existing bridge + New 2-Lane Service Road bridge on LHS of main carriageway	Box	1 x 8	Additional 2-lane	**Existing Bridge -** 1 x 8.9 m span**,** open foundation, brick wall sub-structure and RCC slab - Structure is in sound condition. As informed, vegetation is being cleaned on regular basis. **New Bridge -** RCC box type - Structure is in sound condition.

Table 3-6 Condition Survey of VUP and PUP

Sr. No.	Chainage (km)	Side	Type	Span Arrangement (m)	Width (m)	Vertical Clearance (m)	Type of structure	Remarks
1	2+450	LHS	VUP (COS)	1 x 12	13.5	5.5	Box	Box Type - Structure is in sound condition.
		RHS		1 x 12	13.5	5.5	Box	Box Type - Structure is in sound condition.
2	06+930	LHS	VUP	1 x 19	13.5	5.5	RCC Girder	RCC Girder - Structure is in sound condition
		RHS		1 x 19	13.5	5.5	RCC Girder	RCC Girder - Structure is in sound condition
3	32+487	LHS	PUP	1 x 7.5	13.5	5.5	Box	Box Type - Structure is in sound condition
		RHS		1 x 7.5	13.5	5.5	Box	Box Type - Structure is in sound condition
4	38+674	LHS	VUP (COS)	1 x 12	13.5	5.5	Box	Box Type - Structure is in sound condition
		RHS		1 x 12	13.5	5.5	Box	Box Type - Structure is in sound condition

Table 3-7 Condition Survey of Flyover

Sr. No.	Chainage (km)	Side	Span Arrangement (m)	Width (m)	Vertical Clearance (m)	Type of structure	Remarks
1	4+225	LHS	1 x 25 + 1 x 40 + 1 x 25	13.5	5.5	PSC Girder and RCC Deck Slab	Open Foundation - Structure is in sound condition.
		RHS	1 x 25 + 1 x 40 + 1 x 25	13.5	5.5		Open Foundation - Structure is in sound condition.
2	9+335	LHS	1 x 25 + 1 x 30 + 1 x 25	13.5	5.5	PSC Girder and RCC Deck Slab	Open Foundation - Structure is in sound condition.
		RHS	11 x 25 + 1 x 30 + 1 x 25	13.5	5.5		Open Foundation - Structure is in sound condition.
3	39+915	LHS	1 x 25 + 1 x 30 + 1 x 25	13.5	5.5	PSC Girder and RCC Deck Slab	Open Foundation - Structure is in sound condition.
		RHS	1 x 25 + 1 x 30 + 1 x 25	13.5	5.5		Open Foundation - Structure is in sound condition.
4	59+818	LHS	11 x 25 + 1 x 30 + 1 x 25	13.5	5.5	PSC Girder and RCC Deck Slab	Pile Foundation - Structure is in sound condition.

Table 3-8 Condition Survey of Road Over Bridge (ROB)

Sr. No.	Chainage (km)	Side	Span Arrangement (m)	Carriageway Width (m)	Type of Sub-structure	Type of Super-structure	Type of foundation	Remarks
1	39+134	LHS	1 x 19 + 1 x 37.28 + 1 x 19	1 x 9.5	RCC	PSC Girder for Non-Railway span and steel composite girder for Railway Span.	Open	Structure is in sound condition. Expansion Joint, crash barrier and RE wall approach is in good condition.
		RHS	1 x 19 + 1 x 37.28 + 1 x 19	1 x 9.5	RCC		Open	

Table 3-9 Condition Survey of Elevated Structure

Sr. No.	Chainage (km)	Span Arrangement (m)	Carriageway Width (m)	Type of Sub-structure	Type of Super-structure	Type of foundation	Remarks
1	39+134	99 x 30.44	2 x 9.5	RCC	PSC Girder and RCC Deck slab	Pile	Structure is in sound condition. Expansion joint, crash barrier, RE wall approach is in good condition.

Figure 3-16 Photographs of Major Bridge



Major Bridge at km. 59+381 (Top View)



Major Bridge at km. 59+381 (Existing Structure View)



Major Bridge at km. 59+381 (New Structure View)



Major Bridge at km. 59+381 (Substructure and Super structure)

Figure 3-17 Photographs of Minor Bridge



Minor Bridge at km. 35+812 (Existing Structure View)



Minor Bridge at km. 35+812 (New Structure View)



Minor Bridge at km. 38+326 (New Structure 4-lane View)



Minor Bridge at km. 38+326 (New Structure 4-lane View)



Minor Bridge at km. 48+323 (Existing Structure View)



Minor Bridge at km. 48+323 (New Structure View)



Minor Bridge at km. 57+981 (Existing Structure View)



Minor Bridge at km. 57+981 (New Structure View)



Minor Bridge at km. 57+981 (Existing Structure Inner View)



Minor Bridge at km 59+237 (Expansion Joint)



Minor Bridge at km 59+237 (New Structure View)



Minor Bridge at km 59+237 (top view)



Minor Bridge at km. 62+704 (Existing Structure View)



Minor Bridge at km. 62+704 (New Structure View)



Minor Bridge at km. 63+615 (Existing Structure View)



Minor Bridge at km. 63+615 (New Structure View)



Minor Bridge at km. 64+791
(New Structure View)



Minor Bridge at km. 64+791
(Existing Structure inner View)



Minor Bridge at km. 64+791
(Existing Structure View)



Minor Bridge at km. 66+020
(New Structure View)



Minor Bridge at km. 66+020
(New Structure View)



Minor Bridge at km. 66+020
(Top View)



Minor Bridge at km. 68+519
(New Structure View)



Minor Bridge at km. 68+519
(Substructure and Super structure)



Minor Bridge at km. 68+519 (Existing Structure View)



Minor Bridge at km. 68+519 (Substructure and Superstructure)



Minor Bridge at km. 69+815 (New Structure View)



Minor Bridge at km. 69+815 (Existing Structure View)



Minor Bridge at km. 71+174 (Structure View)



Minor Bridge at km. 71+174 (Substructure and Super structure)



Minor Bridge at km. 71+727 (Top View)



Minor Bridge at km. 71+727 (Structure View)



Minor Bridge at km. 72+134 opening blocked (Structure View)



Minor Bridge at km. 72+134 (Top View)



Minor Bridge at km. 72+900 (Structure View)



Minor Bridge at km. 72+900 (Top View)



Minor Bridge at km. 74+173 (Structure View)



Minor Bridge at km. 74+361 (Structure View)



Minor Bridge at km. 75+009 (Structure View)



Minor Bridge at km. 76+815 (Structure View)



Minor Bridge at km. 77+613 opening blocked (Structure View)



Minor Bridge at km. 77+613 (Top View)



Minor Bridge at km. 78+636 (Structure View)



Minor Bridge at km. 80+045 (Structure View)

Figure 3-18 Photographs of VUP and PUP



VUP at km. 2+450



VUP at km. 2+450



VUP at km. 6+930



VUP at km. 6+930



PUP at km. 32+487



PUP at km. 32+487



VUP at km. 38+694



VUP at km. 38+694

Figure 3-19 Photographs of Flyover



Flyover at km. 4+225



Flyover at km. 4+225



Flyover at km. 9+335



Flyover at km. 9+335



Flyover at km. 39+915



Flyover at km. 39+915



Flyover at km. 59+818



Flyover at km. 59+818

Figure 3-20 Photographs of ROB



ROB at km. 39+134



ROB at km. 39+134



ROB at km. 39+134



ROB at km. 39+134

Figure 3-21 Photographs of Elevated Structure



Elevated Structure at km. 25+319



Elevated Structure at km. 25+319



Elevated Structure at km. 25+319



Elevated Structure at km. 25+319

3.18 Condition Survey of Culverts

The cross-drainage structures include hume pipe culverts and box culverts at various locations. There are total 92 Nos. of culverts in which 41 Nos. are pipe culverts, 50 Nos. are box culverts and 01 No. is box culvert (constructed under Change of Scope) along the project road. The height of culvert varies from 1.0 m to 3.0 m from bed level. During the condition survey of structure, these culverts were inspected on sample basis.

The project involves strengthening and widening of existing road to four lane divided carriageway with service road on both side and construction of new four lane carriageway at proposed bypass location. The culverts beneath existing alignment are either widened or reconstructed. The structural condition of culverts is generally found in sound condition. The quality of surface concrete of box culverts and slab culverts is found to be satisfactory. The RCC parapet, metal beam crash barrier or RCC railing has been provided at culvert locations, which is maintained properly.

Vegetation growth and accumulation of debris at waterway is being removed and cleaned by the Concessionaire on regular basis.

Figure 3-22 Photographs of Culverts



Box Culvert at km. 0+960



Box Culvert at km. 1+457



HP Culvert at km. 1+135



Box Culvert at km. 6+068



Box Culvert at km. 6+650



Box Culvert at km. 37+480



Box Culvert at km. 48+800



Box Culvert at km. 53+510



Box Culvert at km. 36+929



Box Culvert at km. 17+946



HP Culvert at km. 1+850



Box Culvert at km. 10+481



HP Culvert at km. 69+420



HP Culvert at km. 80+569



Box Culvert at km. 2+531



HP Culvert at km. 6+874

4 PAVEMENT AND SITE INVESTIGATION

4.1 General

The project has been developed on Design, Build, Operate and Transfer (the "DBOT Annuity" or "Hybrid Annuity") basis.

The concession period of the project is 15 years from the date of commercial operation day (COD) of the project highway. The project highway has received provisional completion certificate on 25th February 2020 and final completion certificate on 26th May 2021.

4.2 Details of As-built Pavement

The following table shows crust details based on pavement design report submitted by the Concessionaire. The details of pavement crust are as provided during the development of existing two lane to four lane divided carriageway. The pavement design report states that pavement was designed as per IRC:37-2012.

Table 4-1 Existing Pavement Crust Details

Particulars	Chainage (km)		Design MSA	Pavement Thickness (mm)				
	From	To		BC	DBM	RAP	WMM	GSB / CTSB
Main Carriageway	0+000	56+500	30	50	-	100	-	250 (CTSB)
	56+500	80+820	100	50	90	-	150	250 (CTSB)
Service Road	-	-	10	40	50	-	250	200 (GSB)

4.3 Surveys and Investigation

4.3.1 Pavement Condition Survey

Pavement condition survey was carried out from **9th August 2022 to 12th August 2022** through visual inspection for the entire project length. The details of the visual condition survey are provided in **Annexure-IV.**

The summary of pavement condition based on the visual inspection is tabulated below.

Table 4-2 Summary of Pavement Condition

Design Chainage (km)		Length	Visual Condition (As per IRC:115-2014)	
From	To		LHS Carriageway	RHS Carriageway
0.000	5.000	5.000	Good	Good
5.000	10.000	5.000	Good	Good
10.000	15.000	5.000	Good	Good
15.000	20.000	5.000	Good	Good
20.000	25.000	5.000	Good	Good
25.000	50.000	5.000	Good	Good
50.000	55.000	5.000	Good	Good
55.000	60.000	5.000	Good	Good
60.000	65.000	5.000	Good	Good
65.000	70.000	5.000	Good	Good
70.000	75.000	5.000	Good	Good
75.000	80.000	5.000	Good	Good

Design Chainage (km)		Length	Visual Condition (As per IRC:115-2014)	
From	To		LHS Carriageway	RHS Carriageway
80.000	80.820	0.820	Good	Good

Observation and Conclusion:

From the above table, it is observed that the overall pavement condition for the entire project stretch is found to be good.

Following Photographs were taken at the time of visual pavement condition survey.

Figure 4-1 Photographs of Pavement Condition Survey



Pavement Condition at km. 6+950



Pavement Condition at km. 59+000



Pavement Condition at km.33+000



Pavement Condition at km.75+000



Rigid Pavement at km. 38+000



Rigid Pavement at km. 41+000

4.3.2 Roughness Index test

Prior period report for the Roughness Index Test conducted by **Aadharshila Infratech Pvt. Ltd.** Dated **19th May 2021** has been provided by the Concessionaire. This test was done using Car Mounted Bump Integrator to assess the riding quality on each direction (each lane) of the carriageway of project highway.

As per IRC:SP:16-2019, condition of pavement is categorised under:

Table 4-3 Roughness Values (BI Value - mm / km)

Sr. No.	Roughness Range (m/km)	Severity	Inner Lane (Lane-1) LHS Length (km)	Outer Lane (Lane-2) LHS Length (km)	Inner Lane (Lane-1) RHS Length (km)	Outer Lane (Lane-2) RHS Length (km)
1	Less than 2.81	Good	80.820	80.820	80.820	80.820
2	2.81 - 3.30	Fair	-	-	-	-
3	More Than	Poor	-	-	-	-

5 BALANCE WORKS

The project has received Final Completion Certificate on 26th May 2021 by completing all the works as mentioned in the Technical Schedules of Concession Agreement. There are no balance works to be executed as per CA.

6 OPERATION AND MAINTENANCE

6.1 Introduction

Article 17 and Schedule-K of the Concession Agreement defines the Operation and Maintenance requirement during concession period.

The Provisional Completion Certificate (PCOD) for the length of 65.910 kms has been received on 25th February 2020 and the Final Completion Certificate (COD) for the total length of project highway i.e., 80.820 kms is achieved as on 26th May 2021. The project is currently under O&M stage. The concession period of the project highway is 17.5 years from the Appointed Date including construction period of 2.5 years.

6.2 O & M Set Up

O & M Contract

As per Clause 17.1 of the Concession Agreement, the Concessionaire shall operate and maintain the project by itself, or through O&M Contractors and if required, modify, repair, improve the project highway to comply with Specifications and Standards, and other requirements set forth in the Agreement through Good Industry Practice, Applicable Laws and Applicable Permits and manufacturer's guidelines and instructions with respect to toll systems. The Operation and Maintenance activities will confirm to all the requirements laid down in MORT&H, IRC Specifications and the Concession Agreement.

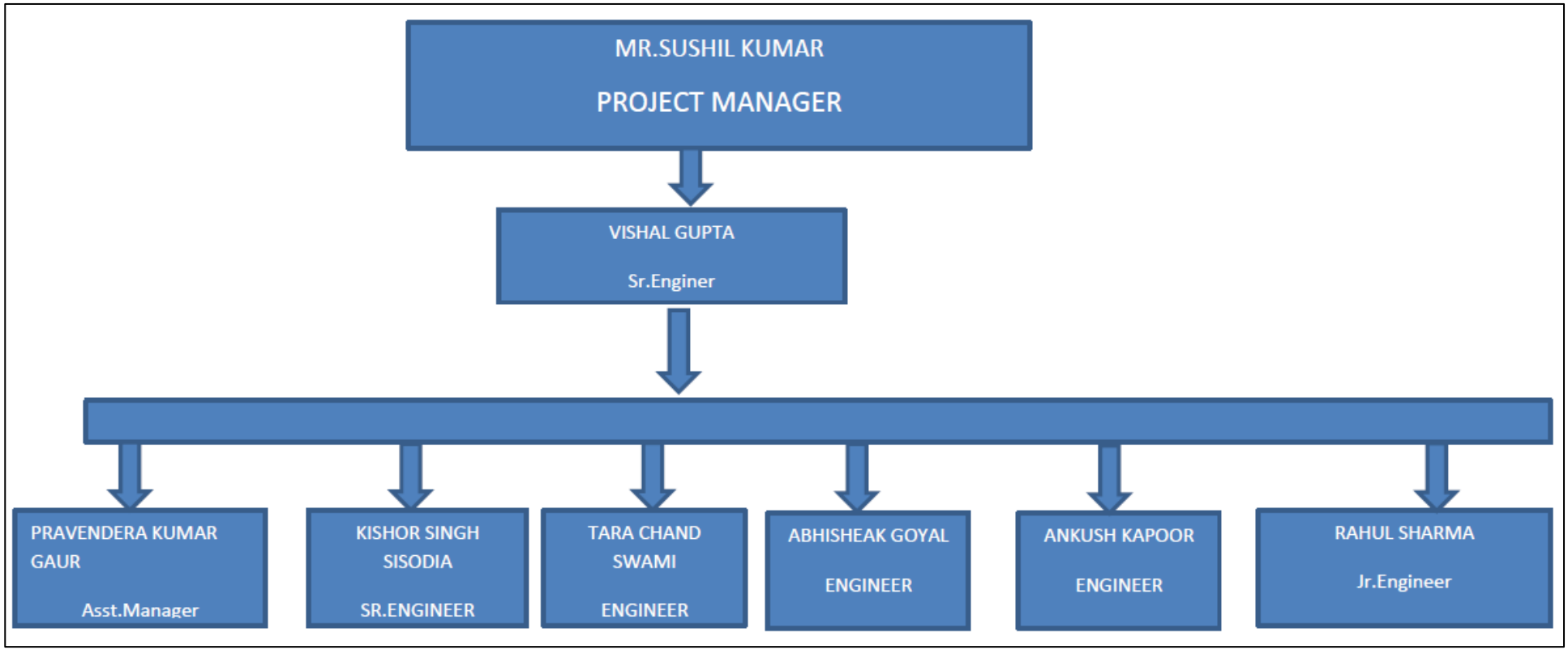
Under routine maintenance, the road is to be maintained in good, safe and motorable condition. The specifications in contracts are kept as same as per design and construction specification.

The periodical maintenance will have to be done during O&M period as per requirement of Concession Agreement and as per site requirement to maintain the design standards and level.

O&M Organization Chart

The Concessionaire has given the organization chart at site for Operation and maintenance. Accordingly, there is 01 Project Manager, 02 Sr. Engineer, 01 Assistant Manager, 03 Engineers and 01 Junior Engineer to carry out O&M activities. The team controls the maintenance activities along with other supporting staff.

Organization Structure for GPEL



List of Manpower (SPV):

Sr. No.	Employee name	Designation	Department
1	Vishal Gupta	Senior Engineer	Structure
2	Pravendra Kumar Gaur	Assistant Manager	Operations & Maintenance
3	Kishor Singh Sisodia	Senior Engineer	Highway
4	Tara Chand Swami	Engineer	Highway
5	Abhishek Goyal	Engineer	Operations & Maintenance
6	Ankush	Engineer	Operations & Maintenance
7	Pradyumn Pathak	Executive	Horticulture
8	Rahul Sharma	Junior Engineer	Highway
9	Anish Pal	Senior Supervisor	Structure
10	Pranshu Kumar	Senior Supervisor	Safety
11	Manoj	Supervisor	Structure
12	Ajay Kumar	Nurse	Safety
13	Harjit Singh	Nurse	Safety
14	Rohit Mann	Nurse	Safety
15	Nirmal Singh	Nurse	Safety
16	Sukhjeet Singh	Electrician	Plants & Equipments
17	Ramandeep Kumar	Electrician	Plants & Equipments
18	Siyaram Ram	Welder	Plants & Equipments
19	Puran Meena	LMV Driver	Plants & Equipments
20	Ramswroop	LMV Driver	Plants & Equipments
21	Suresh	LMV Driver	Plants & Equipments
22	Makhan Lal	LMV Driver	Plants & Equipments
23	Motilal Jaiswal	LMV Driver	Plants & Equipments
24	Govind Chauhan	HMV Driver	Plants & Equipments
25	Hardev Singh	HMV Driver	Plants & Equipments
26	Devi Kishan Gurjar	HMV Driver	Plants & Equipments
27	Vinod Singh	HMV Driver	Plants & Equipments
28	Shiv Lal Yadav	Miller Operator	Plants & Equipments
29	Dalip Singh	HMV Driver	Plants & Equipments
30	Ajab Singh	HMV Driver	Plants & Equipments
31	Vijay Vishwakarma	HMV Driver	Plants & Equipments
32	Balwinder Singh	HMV Driver	Plants & Equipments
33	Naresh Kumar	HMV Driver	Plants & Equipments
34	Kamal Singh	HMV Driver	Plants & Equipments
35	Manjit Singh	HMV Driver	Plants & Equipments
36	Kailash Chander	HMV Driver	Plants & Equipments
37	Sushil Kumar	LMV Driver	Plants & Equipments

6.3 Operation Cost

Operations cost is comprised of manpower cost, power and electricity cost, office operating expenses, vehicle running expenses, administrative expenses and other miscellaneous expenses The Concessionaire has provided the expenses occurred towards operation expenses for current / past years. Necessary assumptions have made from the expenses of similar type of projects to arrive at the operation cost. The estimates are projected based on best industry practice and are compared with the operating cost in the vicinity of the project area.

The estimated operating cost for the base month of August 2022 is **Rs. 8.19 Crores**. The detailed working of the same is attached in **Annexure-I**.

6.4 Routine Maintenance Cost

The Routine Maintenance cost is derived based on the Ministry of Road Transport and Highways - Report of the Committee on Norms for Maintenance of Roads in India (published by Indian Road Congress New Delhi 2001) along with actual pavement condition assessed during condition survey.

Maintenance cost constitutes the routine, day-to-day maintenance activities for project assets, including road pavement, shoulders, embankment, drainage, structures, plantations, roadside furniture, traffic signs, traffic safety devices etc., Past data has been used to assess maintenance costs due to normal usage or “wear-and-tear”. Likely costs of maintenance of structures are assessed based on their present condition and vintage, in combination with well-established guidelines and thumb rules given in Indian codes and standards.

The estimated cost of Routine Maintenance works out to be **Rs. 2.59 Crores (3.20 Lakhs per km)** for the base month of August 2022. The detailed working of the same is attached in **Annexure-II**.

6.5 Major Maintenance Cost

Unlike the old Concession Agreements where periodicity and threshold limits were clearly described for the major maintenance, the Concession Agreement of this project does not specify the periodicity or the threshold limits for carrying out the full-length major maintenance. Schedule-K of the Concession Agreement specifies the threshold limits and the timelines for carrying out repairs to the distresses during the operation period.

The maintenance thus can be carried out as and when required basis and to the compliance of Schedule-K requirement to maintain the road in serviceable condition. Only improvement to Riding Quality is expected if the roughness value exceeds 2750 mm/km. However, the average roughness value of the project highway lies within the limit as mentioned above.

Any new pavement is not expected to show any distresses at least for 6 to 7 years with the proper routine maintenance. Mere Routine Maintenance would suffice to meet the performance standard mentioned in Schedule-K. In this project, there is no specific requirement to carry out the major maintenance at the end of concession period.

Hence, major maintenance is planned every 7th year from the date of COD till end of concession period.

The summary of the major maintenance planned up to end of concession period is presented in the below table.

The total base cost of major maintenance works out to be **Rs. 176.00 Crores** for the base month of August 2022 i.e., till 31st August 2022. The detailed working for the same is shown in **Annexure-III**.

6.6 Paved Shoulders

As per design specifications, the paved shoulder is designed as an integral part of the pavement for main carriageway. Therefore, the total pavement thickness in paved shoulder would be the same as in the carriageway.

6.7 Summary of Major Maintenance Cycle

The table below shows the major maintenance cycle throughout the concession period for the project stretch.

Table 6-1 Maintenance Cycle

Sr. No.	Year	Main Carriageway	Service Road
1	FY 2023	-	-
2	FY 2024	-	
3	FY 2025	-	-
4	FY 2026	-	-
5	FY 2027	1st Major Maintenance (100% BC + 25% DBM)	-
6	FY 2028	1st Major Maintenance (100% BC + 25% DBM)	1st Major Maintenance (20% BC + 80% Micro-surfacing)
7	FY 2029	-	-
8	FY 2030	-	-
9	FY 2031	-	-
10	FY 2032	-	-
11	FY 2033	-	-
12	FY 2034	2nd Major Maintenance (100% BC + 25% DBM)	-
13	FY 2035	2nd Major Maintenance (100% BC + 25% DBM)	2nd Major Maintenance (20% BC + 80% Micro-surfacing)

6.8 Projected Maintenance Cost without escalation

The below table shows the total cost of operation and routine maintenance, periodic maintenance and strengthening up to end of the concession period without escalation.

Table 6-2 Summary of Operation & Maintenance Cost without escalation

Sr. No.	Item Description	Length (km)	Year of Execution	Rate (Lakhs / km)	Total Amount (Crores)
1	**Total Operation and Routine Maintenance Cost**	80.82	Every year	13.34	**10.78**
2	**Major Maintenance Cost**				
i)	1st major maintenance	80.82	FY 2027	108.89	**88.00**
ii)	2nd major maintenance	80.82	FY 2034	108.89	**88.00**
	Total Major Maintenance Cost				**176.00**

Notes:

1. It is to be noted that, the rates considered for calculating all the above cost are exclusive of Goods and Service Tax (GST).

2. The estimated cost in table above is for base month of August 2022 i.e., till 31st August 2022.
3. The material rates are based on CSR of Govt. of Punjab PWD (B&R) for the year 2019-2020. The plant & machinery rates are adopted from the revised standard data book 2019 and escalated @ 5% every year. The current market rates are considered for bitumen, cement and steel.
4. The labour rate adopted from Ministry of Labour and Employment Department, Office of Chief Labour Commissioner (C), Government of India, New Delhi w.e.f. August 2022.

6.9 Projected Maintenance Cost with escalation

The below table shows the total cost of operation and routine maintenance and major maintenance cost up to end of the concession period with assumed escalation of 5% every year.

Table 6-3 Summary of Operation & Maintenance Cost with escalation

Sr. No.	Year	WPI Inflation	Total O&M Cost (Crores)	Major Maintenance Cost (Crores)
1	FY 2023		10.78	-
2	FY 2024	2.87*%	11.09	-
3	FY 2025	5.00%	11.65	-
4	FY 2026	5.00%	12.23	-
5	FY 2027	5.00%	12.84	52.40
6	FY 2028	5.00%	13.48	55.02
7	FY 2029	5.00%	14.16	-
8	FY 2030	5.00%	14.87	-
9	FY 2031	5.00%	15.61	-
10	FY 2032	5.00%	16.39	-
11	FY 2033	5.00%	17.21	-
12	FY 2034	5.00%	18.07	73.73
13	FY 2035	5.00%	18.97	77.42
	Total Cost (Crores)		**187.36**	**258.56**

* Considering the base month for calculation as August 2022.

The company may carry out necessary investigation prior to O&M and Major Maintenance. This will help in proper assessment of maintenance work based on the actual pavement condition. The spending on major maintenance can then be reduced if the road is adequately and timely maintained.

7 REVIEW OF CONCESSION AGREEMENT

The provisions under various clauses of the Agreement concerned has been reviewed with post construction period. Our specific comments are indicated below clause-wise.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 3 Clause 3.1	The Concession	Subject to and in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits, the Authority hereby grants to the Concessionaire the concession set forth herein including the exclusive right, license and authority to construct, operate and maintain the Project (the "**Concession**") during the Construction Period of 910 (Nine Hundred and Ten Days) days and Operation Period of 15 (Fifteen) years commencing from COD, and the Concessionaire hereby accepts the Concession and agrees to implement the Project subject to and in accordance with the terms and conditions set forth herein.	The construction period is 910 days and the O&M period is 15 years from COD.
Article 4 Clause 4.2	Conditions Precedent - Damages for delay by the Authority	In the event that (i) the Authority does not procure fulfillment of any or all the Conditions Precedent set forth in Clause 4.1.2 within the period specified in respect thereof, and (ii) the delay has not occurred as a result of breach of this Agreement by the Concessionaire or due to Force Majeure, the Authority shall pay to the Concessionaire Damages in an amount calculated at the rate of 0.2% (zero point two percent) of the Performance Security for each day's delay until the fulfillment of such Conditions Precedent, subject to the maximum limit equal to the amount of the Bid Security and upon reaching such limit, the Concessionaire may, in its sole discretion terminate the Agreement.	The project has received Completion Certificate.
Article 4 Clause 4.3	Damages for delay by the Concessionaire	In the event that (i) the Concessionaire does not procure fulfillment of any or all the Conditions Precedent set forth in Clause 4.1.3 within the period specified in respect thereof, and (ii) the delay has not occurred as a result of failure to fulfill the obligations under Clause 4.1.2 or other breach of this agreement by the Authority, or due to Force Majeure, the Concessionaire shall pay to the Authority Damages in an amount calculated at the rate of 0.3% (zero point three percent) of the Performance Security for each day's delay until the fulfillment of such Condition Precedent.	The project has received Completion Certificate.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 5 Clause 5.1.4 (d, e & f)	Obligation of the Concessionaire	The Concessionaire shall d) make reasonable efforts to maintain harmony and good industrial relations among the personnel employed by it or its Contractors in connection with the performance of its obligations under this Agreement. e) make reasonable efforts to facilitate the acquisition of land and procuring of environmental and forest clearances required for the purposes of the Agreement f) ensure and procure that its Contractors comply with all Applicable Permits and Applicable Laws in the performance by them of any of the Concessionaire's obligations under this agreement.	The project has received Completion Certificate.
Article 8 Clause 8.1.5	Disclaimer	Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Concessionaire and the Authority shall not be liable in any manner for such risks or the consequences thereof.	The project has received Completion Certificate.
Article 9 Clause 9.1.1	Performance Security	The Concessionaire shall, for the performance of its obligations hereunder, provide to the Authority no later than 30 (thirty) days from the date of this Agreement, an irrevocable and unconditional guarantee from a Bank in the form set forth in Schedule-F (the "Performance Security"). Until such time the Performance Security is provided by the Concessionaire pursuant hereto and the same comes into effect, the Bid Security shall remain in force and effect, and upon such provision of the Performance Security pursuant hereto, the Authority shall release the Bid Security to the Concessionaire.	The project has received Completion Certificate.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 9 Clause 9.4	Deemed Performance Security	The Parties expressly agree that upon release of the Performance Security in accordance with the provisions of Clause 9.3, a substitute Performance Security for a like amount shall be deemed to be created under this Clause 9.4, as if it is a Performance Security under Clause 9.1 for and in respect of the remaining Concession Period (the **"Deemed Performance Security"**). The Deemed Performance Security shall be unconditional and irrevocable, and shall, notwithstanding anything to the contrary contained in Clause 25.3, constitute the first and exclusive charge on an equivalent balance in the Escrow Account, subject only to the statutory dues and Taxes and on all amounts due and payable by the Authority to the Concessionaire, and the Authority shall be entitled to enforce the Deemed Performance Security through a withdrawal from the Escrow Account or by making a deduction from the amounts due and payable by it to the Concessionaire in accordance with the provisions of Clause 9.5. For the avoidance of doubt, the Parties agree that no amounts shall be earmarked, frozen or withheld in the Escrow Account for Securing payment of any potential Damages that may fall due at a subsequent date, and only the amounts which shall have become due and payable by the Concessionaire upon occurrence of Concessionaire Default shall be liable to appropriation hereunder.	Upon released of Performance Security, the Substitute Performance Security (Deemed Performance Security) of like amount to be created for balance Concession Period. The same will be unconditional and irrevocable and it is from first and exclusive charge on equivalent balance of Escrow Account as per Clause 25.4 of CA.
Article 10 Clause 10.3.2	Right of Way - Procurement of the site	Without prejudice to the provisions of Clause 10.3.1, the Parties hereto agree that on or prior to the Appointment Date, the Authority shall have granted vacant access and Right of Way such that the Appendix shall not include land which shall in any manner prevent the Concessionaire from undertaking construction of the project to the extent of at least 80% (eighty percent) of the length thereof, and in the event Financial Close is delayed on account of delay in grant of such vacant access and Right of Way, the Authority shall be liable to payable to damages solely under the provisions of Clause 4.2.	The project has received Completion Certificate.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 10 Clause 10.3.4	Procurement of the site	The Authority shall make best efforts to procure and grant no later than 90 (ninety) days from the Appointed Date, Right of Way to the Concessionaire in respect of all land included in the Appendix, and in the event of delay for any reason other than Force Majeure or breach of this Agreement by the Concessionaire, it shall pay to the Concessionaire Damages in a sum calculated at the rate of Re. 1 per day for every 10 square meter or part thereof, commencing from the 91st day of the Appointed Date and until such Right of Way is procured or 180 days from Appointed Date whichever is earlier.	The project has received Completion Certificate.
Article 11 Clause 11.4	Utilities, Associated Roads and Trees - Felling of trees	The Authority shall assist the Concessionaire in obtaining the Applicable Permits for felling of trees to be identified by the Authority for this purpose if and only if such trees causes a material adverse effect on the construction, operation or maintenance of Project Highway. The Cost of such felling shall borne by the Authority and in the event of any delay in felling thereof for reasons beyond the control of the Concessionaire, it shall be excused to perform any of its obligations hereunder if such failure is a direct consequence of delay in the felling of trees.	The project has received Completion Certificate.
Article 12 Clause 12.3.1	Construction of the Project	On or after the Appointed Date, the Concessionaire shall undertake construction of the Project as specified in Schedule-B and Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-D. The 910th (nine hundred and tenth) day from the Appointed Date shall be the scheduled date for completion of the Project (the **"Scheduled Completion Date"**) and the Concessionaire agrees and undertakes that the Project shall be completed on or before the Scheduled Completion Date.	The project has received Completion Certificate.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 12 Clause 12.3.2	Construction of the Project	The Concessionaire shall construct the Project Highway in accordance with the Project Completion Schedule set forth in Schedule-G. In the event that the Concessionaire fails to achieve any Project Milestone within a period of 90 (ninety) days from the date set forth for such Milestone in Schedule-G, unless such failure has occurred due to Force Majeure or for reasons solely attributable to the Authority, it shall pay Damages to the Authority in a sum calculated at the rate of 0.1% (zero point one percent) of the amount of performance security for delay of each day until such Milestone is achieved.	The project has received Completion Certificate.
Article 12 Clause 12.3.3	Construction of the Project	In the event that the project is not completed and COD does not occur within 270 (two hundred and seventy) days from the Scheduled Completion Date, unless the delay is on account of reasons solely attributable to the Authority or due to Force Majeure, the Authority shall be entitled to terminate this Agreement.	The project has received Completion Certificate.
Article 14 Clause 14.3.2	Completion Certificate - Provisional Certificate	The Parties hereto expressly agree that a Provisional Certificate under this Clause 14.3 may, upon request of the Concessionaire to this effect, be issued for operating part of the Project, if the Concessionaire has completed construction of 100% of the site made available to the Concessionaire upto 182 days from the Appointed Date. Upon issue of such Provisional Certificate, the provisions of Article 15 shall apply to such completed part, and the rights and obligations of the Concessionaire for and in respect of such completed part of the Project shall be constructed accordingly.	The project has received Completion Certificate.
Article 15 Clause 15.2	Entry into commercial service - Damages for delay	Subject to the provisions of Clause 12.3, if COD does not occur prior to the 91st (ninety first) day after the Scheduled Completion Date, unless the delay is on account of reasons attributable to the Authority or due to force Majeure, the Concessionaire shall pay Damages to the Authority in a sum calculated at the rate of 0.2% of the amount of performance Security for delay of each day until COD is achieved.	The project has received Completion Certificate.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 23 Clause 23.1	Payment of Bid Project cost	The Parties expressly agree that the cost of construction of the project, as on the Bid Date, which is due and payable by the Authority to the Concessionaire shall be deemed to be Rs. 1367.00 Crores (Rs. One thousand three hundred and sixty seven crores).	The project has received Completion Certificate.
Article 23 Clause 23.3.1	Payment of Bid Project Cost	40% of the Bid Project Cost, adjusted for the Price Index Multiple, shall be due and payable to the Concessionaire is 5 equal installments of 8% during the construction Period in accordance with the provisions of Clause 23.4.	The project has received Completion Certificate.
Article 23 Clause 23.4	Payment during Construction Period	For the purpose of this clause 23.4, the payment Milestone for release of payment during construction period shall be as under: (a) I (first) payment Milestone - On achievement of 20% Physical Progress. (b) II (second) payment Milestone - On achievement of 40% Physical Progress. (c) III (third) payment Milestone - On achievement of 60% Physical Progress. (d) IV (fourth) payment Milestone - On achievement of 75% Physical Progress. (e) V (fifth) payment Milestone - On achievement of 90% Physical Progress.	The project has received Completion Certificate.
Article 23 Clause 23.5	Bonus on early completion	In the event that the Concessionaire shall achieve COD on or more than 30 days prior to the Scheduled Completion Date, the Authority shall pay to the Concessionaire a bonus equal to 0.5% of 60% of the Bid Project Cost for the first 30 days by which COD shall precede the Schedule Completion Date and thereafter the said bonus shall be calculated on the pro-rata basis for each day preceding the said 30 days period. The Bonus shall be due and payable to the Concessionaire along with the 1st Annuity Payment.	The project has received Completion Certificate.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 23 Clause 23.7.1	O & M Payments	The Parties acknowledge and agree that all O&M Expenses shall be borne by the Concessionaire and in lieu thereof; a lump sum financial support in the form of biannual payments shall be due and payable by the Authority, which shall be computed on the amount quoted by the selected bidder under its O&M Bid, in accordance with the provisions of this Clause 23.7 (the "**O&M Payments**"). The Parties further acknowledge and agree that any O&M Expenses in excess of the O&M Payments shall be borne solely by the Concessionaire, save and except as expressly provided in this Agreement. For avoidance of doubt, it is clarified that the O&M Payments will be subject to any Change in Scope of the Project of the Concessionaire under Article 16 of this Agreement.	Expenses towards O&M shall be the responsibility of Concessionaire and biannual O&M payments shall be of Authority.
Article 23 Clause 23.8	Mobilization advance	The Authority shall, on request of the Concessionaire, made at any time after expiry of 60 days from the Appointed Date, and upon the Concessionaire furnishing a Bank Guarantee in a form satisfactory to the Authority, make an advance payment in a sum not exceeding 10% of the Bid Project Cost (the "Mobilization Advance").	The project has received Completion Certificate.
Article 31 Clause 31.1.3	Termination - Termination for Concessionaire Default	The Authority shall, if there be Senior Lenders, send a copy of its notice of intention to issue a Termination Notice referred to in Clause 31.1.2 to inform the Lenders' Representative and grant 15 (fifteen) days to the Lenders' Representative, for making a representation on behalf of the Senior Lenders stating the intention to substitute the Concessionaire in accordance with the Substitution Agreement. In the event the Authority receives such representation on behalf of Senior Lenders, it shall, in its discretion, either withhold Termination for a period not exceeding 180 (one hundred and eighty) days from the date of such representation or exercise its right of Suspension, as the case may be, for enabling the Lenders' Representative to exercise the Senior Lenders' right of substitution in accordance with the Substitution Agreement:	In case of Termination, the Lenders are given opportunity for Substitution of Concessionaire. The Interest and Safety of Lenders is covered.

<table>
<tr><th>Article & Clause No.</th><th>Subject</th><th>Description in Brief</th><th>Remarks</th></tr>
<tr><td></td><td></td><td>Provided that the Lenders' Representative may, instead of exercising the Senior Lenders' right of substitution, procure that the default specified in the notice is cured within the aforesaid period of 180 (one hundred and eighty) days, and upon such curing thereof, the Authority shall withdraw its notice referred to above and restore all the rights of the Concessionaire.
Provided further that upon written request from the Lenders' Representative and the Concessionaire, the Authority shall extend the aforesaid period of 180 (one hundred and eighty) days by such further period not exceeding 90 (ninety) days, as the Authority may deem appropriate.</td><td></td></tr>
<tr><td>Article 31
Clause 31.3</td><td>Termination Payment</td><td>31.3.1 Upon Termination on account of a Concessionaire Default during the Operation Period, the Authority shall pay to the Concessionaire, by way of Termination Payment, an amount equal to 65% (sixty five per cent) of the sum of Annuity Payments remaining unpaid for and in respect of the Concession Period, including interest thereon up to the Transfer Date.
31.3.2 Notwithstanding to the provisions of Clause 31.3.1 upon Termination on account of Concessionaire Default during the Construction Period, the Termination Payment shall be based on the Payment Milestone achieved which is in terms of the Physical Progress made by the Concessionaire in the Project and the Termination Payment corresponding to the achieved Payment Milestone shall be as follows:
<table><tr><th>Payment Milestone</th><th>Termination Payment</th></tr><tr><td>1st Payment Milestone</td><td>NIL</td></tr><tr><td>2nd Payment Milestone</td><td>50% of Debt Due or 9% of Bid Project Cost, whichever is lower</td></tr><tr><td>3rd Payment Milestone</td><td>60% of Debt Due or 16% of Bid Project Cost, whichever is lower</td></tr><tr><td>4th Payment Milestone</td><td>70% of Debt Due or 24% of Bid Project Cost, whichever is lower</td></tr><tr><td>5th Payment Milestone</td><td>80% of Debt Due or 32% of Bid Project Cost, whichever is lower</td></tr></table></td><td>31.3.1 In case of Termination during Operation period due to Concessionaire Default, the amount of 65% of sum of Annuity Payment remaining unpaid and interest thereon upto Transfer Date will be paid to the Concessionaire. This is inadequate considering the expenses incurred by Concessionaire. Hence, the Concessionaire should avoid the situation by performing as per Agreement.</td></tr>
</table>

<table>
<tr><th>Article & Clause No.</th><th>Subject</th><th>Description in Brief</th><th>Remarks</th></tr>
<tr><td></td><td></td><td>For the avoidance of doubt, it is clarified that in case of termination happening in between two Payment Milestones, for the purpose of calculation of Termination Payment, the milestone achieved would only be considered.

31.3.3 Upon Termination on account of an Authority Default, the Authority shall pay to the Concessionaire, by way of Termination Payment, an amount equal to:
(i) In case the termination occurs prior to COD
(a) Debt Due payment calculated as per the table below less Insurance Cover; provided that if any insurance claims forming part of the Insurance Cover are not admitted and paid, then 80% (eighty per cent) of such unpaid claims shall be included in the computation of Debt Due. Further the Debt

Due would be calculated as per the table provided below:

<table>
<tr><th>Payment Milestone</th><th>Basis of calculation for Debt Due payment</th></tr>
<tr><td>1st Payment Milestone</td><td>Debt Due or 9% of Bid Project Cost, whichever is lower</td></tr>
<tr><td>2nd Payment Milestone</td><td>Debt Due or 18% of Bid Project Cost, whichever is lower</td></tr>
<tr><td>3rd Payment Milestone</td><td>Debt Due or 27% of Bid Project Cost, whichever is lower</td></tr>
<tr><td>4th Payment Milestone</td><td>Debt Due or 33.75% of Bid Project Cost, whichever is lower</td></tr>
<tr><td>5th Payment Milestone</td><td>Debt Due or 40.50% of Bid Project Cost, whichever is lower</td></tr>
</table>

For the avoidance of doubt, it is clarified that in case of termination happening in between two Payment Milestones, for the purpose of calculation of Debt Due, the milestone achieved would only be considered; and</td><td>31.3.2 In case of termination during Construction Period due to Concessionaire Default, the Termination Payment is related to the Physical Progress achieved and Milestone completed. The Payment of Debt Due is not sufficient to compensate the expenses incurred by the Concessionaire. Hence, the Concessionaire shall avoid the situation by performing as per Agreement.</td></tr>
</table>

Article & Clause No.	Subject	Description in Brief	Remarks
		(b) 150% (one hundred and fifty per cent) of the Adjusted Equity; (ii) In case the termination occurs on or after COD, the Authority shall pay to the Concessionaire, by way of Termination Payment, an amount equal to sum of Annuity Payments remaining unpaid for and in respect of the Concession Period, including interest thereon up to the Transfer Date. 31.3.4 Termination Payment shall become due and payable to the Concessionaire within 15 (fifteen) days of a demand being made by the Concessionaire to the Authority with the necessary particulars, and in the event of any delay, the Authority shall pay interest at a rate equal to 3% (three per cent) above the daily average Bank Rate on the amount of Termination Payment remaining unpaid; provided that such delay shall not exceed 90 (ninety) days. For the avoidance of doubt, it is expressly agreed that Termination Payment shall constitute full discharge by the Authority of its payment obligations in respect thereof hereunder. 31.3.5 The Concessionaire expressly agrees that Termination Payment under this Article 31 shall constitute a full and final settlement of all claims of the Concessionaire on account of Termination of this Agreement for any reason whatsoever and that the Concessionaire or any shareholder thereof shall not have any further right or claim under any law, treaty, convention, contract or otherwise.	
Article 34 Clause 34.3.1	Assignment and Charges - Substitution Agreement	The Lender's Representative, on behalf of Senior Lenders, may exercise the right to substitute the Concessionaire pursuant to the agreement for substitution of the Concessionaire (the '**Substitution Agreement**') to be entered into amongst the Concessionaire, the Authority and the Lenders' Representative, on behalf of Senior Lenders, Substantially in the form set forth in Schedule-R.	The Lender's interest is protected with provision of Substitution Agreement.

8 REVIEW OF O&M CONTRACT

The Operation and Maintenance Agreement was signed between **M/s GR Phagwara Expressway Limited (GPEL)** and **G R Infraprojects Limited (O&M Contractor)** on 08th September 2021 and addendum O&M Agreement has been signed on 26th July 2022 for a period of 1 year.

We have reviewed the provisions under various clauses of this O&M Contract and our specific comments are indicated below clause-wise.

Sr. No.	Clause No.	Description in Brief	Remark
1	Agreement Para (ii)	The Concessionaire now wishes to appoint M/s G R Infraproiects Limited for Operation and Maintenance of Project Highway as 0&M Contractor in accordance with Scope of Work as mentioned in Annexure-I hereto, under the Concession Agreement.	The Contractor M/s. G R Infraprojects Ltd. is appointed for O&M work as per scope in CA.
2	Clause 1 Definition	"O&M Contractor" means the person, if any, with whom the Concessionaire has entered into an O&M agreement for discharging O&M obligations for and on behalf of the Concessionaire.	The Contractor is appointed to discharge duties of O&M work on behalf of Concessionaire as per scope in O&M Agreement.
3	Clause 1 Definition	"O&M Period" O&M Agreement means operation and maintenance period of 1 year commencing from Commercial Operation Date.	The Agreement of O&M is for one year and addendum is signed for another 1 year.
4	Clause 2 Availability of Documents	The O&M Contractor also acknowledges the fact that the Concession Agreement is always binding and applicable back to back on the O&M Agreement, limited to the obligations during the O&M period under the Concession Agreement and the scope of the O&M Contractor as per this Agreement. In case of any discrepancy in whatsoever matter, the clauses of Concession Agreement shall prevail over and above this O&M Agreement.	The copy of Concession Agreement & Maintenance Manual is provided to Contractor. It is always binding to Contractor for implementation during O&M work.
5	Clause 6.1 O&M Contractor's obligation	During Operation Period, provisions of Article 17 of the Concession Agreement shall apply. The O&M Contractor shall operate and maintain the Project Highway in accordance with Article 17 of the Concession Agreement and if required, modify, repair or otherwise make improvements to the Project Highway comply with the provisions of this Agreement, Applicable Laws and Applicable Permits, and confirm to Specifications and Standards and Good Industry Practice.	The obligations of O&M are as per Article 17 of CA.

Sr. No.	Clause No.	Description in Brief	Remark
6	Clause 6.3 Maintenance Requirements	The O&M Contractor shall procure that at all times during the Operation Period; the Project Highway conforms to the maintenance requirements set forth in Schedule-K of the Concession Agreement (the "Maintenance Requirements").	The maintenance required to be done as per Schedule-K of CA.
7	Clause 6.4 Maintenance Program	Not later than 55 days prior to the beginning of each Accounting Year during the Operation Period, the O&M Contractor shall provide to the Concessionaire, its proposed annual program of preventive, urgent and other scheduled maintenance (the "Maintenance Program") to comply with the Maintenance Requirements, Maintenance Manual and Safety Requirements.	The Contractor has to submit the programme and work for O&M with maintenance requirement and safety.
8	Clause 6.5 Safety, Breakdown and accident	The O&M Contractor shall ensure safe conditions for the users, and in the event of unsafe conditions, closures, diversions, breakdowns and accidents, it shall follow the relevant operating procedures including the setting up of temporary lights and removal of obstruction and debris without delay. Such procedures shall conform to the provisions of this Agreement, Applicable Laws, Applicable Permits and Good industry Practice.	Safety of users including breakdown, accident rescue operations is covered.
9	Clause 6.10 Damages for Breach of Maintenance obligations	In the event that the O&M Contractor fails to repair or rectify any defect or deficiency set forth in the Maintenance Requirements within the period specified therein, it shall be deemed to be in breach of this Agreement and the O&M Contractor shall pay to the Concessionaire Damages at such rate as the Concessionaire is required to pay to the Authority under the Concession Agreement. Recovery of such Damages shall be without prejudice to the rights of the Concessionaire under this Agreement, including the right of Termination thereof.	The provision of Levy of Damage for breach of Agreement, defective work will keep pressure on Contractor to work as per requirement.
10	Clause 6.17 Tests	For determining that the Project Highway conforms to the Maintenance Requirements, the Project Manager/IE shall require the O&M Contractor to carry out, or cause to be carried out, tests specified by it in accordance with Good Industry Practice.	This will maintain quality of work.

Sr. No.	Clause No.	Description in Brief	Remark
11	Clause 6.19.1 Safety Requirements	The O&M Contractor shall comply with the provisions of this Agreement and /or Concession Agreement, Applicable Laws and Applicable Permits and confirm to Good Industry Practice for securing the safety of the Users. In particular, the O&M Contractor shall develop, implement and administer a surveillance and safety program for providing a safe environment on or about the Project Highway, and shall comply with the safety requirements set forth in Schedule-L of the Concession Agreement (the “Safety Requirements").	The O&M Contractor has to provide requirements provision for safety of Highway Users. The safety of users is given priority.
12	Clause 13 Sub-contracts	The O&M Contractor shall notify to the Project Manager in writing of its intent to subcontract the O&M works in part or full and without the written approval of the Project Manager no subcontractor shall be appointed by the O&M Contractor.	The subcontractor cannot be appointed without approval of Project Manager. This will keep control over contractor to appoint competent contractor.
13	Clause 16.1 Insurance	The Concessionaire shall procure and maintain the insurance for the Project Highway including all facilities in accordance with the Article 26 of the Concession Agreement.	The risks and security of Authority, Concessionaire and Lender is covered.
14	Clause 17.1 Defect Liability Period	The Concessionaire and/or the EPC Contractor ls responsible for all the defects and deficiencies in construction of the Project Highway or any section thereof and rectify the same, without any cost to the O&M Contractor, during the O&M period. Under this agreement the O&M Contractor is only under obligation of Operation 8r Maintenance of the Project Highway. For avoidance of doubt, any repair or restoration on account of usual wear and tear in the Project Highway shall form a part of the maintenance.	The Contractor is responsible for any defects during Defect Liability period i.e., O&M Period. This will maintain the quality to avoid any action for defective work as proposed.
15	Clause 21 Acknowledgement	The O&M Contractor acknowledges and accepts that this agreement entitles the Authority and/or Lenders Representative to step into this agreement, in its sole discretion, in Substitution of the Concessionaire In the event of Termination or Suspension of the Concessionaire. Further, provision of clause 5.2 of the Concession Agreement relating to Project Agreement shall apply *mutatis mutandis.*	The Contractor has agreed for step in right of Authority or Lender in case of Termination of Concessionaire.

Sr. No.	Clause No.	Description in Brief	Remark
16	Clause 22 O&M Payments	The Parties acknowledge and agree that all O&M Expenses shall be borne by the O&M Contractor to carryout routine maintenance Works as detailed in Annexure-I to this 0&M Agreement and in lieu thereof; a fixed lump sum fee amounting to Rs. 4,00,00,000 exclusive of taxes for the entire year in the form of biannual payment shall be due and payable by the Concessionaire.	The O&M Contractor will be paid fixed & Lumpsum payment of Rs. 4.0 Crores. Biannual payment during year for his work as per scope. The Contractor has to manage O&M work responsibility within this payment. Over & above these expenses, Concessionaire is incurring expenses for insurance, electricity, IE & professional fees etc.,
17	Clause 27.1 Termination For O&M Contractor Default	In the event of any defaults specified below shall have occurred, and the O&M Contractor fails to cure the default within the Cure Period of 60 (sixty) days, the O&M Contractor shall be deemed to be in default of this Agreement (the "O&M Contractor Default"), unless the default has occurred as a result of any breach of this Agreement by the Concessionaire or due to Force Majeure.	The Contractor shall note this. This provision of termination keep pressure on Contractor to work as per scope of O&M responsibility.
18	Clause 32 Liability and Indemnification	The O&M Contractor shall fully indemnify and hold harmless and defend the Concession to the extent that the Concessionaire has provided any indemnities to Authority in terms of Article 36 of Concession Agreement, insofar as such indemnities relate to the Services.	The Concessionaire is secured from Contractor for any loss, claim.

8.1 Conclusion

i. Operation and Maintenance Contract is comprehensive and correct for major concerns of the Lender.

ii. The provision of O&M Contract Agreement is consistent with the provision of the Concession Agreement.

9 TOLL PLAZA EQUIPMENT STATUS & ATMS

An assessment of Toll Plaza in terms of no. of lanes, Toll Collection System installed and working status is carried out based on Section 10 of IRC:SP:84-2014 and the Authority's requirements of Hybrid ETC System. Highway Traffic Management System (HTMS) is assessed based on Section 816 of MoRTH Specifications for Road and Bridge Works as required by Section 12.12 of the Manual.

9.1 Toll Plaza and Toll Collection System

Two toll plazas are provided at km. 15+300 at Behram and km. 70+240 at Bachhwan. The Toll Collection System installed at the toll plazas is provided by Qualix Information Systems LLP.

The toll plazas have (5+5) lanes. All lanes are functional with Hybrid ETC equipment. View of the toll plazas are shown in Figure 9-2.



Figure 9-1 View of Behram Toll Plaza (km. 15+300)





Figure 9-2 View of Bachhwan Toll Plaza (km. 70+240)

9.1.1 Lane Equipment

Lane hardware and equipment installed at each toll plaza are the following:

1. RFID ETC Transceiver
2. Lane Controller with Industrial PC
3. AVC Sensors
4. Automatic Lane Barrier (ALB)
5. Incident Capture Camera
6. Overhead Lane Signals
7. Traffic Lights
8. Toll Booth Equipment

9.1.1.1 RFID ETC Transceiver

RFID ETC Transceiver reads tags installed on the windshield of vehicles and mounted on a pole at about 6 m height. Handheld RFID readers are provided (1 no. in each direction) in case a tag is not detected by the fixed reader.



Figure 9-3 RFID ETC Transceiver installed on pole

9.1.1.2 Lane Controller with Industrial PC

Toll Lane Controller is located within the Electronic Enclosure placed inside each toll booth which are connected to the common server and are capable of independent storage of data.

9.1.1.3 Automatic Vehicle Classification (AVC) Sensors

The AVC equipment comprises of a pair of height sensor poles, axle sensors and inductive loops. The height detector has a high sensing resolution and detects height when object blocks the path. The presence of vehicle is detected by inductive loop. The loop sensors embedded on the pavement trigger the AVC height sensors located on parallel pillars.



Figure 9-4 Lane Controller and AVC installed in enclosures at Toll Booth



Figure 9-5 Height sensors



Figure 9-6 Inductive loop

9.1.1.4 Automatic Lane Barrier

Boom barriers installed on all lanes are in working condition and have a working time of 0.6 - 0.9 s. Automatic Lane Barrier is used to allow only authorized vehicles to pass through the lane. The barrier is activated only on generation of user fee receipt or other relevant vehicle processing activity. A torque motor powers the barrier for raising and lowering the boom. The motor can be blocked at any position without causing any damage. In the event of power failure, the boom is automatically raised. The boom weight is exactly balanced by built-in springs.



Figure 9-7 Automatic Lane Barrier

9.1.1.5 Lane Traffic Light (LTL) and User Fare Display (UFD)

Lane Traffic Light (LTL) is used to instruct vehicles to stop or pass through the lane. The LTL is RED when the toll collector is expecting the vehicle at the booth. After the transaction is done; the LTL turns Green to instruct the vehicle to pass through the lane. The User Fare Display is a part of electronic toll collection equipment located at the toll booth. It is a mini variable message sign (VMS) made of Light Emitting Diodes (LED). The user fare display is used to display the toll fare that is due and that must be paid by the motorist and the classification of vehicle selected by the collector.



Figure 9-8 Lane Traffic Light (LTL) and User Fare Display (UFD)

9.1.1.6 Incident Capture Camera (AVC Camera)

The incident capture camera is installed on island of the booth to capture the image of the vehicle from the back side. The AVC triggers the Image capture system.

9.1.1.7 License Plate Image Capture Camera (LPIC)

License Plate Image capture camera is installed on a 3m pole facing incoming vehicle to capture the image of the vehicle number plate.



Figure 9-9 LPIC and AVC Cameras

9.1.1.8 Over Head Lane Signal (OHLS)

The **Overhead Lane Signal (OHLS)** for lane “Open” and “Close” sign consists of a pair of “GREEN” (arrow) and “RED” (cross) lights. The OHLS is located at the vehicle approaching side of the canopy to show the drivers whether the lane is open or closed



Figure 9-10 Over Head Lane Signal (OHLS)

9.1.1.9 Toll Booth Equipment

Toll Booth Hardware / Equipment provided are:

- Toll Collector Display (Operator Monitor)
- Customized Industrial Keyboard
- Receipt Printer
- Intercom Slave unit
- Bar code reader
- Violation Light and alarm
- Manual Booth Control (MBC)
- Booth Camera

The operator monitor termed as Toll Collector Display (TCD) is located on the toll collector's desk. It is the system's interface to the toll collector, to display the status of transactions and status of the lane peripherals.

The keyboard on the toll terminal is a programmable keyboard for Registration of toll operations and is customized for different vehicle types and type of ticket.



Figure 9-11 Booth Equipment

Thermal Printers are installed at the toll booths to print tickets. Intercom slave unit facilitates communication with the master unit located in the control room.

Violation system has an alarm switch which is triggered whenever there is a violation such as run-through happening on the lane. When there is an emergency, a foot switch pressed by the booth operator alerts the control room.

Booth Cameras are provided on the inside roof corner of the booth to provide surveillance through CCTV screen located in the control room. Manual Booth Controller is used to release exempt vehicles.

9.1.1.10 Medium Speed Weigh in Motion (MSWIM)

Medium Speed Weigh in Motion (MSWIM) is installed on entry lanes with a platform size of 1500 mm x 620 mm for normal lanes and 1750 mm x 620 mm for extra wide lanes and capacity of 30 ton/axle. Bending plate strain gauge technology is used with hardware and software support to calculate weight of vehicles running through it up to a speed of 50 km/hr.



Figure 9-12 Medium Speed Weigh in Motion (MSWIM)

9.1.2 Plaza Equipment

9.1.2.1 TMS Server

Plaza Server is provided in a hot standby configuration and provided with 42 U switch rack, 28 port non-POE network switch and 10 Port PoE switch. Firewall and 2 broadband internet lease line with 4 Mbps link for CCH connectivity is available.



Figure 9-13 Control Room Equipment - Server & Switch rack

9.1.2.2 55” LED screen for CCTV monitoring

55” LED screen for CCTV monitoring installed at the toll plaza admin block provides view of all the toll booths, important zones within the plaza where cash transactions take place (server room, control room, cash up).

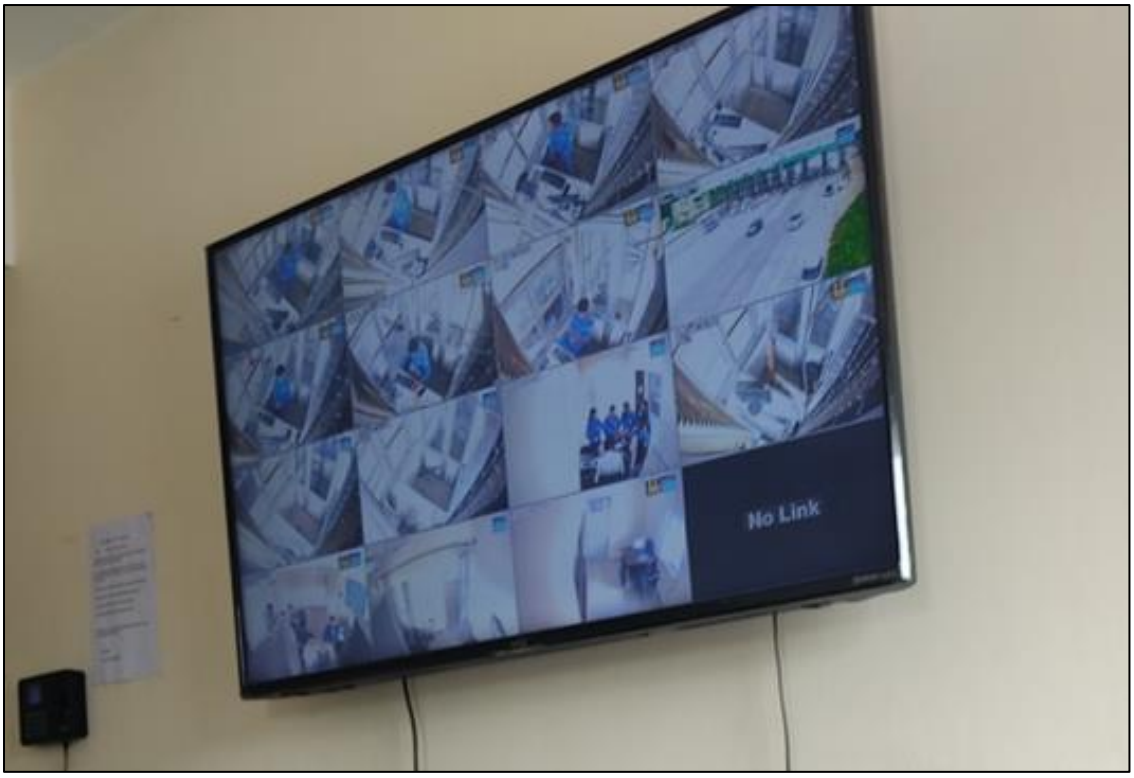


Figure 9-14 CCTV screen at the Toll Plaza Control Room

The toll plaza manager is able to observe the activities at the toll lanes and toll booth. When the toll collector calls up on the intercom, the manager is able to comprehend the situation at the lane by a zoomed view of the particular lane.

9.1.2.3 Workstations in Control Room, PoS and Cash up room

Workstations are available in control room (lane monitoring, administration, and audit), cash room and PoS with 4 GB RAM and 1 TB HDD.

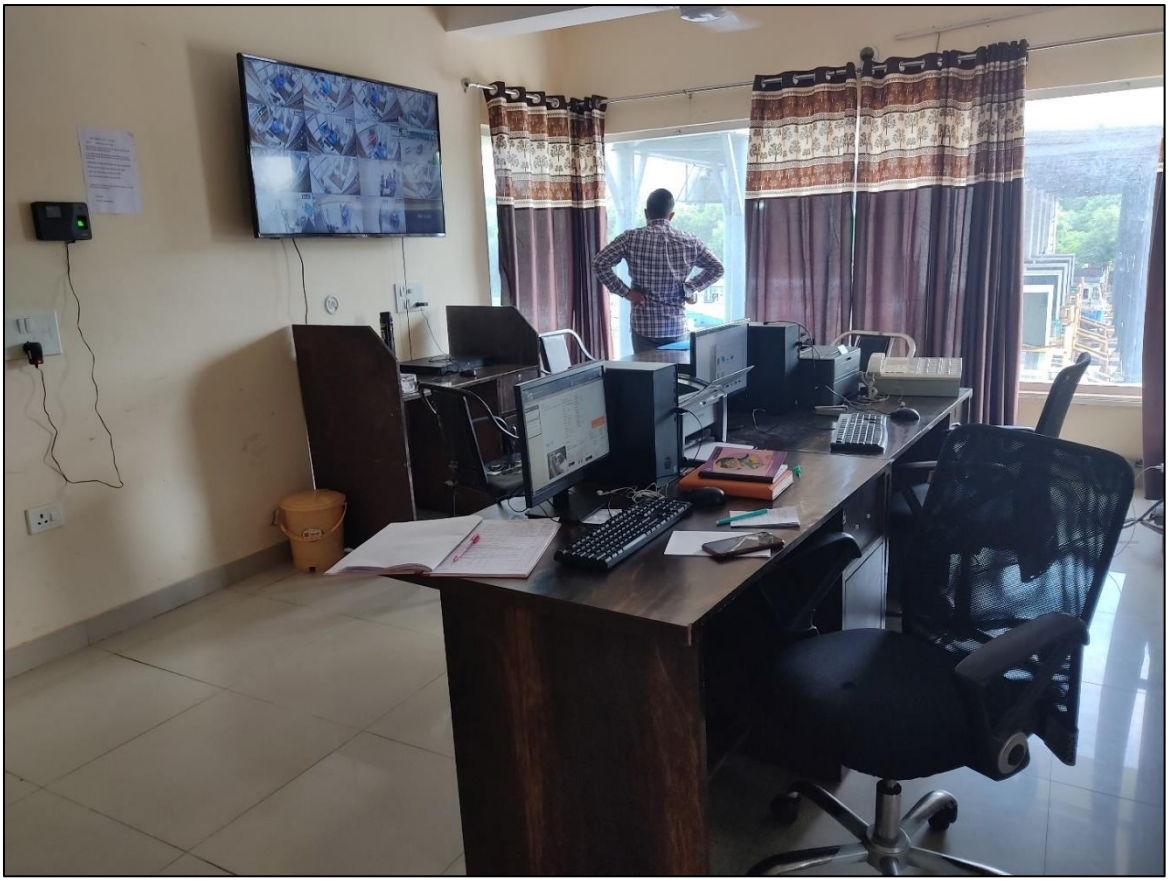


Figure 9-15 Work Stations at Control room



Figure 9-16 Network Printer and Intercom Master Unit at control room

9.2 Advanced Traffic Management System (ATMS)

Advanced Traffic Management System (ATMS) installed for the project road is controlled by the ATMS centre at the toll plaza location (km 15+300). It comprises of the following:

- Emergency Call Back System (ECB)
- Mobile Radio communication system
- Meteorological Data system
- Variable Message Signboards (VMS)
- Automatic Traffic Counter cum Classifier (ATCC)
- CCTV system

9.2.1 Emergency Call Back System (ECB)

21 pairs of Emergency Call Booths are installed along the project road stretch. The users can access these ECBs and communicate to the HTMS control centre in case of emergency such as vehicle breakdown.

9.2.2 Mobile Radio communication System (MRCS)

Communication between patrol vehicles, ambulances, crane operators and the control centre is managed using MRCS installed at the two locations, Km 15.300 and Km 70.240.

9.2.3 MET system

Meteorological sensors comprise of sensors to measure the atmospheric temperature, humidity, pavement surface temperature, visibility and equipment for measuring wind speed and direction and installed at km 15+300.



Figure 9-17 MET Equipment

9.2.4 Variable Message Signboards (VMS)

Variable message sign boards are installed at 8 locations. These display specific messages to the users based on the prevailing conditions on the highway. The message can be changed at any point of time from the HTMS centre. About 250 customised messages can be stored on the system.

9.2.5 Automatic Traffic Counter cum Classifier (ATCC)

Automatic Traffic Counter cum Classifiers (ATCC) is installed at km 15+465. The ATCC are infrared Traffic Logger (TIRTL) type and count at an accuracy of 95%.

9.2.6 CCTV and Surveillance Cameras

Surveillance Cameras are installed at 4 locations along the project corridor. The HTMS control room has video wall to monitor these locations through the cameras installed.



Figure 9-18 Video wall at HTMS Control room

9.2.7 Video Incident Detection System

Video Incident Detection System is located at 4 locations km.13+400, km.17+260, km.68+400 and km.72+600.

9.3 Adequacy of Toll Collection System and ATMS

- Adequacy - The software and hardware as a part of Toll Collection and Management System (TMS) was commissioned on 22nd March 2022. All lanes are Hybrid ETC system as stipulated by NHAI in Technical Specifications of Hybrid ETC system. NHAI has approved maintenance costs for TMS. TMS shall be upgraded every 5 years, at the cost of the Authority.

- Advanced Traffic Management System (ATMS) installed is as per specifications required by the Authority and in working condition.

10 ACCIDENT DATA ANALYSIS

Accident Data Records for the project have been studied in order to analyse the nature of accidents occurring on the stretch and identify blackspots.

10.1 Accident Trend

Accident Data for the period 1st April 2021 to 31st March 2022 has been made available for analysis. 155 Accidents have occurred out of which 1 no. was fatal, and 26 were grievous 86 minor and 42 non-injury type.

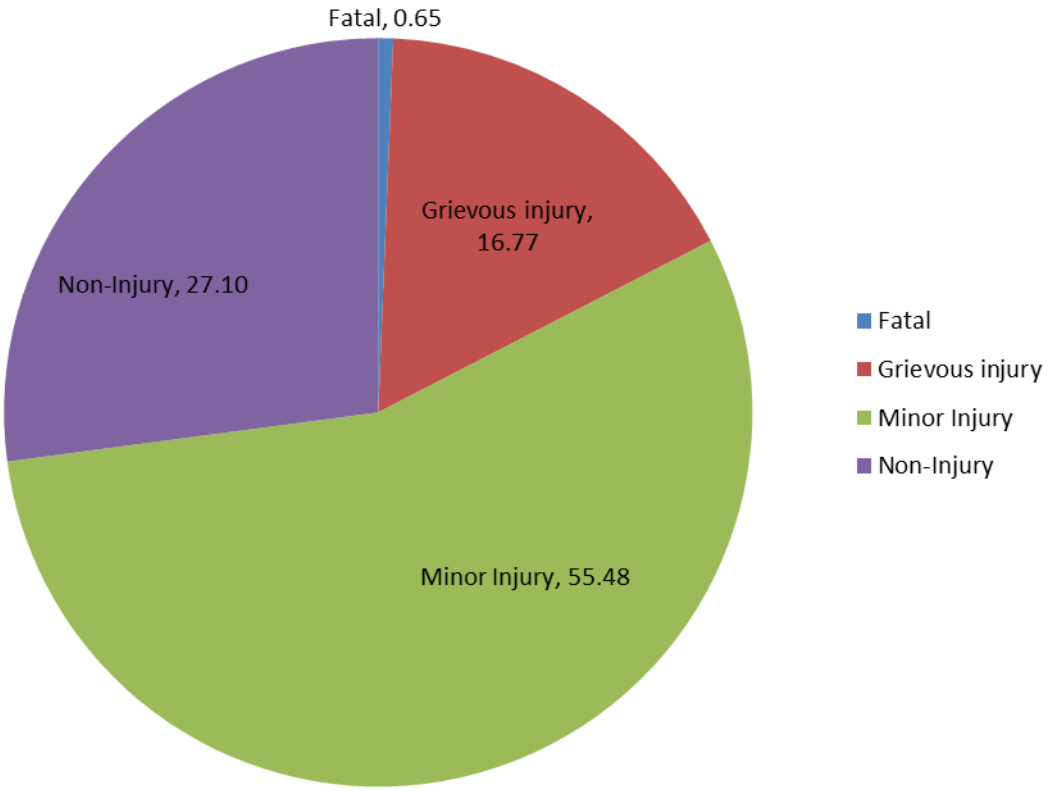


Figure 10-1 Accident Types

More number of accidents have occurred during the day time than at night time. Monthly data analysis does not show any consistent seasonal trend. Over speeding has been recorded as a major cause of accident followed by faulty driver behaviour.

Table 10-1 Monthly Accidents during the financial year 2021-22

Sr. No.	Month / Year	Minor Injury	Grievous Injury	Fatalities (Deaths)	TOTAL
1	Apr-21	11	3	0	14
2	May-21	4	0	0	4
3	Jun-21	6	3	0	9
4	Jul-21	6	0	0	6
5	Aug-21	9	3	0	12
6	Sep-21	2	2	0	4
7	Oct-21	12	3	0	15
8	Nov-21	10	1	0	11

Sr. No.	Month / Year	Minor Injury	Grievous Injury	Fatalities (Deaths)	TOTAL
9	Dec-21	16	3	0	19
10	Jan-22	4	4	0	8
11	Fab-22	5	2	0	7
12	Mar-22	1	2	1	4
Grand Total		**86**	**26**	**1**	**113**

Accident Cause:

Wrong side driving is noted as the top cause for accidents which needs to be looked into and remedied. Speed comes second in causing highest number of accidents which again needs to be studied in detail based on the accident spots. Figure below shows the share of various causes of accident on the project road.

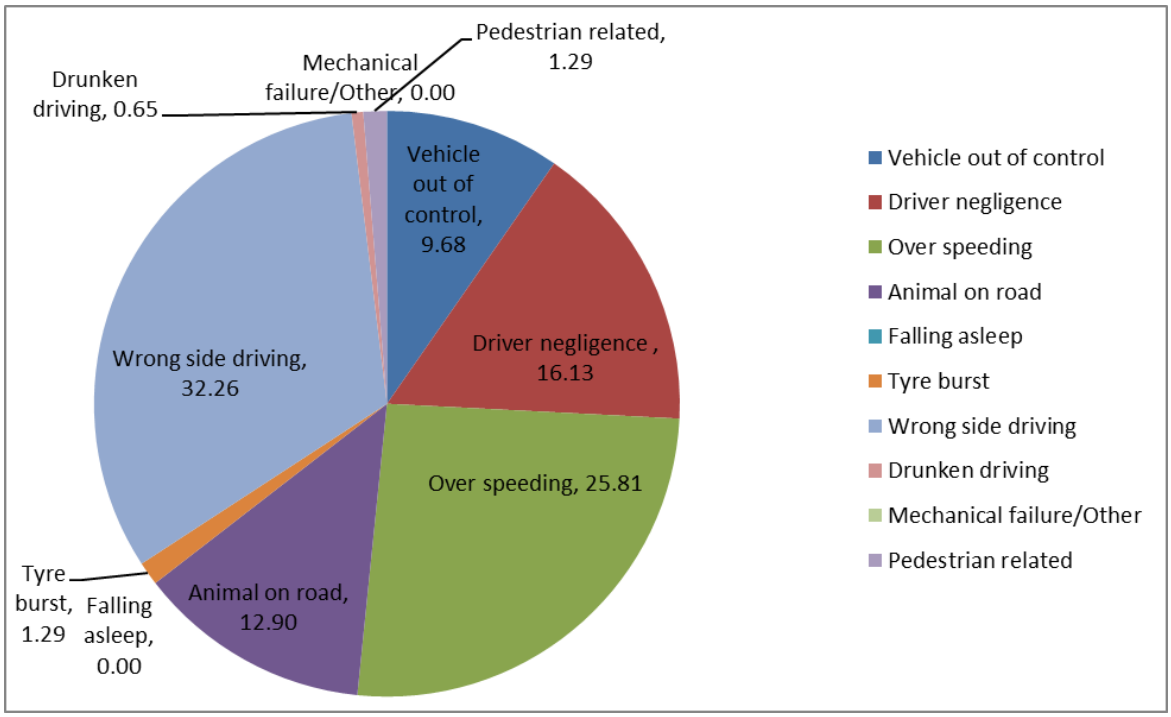


Figure 10-2 Accident Causes

10.2 Conclusions & Recommendations

It is recommended that the Concessionaire maintain road signs, markings and other road safety devices as per the manual.

Annexures

Annexure I : Operation and Routine Maintenance Cost

Sr. No.	Particulars	Cost per Annum (Rs.)	Cost per Annum (Crores)
1	Incidental Management Expenses		
a	*Ambulance - 2 Nos.*	3,488,171	0.35
b	*Patrolling Vehicle - 2 Nos.*	4,078,377	0.41
c	*Crane - 2 Nos.*	2,424,268	0.24
d	*Other Vehicle - 2 Nos.*	1,195,727	0.12
e	*JCB - 1 Nos.*	852,563	0.09
f	*Corridor Manager & Officer*	953,280	0.10
2	Maintenance Staff Expenses	7,200,000	0.72
3	Routine Maintenance Cost (Civil Works)	25,890,073	2.59
4	Professional & IE Fee	10,231,812	1.02
5	Insurance Expenses	9,630,611	0.96
6	Staff Welfare Expenses	660,000	0.07
7	Electricity Expenses + Maintenance of parts	29,329,437	2.93
8	ATMS/HTMS Expenses	8,001,180	0.80
9	Contingency @ 5%	3,902,271	0.39
	Total Cost (Rs.)	**107,837,771**	**10.78**
	Per km Cost (Lakhs)		**13.34**

Annexure II : Routine Maintenance Cost

Routine Maintenance Cost	
GPEL	
Ordinary Repair Cost for Flexible without GST	24,179,175
(Exclusive of GST)	= 3.36 lakhs per km
Ordinary Repair Cost for Rigid without GST	1,710,897
(Exclusive of GST)	= 1.53 lakhs per km
Total Cost (Exclusive of GST)	**25,890,073**
	= 3.20 lakhs per km

CONVERSION FACTORS									
National Highways / State Highways - Flexible Pavement									
Reference cost taken for Two / four lane (7.0 or 14m or 21m) with 1.5m/2m wide shoulders									
(Refer Chapter 6.17 of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 45)									
Sr. No.	**Description for Flexible Pavement**		**Factor**	**Flexible Pavement**		**Project Length (km)**		**Per Year Project Maintenance Cost**	
				Normal	**Urban**				
				More than 4500 CVD	More than 4500 CVD				
				199,604	**216,814**				
						Normal	**Urban**	**Normal**	**Urban**
1	Two-lane without shoulder		0.90	179644.00	195132.00	1.15	-	195,825.45	-
2	Four-lane with divided carriageway	Without paved shoulder	1.53	305394.00	331725.00	-	-	-	-
		Paved shoulder	1.70	339327.00	368583.00	51.95	-	16,709,670.52	-
3	Four-lane with divided carriageway and service lane on either side	Without paved shoulder	2.00	399208.00	433627.00	-	-	-	-
		Paved shoulder	2.20	439129.00	476990.00	-	10.22	-	4,642,129.25
4	Six lane with divided carriageway and service lane on either side	without Paved shoulder	2.90	578852.00	628760.00	-	-	-	-
		with Paved shoulder	3.10	618773.00	672122.00	-	8.65	-	5,533,051.01
TOTAL						**71.970**		**27,080,676.23**	

CONVERSION FACTORS									
National Highways / State Highways - Rigid Pavement									
Reference cost taken for Two / four lane (7.0 or 14m or 21m) with 1.5m/2m wide shoulders									
(Refer Chapter 6.17 of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 45)									
Sr. No.	**Description for Rigid Pavement**		**Factor**	**Rigid Pavement**		**Project Length (km)**		**Per Year Project Maintenance Cost**	
				Normal	**Urban**				
				More than 4500 CVD	More than 4500 CVD				
				96,149	**109,116**				
						Normal	**Urban**	**Normal**	**Urban**
3	Two-lane without shoulder		0.90	86534.00	98205.00	-	1.15	-	112,935.75
8	Four-lane with divided carriageway	Without paved shoulder	1.53	147107.00	166948.00	-	-	-	-
		Paved shoulder	1.70	163453.00	185498.00	8.05		1,315,796.65	-
10	Six lane with divided carriageway	without Paved shoulder	2.43	233641.00	265153.00	-	-	-	-
		with Paved shoulder	2.60	249986.00	283703.00	1.95		487,472.70	-
					TOTAL		**11.150**		**1,916,205.10**

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km.** **More than 4500 CVD** **BT Surface**
1	**2**	**3**	**4**	**5**
1	**Maintenance of Carriageway & Paved Shoulders (1.5m wide); B.T. Surface**			
	i) Pot holes repair (50 mm deep)	100 % Pot hole free	As & when required	0.50%
	Volume (cum)			2.50
	Rs/m^3			11368
	Cost in Rupees			28,420
	ii) Patch repair	100 % Patch less	As & when required	0.50%
	Area (sqm)			50
	Rs/m^2			455
	Cost in Rupees			22,736
	iii) Sealing (Crack)			
	a) Wider than 3 mm	100 % Crack Less	As & when required	3.50%
	Area (sqm)			350
	Rs/m^2			86
	Cost in Rupees			30,184
	b) Width less than 3 mm	75 % Crack Less	As & when required	2.50%
	Area (sqm)			187.5
	Rs/m^2			58
	Cost in Rupees			10,920
	iv) Repair of ruts and undulations			
	a) Greater than 20 mm	75%	As & when required	1.00%
	Area (sqm)			75
	Rs/m^2			455
	Cost in Rupees			34,104
	v) Road marking	10%	Once in 10 year & @ Repaired location	12983
	SUB TOTAL			**139,347**

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km.** **More than 4500 CVD** **BT Surface**
1	**2**	**3**	**4**	**5**
2	**Maintenance of earthen Shoulders:**			
	i) Renewal of earthen shoulders	70%	Once in a Year	5177
	ii) Jungle Clearance	70%	Twice in a Year	1359
	iii) Kuccha Drain Maintenance	70%	Twice in a Year	728
	SUB TOTAL			**7,264**
3	**Maintenance of Cross Drainage works:**			
	i) Cleaning of culvert bed	70%	Once in a Year	1835
	ii) Repair of floors	70%	Once in a Year	3320
	iii) Repair of parapets	70%	As & when required	1383
	SUB TOTAL			**6,538**
4	**Maintenance of Minor & Major Bridges:**			
	i) Cleaning and removal of dirt & vegetation from pier caps, Bearings, Expansion Joints, Superstructure, Substructure and Retaining wall etc.	50%	As & when required	17,334
	ii) Spot painting & protective Coating required on Bearing and greasing of Bearings, railing, structural members, Expansion joints			
	iii) Repair of minor washouts, erosion scour and animal holes			
	iv) Sealing Cracks with Cement/ Epoxy Mortar			
	v) Replacement & Correction of safety barriers, Guard rails and damaged members			
	SUB TOTAL			**17,334**
5	**Miscellaneous Items:**			
	i) Turfing and Arboriculture		Once in a Year	2311
	ii) Maintenance of gang hut store, sheds, animal & debris removal		Once in a Year	3467
	iii) Lettering, Painting of Km stones & kerbs, sign boards, hectometer stone etc.		Once in a Year	3467

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km.**
				More than 4500 CVD
				BT Surface
1	**2**	**3**	**4**	**5**
	iv) Replacement and providing additional retro reflective signage	20%	Covering Total Network in 3 Years	6934
	v) Providing first aid kits, Umbrella, Safety Jackets, Vardi etc.		Once in a Year	1156
	vi) Traffic Census		Once in a Year	0
	vii) Provision for roughness measurement		Twice in a Year	1386
	SUB TOTAL			**18,721**
	GRAND TOTAL (Normal)			**189,204**
6	**Additional Cost required for Urban Area**			
	i) Renewal of Center Line, Edge Marking, Kerb Marking/ Zebra crossing etc. in City Portion	10%	Once in 10 years with thermoplastic paint	4614
	ii)Repairs to footpath	20%	As & when required	924
	iii) ROB/ Fly-over Railings & repair	50%	As & when required	2311
	iv) Street Lighting	0%	As & when required	0
	v) Encroachment Removal Squad	50%	As & when required	3583
	vi) Repair of divider/ Railing in City portion	50%	As & when required	4623
	vii) Provision for maintenance of pedestrian underpass	50%	As & when required	1156
	SUB TOTAL			**17,210**
	GRAND TOTAL (Urban)			**206,413**

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity**
				More than 4500 CVD
				CC Surface
1	**2**	**3**	**4**	**5**
1	**Maintenance of Carriageway & Paved Shoulders (1.5m wide); B.T. Surface**			
	i) Pot holes repair (50 mm deep)	100 % Pot hole free	As & when required	0.00%
	Volume (cum)			0.00
	Rs/m^3			0
	Cost in Rupees			0
	ii) Patch repair	100 % Patch less	As & when required	0.00%
	Area (sqm)			0
	Rs/m^2			455
	Cost in Rupees			0
	iii) Sealing (Crack)			
	a) Wider than 3 mm	100 % Crack Less	As & when required	0.50%
	Area (sqm)			50
	Rs/m^2			86
	Cost in Rupees			4,312
	b) Width less than 3 mm	75 % Crack Less	As & when required	1.00%
	Area (sqm)			75
	Rs/m^2			58
	Cost in Rupees			4,368
	iv) Repair of ruts and undulations			
	a) Greater than 20 mm	75%	As & when required	0.00%
	Area (sqm)			0
	Rs/m^2			455

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
	Cost in Rupees			0
	v) Road marking	10%	Once in 15 year & @ Repaired location	15782
	vi) Joint Sealant Repair/Replacement	5%		32230
	SUB TOTAL			**56,692**
2	**Maintenance of earthen Shoulders:**			
	i) Renewal of earthen shoulders	70%	Once in a Year	5177
	ii) Jungle Clearance	70%	Twice in a Year	1359
	iii) Kuccha Drain Maintenance	70%	Twice in a Year	728
	SUB TOTAL			**7,264**
3	**Maintenance of Cross Drainage works:**			
	i) Cleaning of culvert bed	70%	Once in a Year	1835
	ii) Repair of floors	70%	Once in a Year	3320
	iii) Repair of parapets	70%	As & when required	1383
	SUB TOTAL			**6,538**
4	**Maintenance of Minor & Major Bridges:**			
	i) Cleaning and removal of dirt & vegetation from pier caps, Bearings, Expansion Joints, Superstructure, Substructure and Retaining wall etc.	20%	As & when required	6,934
	ii) Spot painting & protective Coating required on Bearing and greasing of Bearings, railing, structural members, Expansion joints			
	iii) Repair of minor washouts, erosion scour and animal holes			
	iv) Sealing Cracks with Cement/ Epoxy Mortar			
	v) Replacement & Correction of safety barriers, Guard rails and damaged members			

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
	SUB TOTAL			**6,934**
5	**Miscellaneous Items:**			
	i) Turfing and Arboriculture		Once in a Year	2311
	ii) Maintenance of gang hut store, sheds, animal & debris removal		Once in a Year	3467
	iii) Lettering, Painting of Km stones & kerbs, sign boards, hectometer stone etc.		Once in a Year	3467
	iv) Replacement and providing additional retro reflective signage	20%	Covering Total Network in 5 Years	6934
	v) Providing first aid kits, Umbrella, Safety Jackets, Vardi etc.		Once in a Year	1156
	vi) Traffic Census		Once in a Year	0
	vii) Provision for roughness measurement		Twice in a Year	1386
	SUB TOTAL			**18,721**
	GRAND TOTAL (Normal)			**96,149**
6	**Additional Cost required for Urban Area**			
	i) Renewal of Center Line, Edge Marking, Kerb Marking/ Zebra crossing etc. in City Portion	7%	Once in 15 years with thermoplastic paint	1296
	ii)Repairs to footpath	0%	As & when required	0
	iii) ROB/ Fly-over Railings & repair	50%	As & when required	2311
	iv) Street Lighting	0%	As & when required	0
	v) Encroachment Removal Squad	50%	As & when required	3583
	vi) Repair of divider/ Railing in City portion	50%	As & when required	4623
	vii) Provision for maintenance of pedestrian underpass	50%	As & when required	1156
	SUB TOTAL			**12,968**
	GRAND TOTAL (Urban)			**109,116**

Annexure III : Major Maintenance Cost

Sr. No.	Description	Unit	No.	Length (m)	Width (m)	Depth (m)	Quantity	Total Quantity	Rate (Rs.)	Amount (Rs.)
I. Main Carriageway										
A	**Main Carriageway: Flexible Pavement**									
1	Milling	Sqm	100%	1,266,123.43			1,266,123.43	1,266,123.43	55.00	69,636,789
2	Tack Coat for DBM	Sqm	25%	1,266,123.43			316,530.86	316,530.86	16.00	5,064,494
3	DBM Overlay	Cum	25%	1,266,123.43		0.05	15,826.54	15,826.54	9,172.00	145,161,051
4	Tack Coat for BC	Sqm	1	1,266,123.43			1,266,123.43	1,266,123.43	16.00	20,257,975
5	BC Overlay	Cum	1	1,266,123.43		0.03	37,983.70	37,983.70	10,593.00	402,361,365
6	Filling of Earthen shoulder	Cum	1	209,198.00		0.03	6,275.94	6,275.94	430.00	2,698,654
B	**Main Carriageway: Rigid Pavement**									
7	Replacement of Joint Sealant	Rmt	5%	100,342.86			5,017.14	5,017.14	110.00	551,886
8	Dismantling of CC Panels @ 2% area	Cum	2%	197,550.00		0.30	1,185.30	1,185.30	893.00	1,058,473
9	Replacement of Panels - PQC @ 2% area	Cum	2%	197,550.00		0.30	1,185.30	1,185.30	7,662.00	9,081,769
10	Diamond Grinding	Sqm	3%	197,550.00			5,926.50	5,926.50	50.00	296,325
C	**Rigid Pavement at Toll Plaza**									
11	Replacement of Joint Sealant	Rmt	5%	5,869.84	-	-	293.49	293.49	110.00	32,284
12	Dismantling of CC Panels @ 2% area	Cum	2%	11,556.25		0.30	69.34	69.34	893.00	61,918
13	Replacement of Panels - PQC @ 2% area	Cum	2%	11,556.25		0.30	69.34	69.34	7,662.00	531,264
D	**Service Roads (Flexible Pavement)**									
14	Tack Coat for BC	Sqm	20%	535,783.05			107,156.61	107,156.61	16.00	1,714,506
15	BC Overlay with 30mm	Cum	20%	535,783.05		0.03	3,214.70	3,214.70	10,593.00	34,053,299
16	Microsurfacing	Sqm	80%	535,783.05			428,626.44	428,626.44	133.00	57,007,317
E	**Structural Deck area**									
17	Milling	Sqm	50%	80,524.32			40,262.16	40,262.16	55.00	2,214,419
18	Tack Coat	Sqm	50%	80,524.32			40,262.16	40,262.16	16.00	644,195
19	Mastic Asphalt Overlay	Sqm	50%	80,524.32			40,262.16	40,262.16	498.85	20,084,738
F	**Miscellaneous**									
20	Replacement of Kerb	Rmt	20%	239,476.00			47,895.20	47,895.20	242.00	11,590,638
21	Painting of Kerbs	Sqm	1	239,476.00		0.32	75,434.94	75,434.94	94.00	7,090,884
22	Painting of Crash Barrier	Sqm	1	39,892.00		1.12	44,479.58	44,479.58	94.00	4,181,081
23	Thermoplastic paint									
	a) Median & Edge line	Sqm	100%				75,196.72	75,196.72	469.00	35,267,262
	Main Carriageway 6L		4	9,919.35	0.15		5,951.61			
	Main Carriageway 4L		4	65,281.65	0.15		39,168.99			
	Service Road		2	73,538.85	0.10		14,707.77			
	b) Lane line									
	Main Carriageway 6L		4	3,471.77	0.10		1,388.71			
	Main Carriageway 4L		2	22,848.58	0.10		4,569.72			
	Service Road		1	25,738.60	0.10		2,573.86			
	c) Junction crossing						6,836.07			
24	Replacement of Road Stud	No	100%				24,892.00	24,892.00	300.00	7,467,600
	Main Carriageway 6L		4	552.00			2,208.00			
	Main Carriageway 4L		4	3,628.00			14,512.00			
	Service Road		2	4,086.00			8,172.00			
25	Miscellaneous	5%								41,905,509
Total Amount (MCW)										**880,015,693.16**
Total Cost in Lakhs (MCW)										**8,800.16**
Per km Cost in lakhs (MCW)										**108.89**

Annexure IV: Pavement Condition Survey

LHS - Phagwara to Rupnagar

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition	Visual Condition of Road Side	Road side Drain (NE/PF/F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
1	0.000	1.000	G	-	BT		-	G	0	-	-	-	-	-	G	BT	G	G				
2	1.000	2.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
3	2.000	3.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
4	3.000	4.000	G	-	BT		-	G	0.2	-	-	-	1	-	G	BT	G		G			
5	4.000	5.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
6	5.000	6.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
7	6.000	7.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
8	7.000	8.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	F				
9	8.000	9.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
10	9.000	10.000	G	-	BT		-	G	0.2	-	-	Moderate	-	-	G	BT	G		G			
11	10.000	11.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
12	11.000	12.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
13	12.000	13.000	G	-	BT		-	G	0.0.2	-	-	-	-	-	G	BT	G	G				
14	13.000	14.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G		G			
15	14.000	15.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G	F				
16	15.000	16.000	G	-	BT/PQC		-	G	-	-	-	-	-	-	G	BT/PQC	G	F				TP-1 @ Km.15.300
17	16.000	17.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G		G			
18	17.000	18.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G		F			
19	18.000	19.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G	F				
20	19.000	20.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G		G			
21	20.000	21.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G	F				
22	21.000	22.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G		G			
23	22.000	23.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		F			
24	23.000	24.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G	G				
25	24.000	25.319	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G		G			
26	25.319	26.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G	-				Flyover (Elevated structure)
27	26.000	27.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G	-				
28	27.000	28.333	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G					
29	28.333	29.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
30	29.000	30.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
31	30.000	31.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
32	31.000	32.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
33	32.000	33.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
34	33.000	34.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	F				
35	34.000	35.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		F			
36	35.000	36.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
37	36.000	37.100	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
38	37.100	38.000	G	-	PQC		-	G	0.2	-	-	-	-	-	G	PQC	G	G				Nawanshahr Bypass Start @ Km.37.100
39	38.000	39.000	G	-	PQC		-	G	0.2	-	-	-	-	-	G	PQC	G	G				
40	39.000	40.000	G	-	PQC		-	G	0.2						G	PQC	G		G			

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition	Visual Condition of Road Side	Road side Drain (NE/PF/F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
41	40.000	41.000	G	-	PQC		-	G	0.2	-	-	-	-	-	G	PQC	G	G				
42	41.000	42.000	G	-	PQC		-	G	0.2	-	-	-	-	-	G	PQC	G	G				
43	42.000	43.000	G	-	PQC		-	G	0.2	-	-	-	-	-	G	PQC	G	G				
44	43.000	44.000	G	-	PQC		-	G	0.2							PQC		G				
45	44.000	45.000	G	-	PQC		-	G	0.2							PQC		G				
46	45.000	46.000	G	-	PQC		-	G	0.2	-	-	-	-	-	G	PQC	G	G				
47	46.000	47.100	G	-	PQC		-	G	0.2	-	-	-	-	-	G	PQC	G	G				Nawanshahr Bypass End @ Km. 47.100
48	47.100	48.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
49	48.000	49.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
50	49.000	50.000	G	-	BT		-	G	0.2					-		BT		G				
51	50.000	51.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
52	51.000	52.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		F			
53	52.000	53.000	G	-	BT		-	G	0.2	-	-	-	2	-	G	BT	G	G				
54	53.000	54.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
55	54.000	55.000	G	-	BT		-		0.2					-		BT		G				
56	55.000	56.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
57	56.000	57.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
58	57.000	58.000	G	-	BT		-		0.2					-		BT		G				
59	58.000	59.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
60	59.000	60.000	G	-	BT		-		0.2					-		BT			G			
61	60.000	61.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
62	61.000	62.000	G	-	BT		-		0.2					-		BT		G				
63	62.000	63.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
64	63.000	64.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
65	64.000	65.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
66	65.000	66.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
67	66.000	67.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
68	67.000	68.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
69	68.000	69.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
70	69.000	70.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
71	70.000	71.000	G	-	BT/PQC		-	G		-	-	-	-	-	G	BT/PQC	G	G				TP-2 @ Km.70.240
72	71.000	72.000	G	-	BT		-	G		-	-	-	-	-	G	BT	G	G				
73	72.000	73.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G		G			
74	73.000	74.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G	G				
75	74.000	75.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
76	75.000	76.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
77	76.000	77.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
78	77.000	78.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G		G			
79	78.000	79.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G		G			
80	79.000	80.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G		G			
81	80.000	80.820	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G		G			

RHS - Rupnagar to Phagwara

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition	Visual Condition of Road Side	Road side Drain (NE/PF/F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
1	80.820	80.000	G	-	BT	-	-	G	0.2	-	-	-	-	-	G	BT	G					
2	80.000	79.000	G	-	BT	-	-	G	0.2	-	-	-	-	-	G	BT	G					
3	79.000	78.000	G	-	BT	-	-	G	0.2	-	-	-	-	-	G	BT	G					
4	78.000	77.000	G	-	BT	-	-	G	0.2	-	-	-	-	-	G	BT	G					
5	77.000	76.000	G	-	BT	-	-	G	0.2	-	-	-	-	-	G	BT	G					
6	76.000	75.000	G	-	BT	-	-	G	0.2	-	-	-	-	-	G	BT	G					
7	75.000	74.000	G	-	BT	-	-	G	0.2	-	-	-	-	-	G	BT	G					
8	74.000	73.000	G		BT	-	-	G	1	-	-	Moderate	-	-	G	BT	G					
9	73.000	72.000	G	-	BT	-	-	G	-	-	-	-	-	-	G	BT	G					
10	72.000	71.000	G	-	BT	-	-	G	1	-	-		-	-	G	BT	G					
11	71.000	70.000	G	-	BT/PQC		-	G	-	-	-	-	-	-	G	BT	G					TP-2 @ Km.70.240
12	70.000	69.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G					
13	69.000	68.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G					
14	68.000	67.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G					
15	67.000	66.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G					
16	66.000	65.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G					
17	65.000	64.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G					
18	64.000	63.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G					
19	63.000	62.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G					
20	62.000	61.000	G		BT			G	0.2					-	G	BT						
21	61.000	60.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
22	60.000	59.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
23	59.000	58.000	G		BT			G	0.2					-	G	BT	G					
24	58.000	57.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G					
25	57.000	56.000	G	-	BT		-	G	3	-	-	-	-	-	G	BT	G					
26	56.000	55.000	G	-	BT		-	G	1	-	-	-	-	-	G	BT	G					
27	55.000	54.000	G	-	BT		-	G	-	-	-	-	-	-	G	BT	G		G			
28	54.000	53.000	G		BT			G	0.2					-								
29	53.000	52.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G					
30	52.000	51.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G					
31	51.000	50.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G					
32	50.000	49.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G					
33	49.000	48.000	G		BT		-	G	0.2	-				-								
34	48.000	47.100	G		BT		-	G	0.2	-				-								
35	47.100	46.000	G	-	PQC		-	G		-	-	-	-	-	G	BT	G	G				Nawanshahr Bypass End @ Km. 47.100
36	46.000	45.000	G	-	PQC		-	G		-	-	-	-	-	G	BT	G	G				
37	45.000	44.000	G	-	PQC		-	G		-	-	-	-	-	G	BT	G	G				
38	44.000	43.000	G	-	PQC		-	G	1	-	-	-	-	-	G	BT	G	G				
39	43.000	42.000	G	-	PQC		-	G		-	-	-	-	-	G	BT	G	G				
40	42.000	41.000	G	-	PQC		-	G		-	-	-	-	-	G	BT	G	G				
41	41.000	40.000	G	-	PQC		-	G		-	-	-	-	-	G	BT	G	G				

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition	Visual Condition of Road Side	Road side Drain (NE/PF/F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
42	40.000	39.000	G	-	PQC		-	G		-	-	-	-	-	G	BT	G					ROB @ km.39.134
43	39.000	38.000	G	-	PQC		-	G		-	-	-	-	-	G	BT	G	G				
44	38.000	37.100	G	-	PQC		-	G		-	-	-	-	-	G	BT	G	G				Nawanshahr Bypass Start @ Km.37.100
45	37.100	36.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
46	36.000	35.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
47	35.000	34.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
48	34.000	33.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
49	33.000	32.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
50	32.000	31.000	G		BT				0.2					-					G			
51	31.000	30.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
52	30.000	29.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
53	29.000	28.333	G	-	BT		-	G			-	-	-	-	G	BT	G		G			
54	28.333	27.000	G	-	BT		-	G		-	-	-	-	-	G	BT	G		G			Flyover (elevated structure)
55	27.000	26.000	G	-	BT		-	G		-	-	-	-	-	G	BT	G		G			
56	26.000	25.319	G	-	BT		-	G		-	-	-	-	-	G	BT	G		G			
57	25.319	24.000	G	-	BT		-	G		-	-	-	-	-	G	BT	G		G			
58	24.000	23.000	G	-	BT		-	G		-	-	-	-	-	G	BT	G		G			
59	23.000	22.000	G	-	BT		-	G		-	-	-	-	-	G	BT	G		G			
60	22.000	21.000	G	-	BT		-	G	1	-	-	-	-	-	G	BT	G		G			
61	21.000	20.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
62	20.000	19.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
63	19.000	18.000	G	-	BT		-	G	1	-	-	-	-	-	G	BT	G	G				
64	18.000	17.000	G	-	BT		-	G		-	-	-	-	-	G	BT	G	G				
65	17.000	16.000	G	-	BT		-	G		-	-	-	-	-	G	BT	G		G			
66	16.000	15.000	G	-	BT/PQC		-	G		-	-	-	-	-	G	BT	G	G				TP-1 @ Km.15.300
67	15.000	14.000	G	-	BT		-	G		-	-	-	-	-	G	BT	G	G				
68	14.000	13.000	G	-	BT		-	G		-	-	-	-	-	G	BT	G		G			
69	13.000	12.000	G	-	BT		-	G		-	-	-	-	-	G	BT	G		G			
70	12.000	11.000	G	-	BT		-	G		-	-	-	-	-	G	BT	G	G				
71	11.000	10.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
72	10.000	9.000	G	-	BT		-	G	1	-	-	-	-	-	G	BT	G		G			
73	9.000	8.000	G	-	BT		-	G	0.2	-	-	-	2	-	G	BT	G		G			
74	8.000	7.000	G	-	BT		-	G		-	-	-	-	-	G	BT	G		G			
75	7.000	6.000	G	-	BT		-	G	1	-	-	-	-	-	G	BT	G		G			
76	6.000	5.000	G	-	BT		-	G		-	-	-	-	-	G	BT	G		G			
77	5.000	4.000	G	-	BT		-	G	0.2	-	-	-	2	-	G	BT	G		G			
78	4.000	3.000	G	-	BT		-	G	0.2	-	-	-	3	-	G	BT	G		G			
79	3.000	2.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G		G			
80	2.000	1.000	G	-	BT		-	G	0.2	-	-	-	-	-	G	BT	G	G				
81	1.000	0.000	G	-	BT		-	G	1	-	-	-	-	-	G	BT	G	G				

Four Laning of Porbandar - Dwarka of NH-8E from km. 379+100 to km. 496+848 in the State of Gujarat through PPP on Hybrid Annuity Mode

Technical Due Diligence Study

Final Report

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FOUR LANING WITH PAVED SHOULDER OF PORBANDAR - DWARKA SECTION OF NH-8E FROM KM. 356+766 TO KM. 473+000 (DESIGN CHAINAGE KM. 379+100 TO KM. 496+848) IN THE STATE OF GUJARAT THROUGH PUBLIC PRIVATE PARTNERSHIP (PPP) ON HYBRID ANNUITY MODE

TECHNICAL DUE DILIGENCE STUDY

FINAL REPORT

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1 INTRODUCTION

1.1 Background

The Government of India had authorized National Highways Authority of India (NHAI) for the development of National Highways and as a part of this endeavor, the authority had decided to undertake development and operation / maintenance of the four laning with paved shoulder on Porbandar - Dwarka Section of NH-8E from existing carriageway km. 356+766 to km. 473+000 (approx. 116.234 kms) (Design chainage from km. 379+100 to km. 496+848) (approx. 117.748 kms) in the State of Gujarat through Design, Build, Operate and Transfer (the DBOT Hybrid Annuity basis) which shall be partly financed by the Concessionaire who shall recover its investment and costs through payments to be received from the Authority, in accordance with the terms and conditions to be set forth in a Concession Agreement executed on 8th August 2017. Total design length of the project highway is 117.748 kms.

Based on competitive bid process completed, NHAI had signed Concession Agreement with **M/s. GR Porbandar Dwarka Expressway Private Limited (PDEPL),** a Special Purpose Vehicle (SPV) formed for implementing this project on 8th August 2017.

The Appointed Date of the project was 12th February 2018. The concession period of the project highway is 18 years from the Appointed Date including construction period of 3 years. The Scheduled Completion Date of the project highway was on 10th February 2021. The NHAI had granted Extension of Time (EOT) for 90 days. The project highway has received provisional completion certificate on 18th April 2020 and final completion certificate on 13th October 2021.

During maintenance period of the project highway, **GR Highways Investment Manager Pvt. Ltd.** (in its capacity as the Investment Manager of Bharat Highways InvIT) has appointed **FP Project Management Consultancy Services Private Limited** [Formerly Frischmann Prabhu (I) Pvt. Ltd.] as Technical Consultant for carrying out techincal study and assessment of Opex and Major Maintenance requirement (MMR) for balance concession period. The scope includes review of operation and maintenance system and to prepare maintenance schedule for entire duration of concession period based on a technical analysis. In turn, FP Project Management undertook the site visits to carry out site inspection. The report is based on findings during this period.

1.2 Our Approach Philosophy

Composition of Team

Our team consists of well-qualified Engineers and other professionals, whose experience covers all the skills and specializations required for undertaking such assignments. All the team personnel are our regular employees and have a long and stable working relationship with our firm.

The Team Leader co-ordinates the activities between all the key staff who work closely together. The key staff is assisted by various support staff, who report to the respective key staff in their field of expertise. The Team Leader is the point of contact for Client on Technical Study.

The technical study includes review of all the available documents namely:

a) Concession Agreement including Technical Schedules
b) EPC Agreement

c) Pavement design reports
d) O&M Manual prepared by the Concessionaire
e) O&M Contract, work order and their provisions
f) Recent O&M Report submitted to Authority
g) Quality of construction based on available data, design and drawings
h) Documents on historical expenditure on operation and maintenance
i) Reports on past accidents
j) O&M cost schedule for the concession period
k) Completion / Provisional Completion and status of items in punch list items
l) Correspondence regarding scope of works and during O&M
m) Toll operation manual / ATMS related documents

The review of the above documents is the first step towards accomplishment of the assignment. This gives a complete idea of the project and is used as input data for preparation of report after necessary analysis.

Site Visit and Data Collection

A team of experts from various streams has carried out the preliminary site visit to understand the assessment of project assets mainly condition of the pavement and structures.

- The site visit is undertaken for detailed reconnaissance and visual pavement condition assessment
- The condition assessment of major structures by visual inspection
- The information like material sources and the probable cost to be collected for the purpose of cost estimate

The detailed design / drawings viz. Plan & L-sections, drainage design, structure design, layout drawings for project facilities like toll plaza, bus bay, truck lay-byes, highway lighting facilities etc., would be studied. Also, design / drawing and provision pertaining to road furniture are studied.

The adequacy of design is verified in accordance with the concession agreement, manual of specifications and standards as well as relevant IRC standards.

The information on availability of material in the vicinity is gathered. It has direct impact on cost of maintenance work and balance work if any.

The basic approach for preparation for cost estimates for operation and maintenance is as per the practice of State PWD / MoRT&H in respect of highways and structures.

Data Analysis

Based on the study of the available information and preliminary site visits, the consultants share their preliminary observations with the Client.

1.3 About this Report

This report has been prepared based on the information, reports and documents made available to us by the Company. We have also referred to publicly available reports, literature etc. and have made our best efforts to check the authenticity of the information available, analyse the same as per the best engineering / industry practices.

The site visit and inspection were carried out between the periods of **3rd August 2022 to 7th August 2022**.

The report is organized with the following chapters for easy understanding of various issues.

- **Introduction -** This chapter gives an overview of the project background, approach and methodology of Due Diligence studies.
- **Project Description -** This chapter describes existing project features.
- **Development of Project Highway -** This chapter gives an overview of project development.
- **Pavement and Site Investigation -** This chapter describes present condition of pavement, surveys and investigations carried out on site and proposals for maintenance as per contract requirements.
- **Balance works -** This chapter summarizes the balance works to be executed at Site.
- **Review of Concession Agreement -** This chapter summarizes the observations on the Concession Agreement.
- **Review of O&M Agreement -** This chapter summarizes the observations on the O&M Agreement executed.
- **Operation and Maintenance -** This chapter describes O&M set up as well as O&M cost over the concession period.
- **Toll Plaza Equipment and HTMS -** This chapter summarizes assessment of Toll Plaza in terms of no. of lanes, Toll Collection System installed and working status is presented under this section.
- **Accident Data Analysis -** This chapter deals with the analysis of nature of accidents occurring on the stretch and to identify blackspots.
- **Annexures**

2 PROJECT DESCRIPTION

2.1 Location

The project highway is a section of National Highway Number 08E, NH-08E in the State of Gujarat which starts from km. 379+100 near Porbandar Bypass and ends at km. 496+848 in Dev Bhumi Dwarka. Existing length of the project highway was 116.234 kms whereas design length measures to be 117.748 kms. There is increase in design length due to addition of 2 bypasses (Porbandar and Visawada Bypass) on the project highway.

The project highway passes through the built-up areas of towns and villages enroute. Important towns along the alignment are Visawada, Miyami, Bhavpuru, Jodhpur etc.,

The Location Map of the project highway is presented below:

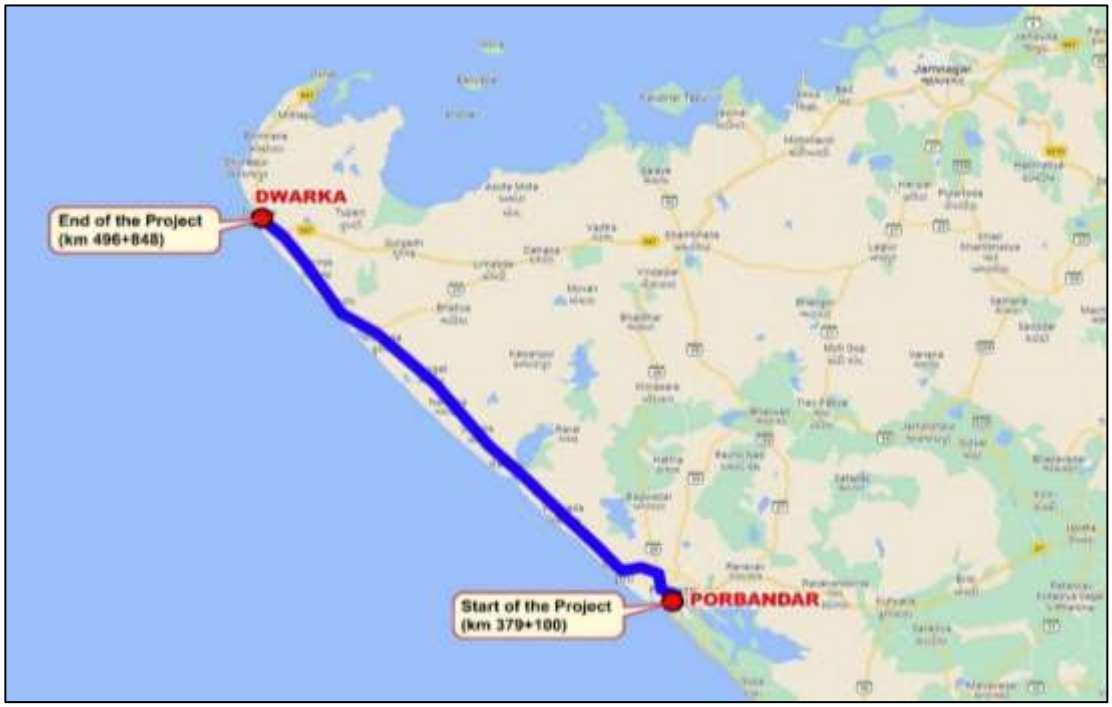


Figure 2-1 Location Map



Figure 2-2 Start of project highway at km. 379+100



Figure 2-3 End of project highway at km. 496+848

2.2 Climate

The climate of the project area is generally dry except during the South-West monsoon season between July to September. The average annual rainfall in the area is around 488 mm. The driest month is January. The average annual temperature of the project area is 29.5^{0}C & June is being the warmest month. The highest relative humidity is in August @ 83.52% and the lowest relative humidity is in January @ 55.40%.

2.3 Terrain

This section of National Highway traverses through plain / rolling terrain.

2.4 Abutting Land Use

The land use along the highway is predominantly agriculture or barren and rocky.

2.5 Right of Way

The width of existing Right of Way (RoW) for the project highway varies between 30 m to 120 m. Details of ROW for the project highway are as given below:

Section	Existing Chainage (km)		Design Chainage (km)		Proposed ROW (m)
	From	To	From	To	
NH-8E (Porbandar to Dwarka)	356+766	387+596	379+100	409+930	45
	387+596	388+096	409+930	410+430	120
	388+096	445+432	410+430	469+339	45
	445+432	445+932	469+339	469+839	120
	445+932	469+963	469+839	495+600	45
	471+752	473+000	495+600	496+848	30

2.6 Existing Utilities

During widening of the project highway, various affected utility services located along the project road were shifted to the PROW. The different types of utilities found along the road include, electrical poles, water pipeline, OFC Cables, etc.,

3 DEVELOPMENT OF PROJECT ROAD

3.1 Project Road

The project road from Porbandar (km. 379+100) to Dwarka (km. 496+848) has been developed as four lane divided carriageway with median width varies from 0.6 m to 4.0 m, service road and other arrangements. The project road passes through rural as well as built-up sections. The stretches falling in built-up area have been provided with service road as per scope of works. The development of entire project road has been carried out in accordance with schedule-B and schedule-C as per standards set forth in schedule-D under the Concession Agreement.

M/s GR Porbandar Dwarka Expressway Private Limited has completed construction of the project road for the length of 117.748 kms.

The stretch of the project highway under the scope of study runs predominantly through plain / rolling terrain. The design standards have been adhered to with a realistic compatibility with the existing ROW, utilities and optimum land acquisition. Generally, the cross-sectional dimensions of project road are as below:

Table 3-1 Cross sectional dimension

Main Carriageway	Width (m)
Carriageway width	17.5
Paved Shoulder width - one side	1.5
Earthen Shoulder width - one side	2.0
Median width	0.600 - 4.00
Service Road	5.5 to 7.0

3.2 Bypass and Realignment

There are two nos. bypasses on the project highway. The total length of both bypasses is 23.300 kms. The bypasses constructed along the project highway are as indicated below:

Table 3-2 Bypass and Realignment

Sr. No.	Name of Bypass	Existing Chainage (km)		Design Chainage (km)		Design Length (km)
		From	To	From	To	
1	Porbandar	356+847	375+921	379+100	400+800	21.700
2	Visawada	396+644	398+166	421+200	422+800	1.600

Figure 3-1 Photographs of Bypass



Porbandar Bypass at km. 379.100



Visawada Bypass at km. 422.800

3.3 Pavement Construction

The entire stretch of the project highway including Toll Plaza is rigid pavement except from km. 493+850 to km. 496+848 including service road and slip road which is flexible pavement.

3.4 Service Roads

Service roads have been constructed at 7 locations along the project highway. The total length of service road (including LHS and RHS) is 11.710 kms and the width of service road varies from 7.0 m to 5.5 m. Service roads are provided in both built-up sections and in open country. Built-up sections are provided with RCC built-up drains on outer side of service roads. The details of service roads provided are as tabulated below.

Table 3-3 Details of Service Roads as per CA

Design Chainage (km)		Length (m)	Side	Remarks
From	To			
390+018	391+085	1067	LHS	
396+483	397+428	945	LHS	
400+285	400+710	425	LHS	
400+710	401+130	420	LHS	
428+570	428+960	390	LHS	
467+522	468+361	839	LHS	
488+660	489+505	845	LHS	
495+600	496+848	845	LHS	
390+018	391+085	1067	RHS	
396+483	397+428	945	RHS	
400+285	401+130	845	RHS	
428+570	428+960	390	RHS	
467+522	468+361	839	RHS	
488+660	489+505	845	RHS	
495+600	496+848	1248	RHS	
Total Length (m)		**11955**		
Net Length (m)		**= 11955/2 = 5977.5**		

Table 3-4 Details of Service Roads as per COS

Design Chainage (km)		Length (m)	Side	Remarks
From	To			
381+052.5	382+016	963.5	LHS	
387+920	388+560	640	LHS	
431+746	432+590	844	LHS	
381+052.5	382+016	963.5	RHS	
387+920	388+560	640	RHS	
431+746	432+590	844	RHS	
Total Length (m)		**4895**		

Figure 3-2 Photographs of Service Road



km. 488+654 to km. 489+346 (RHS)



km. 488+654 to km. 489+346 (LHS)



km. 467+601 to km. 468+347 (RHS)



km. 467+601 to km. 468+347 (LHS)



km. 400+319 to km. 400+700 (LHS)



km. 400+319 to km. 401+051 (RHS)



km. 396+499 to km. 397+466 (RHS)



km. 396+499 to km. 397+466 (LHS)



km. 390+177 to km. 390+953 (RHS)



km. 390+177 to km. 390+953 (LHS)

3.5 Major Intersections

There are 5 Nos. of major intersections along project highway. The details of the Major Intersections are as tabulated below.

Table 3-5 Details of Major Intersections

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Crossing Side (LHS / RHS)	Carriageway Width (m)	Category of Road
1	Start of Porbandar Bypass	379+100	RHS	5.5	City Road
2	Start of Visawada Realignment	421+250	LHS	5.5	VR
3	407+600	432+050	Both	3.75 / 3.50	MDR
4	431+100	455+450	RHS	6.0	MDR
5	471+821	495+700	LHS	14.0	Dwarka Temple

Figure 3-3 Photographs of Major Intersection



km. 432+050



km. 421+250



km. 379+100

3.6 Minor Junctions

There are 42 Nos. of minor junctions along project highway. The details of the minor junctions are as tabulated below.

Table 3-6 Details of Minor Intersections

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Side (LHS / RHS)	Going to Village	
				Left	Right
1	379+575	404+180	RHS	-	Renavadi
2	386+400	410+940	RHS	-	Kantela
3	387+550	412+115	RHS	-	Srinagar
4	389+500	414+520	LHS	Farms	-
5	390+020	414+900	RHS	-	Ratadi
6	393+210	417+700	RHS	-	Palakhda
7	398+050	422+700	RHS	-	Farms
8	401+250	425+600	RHS	-	Tukada
9	405+400	430+030	RHS	-	Bhavpuru
10	407+500	432+420	Both	Miyani	Medhakrik
11	409+950	434+400	LHS	Harshad	
12	410+300	434+820	Both	Harshad	Medhakrik
13	413+800	438+240	RHS	-	Kalyanpur
14	417+000	441+520	RHS	-	Bhogat
15	419+400	443+850	RHS	-	Lamba
16	421+190	445+550	Both	Wachardada	Farms
17	424+600	449+100	RHS	-	Satepar
18	426+050	450+430	RHS	-	Jodhpur
19	426+500	450+930	LHS	Navadra	-
20	436+700	461+010	LHS	Gogima	-
21	441+450	465+730	LHS	Unbara	-
22	446+540	470+221	RHS	-	Tupani
23	459+440	483+500	RHS	-	Goinjha
24	465+000	488+980	RHS	-	Baradia
25	467+050	491+000	LHS	Baradia	-
26	467+560	491+495	RHS	-	Bawda
27	472+122	496+000	Both	Kamdash Asaram Road	Pavuda
28	472+163	496+041	Left	Street Road	-
29	472+192	496+070	Left	Redhuvapada	-
30	472+258	496+136	Right	-	Street Road
31	472+284	496+162	Left	Street Road	-

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Side (LHS / RHS)	Going to Village	
				Left	Right
32	472+322	496+200	Left	Street Road	-
33	472+352	496+230	Right	-	Street Road
34	472+382	496+260	Left	Street Road	-
35	472+457	496+335	Right	-	Street Road
36	472+510	496+388	Right	-	Street Road
37	472+627	496+485	Right	-	Railway Station Road
38	472+667	496+525	Left	Street Road	-
39	472+684	496+542	Right	-	Street Road
40	472+720	496+578	Right	-	Water Pump House
41	472+805	496+663	Left	Dingesh Station	-
42	472+848	496+706	Left	Street Road	-

Figure 3-4 Photographs of Minor Intersection


km. 491+000


km. 483+500


km. 461+010


km. 450+430


km. 441+520


km. 434+820


km. 429+000


km. 427+600


km. 417+700

3.7 Condition Survey of Bridges

The inventory of structures including major bridges, minor bridges, ROB, underpasses and culverts is as tabulated below:

Table 3-7 Summary of Structures

Sr. No.	Type of Structure	Total No. of Structures	Remark
1	ROB	01	
2	Fly over	02	
3	Major Bridges - New	07	
4	Major Bridge (COS)	-	
5	Major Bridges (Widening & Repairing)	01	
6	Major Bridges (Reconstruction)	01	
7	Minor Bridges - New	13	
8	MNB (COS)	04	
9	Minor Bridges (Widening & Repairing)	17	
10	Vehicular Underpass	05	
11	VUP (COS)	04	
12	PUP	02	01 No. descoped
13	PUP (COS)	02	
14	CUP (COS)	01	
15	LVUP (COS)	01	
16	Slab Culverts - New	03	
17	Widening of Slab Culvert	25	02 Nos shifted in box culvert under COS.
18	Widening of Box Culverts	01	Shifted in reconstruction under COS
19	Box Culvert (COS)	02	
20	Pipe Culverts - New	108	
21	Widening of Pipe culvert	43	6 Nos Reconstruction in COS
22	Reconstruction of Pipe culvert	19	
23	Pipe Culverts (COS)	29	

The detailed condition survey of structures was carried out by visual inspection. The observations and findings are as tabulated below:

Table 3-8 Structure Condition Survey

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
1	**381+533 (Under COS)**	**VUP 12.0 m x 5.5 m**	**Age**	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment RCC wall	Abutment RCC wall	
			Super Structure	RCC slab Box type	RCC slab Box type	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC parapet	RCC parapet	
			Expansion Joint	-	-	
			Wearing Coat/ Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided	Drain spout provided	
2	**386+750**	**Major Bridge (River) 30 x 30 m**	**Age**	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	30 Span PSC Girders and Slab Footpath - Both side Condition - No problem	30 Span PSC Girders and Slab Footpath - Both side Condition - No problem	
			Bearing	Bearing - POT/PTFE	Bearing - POT/PTFE	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Standing water	Standing water	
			Parapet / Railing	RCC railing with Crash Barrier -	RCC railing with Crash Barrier - No Problem	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
				No Problem		
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Water grating clear	Water grating clear	
3	**388+236 (Under COS)**	**VUP 12.0 m x 4.5 m**	**Age**	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment RCC wall	Abutment RCC wall	
			Super Structure	RCC slab Box type	RCC slab Box type	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC parapet	RCC parapet	
			Expansion Joint	-	-	
			Wearing Coat/ Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided	Drain spout provided	
4	**388+760**	**Major Bridge (River) 1 x 20 + 10 x 30 + 1 x 20 m**	**Age**	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	22 Span PSC Girders and RCC Slab Footpath - Both side Condition - No problem	22 Span PSC Girders and RCC Slab Footpath - Both side Condition - No problem	
			Bearing	Bearing - POT/PTFE	Bearing - POT/PTFE	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Standing water	Standing water	
			Parapet / Railing	RCC railing with Crash Barrier - No Problem	RCC railing with Crash Barrier -No Problem	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat/ Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Water grating clear	Water grating clear	
5	**389+295**	**Minor Bridge 13 x 30.0 m**	**Age**	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	Pile Foundation	Pile Foundation	
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	13 Span PSC Girders and RCC Slab Footpath - Both side Condition - No problem	13 Span PSC Girders and RCC Slab Footpath - Both side Condition - No problem	
			Bearing	Bearing - POT/PTFE	Bearing - POT/PTFE	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Standing water	Standing water	
			Parapet / Railing	RCC railing with Crash Barrier - No Problem	RCC railing with Crash Barrier - No Problem	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Water grating clear	Water grating clear	
6	**390+563**	**Flyover**	**Age**	New - 2 Lane	New - 2 Lane	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
		2 x 15.0 m	**Foundation**	Pile Foundation	Pile Foundation	The structure is in sound condition.
			Sub Structure Abutment / Pier	Abutment - RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	Abutment - RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	
			Super Structure	2 Span PSC Girders and RCC Slab Footpath - Both side Condition - No problem	2 Span PSC Girders and RCC Slab Footpath - Both side Condition - No problem	
			Bearing	Bearing - Elastomeric	Bearing - Elastomeric	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	RCC railing with Crash Barrier - No Problem	RCC railing with Crash Barrier - No Problem	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Water grating clear	Water grating clear	
7	**393+635**	**VUP 9.0 m x 5.5 m**	**Age**	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment RCC wall	Abutment RCC wall	
			Super Structure	RCC slab Box type	RCC slab Box type	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC parapet	RCC parapet	
			Expansion Joint	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Wearing Coat/ Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided	Drain spout provided	
8	**393+642**	**ROB 1 x 25.2 m**	**Age**	New - 2 lane	New - 2 lane	The structure is in sound condition. Crack developed at RHS (A2 side) on RE Block and bushes growing on RE Block wall shall be removed.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment - RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	Abutment - RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	
			Super Structure	1 Span Composite Girders and RCC Slab Footpath - Both side Condition - No problem	1 Span Composite Girders and RCC slab Footpath - Both side Condition - No problem	
			Bearing	Bearing - POT/PTFE	Bearing - POT/PTFE	
			Slope Protection	-	-	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC parapet	RCC parapet	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided	Drain spout provided	
9	**393+695**	**VUP 9.0 m x 5.5 m**	**Age**	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment RCC wall	Abutment RCC wall	
			Super Structure	RCC slab Box type	RCC slab Box type	
			Bearing	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Slope Protection	-	-	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC parapet	RCC parapet	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided	Drain spout provided	
10	**395+255**	**Major Bridge (River) 1 x 23 + 1 x 24 + 1 x 23 m**	**Age**	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	3 Span RCC Girders & RCC Deck Slab Footpath - Both side Condition - No problem	3 Span RCC Girders & RCC Deck Slab Footpath - Both side Condition - No problem	
			Bearing	Bearing - Elastomeric	Bearing - Elastomeric	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Standing water	Standing water	
			Parapet / Railing	RCC railing with Crash Barrier - No Problem	RCC railing with Crash Barrier - No Problem	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Water grating clear	Water grating clear	
11	**396+876**	**VUP 12.0 m x 5.5 m**	**Age**	New - 2 lane	New - 2 lane	The Structure is in sound condition,
			Foundation	RCC Open Foundation	RCC Open Foundation	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
		Skew	**Sub Structure Abutment / Pier**	Abutment RCC wall	Abutment RCC wall	
			Super Structure	RCC slab Box type	RCC slab Box type	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	RCC parapet	RCC parapet	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided	Drain spout provided	
12	**397+100**	**VUP 12.0 m x 5.5 m Skew**	**Age**	New - 2 lane	New - 2 lane	The Structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment RCC wall	Abutment RCC wall	
			Super Structure	RCC slab Box type	RCC slab Box type	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	RCC parapet	RCC parapet	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided	Drain spout provided	
13	**400+702**	**VUP 12.0 m x 5.5 m**	**Age**	New - 2 lane	New - 2 lane	The Structure is in sound condition,
			Foundation	RCC Open Foundation	RCC Open Foundation	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Sub Structure Abutment / Pier	Abutment RCC wall	Abutment RCC wall	
			Super Structure	RCC slab Box type	RCC slab Box type	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	RCC parapet	RCC parapet	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided	Drain spout provided	
14	**406+170**	**Minor Bridge LHS - New 1 x 3.93 + 1 x 3.75 + 1 x 3.69 + 1 x 3.9 m**	**Age**	New - 2 lane	-	The structure is in sound condition.
			Foundation	RCC Open Foundation	-	
			Sub Structure Abutment / Pier	RCC wall RCC wall Box type	-	
			Super Structure	RCC solid slab	-	
			Bearing	-	-	
			Slope Protection	RCC Return & CC Pitching	-	
			Nalla Bed	Clear Height upper level	-	
			Parapet / Railing	RCC Railing with Crash Barrier	-	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - No problem	-	
			Approach Slope	Stable	-	
			Drainage	Grating provided	-	
15	**406+170**	**Minor Bridge RHS - Skew -**	**Age**	-	New - 2 lane	The structure is in sound condition.
			Foundation	-	RCC Open Foundation	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
		Widening 1 x 3.93 + 1 x 3.75 + 1 x 3.69 + 1 x 3.9 m	**Sub Structure Abutment / Pier**	-	RCC wall RCC wall Box type	
			Super Structure	-	RCC solid slab	
			Bearing	-	-	
			Slope Protection	-	RCC Return & CC Pitching	
			Nalla Bed	-	Clear Height lower level	
			Parapet / Railing	-	RCC Railing with Crash Barrier	
			Expansion Joint	-	-	
			Wearing Coat/ Surface	-	BC - No problem	
			Approach Slope	-	Stable	
			Drainage	-	Grating provided	
16	**406+880**	**Minor Bridge- New 1 x 18.0 m**	**Age**	New - 2 lane	New - 2 lane	The Structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	RCC wall RCC wall - 3 cell Box type	RCC wall RCC wall- 3 cell Box type	
			Super Structure	RCC solid slab	RCC solid slab	
			Bearing	-	-	
			Slope Protection	RCC Return & CC Pitching	RCC Return & CC Pitching	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC Railing with Crash Barrier	RCC Railing with Crash Barrier	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable	Stable	
			Drainage	Grating provided	Grating provided	
17	**415+929**	**Major Bridge**	**Age**	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
		11 x 20.9 m	**Sub structure Abutment / Pier**	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	11 Span RCC Girders & RCC Deck Slab Footpath - Both side Condition - No problem	11 Span RCC Girders & RCC Deck Slab Footpath - Both side Condition - No problem	
			Bearing	Bearing - Elastomeric	Bearing - Elastomeric	
			Slope Protection	RCC Return and CC Pitching damaged	RCC Return and CC Pitching damaged	
			Nalla Bed	Standing water	Standing water	
			Parapet / Railing	RCC railing with Crash Barrier - No Problem	RCC railing with Crash Barrier - No Problem	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Damaged with rain cuts	Damaged with rain cuts	
			Drainage	Water grating clear	Water grating clear	
18	**417+996 (Under COS)**	**PUP 12.0 m x 3.0 m**	**Age**	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment RCC wall	Abutment RCC wall	
			Super Structure	RCC slab Box type	RCC slab Box type	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC parapet	RCC parapet	
			Expansion Joint	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided	Drain spout provided	
19	**420+180**	**Major Bridge - LHS - New 17.755 + 17.91 + 17.865 + 17.81 + 17.805 + 11.95 + 17.845 m**	**Age**	New - 2 Lane	-	The structure is in sound condition.
			Foundation	RCC Open Foundation	-	
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	-	
			Super Structure	7 Span RCC Girders & RCC Deck Slab Footpath - Both side Condition - No problem	-	
			Bearing	Bearing – Elastomeric	-	
			Slope Protection	RCC Return	-	
			Nalla Bed	Clear Height lower level	-	
			Parapet / Railing	RCC railing with Crash Barrier - No Problem	-	
			Expansion Joint	Available (Require cleaning)	-	
			Wearing Coat / Surface	BC is in good condition	-	
			Approach Slope	Stable in condition	-	
			Drainage	Water grating clear	-	
20	**420+180**	**Major Bridge - RHS - Widening**	**Age**	-	Widened(old) - 2 Lane	The structure is in sound condition.
			Foundation	-	RCC Open Foundation	
			Sub Structure Abutment / Pier	-	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
		5.970 + 5.925 + 5.860 + 5.945 + 5.920 + 6.045 + 5.900 + 5.930 + 6.035 + 5.970 + 5.910 + 5.930 + 5.945 + 5.940 + 5.920 + 5.920 + 6.030 + 5.930 + 5.935 + 5.980 m	**Super Structure**	-	20 Span RCC Girders & RCC Deck Slab Footpath - Both side Condition - No problem	
			Bearing	-	Bearing - Elastomeric	
			Slope Protection	-	RCC Return	
			Nalla Bed	-	Clear Height upper level	
			Parapet / Railing	-	RCC railing with Crash Barrier - No Problem	
			Expansion Joint	-	-	
			Wearing Coat / Surface	-	BC is in good condition	
			Approach Slope	-	Stable in condition	
			Drainage	-	Water grating clear	
21	**422+314**	**Minor Bridge 3 x 20 + 22 x 30 m (LHS) & 24 x 30 m (RHS)**	**Age**	New - 2 Lane	New - 2 Lane	The structure is in sound condition. Side Slope settled at A1 side (LHS). The Concessionaire is repairing / rectifying the same as a part of routine maintenance.
			Foundation	Pile Foundation	Pile Foundation	
			Sub Structure Abutment / Pier	Abutment - RCC wall Piers - RCC Circular & pier type Condition - Satisfactory	Abutment - RCC wall Piers - RCC Circular & pier type Condition - Satisfactory	
			Super Structure	25 Span PSC Girders & RCC Slab Footpath - Both side Condition - No problem	24 Span PSC Girders & RCC Slab Footpath - Both side Condition - No problem	
			Bearing	Elastomeric / POT-PTFE	Elastomeric / POT-PTFE	
			Slope Protection	RCC Return	RCC Return	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC railing with Crash Barrier -	RCC railing with Crash Barrier - No Problem	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
				No Problem		
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Water grating clear	Water grating clear	
22	**422+716- (Under COS)**	**PUP 12.0 m x 4.5 m**	**Age**	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment RCC wall	Abutment RCC wall	
			Super Structure	RCC slab Box type	RCC slab Box type	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC parapet	RCC parapet	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided	Drain spout provided	
23	**425+638**	**Minor Bridge - LHS - Widening 1 x 31.5 m**	**Age**	Widened - 2 lane	-	The structure is in sound condition.
			Foundation	Pile Foundation	-	
			Sub Structure Abutment / Pier	Abutment - RCC pedestal type	-	
			Super Structure	PSC Girders and RCC Slab	-	
			Bearing	POT-PTFE (Not visible)	-	
			Slope Protection	RCC Return	-	
			Nalla Bed	Clear	-	
			Parapet / Railing	RCC railing with Crash Barrier -	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
				No Problem		
			Expansion Joint	Available (Require cleaning)	-	
			Wearing Coat / Surface	BC is in good condition	-	
			Approach Slope	-	-	
			Drainage	Grating provided	-	
24	**425+638**	**Minor Bridge - RHS - New 1 x 31.5 m**	**Age**	-	New - 2 lane	The structure is in sound condition.
			Foundation	-	Pile Foundation	
			Sub Structure Abutment / Pier	-	Abutment - RCC pedestal type	
			Super Structure	-	PSC Girders and RCC Slab	
			Bearing	-	POT-PTFE (Not visible)	
			Slope Protection	-	RCC Return	
			Nalla Bed	-	Clear	
			Parapet / Railing	-	RCC railing with Crash Barrier - No Problem	
			Expansion Joint	-	Available (Require cleaning)	
			Wearing Coat / Surface	-	BC is in good condition	
			Approach Slope	-	-	
			Drainage	-	Grating provided	
25	**427+321**	**Minor Bridge - LHS - Widening 1 x 28.5 m & RHS - Widening 1 x 24.5 m**	**Age**	Widened - 2 lane	Widened - 2 lane	The structure is in sound condition.
			Foundation	Pile Foundation	Pile Foundation	
			Sub Structure Abutment / Pier	RCC Pedestal Type	RCC Pedestal Type	
			Super Structure	PSC Girders & RCC slab	PSC Girders & RCC slab	
			Bearing	POT-PTFE (Not visible)	POT-PTFE (Not visible)	
			Slope Protection	RCC Return	RCC Return	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC railing with Crash Barrier -	RCC railing with Crash Barrier - No Problem	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
				No Problem		
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC is in good condition (Covered with BT material)	BC is in good condition (Covered with BT material)	
			Approach Slope	Stable	Stable	
			Drainage	Drain Spout provided	Drain Spout provided	
26	**428+071**	**Minor Bridge - LHS - Widening 1 x 13.1 m**	**Age**			Minor Bridge (Widened) is not constructed due to Land Acquisition issue. (Bhavpara Village)
			Foundation			
			Sub Structure Abutment / Pier			
			Super Structure			
			Bearing			
			Slope Protection			
			Nalla Bed			
			Parapet / Railing			
			Expansion Joint			
			Wearing Coat / Surface			
			Approach Slope			
			Drainage			
27	**428+762**	**PUP 12.0 m x 4.5 m**	**Age**			PUP is not constructed due to Land Acquisition issue. (Bhavpara Village)
			Foundation			
			Sub Structure Abutment / Pier			
			Super Structure			
			Bearing			
			Slope Protection			
			Nalla Bed			
			Parapet / Railing			
			Expansion Joint			

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Wearing Coat / Surface			
			Approach Slope			
			Drainage			
28	**432+134 (Under COS)**	**VUP 12.0 m x 5.5 m**	**Age**	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment RCC wall	Abutment RCC wall	
			Super Structure	RCC slab Box type	RCC slab Box type	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC parapet	RCC parapet	
			Expansion Joint	-	-	
			Wearing Coat/ Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided	Drain spout provided	
29	**433+276**	**Major Bridge - New - LHS & RHS**	**Age**	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	Pile Foundation	Pile Foundation	
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	21 span PSC Gliders & RCC slab Footpath - Both side Condition - No problem	21 span PSC Gliders & RCC slab Footpath - Both side Condition - No problem	
			Bearing	POT-PTFE	POT-PTFE	
			Slope Protection	RCC return and CC Pitching with chute drain	RCC return and CC Pitching with chute drain	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
		9248 + 39600 + 39867 + 39415 + 39624 + 39620 + 39503 + 39678 + 39577 + 39605 + 39586 + 39591 + 39582 + 40306 + 39206 + 39623 + 39771 + 39717 + 39437 + 39831 + 39622 m	**Nalla Bed**	Clear	Clear	
			Parapet / Railing	RCC railing with Crash Barrier - No Problem	RCC railing with Crash Barrier - No Problem	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Grating provided - clean	Grating provided - clean	
30	**434+974**	**Minor Bridge - LHS - New - Skew 10.75 + 10.77 + 10.73 m**	**Age**	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	Open Foundation	Open Foundation	
			Sub Structure Abutment / Pier	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	
			Super Structure	RCC Solid Slab	RCC Solid Slab	
			Bearing	-	-	
			Slope Protection	RCC return - Toe wall CC Pitching is provided	RCC return - Toe wall CC Pitching is provided	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC railing with Crash Barrier - No Problem	RCC railing with Crash Barrier - No Problem	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Grating provided - clean	Grating provided - clean	
31	**440+350**	**Minor Bridge -**	**Age**	New - 2 lane	-	The structure is in sound condition.
			Foundation	Open Foundation	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
		LHS - New - Skew 1 X 7.1 + 2 X 7.2 + 1 X 7.3 m	**Sub Structure Abutment / Pier**	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	-	
			Super Structure	RCC Solid Slab	-	
			Bearing	-	-	
			Slope Protection	RCC return - Toe wall CC Pitching is provided	-	
			Nalla Bed	Clear	-	
			Parapet / Railing	RCC railing with Crash Barrier - No Problem	-	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	-	
			Approach Slope	Earthen side slope washed out, to be rectified	-	
			Drainage	Grating provided - clean	-	
32	**440+350**	**Minor Bridge-RHS-Widening-Skew 1 x 7.1 + 2 x 7.2 + 1 x 7.3 m**	**Age**	-	Widening - 2 lane	The structure is in sound condition.
			Foundation	-	Open Foundation	
			Sub Structure Abutment / Pier	-	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	
			Super Structure	-	RCC Solid Slab	
			Bearing	-	-	
			Slope Protection	-	RCC return - Toe wall CC Pitching is provided	
			Nalla Bed	-	Clear	
			Parapet / Railing	-	RCC railing with Crash Barrier - No Problem	
			Expansion Joint	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Wearing Coat / Surface	-	BC is in good condition	
			Approach Slope	-	Earthen side slope washed out, to be rectified	
			Drainage	-	Grating provided - clean	
33	**442+979 (Under COS)**	**VUP 12.0 m x 4.0 m**	**Age**	New - 2 lane	New - 2 lane	The structure is in sound condition
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment RCC wall	Abutment RCC wall	
			Super Structure	RCC slab Box type	RCC slab Box type	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC parapet	RCC parapet	
			Expansion Joint	-	-	
			Wearing Coat/ Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided	Drain spout provided	
34	**449+894**	**Minor Bridge - LHS - New 9.55 + 9.4 + 9.36 m**	**Age**	New - 2 lane	-	The structure is in sound condition.
			Foundation	Open Foundation	-	
			Sub Structure Abutment / Pier	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	-	
			Super Structure	RCC Solid Slab	-	
			Bearing	-	-	
			Slope Protection	RCC return	-	
			Nalla Bed	Clear	-	
			Parapet / Railing	RCC railing with Crash Barrier -	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
				No Problem		
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	-	
			Approach Slope	Earthen side slope washed out, to be rectified	-	
			Drainage	Grating provided -Not clean	-	
35	**449+894**	**Minor Bridge - RHS - Widening 9.55 + 9.4 + 9.36 m**	**Age**	-	Widening - 2 lane	The structure is in sound condition.
			Foundation	-	Open Foundation	
			Sub Structure Abutment / Pier	-	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	
			Super Structure	-	RCC Solid Slab	
			Bearing	-	-	
			Slope Protection	-	RCC return	
			Nalla Bed	-	Clear	
			Parapet / Railing	-	RCC railing with Crash Barrier - No Problem	
			Expansion Joint	-	-	
			Wearing Coat / Surface	-	BC is in good condition	
			Approach Slope	-	Earthen side slope washed out, to be rectified	
			Drainage	-	Grating provided -Not clean	
36	**450+241**	**Minor Bridge - LHS - New 9.527 + 9.617 + 9.662 + 9.527 + 9.662 m**	**Age**	New - 2 lane	-	The structure is in sound condition.
			Foundation	Open Foundation	-	
			Sub Structure Abutment / Pier	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	-	
			Super Structure	RCC Solid Slab	-	
			Bearing	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Slope Protection	RCC return wall - CC Pitching at A1 side & Earthen side slope at A2 side	-	
			Nalla Bed	Clear	-	
			Parapet / Railing	RCC railing with Crash Barrier - No Problem	-	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	-	
			Approach Slope	Stable in condition	-	
			Drainage	Grating provided - Not clean	-	
37	**450+241**	**Minor Bridge - RHS - Widening 9.527 + 9.617 + 9.662 + 9.527 + 9.662 m**	**Age**	-	Widening - 2 lane	The structure is in sound condition.
			Foundation	-	Open Foundation	
			Sub Structure Abutment / Pier	-	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	
			Super Structure	-	RCC Solid Slab	
			Bearing	-	-	
			Slope Protection	-	RCC return wall- Earthen side slope at A1 & A2 side	
			Nalla Bed	-	Clear	
			Parapet / Railing	-	RCC railing with Crash Barrier - No Problem	
			Expansion Joint	-	-	
			Wearing Coat / Surface	-	BC is in good condition	
			Approach Slope	-	Stable in condition	
			Drainage	-	Grating provided - Not clean	
38	**455+195**	**Minor Bridge - LHS - Widening**	**Age**	Widening - 2 lane	-	
			Foundation	Open Foundation	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
		7.4 + 7.05+ 7.05 + 7.05 + 7.07 + 7.04 + 7.45 m	**Sub Structure Abutment / Pier**	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	-	The structure is in sound condition. Approach slab settled at A1 Kerb side. CC pitching damaged. The Concessionaire is repairing / rectifying the same as a part of routine maintenance.
			Super Structure	RCC Solid Slab	-	
			Bearing	-	-	
			Slope Protection	RCC return wall & CC Pitching- damaged	-	
			Nalla Bed	Clear	-	
			Parapet / Railing	RCC railing with Crash Barrier - Footpath to be clean	-	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	-	
			Approach Slope	Stable in condition	-	
			Drainage	Grating provided -Not clean	-	
39	**455+195**	**Minor Bridge - RHS - New 7.4 + 7.05 + 7.05 + 7.05 + 7.07 + 7.04 + 7.45 m**	**Age**	-	New - 2 lane	The structure is in sound condition. CC pitching damaged. Gap in RCC railing. The Concessionaire is repairing / rectifying the same as a part of routine maintenance.
			Foundation	-	Open Foundation	
			Sub Structure Abutment / Pier	-	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	
			Super Structure	-	RCC Solid Slab	
			Bearing	-	-	
			Slope Protection	-	RCC return wall & CC Pitching	
			Nalla Bed	-	Clear	
			Parapet / Railing	-	RCC railing with Crash Barrier - Footpath to be clean & Missing gap in RCC Railing	
			Expansion Joint	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Wearing Coat / Surface	-	BC is in good condition	
			Approach Slope	-	Settled approach slab @A1 Kerb side	
			Drainage	-	Grating provided -Not clean	
40	**456+533**	**Minor Bridge - LHS - Skew - New 10.6 + 10.6 + 10.8 + 10.6 + 10.65 m**	**Age**	New - 2 lane	-	The structure is in sound condition.
			Foundation	Open Foundation	-	
			Sub Structure Abutment / Pier	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	-	
			Super Structure	RCC Solid Slab	-	
			Bearing	-	-	
			Slope Protection	RCC return wall & CC Pitching-damaged	-	
			Nalla Bed	Clear	-	
			Parapet / Railing	RCC railing with Crash Barrier - Footpath to be clean	-	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	-	
			Approach Slope	Stable in condition	-	
			Drainage	Grating provided - Not clean	-	
41	**456+533**	**Minor Bridge - RHS - Skew Widening 10.6 + 10.6 + 10.8 + 10.6 + 10.65 m**	**Age**	-	Widening - 2 lane	
			Foundation	-	Open Foundation	
			Sub Structure Abutment / Pier	-	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	
			Super Structure	-	RCC Solid Slab	
			Bearing	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Slope Protection	-	RCC return wall top beam concreting balance at A2 side & CC pitching - damaged	The structure is in sound condition. Concreting of return wall at A2 side is pending. CC pitching damaged. Rain cuts developed. The Concessionaire is repairing / rectifying the same as a part of routine maintenance.
			Nalla Bed	-	Clear	
			Parapet / Railing	-	RCC railing with Crash Barrier - Footpath to be clean	
			Expansion Joint	-	-	
			Wearing Coat / Surface	-	BC is in good condition	
			Approach Slope	-	Stable in condition	
			Drainage	-	Grating provided - Not clean	
42	**459+038**	**Minor Bridge - LHS - New 10.406 + 10.455 + 10.504 + 10.377 + 10.357 m**	**Age**	New - 2 lane	-	The structure is in sound condition.
			Foundation	Open Foundation	-	
			Sub Structure Abutment / Pier	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	-	
			Super Structure	RCC Solid Slab	-	
			Bearing	-	-	
			Slope Protection	RCC return wall & CC Pitching-damaged	-	
			Nalla Bed	Clear	-	
			Parapet / Railing	RCC railing with Crash Barrier - Footpath to be clean	-	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	-	
			Approach Slope	Rain cut developed, to be rectified	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Drainage	Grating provided -Not clean	-	
43	**459+038**	**Minor Bridge - RHS - Widening 10.406 + 10.455 + 10.504 + 10.377 + 10.357 m**	**Age**	-	Widening - 2 lane	The structure is in sound condition. CC pitching damaged. The Concessionaire is repairing / rectifying the same as a part of routine maintenance.
			Foundation	-	Open Foundation	
			Sub structure Abutment / Pier	-	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	
			Super Structure	-	RCC Solid Slab	
			Bearing	-	-	
			Slope Protection	-	CC Pitching@A1 side - damaged	
			Nalla Bed	-	Clear	
			Parapet / Railing	-	RCC railing with Crash Barrier - Footpath to be clean	
			Expansion Joint	-	-	
			Wearing Coat / Surface	-	BC is in good condition	
			Approach Slope	-	Stable in condition	
			Drainage	-	Grating provided -Not clean	
44	**460+812**	**Minor Bridge - LHS - New 1 x 6.4 m**	**Age**	New - 2 lane	New - 2 lane	The condition is sound.
			Foundation	Open Foundation	Open Foundation	
			Sub Structure Abutment / Pier	Abutment RCC wall Type Condition - Satisfactory	Abutment RCC wall Type Condition - Satisfactory	
			Super Structure	RCC Solid Slab	RCC Solid Slab	
			Bearing	-	-	
			Slope Protection	RCC return wall & CC Pitching	RCC return wall & CC Pitching	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC railing with Crash Barrier - Footpath to be clean	RCC railing with Crash Barrier - Footpath to be clean	
			Expansion Joint	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided - Not cleared	Drain spout provided - Not cleared	
45	**462+447**	**Minor Bridge - LHS - Skew - Widening 4 X 7.0 m**	**Age**	Widening - 2 lane	-	The structure is in sound condition. CC Pitching at A1 side damaged. The Concessionaire is repairing / rectifying the same as a part of routine maintenance.
			Foundation	Open Foundation	-	
			Sub structure Abutment / Pier	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	-	
			Super Structure	RCC Solid Slab	-	
			Bearing	-	-	
			Slope Protection	RCC return wall & CC Pitching - damaged at A1 side	-	
			Nalla Bed	Clear	-	
			Parapet / Railing	RCC railing with Crash Barrier - Footpath to be clean	-	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	-	
			Approach Slope	Stable in condition	-	
			Drainage	Drain spout provided - Not cleared	-	
46	**462+447**	**Minor Bridge - RHS - Skew - New 4 x 7.0 m**	**Age**	-	New - 2 lane	
			Foundation	-	Open Foundation	
			Sub structure / Abutment / Pier	-	Abutment RCC wall Type Piers - RCC piers Condition - Satisfactory	
			Super Structure	-	RCC Solid Slab	
			Bearing	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Slope Protection	-	RCC return wall & CC Pitching - damaged at A1 & A2 side	The structure is in sound condition. CC Pitching at A1 & A2 side damaged. The Concessionaire is repairing / rectifying the same as a part of routine maintenance.
			Nalla Bed	-	Clear	
			Parapet / Railing	-	RCC railing with Crash Barrier - Footpath to be clean	
			Expansion Joints	-	-	
			Wearing Coat Surface	-	BC is in good condition	
			Approach Slope	-	Stable in condition	
			Drainage	-	Drain spout provided -Not cleared	
47	**467+975**	**Flyover 2 x 15.0 m**	**Age**	New - 2 Lane	New - 2 Lane	The Structure is in sound condition. Crash barrier at A2 side of LHS is missing.
			Foundation	Open Foundation	Open Foundation	
			Sub Structure Abutment / Pier	Abutment - RE Block & RCC wall type Piers - RCC piers Condition - Satisfactory	Abutment - RE Block & RCC wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	2 Span RCC Girders and Slab Condition - No problem	2 Span RCC Girders and Slab Condition - No problem	
			Bearing	Bearing - Elastomeric	Bearing - Elastomeric	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier - Missing at A2 side	Crash Barrier - No Problem	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	-	-	
			Drainage	Drain spout not provided	Drain spout not provided	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
48	472+120 (Under COS)	CUP 7.0 m x 3.0 m	**Age**	New - 2 lane	New - 2 lane	The Structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment RCC wall	Abutment RCC wall	
			Super Structure	RCC slab Box type	RCC slab Box type	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC parapet	RCC parapet	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided	Drain spout provided	
49	480+171	Minor Bridge - LHS - Widening 3 x 7.1 m	**Age**	Widening - 2 lane	-	The Structure is in sound condition.
			Foundation	Open Foundation	-	
			Sub structure/ Abutment / Pier	Abutment –RCC wall type Piers - RCC piers Condition - Satisfactory	-	
			Super Structure	3 Span RCC solid Slab Condition - No problem	-	
			Bearing	-	-	
			Slope Protection	RCC Return & CC pitching	-	
			Nalla Bed	clear	-	
			Parapet / Railing	RCC railing with Crash Barrier - Footpath to be clean	-	
			Expansion Joints	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Wearing Coat Surface	BC is in good condition	-	
			Approach Slope	Stable in condition	-	
			Drainage	Drain spout provided- cleared	-	
50	**480+171**	**Minor Bridge - RHS - New 3 x 7.1 m**	**Age**	-	New - 2 Lane	The Structure is in sound condition. Drain spout to be cleared. Footpath to be clean.
			Foundation	-	Open Foundation	
			Sub structure/ Abutment / Pier	-	Abutment - RCC wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	-	3 Span RCC solid Slab Condition - No problem	
			Bearing	-	-	
			Slope Protection	-	RCC Return & CC pitching	
			Nalla Bed	-	clear	
			Parapet / Railing	-	RCC railing with Crash Barrier - Footpath to be clean	
			Expansion Joints	-	-	
			Wearing Coat Surface	-	BC is in good condition	
			Approach Slope	-	Stable in condition	
			Drainage	-	Drain spout provided- cleared	
51	**483+502**	**Minor Bridge LHS - New 4 x 5.3 m**	**Age**	New - 2 Lane	-	The structure is in sound condition.
			Foundation	Open Foundation	-	
			Sub structure/ Abutment / Pier	Abutment –RCC wall type Piers - RCC piers Condition - Satisfactory	-	
			Super Structure	4 Span RCC solid Slab Condition - No problem	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Bearing	-	-	
			Slope Protection	RCC Return & CC pitching	-	
			Nalla Bed	clear	-	
			Parapet / Railing	RCC railing with Crash Barrier - Footpath to be clean	-	
			Expansion Joints	-	-	
			Wearing Coat Surface	BC is in good condition	-	
			Approach Slope	Stable in condition	-	
			Drainage	Drain spout provided- cleared	-	
52	**483+502**	**Minor Bridge RHS - Widening 4 X 5.3 m**	**Age**	-	Widening - 2 lane	The structure is in sound condition.
			Foundation	-	Open Foundation	
			Sub structure / Abutment / Pier	-	Abutment –RCC wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	-	4 Span RCC solid Slab Condition - No problem	
			Bearing	-	-	
			Slope Protection	-	RCC Return & CC pitching	
			Nalla Bed	-	clear	
			Parapet / Railing	-	RCC railing with Crash Barrier - Footpath to be clean	
			Expansion Joints	-	-	
			Wearing Coat Surface	-	BC is in good condition	
			Approach Slope	-	Stable in condition	
			Drainage	-	Drain spout provided- cleared	
53	**489+047**	**PUP**	**Age**	New - 2 lane	New - 2 lane	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
		12 m x 4.5 m		Service Road - Both side	Service Road - Both side	The structure is in sound condition.
			Foundation	Open Foundation	Open Foundation	
			Sub structure / Abutment / Pier	Abutment - RCC box type	Abutment - RCC box type	
			Super Structure	RCC slab	RCC slab	
			Bearing	-	-	
			Slope Protection	RE Block wall	RE Block wall	
			Nalla Bed	Road	Road	
			Parapet / Railing	RCC Parapet	RCC Parapet	
			Expansion Joints	Nil	Nil	
			Wearing Coat Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided- Not cleared	Drain spout provided- Not cleared	
54	**492+030**	**Minor Bridge - RHS - New 4 x 9.4 m**	**Age**	-	New - 2 lane	The structure is in sound condition.
			Foundation	-	Open Foundation	
			Sub structure / Abutment / Pier	-	Abutment - RCC wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	-	4 Span RCC solid Slab Condition - No problem	
			Bearing	-	-	
			Slope Protection	-	RCC Return & CC pitching	
			Nalla Bed	-	clear	
			Parapet / Railing	-	RCC railing with Crash Barrier - Damaged footpath at A2 side, to be repaired	
			Expansion Joints	-	-	

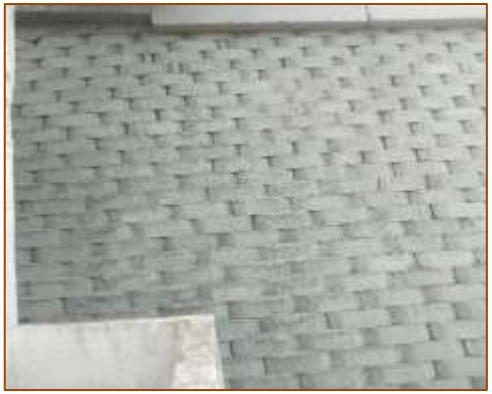
Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Wearing Coat Surface	-	BC is in good condition	
			Approach Slope	-	Stable in condition	
			Drainage	-	Drain spout provided- cleared	
55	**492+030**	**Minor Bridge LHS - Widening 4 x 9.4 m**	**Age**	Widening - 2 lane		The structure is in sound condition.
			Foundation	Open Foundation	-	
			Sub structure / Abutment / Pier	Abutment - RCC wall type Piers - RCC piers Condition - Satisfactory	-	
			Super Structure	4 Span RCC solid Slab Condition - No problem	-	
			Bearing	-	-	
			Slope Protection	RCC Return & CC pitching	-	
			Nalla Bed	clear	-	
			Parapet / Railing	RCC railing with Crash Barrier - Footpath to be clean	-	
			Expansion Joints	-	-	
			Wearing Coat Surface	BC is in good condition	-	
			Approach Slope	Stable in condition	-	
			Drainage	Drain spout provided- cleared	-	
56	**494+166**	**Minor Bridge - BHS - Widening 3 x 10.0 m**	**Age**	Widening - 2 lane	Widening - 2 lane	The structure is in sound condition.
			Foundation	Open Foundation	Open Foundation	
			Sub structure / Abutment / Pier	Abutment - RCC wall type Piers - RCC piers Condition - Satisfactory	Abutment - RCC wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	3 Span RCC solid Slab	3 Span RCC solid Slab	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
				Condition - No problem	Condition - No problem	
			Bearing	-	-	
			Slope Protection	RCC Return & CC pitching	RCC Return & CC pitching	
			Nalla Bed	clear	clear	
			Parapet / Railing	RCC railing with Crash Barrier - Footpath to be clean	RCC railing with Crash Barrier - Footpath to be clean	
			Expansion Joints	-	-	
			Wearing Coat Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Drain spout provided - Not cleared	Drain spout provided - Not cleared	

Figure 3-5 Photographs of Major Structures



Side View of ROB at km. 393+642 (RHS)



Vertical crack developed at A2 side at km. 393+642 - ROB (RHS)



Bottom View of ROB Girder at km. 393+642 (LHS)



Side View of ROB at km. 393.642 (LHS)



Side View of Major Bridge at km. 386+750 (RHS)



Bottom View of MJB Girder at km. 386+750 (RHS)



Mid Portion of MJB at km. 386+750



Wearing Coat of MJB at km. 386+750 (LHS)



Side View of Major Bridge at km. 388+760 (RHS)



Side View of Major Bridge at km. 388+760 (LHS)



Side View of Major Bridge at km. 389+295 (RHS)



Side View of Major Bridge at km. 389+295 (LHS)



Side View of Major Bridge at km. 395+255 (RHS)



Mid Portion of Major Bridge at km. 395+255



Wearing Coat of MJB at km. 395+255 (LHS)



Side View of Major Bridge at km. 420+180 (RHS)



Side View of Major Bridge at km. 420+180 (LHS)



Side View of Major Bridge at km. 422+314 (RHS)



Settled CC Pitching at A1 side of MJB at km. 422+314 (LHS)



Uneven Drain with footpath at A1 side of MJB at km. 422.314 (LHS)



Side View of Major Bridge at km. 422+314 (LHS)



Side View of Major Bridge at km. 415+929 (RHS)



Settled CC Pitching at A2 side of MJB at km. 415+929 (RHS)



Rain cuts developed at A2 side at MJB at km. 415+929 (RHS)



Side View of Major Bridge at km. 415+929 (LHS)



Side View of MJB - Widening at km. 420+180 (LHS)



Top View of MJB - Widening at km. 420+180 (LHS)



Side View of MJB - New at km. 433+276 (LHS)



Bottom of MJB - New at km. 433+276 (LHS)



Major Bridge - km. 433+295 (LHS) Wearing Coat



Major Bridge - km. 433+295 (RHS) side view



Major Bridge - km. 433+295 (RHS) Footpath settled



Minor Bridge at km. 406+170 (RHS) - Widening - Wearing Coat



Side view of Minor Bridge at km. 406+170 (RHS) - Widening



Minor Bridge at km. 406+880 (RHS) - Widening - Wearing Coat



Side view of Minor Bridge at km. 406+880 (RHS) - Widening



Minor Bridge at km. 427+321(RHS) - Widening - Wearing Coat



Side view of Minor Bridge at km. 427+321 (LHS) - Widening



Side view of Minor Bridge at km. 434+974 (RHS) - Widening



Side view of Minor Bridge at km. 434+974 (LHS) - Widening



Side View of Minor Bridge at km. 440+350 (RHS) - Widening



Side View of Minor Bridge at km. 440+350 (RHS) - Widening



Side View of Minor Bridge at km. 440+350 (LHS) - New



Side View of Minor Bridge at km. 440+350 (LHS) - Rain cut developed



Bottom of Minor Bridge at km. 449+894 (LHS) - New



Side View of Minor Bridge at km. 449+894 (RHS) - Widening



Side View of Minor Bridge at km. 449+894 (LHS) - New



Side View of Minor Bridge at km. 450+241(RHS) - Widening



Side View of Minor Bridge at km. 450+241(LHS) - New - Approach settled



Side View of Minor Bridge at km. 450+241(LHS) - New



Bottom of Minor Bridge at km. 455+195 (BHS)



Bottom of Minor Bridge at km. 455+195 (RHS)



Side View of Minor Bridge at km. 455+195 (LHS) - Missing railing



Return wall beam pending of MNB at km. 456+533 (RHS)



Damaged CC Pitching of MNB at km. 456+533 (BHS) on Both end



Side View of Minor Bridge at km. 456+533 (LHS) - New



Side View of Minor Bridge at km. 459+038 (LHS) - New



Side View of Minor Bridge at km. 459+038 (RHS) - Widening



Side View of Minor Bridge at km. 459+038 (LHS) - New - Approach settled



Side View of Minor Bridge at km. 460+812 (LHS) - New



Side View of Minor Bridge at km. 460+812 (RHS) - New



Side View of Minor Bridge at km. 462+447 (RHS) - Widening



Minor Bridge at km. 385+350 (LHS) - Under COS



Minor Bridge at km. 385+350 (RHS) - Under COS



Side View of Minor Bridge at km. 462+447 (LHS) - Widening



Mid Portion of Minor Bridge at km. 462+447 (LHS) - Widening



Side View of Minor Bridge at km. 480+171 (LHS) - Widening



Side View of Minor Bridge at km. 480+171 (RHS) - New



Side View of Minor Bridge at km. 483+502 (RHS) - Widening



Side View of Minor Bridge at km. 483+502 (LHS) - Widening



Side View of Minor Bridge at km. 492+030 (RHS) - New - Footpath damaged



Side View of Minor Bridge at km. 492+030 (RHS) - New



Side View of Minor Bridge at km. 492+030 (LHS) - Widening



Side View of Minor Bridge at km. 494+166 (RHS) - Widening



Side View of Minor Bridge at km. 494+166 (LHS) - Widening



VUP at km. 432+050 (RHS) - Skew (Miyani) under COS



VUP at km. 432+050 (LHS) - Skew (Miyani) under COS



VUP at km. 432+050 (LHS) - (Miyani) under COS - RE Block Wall at A1 side



VUP at km. 432+050 (LHS) - (Miyani) under COS - RE Block Wall at A2 side



VUP at km. 400+681 (LHS)



VUP at km. 400+681 (RHS)



VUP at km. 400+681 (RHS) at A1 side



VUP at km. 400+681 (LHS) at A1 side



VUP at km. 400+681 (LHS) at A1 side



VUP at km. 397+096 (RHS) - Skew - A1 side



VUP at km. 397+096 (RHS)



VUP at km. 397+096 (LHS) - Skew - A1 side



VUP at km. 397+096 (LHS)



VUP at km. 396+865 (Bottom)



VUP at km. 396+865 (LHS)



VUP at km. 396+865 (RHS)



VUP at km. 396+865 (RHS) - A1 side



VUP at km. 393+695 (LHS)



VUP at km. 393+695 (RHS)



VUP at km. 393+616 (LHS)



LVUP at km. 488+981 (RHS) - Under COS



VUP at km. 393+695 (LHS)



VUP at km. 393+695 (RHS)



VUP at km. 393+616 (LHS)



LVUP at km. 488+981 (RHS) - Under COS



LVUP at km. 381+600 (RHS) - Under COS



LVUP at km. 381+600 (LHS) - Under COS



LVUP at km. 422+750 (LHS) - Under COS



LVUP at km. 488+981 (LHS) - Under COS



LVUP at km. 422+750 (RHS) - Under COS

3.8 Condition Survey of Culverts

The cross-drainage structures include hume pipe culverts, box culverts and slab culverts at various locations. There are 196 Nos. of pipe culverts, 30 Nos. of box culverts along the project road. The height of culvert varies from 1.0 m to 3.0 m from bed level. During the condition survey, these culverts were inspected on sample basis.

The project involves strengthening and widening of existing road to four lane divided carriageway. The culverts beneath existing alignment are either widened or reconstructed. The structural condition of culverts is generally found in sound condition. The quality of surface concrete of box culverts and slab culverts is found to be satisfactory. The RCC parapet, metal beam crash barrier or RCC railing has been provided at culvert locations, which is maintained properly.

Vegetation growth and accumulation of debris at waterway is being removed and cleaned by the Concessionaire on regular basis.

Figure 3-6 Photographs of Culverts



Slab culvert at km. 439+458 (LHS)



Slab culvert at km. 439+458 (RHS)



Slab culvert at km. 441+648 (LHS)



Slab culvert at km. 441+648 (RHS)



Slab culvert at km. 444+062 (LHS)



Slab culvert at km. 444+062 (RHS)



Slab culvert at km. 475+860 (LHS)



Slab culvert at km. 475+860 (RHS)



HPC at km. 380+328 (LHS)



HPC at km. 380+328 (RHS)



HPC at km. 391+096 (LHS)



HPC at km. 391+096 (RHS)



HPC at km. 437+025 (LHS)



HPC at km. 437+025 (RHS)



HPC at km. 456+200 (LHS)



HPC at km. 456+200 (RHS)



HPC at km. 487+054 (LHS)



HPC at km. 487+054 (RHS)



HPC at km. 490+350 (LHS)



HPC at km. 490+350 (RHS)



HPC at km. 437+025 (LHS)



HPC at km. 437+025 (RHS)



HPC at km. 409+195 (LHS)



HPC at km. 409+195 (RHS)



HPC at km. 487+054 (LHS)



HPC at km. 487+054 (RHS)



HPC at km. 490+350 (LHS)



HPC at km. 490+350 (RHS)

3.9 Drainage System

There are RCC box drains at built-up areas and earthen drains at rural areas provided for the project stretch. Lined median longitudinal drain is provided at super-elevated sections. The roadside drainage along the project highway as well as lined drains at median portion needs to be maintained by cleaning debris on regular basis. Some of the photographs of the drains provided are presented as below.

Figure 3-7 Photographs of Drains provided



Built up drain from km. 489+000 to km. 490+000 (LHS)



Built up drain from km. 489+000 to km. 490+000 (RHS)



Median longitudinal drain from km. 483+000 to km. 484+000



Median longitudinal drain from km. 472+000 to km. 473+000



Built-up drain from km. 467+601 to km. 468+347 (RHS)



Built-up drain from km. 467+601 to km. 468+347 (LHS)



Built-up drain from km. 400+319 to km. 400+700 (LHS)



Built-up drain from km. 400+319 to 400+700 (LHS)



Built-up drain from km. 396+499 to km. 397+466 (RHS)



Built-up drain from km. 396+499 to km. 397+466 (LHS)



Built-up drain from km. 390+177 to km. 390+953 (RHS)



Built-up drain from km. 390+170 to km. 390+953 (LHS)

3.10 Slope Protection Measures

Slope protection for high embankment of height greater than 3 m has not been provided with stone pitching although at few locations turfing has been provided for height up to 3 m. At many places, rain cut found at slope section which needs to be rectified on priority basis. Some of the photographs of slope are presented as below.

Figure 3-8 Photographs of Slope Protection Works



MJB at km. 415+929 (RHS)



MJB at km. 415+929 (RHS)



MJB at km. 415+929 (RHS)



MJB at km. 474+405 (RHS)



MJB at km. 487+054 (RHS)



MJB at km. 456+533 (RHS)



From km. 492+000 to km. 493+000 (RHS)



From km. 487+000 to km. 488+000 (LHS)



From km. 476+000 to km. 477+000 (RHS)



From km. 469+000 to km. 470+000 (LHS)



From km. 466+000 to km. 467+000 (RHS)



From km. 466+000 to km. 467+000 (LHS)



From km. 454+000 to km. 455+000



From km. 443+000 to km. 444+000 (RHS)



From km. 443+000 to km. 444+000 (LHS)



From km. 408+000 to km. 409+000 (RHS)



From km. 408+000 to km. 409+000 (LHS)



From km. 384+000 to km. 385+000 (RHS)

3.11 Road Furniture

Pavement Marking

Pavement marking for the project highway is done as per the design standards indicated in section 12 of Schedule-D. Pavement marking work found in progress wherever marking has become faded. Some of the photographs of road marking are presented below.

Figure 3-9 Photographs of Road Markings

RHS



km. 495+000



km. 462+300



km. 459+500



km. 441+520



km. 487+900



km. 468+347

LHS



km. 418+700



km. 385+350



km. 388+550



km. 465+000



km. 474+400



km. 433+500

Road Studs

Road studs for the project highway is done as per the design standards indicated in section 12 of the manual as specified in Schedule-D. Road studs have been fixed at junction & at pedestrian crossings. However, at few locations some studs have damaged which are being rectified / replaced. Some of the photographs of road studs are presented below.



km. 483+800



km. 421+000

Traffic signage / Median kerb painting / Kilometer Stone

Traffic signs includes roadside signs, overhead signs, kerb mounted signs and median signs along the project highway. The design for the traffic signs along the project highway is done as per the design standards indicated in section 11 of the manual as specified in Schedule-D.

The height, lateral clearance, location and installation are as per relevant clauses of manual as specified in Schedule-D. Overhead sign has been installed ahead of major intersections, toll plazas, start / end of project highway and urban areas as per detailed design requirements.

Kilometre stones, vertical post of sign boards, chevron boards & median kerb paint are faded at few locations. Concessionaire needs to rectify the same. Some of the photographs of sign boards are presented below.

Figure 3-10 Photographs of Road Sign Boards



km. 495+600



km. 495+000



km. 454+200



km. 450+500



km. 451+800



km. 445+780



km. 433+295



km. 422+850



km. 379+100



km. 495+000



km. 465+000



km. 420+000



km. 419+500



km. 421+200



km. 472+000 to km. 473+000



km. 465+000 to km. 466+000



km. 452+000 to km. 453+000



km. 489+000 to km. 490+000



km. 397+800



km. 480+000



km. 461+000



km. 435+000



km. 493+000 to km. 494+000



km. 403+600



km. 430+400



km. 483+000 to km. 484+000



km. 426+000



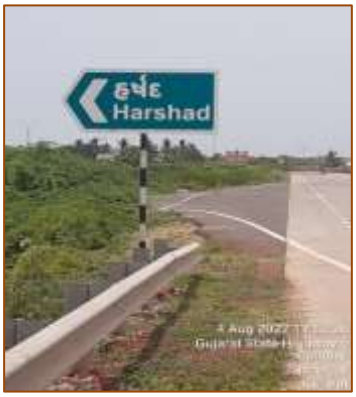
km. 480+171



km. 480+171



km. 461+000



km. 434+400



km. 389+700



km. 396+200



km. 445+500



km. 494+700



km. 462+500

Highway Lighting

Highway lighting is provided at underpasses, flyovers, toll plaza, ROBs and built-up locations. High mast lighting is provided at both toll plaza locations.

At underpass and flyover locations, highway lighting is provided at the structure locations and at its approaches.

Solar amber blinker signals are provided at each median opening locations. These lights are properly maintained and are in good working condition. Regular maintenance work is carried out to ensure their efficient operation. Some of the photographs of highway lightings are presented below.

Figure 3-11 Photographs of Highway Lighting



km. 489+000 to km. 490+000



PUP Lighting



km. 467+000 to km. 468+000



km. 422+850



km. 421+000



km. 390+000 to km. 391+000



km. 491+575



km. 486+600



km. 443+780

Crash Barriers

Metal beam crash barriers are provided at bridge approaches, locations of high embankment and sharp curves. At few locations, crash barriers provided are damaged which are being rectified. Some of the photographs of metal beam crash barriers are presented below.

Figure 3-12 Photographs of Crash Barriers



km. 494+000 to km. 495+000 (RHS)



km. 456+533 (RHS)



km. 434+200 (RHS)



km. 416+000 to km. 417+000 (RHS)



km. 389+295 (RHS)



km. 422+500 (LHS)



km. 459+038 (LHS)



km. 434+400 (LHS)



km. 475+200 (LHS)



km. 427+321 (LHS)

Delineators

The traffic delineators are provided by Concessionaire for road users in abnormal condition of weather in the project highway. The same is maintained by the Concessionaire. Some of the photographs of delineators are presented below.

Figure 3-13 Photographs of Delineator



km. 389+900 (LHS)



km. 411+500 (LHS)



km. 416+800



km. 426+800 (LHS)



km. 391+100 (LHS)

Pedestrian Guard Rail

The pedestrian guard rails are provided at the locations of bus shelters. The same is maintained by the Concessionaire. Some of the photographs of pedestrian guard rails are presented below.

Figure 3-14 Photographs of Pedestrian Guard Rail



km. 432+050 (LHS)



km. 432+050 (RHS)



km. 421+000 (LHS)



km. 421+000 (RHS)

Road Land Boundary

Road land (ROW) boundary demarcation is maintained by the Concessionaire on the project highway during the concession period. During the site visit, road land boundary pillars found maintained. However, the ROW pillars are being fixed at missing locations. Some of the photographs of road boundary pillars are presented below.

Figure 3-15 Photographs of Road Land Boundary



km. 486+200 (RHS)



km. 494+000 to km. 495+000 (RHS)



km. 435+000 (RHS)


km. 483+500 (LHS)


km. 435+000 (LHS)


km. 427+321 (LHS)

3.12 Avenue Plantation and Median Plantation

Median Plantation is available all along the project highway whereas avenue plantation is missing at most of the project stretch. Variety of shrubs and flowering plants are planted throughout the corridor at median. Median plantation is maintained in good condition. The plantation is being done wherever required on regular basis. Some of the photographs of median plantation are presented below.

Figure 3-16 Photographs of Avenue and Median Plantation


km. 379+000 to km. 380+000


km. 486+000 to km. 487+000


km. 483+000 to km. 484+000


km. 467+000 to km. 468+000


km. 465+000 to km. 466+000


km. 451+000 to km. 452+000

3.13 Project Facilities

Toll Plaza

As per Concession Agreement, the Concessionaire shall require to construct 2 Nos. of Toll Plaza along the project highway. Accordingly, Concessionaire has constructed 2 Nos. of Toll Plazas at following locations.

1. Toll Plaza-1 at km. 409+500

The construction of toll plaza is completed and is in operation. 10 (5+5) Nos. of lanes has been constructed and all are under operation. Concessionaire has constructed administration, operation and maintenance facility at base camp. All required facilities are available at the toll plaza. Some of the photographs of toll plaza-1 are presented below.

Figure 3-17 Photographs at Toll Plaza-1


Toll Plaza


Administrative Building


Crane


Ambulance


DG Set


Panel / Pump Room


PTZ camera


Resident Quarter


Static Weigh Bridge



High mast



Highway Aid / Medical Room



Toilet

2. Toll Plaza-2 at km. 470+875

The construction of toll plaza is completed and is in operation. 10 (5+5) Nos. of lanes has been constructed and all are under operation. Concessionaire has constructed administration, operation and maintenance facility at base camp. All required facilities are available at the toll plaza. Some of the photographs of toll plaza-2 are presented below.

Figure 3-18 Photographs at Toll Plaza-2



Toll Plaza



Administrative Building



Crane



Ambulance



DG Set



Panel / Pump Room



Static Weigh Bridge



PTZ camera



High Mast



Highway Aid / Medical Room



Toilet



Resident Quarter

Truck Lay Byes

As per Concession Agreement, there is no scope for construction of truck lay bye along the project highway.

Bus Bay and Passenger Shelter:

Bus bays and passenger shelters are constructed at the various locations along the project highway. There are total 04 Nos. of bus bays with passenger shelters are provided along project highway. Bus bays are equipped with all necessary signage as per relevant IRC guidelines and as per specifications as mentioned in Schedule-D of Concession Agreement. The details of the bus bays and passenger shelters are provided as below.

Table 3-9 Details of Bus Bays along Project Highway

Sr. No.	Design Chainage (km)		Junction Name	Remarks
	Left	Right		
1	420.987	420.987	Visawada	Chainages given in photographs are as per site condition
2	431.786	431.786	Miyami Bandar	Chainages given in photographs are as per site condition

Figure 3-19 Photographs of Bus Bay



km. 432+050 (LHS)



km. 432+050 (RHS)



km. 421+000 (RHS)



km. 421+000 (LHS)

4 PAVEMENT AND SITE INVESTIGATION

4.1 General

The project has been developed through Public Private Partnership (PPP) on Hybrid (Annuity) mode basis. The concession period of the project is 18 years including 3 years (1095 days) of construction period.

The Provisional Completion Certificate (PCOD) for the length of 100.977 kms has been received on 18th April 2020 and the Final Completion Certificate (COD) for the total length of project highway i.e., 117.748 kms is achieved as on 13th October 2021. The project is currently under O&M stage. The operation period of the project highway is 15 years from COD.

4.2 Details of As-built Pavement

The project highway comprises of rigid pavement (from km. 379+100 to km. 493+850 of 114.750 kms) and flexible pavement (from km. 493+850 to km. 496+848 of 2.998 kms) on main carriageway. The details of the as built pavement crust from pavement design report as submitted by the Company has been tabulated as below:

The rigid pavement is designed for the design life of 30 years and 8% CBR with specifications as per IRC:58-2015.

Table 4-1 Rigid Pavement Details

Location	Panel Size	Crust (mm)	Dowel bar	Tie bar
Main Carriageway (from km. 379+100 to km. 493+850)	Type-1 Panel Size: 4.5 m x 4.5 m (For TCS 1, 2, 3, 4 and 5)	PQC - 300 DLC - 150 GSB - 150	32 mm dia. Spacing - 300 mm, Length - 450 mm	12 mm dia. Spacing - 600 mm, Length - 640 mm
	Type-2 Panel Size: 4.5 m x 4.0 m (For TCS 6)			12 mm dia. Spacing - 680 mm, Length - 640 mm

The flexible pavement is designed for the design life of 15 years for design traffic of 10 msa and 8% CBR as per specifications of IRC:37-2012. The details of as built flexible pavement have been given below:

Table 4-2 Flexible Pavement Details

Location	Crust Composition	Thickness at widening section (mm)	Thickness at overlay section (mm)
Main Carriageway (from km. 493+850 to km. 496+848)	BC (VG-30)	50	50
	DBM (VG-30)	50	Existing BT & Granular layer
	WMM	200	
	GSB	200	

The service / slip road pavement is designed for the design life of 15 years for design traffic of 10 msa and 8% CBR as per specifications of IRC:37-2012.

Table 4-3 Service / Slip Road Pavement Details

Crust Composition	Thickness (mm)
BC (VG-30)	40
DBM (VG-30)	60
WMM	200
GSB	200

4.3 Surveys and Investigation

4.3.1 Pavement Condition Survey

Pavement condition survey was carried out from **3rd August 2022 to 7th August 2022** through visual inspection for the entire project length. The details of the visual condition survey are provided in **Annexure-IV.**

The summary of pavement condition based on the visual inspection is as tabulated below.

Table 4-4 Summary of Pavement Condition (MCW)

Sr. No.	Chainage (km)		Length (km)	Visual Condition (As per IRC: 115-2014)	
	From	To		LHS Carriageway	RHS Carriageway
1	379+100	380+000	0.900	Good	Good
2	380+000	381+000	1.000	Good	Good
3	381+000	382+000	1.000	Good	Good
4	382+000	383+000	1.000	Fair	Good
5	383+000	384+000	1.000	Good	Good
6	384+000	385+000	1.000	Good	Good
7	385+000	386+000	1.000	Good	Good
8	386+000	387+000	1.000	Good	Good
9	387+000	388+000	1.000	Good	Good
10	388+000	389+000	1.000	Good	Good
11	389+000	390+000	1.000	Good	Good
12	390+000	391+000	1.000	Good	Good
13	391+000	392+000	1.000	Good	Good
14	392+000	393+000	1.000	Good	Good
15	393+000	394+000	1.000	Good	Good
16	394+000	395+000	1.000	Good	Good
17	395+000	396+000	1.000	Good	Fair
18	396+000	397+000	1.000	Good	Good
19	397+000	398+000	1.000	Good	Good
20	398+000	399+000	1.000	Good	Good
21	399+000	400+000	1.000	Good	Good
22	400+000	401+000	1.000	Fair	Good
23	401+000	402+000	1.000	Good	Good
24	402+000	403+000	1.000	Good	Good
25	403+000	404+000	1.000	Good	Good
26	404+000	405+000	1.000	Good	Good
27	405+000	406+000	1.000	Good	Good
28	406+000	407+000	1.000	Good	Good
29	407+000	408+000	1.000	Good	Good
30	408+000	409+000	1.000	Good	Good
31	409+000	410+000	1.000	Good	Good

Sr. No.	Chainage (km)		Length (km)	Visual Condition (As per IRC: 115-2014)	
	From	To		LHS Carriageway	RHS Carriageway
32	410+000	411+000	1.000	Good	Fair
33	411+000	412+000	1.000	Good	Good
34	412+000	413+000	1.000	Good	Good
35	413+000	414+000	1.000	Good	Good
36	414+000	415+000	1.000	Good	Good
37	415+000	416+000	1.000	Good	Good
38	416+000	417+000	1.000	Good	Good
39	417+000	418+000	1.000	Good	Good
40	418+000	419+000	1.000	Good	Good
41	419+000	420+000	1.000	Good	Poor
42	420+000	421+000	1.000	Good	Good
43	421+000	422+000	1.000	Fair	Good
44	422+000	423+000	1.000	Good	Good
45	423+000	424+000	1.000	Good	Good
46	424+000	425+000	1.000	Good	Fair
47	425+000	426+000	1.000	Good	Good
48	426+000	427+000	1.000	Good / Fair	Fair
49	427+000	428+000	1.000	Good	Good
50	428+000	429+000	1.000	Poor	Good
51	429+000	430+000	1.000	Good	Good
52	430+000	431+000	1.000	Good	Good
53	431+000	432+000	1.000	Good	Good
54	432+000	433+000	1.000	Good	Fair
55	433+000	434+000	1.000	Good	Good
56	434+000	435+000	1.000	Good	Good
57	435+000	436+000	1.000	Good	Good
58	436+000	437+000	1.000	Good	Good
59	437+000	438+000	1.000	Good	Good
60	438+000	439+000	1.000	Good	Good
61	439+000	440+000	1.000	Fair	Good
62	440+000	441+000	1.000	Good	Good
63	441+000	442+000	1.000	Good	Good
64	442+000	443+000	1.000	Good	Good
65	443+000	444+000	1.000	Good	Good
66	444+000	445+000	1.000	Good	Good
67	445+000	446+000	1.000	Good	Good
68	446+000	447+000	1.000	Fair	Good
69	447+000	448+000	1.000	Good	Good
70	448+000	449+000	1.000	Good	Good
71	449+000	450+000	1.000	Good	Good
72	450+000	451+000	1.000	Good	Good
73	451+000	452+000	1.000	Good	Good
74	452+000	453+000	1.000	Poor	Good
75	453+000	454+000	1.000	Good	Fair
76	454+000	455+000	1.000	Good	Good
77	455+000	456+000	1.000	Good	Good
78	456+000	457+000	1.000	Fair	Good
79	457+000	458+000	1.000	Good	Good
80	458+000	459+000	1.000	Good	Good
81	459+000	460+000	1.000	Good	Good
82	460+000	461+000	1.000	Good	Good

Sr. No.	Chainage (km)		Length (km)	Visual Condition (As per IRC: 115-2014)	
	From	To		LHS Carriageway	RHS Carriageway
83	461+000	462+000	1.000	Good	Good
84	462+000	463+000	1.000	Good	Good
85	463+000	464+000	1.000	Good	Good
86	464+000	465+000	1.000	Good	Good
87	465+000	466+000	1.000	Fair	Good
88	466+000	467+000	1.000	Good	Good
89	467+000	468+000	1.000	Good	Good
90	468+000	469+000	1.000	Good	Good
91	469+000	470+000	1.000	Good	Good
92	470+000	471+000	1.000	Good	Good
93	471+000	472+000	1.000	Good	Good
94	472+000	473+000	1.000	Good	Good
95	473+000	474+000	1.000	Good	Good
96	474+000	475+000	1.000	Good	Good
97	475+000	476+000	1.000	Good	Good
98	476+000	477+000	1.000	Good	Good
99	477+000	478+000	1.000	Good	Good
100	478+000	479+000	1.000	Good	Good
101	479+000	480+000	1.000	Good	Good
102	480+000	481+000	1.000	Fair	Good
103	481+000	482+000	1.000	Good	Good
104	482+000	483+000	1.000	Good	Fair
105	483+000	484+000	1.000	Good	Fair
106	484+000	485+000	1.000	Good	Good
107	485+000	486+000	1.000	Good	Good
1108	486+000	487+000	1.000	Good	Good
109	487+000	488+000	1.000	Good	Fair
110	488+000	489+000	1.000	Good	Good
111	489+000	490+000	1.000	Good	Good
112	490+000	491+000	1.000	Good	Good
113	491+000	492+000	1.000	Good	Good
114	492+000	493+000	1.000	Good	Good
115	493+000	494+000	1.000	Fair	Good
116	494+000	495+000	1.000	Fair	Fair
117	495+000	496+000	1.000	Fair	Fair
118	496+000	497+000	1.000	Fair	Fair

Table 4-5 Summary of Pavement Condition (SR)

Sr. No.	Chainage (km)		Length (km)	Visual Condition (As per IRC:115-2014)		Remark
	From	To		LHS Carriageway	RHS Carriageway	
1	390+177	390+953	0.776	Fair	Fair	
2	396+499	397+466	0.967	Fair	Good / Fair	
3	400+319	401+051	0.732	Fair	Fair	LHS Partially executed
4	428+442	429+134	0.692	-	-	Not Executed due to LA
5	467+601	468+347	0.746	Good / Fair	Good / Fair	

Sr. No.	Chainage (km)		Length (km)	Visual Condition (As per IRC:115-2014)		Remark
	From	To		LHS Carriageway	RHS Carriageway	
6	488+654	489+346	0.692	Fair	Fair	
7	495+600	496+848	1.248	-	-	Not Executed due to LA
8	381+050	382+020	0.970	Fair	Fair	Under COS
9	387+920	388+560	0.640	Fair	Fair	Under COS
10	431+750	432+600	0.850	Fair	Fair	Under COS

Observation and Conclusion:

From the above table, it is observed that the overall pavement condition for the entire project stretch is found to be fair to good.

Following Photographs were taken at the time of visual pavement condition survey.

Figure 4-1 Photographs of Pavement Condition Survey

RHS



km. 496+848 to km. 493+850



km. 494+200



km. 487+600



km. 483+600



km. 482+350



km. 458+800



km. 493+850



km. 432+900



km. 419+950



km. 395+200



km. 467+601 to km. 468+347



km. 432+600 to km. 431+750



km. 400+319 to km. 401+050



km. 396+499 to km. 397+466



km. 390+177 to km. 390+953



km. 382+020 to km. 381+050



km. 490+800



km. 483+700



km. 458+800



km. 428+000

LHS



km. 382+400



km. 400+950



km. 421+100



km. 428+800



km. 428+100



km. 439+100



km. 446+400



km. 452+650



km. 456+200



km. 465+000



km. 481+000



km. 382+020 to km. 381+050



km. 388+560 to km. 387+920



km. 390+177 to km. 390+953



km. 396+499 to km. 397+466



km. 400+319 to km. 401+051



km. 432+600 to km. 431+750



km. 467+601 to km. 468+347



km. 488+654 to km. 489+346



km. 385+350



km. 404+000



km. 474+400

4.3.2 Roughness Index Test

Prior period report for the Roughness Index Test conducted by **Aadharshila Infratech Pvt. Ltd.** Dated **2nd April 2022** has been provided by the Concessionaire. This test was done using NSV on each direction (each lane) of the carriageway on project highway.

As per IRC:SP:16-2019, condition of pavement is categorised under:

Table 4-6 Roughness Values (BI Value - mm / km)

Sr. No.	Roughness Range (m/km)	Severity	Inner Lane (Lane-1) LHS Length (km)	Outer Lane (Lane-2) LHS Length (km)	Inner Lane (Lane-1) RHS Length (km)	Outer Lane (Lane-2) RHS Length (km)
1	Less than 2.81	Good	117.748	117.748	117.748	117.748
2	2.81 - 3.30	Fair	-	-	-	-
3	More Than	Poor	-	-	-	-

TDD Consultant's Observations:

TDD Consultants have visited the project site along with Mr. Manish, O&M In-charge and team to understand the status of project under O&M stage. Observations during site visit are as presented below:

1. During site visit, it has been observed that the Concessionaire, Porbandar Dwarka Expressway Pvt. Ltd. (PDEPL) is carrying out O&M activities at site except collection of toll which is being done by M/s Coral Associates Pvt. Ltd. appointed by Authority.
2. As informed by Concessionaire, O&M office is established at Porbandar and site mobile team offices is at TP-1 & TP-2.
3. At few locations, concrete panel of MCW has been settled i.e., at km. 419+700 (RHS), LHS km. 452+650 (LHS) and km. 456+200 (LHS) and between km. 465+000 to 466+000.
4. Water logging found on MCW between km. 428+000 to km. 429+000 and at km. 428+100.
5. Service roads exist only at structure locations.
6. Water logging found on service road between km. 381+000 to km. 382+200.
7. Service road & MCW are not maintain as per O&M agreement.
8. Thermoplastic paint on MCW and SR, has become faded at many locations.
9. Delineators has got rusted at many locations.
10. At few locations, solar blinker are not working.
11. Lots of debris found on service road near Miyami Bandar junction.
12. At many locations, MBCB has broken or missing or settled.
13. On flexible pavement, crocodile cracks and rutting found on both side.
14. Sealant are missing at many locations on MCW.
15. Except few locations, all sign boards post have got rusted.
16. At few locations, drain has been settled on service road i.e., between km. 467+601 to 468+347.
17. It has been observed that overall condition of all structures is sound. However, vegetation, bushes and waterway need to be cleaned in minor bridges, pipe & box culverts as well as chute drain need to be clean from debris / vegetation. Few chainages are as MJB - km. 422+314 at A1 side, VUP - km. 400+681 at A1 side, MJB - km. 397+096 at A2 side & ROB - km. 393+642 - BHS etc.,
18. All drainage vent provided in structures found in block condition.
19. At many locations expansion joints found fill of soil or debris as well as found covered with BT material at MNB km. 425+638 (LHS) & MNB km. 427+321 (RHS) also vegetation found inside slopes, parapet wall & structures.
20. Vertical cracks found at A2 side RE wall / Block - RHS near abutment wall at ROB km. 393+642.
21. Honeycombing found at edge of crash barrier of PUP km. 488+981.
22. Some portion of crash barrier is pending A2 side in LHS at Flyover km. 467+975.
23. It is observed that damaged CC pitching need to be repaired at MNB at km. 455+195 - BHS, MNB at km. 456+533 - RHS, MNB at km. 462+447 - BHS, MJB at km. 415+929 -BHS.
24. A settlement in approach slab / approach road at MNB - km. 455+195 at A1 side of LHS, MNB - km. 492+030 at A2 side RHS found.
25. Gap between RCC Railing at MNB - km. 455+195 and concreting of return wall final beam at A2 side of RHS is balance.
26. Stone pitching and MBCB may be done on high embankment area in the interest of carriageway protection and road users safety.

However, the Concessionaire is repairing / rectifying the damaged portion on regular basis as a part of routine maintenance.

5 BALANCE WORKS

5.1 Introduction

The project has received Completion certificate (COD) on 13th October 2021 with undertaking for completion of minor balance works. As instructed by the Authority to the Concessionaire with Letter No. NHAI/2018/PIU-Rajkot/Por.Dwarka/Tech./Vol.24/F-23/D-1379 dated 16.10.2021, "Issues related with the prevailing hindrances at few scattered locations in Project Highway have been taken up with the District Administration and likely to be resolved as an early date. In this regard, the Concessionaire hereby undertakes to complete such works for the augmentation of Project Highway during the O&M period after removal of hindrance at the Project Site without claiming any additional cost on account of this work. In view of the above, the earlier proposal submitted by the Concessionaire for the negative Change of Scope may not be considered at this stage."

Following balance work is to be completed by the Concessionaire as and when the hindrances are removed.

1. Main Carriageway from km. 455+598 to km. 455+636 (LHS) has been constructed with a reduced width of 4.5 m (instead of 9 m) and from km. 428+570 to km. 428+960 (BHS) the main carriageway has been constructed with reduced width of 2 x 7 m (instead of 2 x 9 m). The Concessionaire has provided MBCB barricading and other safety measures at these locations.

2. Service road length of 0.440 kms, lined drain in length 2.665 kms, earthen drain in length of 0.428 kms, minor junctions at 16 locations, hectometre stones at 7 locations, boundary stones at 87 locations, avenue plantation at 10 locations, traffic signs at 24 locations and highway lighting at 3 locations could not be completed.

3. At km. 455+320 (RHS), due to land constraint and to match the profile with the profile of existing bridge, the vertical profile of the project highway has been designed for 100 kmph design speed with SSD.

4. From km. 455+300 to km. 456+000, due to land constraint, the width of the median has been reduced to 2.0 m against the specified width of 4.5 m.

6 REVIEW OF CONCESSION AGREEMENT

6.1 General

The National Highways Authority of India (NHAI) in accordance with the statutory powers vested on it by the Government of India has entered into a Concession Agreement with the M/s. Porbandar Dwarka Expressway Private Limited, a Special Purpose Vehicle (SPV) formed for implementing this project, a company incorporated under Indian Companies Act, 2013 for Design, Engineering, Construction, Development, Operation and Maintenance of the 4-Laning of Porbandar Dwarka Section of NH-8E from km. 379+100 to km. 496+848 in the State of Gujarat. The project is to be developed on Design, Build, Operate and Transfer on DBOT Annuity basis.

6.2 Specific Comments on Articles

We have reviewed the provisions under various clauses of the Agreement and our specific comments are indicated below clause-wise.

Sr. No.	Article and Clause No.	Description in brief	Remark
1	Definitions O&M	O&M means the operation and maintenance With provision of this Agreement.	The Operation and Maintenance is defined.
2	Definitions O&M	"O&M Expenses" means expenses incurred by the concessionaire, O&M Contractor or on behalf of the Concessionaire or by the Authority, as the case may be, for all O&M including (a) cost of salaries and other compensation to employees, [b] cost of materials, supplies, utilities and other services, (c) premier for insurance, (d) all taxes, duties, cess and fees due and payable for O&M, (e) all repair, replacement, reconstruction, reinstatement, improvement and maintenance costs, if payments required to be made under the O&M Agreement or any other contract in connection with or incidental to O&M, and is) all other expenditure required to be incurred under Applicable Laws, Applicable Permits or this Agreement.	The items which includes the expenses is explained.
3	Article 2 Scope of Project	2.1 Scope of Project The scope oi the Project [the "Scope of the Project") shall mean and include during Concession Period: (b) operation and maintenance of-the Project in accordance with the provisions of this Agreement	The O&M of road after COD is in scope of Concessionaire as per specifications & standards of Agreement.
4	Article 3 Gran of Concession	3.1 The Concession	The Operation and Maintenance period of Highway is 15 years from COD as per provision in CA.

Sr. No.	Article and Clause No.	Description in brief	Remark
		3.1.1 Subject to and in accordance with the provisions of this Agreement, Applicable laws and Applicable Permits, the Authority hereby grants to the Concessionaire the forth herein including the exclusive right, license and authority to construct, operate and maintain the Project (the "Concession" during the Construction Period of 1095 (one thousand and ninety five) days and Operation Period of 15 [Fifteen] years commencing from COD, and the Concessionaire hereby accepts the Concession and agrees to implement the Project subject to and in accordance with the terms and conditions set forth herein.	
5	Article 5 Clause 5.3 Obligations relating to Change in owner	5.3.1 The Concessionaire shall not undertake or permit any Change in Ownership, except with the prior written approval of the Authority.	The project has received Completion Certificate.
6	Article 8 Disclaimer	Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Concessionaire and the Authority shall not be liable in any manner for such risks or the consequences thereof.	The project has received Completion Certificate.
7	Article 9 Performance Security	9.1.1 The Concessionaire shall. for the performance of its obligations hereunder, provide to the Authority no later than 30 (thirty) days from the date of this Agreement, an irrevocable and unconditional guarantee from a Bank for Sum equivalent to Rs 80 crore (Rupees Eighty crore only) in the form set forth in Schedule-F (the "Performance Security")	The project has received Completion Certificate.
8	Article 17 17.1 O&M obligations of the Concessionaire	17.1.1 During the Operation Period, the Concessionaire shall operate and maintain the Project in accordance with this Agreement either by Itself, or through the O&M Contractor and if required, modify, repair or otherwise make improvements to the Project to comply with the previsions of this Agreement, Applicable Laws and Applicable Permits, and conform to Specifications and Standards and Good Industry Practice. The obligations of the Concessionaire hereunder shall include: (a) Procuring and ensuring safe. smooth and uninterrupted use of the Project, including prevention of loss or damage thereto, during normal operating conditions;	The responsibility of O&M is of Concessionaire as per provision of Agreement, standards and specifications. The Concessionaire has to take of safety. Routine periodically major maintenance is in scope.

Sr. No.	Article and Clause No.	Description in brief	Remark
		(b) Minimizing disruption in the event of accidents or other incidents affecting the safety and use of the Project by providing a rapid and effective response and maintaining liaison with emergency services of the State; (c) Carrying out periodic preventive maintenance of the Project; (d) undertaking routine maintenance including prompt repairs of potholes, cracks, joints, drains, embankments, structures, markings, lighting, signage and other control devices (e) Undertaking major maintenance such as resurfacing, repairs to structures, and repairs and refurbishment of system and equipment;	
9	Article 17 17.4 Maintenance Program	17.4.1 On or before COD and no later than 45 (forty live) days prior to the beginning of each Accounting Year during the Operation Period, as the case may be, the Concessionaire shall provide to the Authority and the independent Engineer, its. proposed annual program of preventive, urgent and other scheduled maintenance [the “Maintenance Program") to comply with the Maintenance Requirements, Maintenance Manual and Safety Requirements.	The Concessionaire has to work as per approved maintenance program for O&M works in operation period.
10	Article 17 17.5 Safety, breakdowns and accidents	The Concessionaire shall ensure sale conditions for the Users, and in the event of unsafe conditions, closures. diversions, breakdowns and accidents. it shall follow the relevant operating procedures including the setting up of temporary Lights and removal of obstruction and debris without delay. Such procedures shall conform to the provisions of this Agreement, Applicable Laws, Applicable Permits and Good Industry Practice.	The safety of users of Highway is given priority.

Sr. No.	Article and Clause No.	Description in brief	Remark
11	Article 17 17.8	17.8.1 In the Event that the Concessionaire fails to repair or rectify any defect or deficiency set forth in the Maintenance Requirements within the period specified therein, it shall be deemed to be in breach of this Agreement and the Authority shall be entitled to recover Damages, to be calculated and paid for each day of delay until the breach is cured, at the higher of (a) 2% [two per cent] of the Performance Security, and (b) 0.1% [zero point one per cent of the cost of such repair or rectification as estimated by the Independent Engineer. Recovery of such Damages shall be without prejudice to the rights of the Authority under this Agreement, including the right of the Termination thereof.	The Concessionaire has to do the work as per requirement and scope of O&M to avoid action of damages and Termination.
12	Article 19 Monitoring of Operation and Maintenance	19.2 Inspection The Independent Engineer shall inspect the Project at least once a month. it shall make a report of such inspection {the "O&M Inspection Report") stating in reasonable detail the defects or deficiencies, if any. With particular reference to the Maintenance Requirements, Maintenance Manual, the Maintenance Program and Safety Requirements, and send a copy thereof to the Authority and the Concessionaire within 7 (seven) days of such inspection.	The regular inspection of maintenance work by IE will control the quality, progress & safety or work.
13	Article 20 20.1 Traffic regulation by the Concessionaire	The Concession shall regulate traffic on the Project in accordance with Applicable Laws, and subject to the supervision and control of the State authorities or a substitute thereof empowered in this behalf under Applicable laws.	The Concessionaire has to do the management of Traffic, medical aid to users of Highway with help of Police Medical Dept of Govt.

Sr. No.	Article and Clause No.	Description in brief	Remark
14	Article 23 Payment of Bid Project Cost	23.7.1 The Parties acknowledge and agree that all O&M Expenses shall be borne by the Concessionaire and in lieu thereof; a lump sum financial support in the form of biannual payments shall be due and payable by the Authority, which shall be computed on Rs. 5.97 crore (Rupees Flue (rare and ninety seven lakh only) (the "First Year O&M Cost in accordance with the provisions of this Clause 23.7 [the ”O&M Payments"). The Parties further acknowledge and agree that any O&M Expenses In excess of the O&M Payments shall be borne solely by the Concessionaire. save and except as expressly provided in this Agreement. For avoidance of doubt it is clarified that the 08M Payments will be subject to any Change in Scope of the Project of the Concessionaire under Article 16 of this Agreement.	The Concessionaire will he paid lumpsum Rs. 5.97 crores in form of Biannual payment during O&M period of O&M of activation.
15	Article 26 Insurance during Concession Period	26.1 The Concessionaire shall effect and maintain at its own cost. during the Construction Period and the Operation Period. such insurances for such maximum sums as may be required under the Financing Agreements and Applicable Laws, and Such insurances as may be necessary or prudent in accordance with Good industry Practice.	The safety, risk of Authority, Concessionaire, Lender is covered.
16	Article 31 Termination 31.1 Termination for Concessionaire Default	31.1.2 Without prejudice to any other rights or remedies which the Authority may have under this Agreement, upon occurrence of a Concessionaire Default, the Authority shall be entitled to terminate this Agreement by issuing Termination Notice to the Concessionaire; provided that before issuing the Termination Notice, the Authority shall by a notice inform the Concessionaire of its intention to issue such Termination Notice and grant 15 (fifteen) days to the Concessionaire to make a representation, and may after the expiry of such 15 (fifteen) days, whether or not it is in receipt of such representation. issue the Termination Notice, subject to the provisions of Clause 31.1.3.	The Authority can terminate the default by Concessionaire. The default may be in maintenance Requirements as per clause 31.1.1 (d). Hence concessionaire needs to take care not doing any default during O&M period.

Sr. No.	Article and Clause No.	Description in brief	Remark
17	Article 38 Dispute Resolution 38.1 Arbitration	38.3.1 Any Dispute which is not resolved amicably by conciliation, as provided in Clause 38.2, shall be finally decided by reference to arbitration by an arbitral tribunal constituted in accordance with Clause 38.3.2. Such arbitration shall be held in accordance with the Rules of Society tor Affordable Redressal of Disputes (“SAROD"]. New Delhi (the “Rules"), or such other rules as may be mutually agreed by the Parties, and shall be subject to the previsions of the Arbitration and Conciliation Act, 1996.	There is provision of Arbitration for in case of unresolved issues or dispute between Authority and Concessionaire
18	Article 41 Miscellaneous	41.17 State Support Agreement The Concessionaire acknowledges that it has received from the Authority :1 certified true copy of the agreement executed between MORIH and the State Government for providing the support and services specified therein [the "State Support Agreement"). and the Parties hereto agree to make their best endeavors to procure the support of the State Government.	The Concessionaire will get support from state governments, Departments for O&M activities.

7 REVIEW OF O&M CONTRACT

The Operation and Maintenance Agreement was signed between **Porbandar Dwarka Expressway Private Limited (GPDEPL)** and **G R Infraprojects Limited (O&M Contractor)** on 13th October 2021 and addendum O&M Agreement has been signed on 26th July 2022 for a period of 1 year (from 1st April 2022 to 31st March 2023).

We have reviewed the provisions under various clauses of this O&M Contract and our specific comments are indicated below clause-wise.

Sr. No.	Clause No.	Description in Brief	Remark
1	Agreement Para (ii)	The Concessionaire now wishes to appoint M/s G R Infraproiects Limited for Operation and Maintenance of Project Highway as O&M Contractor in accordance with Scope of Work as mentioned in Annexure 1 hereto, under the Concession Agreement.	The Contractor M/s. G. R. Infraprojects Ltd. is appointed for O&M work as per scope in CA.
2	Clause 1 Definition	"O&M Contractor" means the person, if any, with whom the Concessionaire has entered into an O&M agreement for discharging O&M obligations for and on behalf of the Concessionaire.	The Contractor is appointed to discharge duties of O&M work on behalf of Concessionaire as per scope in O&M Agreement.
3	Clause 1 Definition	"O&M Period" O&M Agreement means operation and maintenance period of 1 year commencing from Commencement Date.	The Agreement of O&M is for one year and addendum is signed for another 1 year.
4	Clause 2 Availability of Documents	The O&M Contractor also acknowledges the fact that the Concession Agreement is always binding and applicable back to back on the O&M Agreement, limited to the obligations during the O&M period under the Concession Agreement and the scope of the O&M Contractor as per this Agreement. In case of any discrepancy in whatsoever matter, the clauses or' Concession Agreement shall prevail over and above this O&M Agreement.	The copy of Concession Agreement & Maintenance Manual is provided to Contractor. It is always binding to Contractor for implementation during O&M work.
5	Para 6 O&M Contractor's obligation	6.1 During Operation Period, provisions of Article 17 of the Concession Agreement shall apply. The O&M Contractor shall operate and maintain the Project Highway in accordance with Article 17 of the Concession Agreement and if required, modify, repair or otherwise make improvements to the Project Highway comply with the provisions of this Agreement, Applicable Laws and Applicable Permits, and confirm to Specifications and Standards and Good Industry Practice.	The obligation of O&M are as per Article 17 of CA.

Sr. No.	Clause No.	Description in Brief	Remark
6	Clause 6.3 Maintenance Requirements	The O&M Contractor shall procure that at all times during the Operation Period; the Project Highway conforms to the maintenance requirements set forth in Schedule-K of the Concession Agreement (the "Maintenance Requirements").	The maintenance required to be done as per Schedule K of CA only.
7	Clause 6.3 Maintenance Program	Not later than 55 days prior to the beginning of each Accounting Year during the Operation Period, the O&M Contractor shall provide to the Concessionaire, its proposed annual program of preventive. urgent and other scheduled maintenance (the "Maintenance Program") to comply with the Maintenance Requirements, Maintenance Manual and Safety Requirements.	The Contractor has to submit the programme and work for O&M with maintenance requirement and safety.
8	Clause 6 Maintenance Requirements 6.5 Safety, Breakdown and accident	6.5.1 The O&M Contractor shall ensure safe conditions for the users, and in the event of unsafe conditions, closures, diversions, breakdowns and accidents, it shall follow the relevant operating procedures including the setting up of temporary Lights and removal of obstruction and debris without delay. Such procedures shall conform to the provisions of this Agreement, Applicable Laws, Applicable Permits and Good industry Practice.	Safety of users including breakdown, accident rescue operations is covered.
9	Clause 6 Maintenance Requirements 6.10 Damages for Breach of Maintenance obligations	In the event that the O&M Contractor fails to repair or rectify any defect or deficiency set forth in the Maintenance Requirements within the period specified therein, it shall be deemed to be this Agreement and the cm Contractor shall pay to the Concessionaire Damages at such rate as the Concessionaire Is required to pay to the Authority under the Concession Agreement. Recovery of such Damages shall be without prejudice to the rights of the Concessionaire under this Agreement, including the right of Termination thereof.	The provision of Levy of Damage for breach of Agreement, defective work will keep pressure on contractor to work as per requirement.
10	Clause 6 Maintenance Requirements 6.17 Tests	For determining that the Project Highway conforms to the Maintenance Requirements, the Project Manager/IE shall require the O&M Contractor to carry out, or cause to be carried out, tests specified by it in accordance with Good Industry Practice.	This will maintain quality of work.

Sr. No.	Clause No.	Description in Brief	Remark
11	Clause 6 Maintenance Requirements 6.19 Safety Requirements	6.19.1 The O&M Contractor shall comply with the provisions of this Agreement and [or Concession Agreement, Applicable Laws and Applicable Permits and confirm to Good Industry Practice for securing the safety of the Users. in particular, the O&M Contractor shall develop, implement and administer a surveillance and safety program for providing a safe environment on or about the Project Highway, and shall comply with the safety requirements set forth in Schedule L of the Concession Agreement (the “Safety Requirements").	The O&M Contractor has to provide requirements provision for safety of Highway users. The safety of users is given priority.
12	Clause 13 Sub-contracts	13.1 The O&M Contractor shall notify to the Project Manager in writing of its intent to subcontract the O&M works in part or full and without the written approval of the Project Manager no subcontractor shall be appointed by the O&M Contractor.	The sub contractor cannot be appointed without approval of Project Manager. This will keep control over contractor to appoint competent contractor.
13	Clause 16 Insurance	16.1 The Concessionaire shall. procure and maintain the insurance for the Project Highway including all facilities in accordance with the Article 26 of the Concession Agreement.	The risks and security of Authority, concessionaire and lender is covered.
14	Clause 17 Defect Liability Period	17.1 The Concessionaire and/or the EPC Contractor ls responsible for all the defects and deficiencies in construction of the Project Highway or any section thereof and rectify the Same, without any cost to the O&M Contractor. during the cam period. Under this agreement the O&M Contractor is only under obligation of Operation 8r Maintenance of the Project Highway. For avoidance of doubt, any repair or restoration on account of usual wear and tear in the Project Highway shall form a part of the maintenance.	The Contractor is responsible for any defects during Defect Liability period i.e. O&M Period. This will maintain the quality to avoid any action for defective work as proposed.
15	Clause 21 Acknowledgement	The O&M Contractor acknowledges and accepts that this agreement entitles the Authority and/or Lenders Representative to step into this agreement, in its sole discretion, in Substitution-of the Concessionaire In the event of Termination or Suspension of the Concessionaire. Further, provision of clause 5.2 of the Concession Agreement relating to Project Agreement shall apply *mutatis mutandis.*	The Contractor has agreed for step in right of Authority or Lender in case of Termination of Concessionaire.

Sr. No.	Clause No.	Description in Brief	Remark
16	Clause 22 O&M Payments	The Parties acknowledge and agree that all O&M Expenses shall be borne by the O&M Contractor to carryout routine maintenance Works as detailed in Annexure-I to this O&M Agreement and in lieu thereof; a fixed lump sum fee amounting to Rs. 6,50,00,000 exclusive of taxes for the entire year in the form of biannual payment shall be due and payable by the Concessionaire.	The O&M Contractor will be paid fixed & Lumpsum payment of Rs.6.50 Crores. Biannual payment during year for his work as per scope. The contractor has to manage O&M work responsibility within this payment. Over & above these expenses, Concessionaire is incurring expenses for insurance, electricity, IE & professional fees etc.,
17	Clause 27 Termination 27.1 Termination For O&M Contractor Default	In the event of any defaults specified below shall have occurred, and the O&M Contractor falls to cure the default within the Cure Period of 60 (sixty) days, the O&M Contractor shall be deemed to be in default of this Agreement (the "O&M Contractor Default"), unless the default has occurred as a result of any breach of this Agreement by the Concessionaire or due to Force Majeure.	The Contractor shall note this. This provision of termination keep pressure on contractor to work as per scope of O&M responsibility.
18	Clause 32 Liability and Indemnification	The O&M Contractor shall fully indemnify and hold harmless and defend the Concession extent that the Concessionaire has provided any indemnities to Authority in terms of Article Concession Agreement, Insofar as such indemnities relate to the Services.	The Concessionaire is secured from contractor for any loss, claim.

7.1 Conclusion

i. Operation and Maintenance Contract is comprehensive and correct for major concerns of the Lender.

ii. The provision of O&M Contract Agreement is consistent with the provision of the Concession Agreement.

8 OPERATION AND MAINTENANCE

8.1 Introduction

Article 17 and Schedule-K of the Concession Agreement defines the Operation and Maintenance requirement during concession period.

The Provisional Completion Certificate (PCOD) for the length of 100.977 kms has been received on 18th April 2020 and the Final Completion Certificate (COD) for the total length of project highway i.e., 117.748 kms is achieved as on 13th October 2021. The project is currently under O&M stage. The concession period of the project highway is 18 years from the Appointed Date including construction period of 3 years. The operation period of the project highway is 15 years from COD.

The project highway comprises of the rigid pavement for 114.75 kms and flexible pavement for 2.998 kms.

8.2 O & M Set Up

O & M Contract

As per Clause 17.1 of the Concession Agreement, the Concessionaire shall operate and maintain the project by itself, or through O&M Contractors and if required, modify, repair, improve the project highway to comply with Specifications and Standards, and other requirements set forth in the Agreement through Good Industry Practice, Applicable Laws and Applicable Permits and manufacturer's guidelines and instructions with respect to toll systems. The Operation and Maintenance activities will confirm to all the requirements laid down in MORT&H, IRC Specifications and the Concession Agreement.

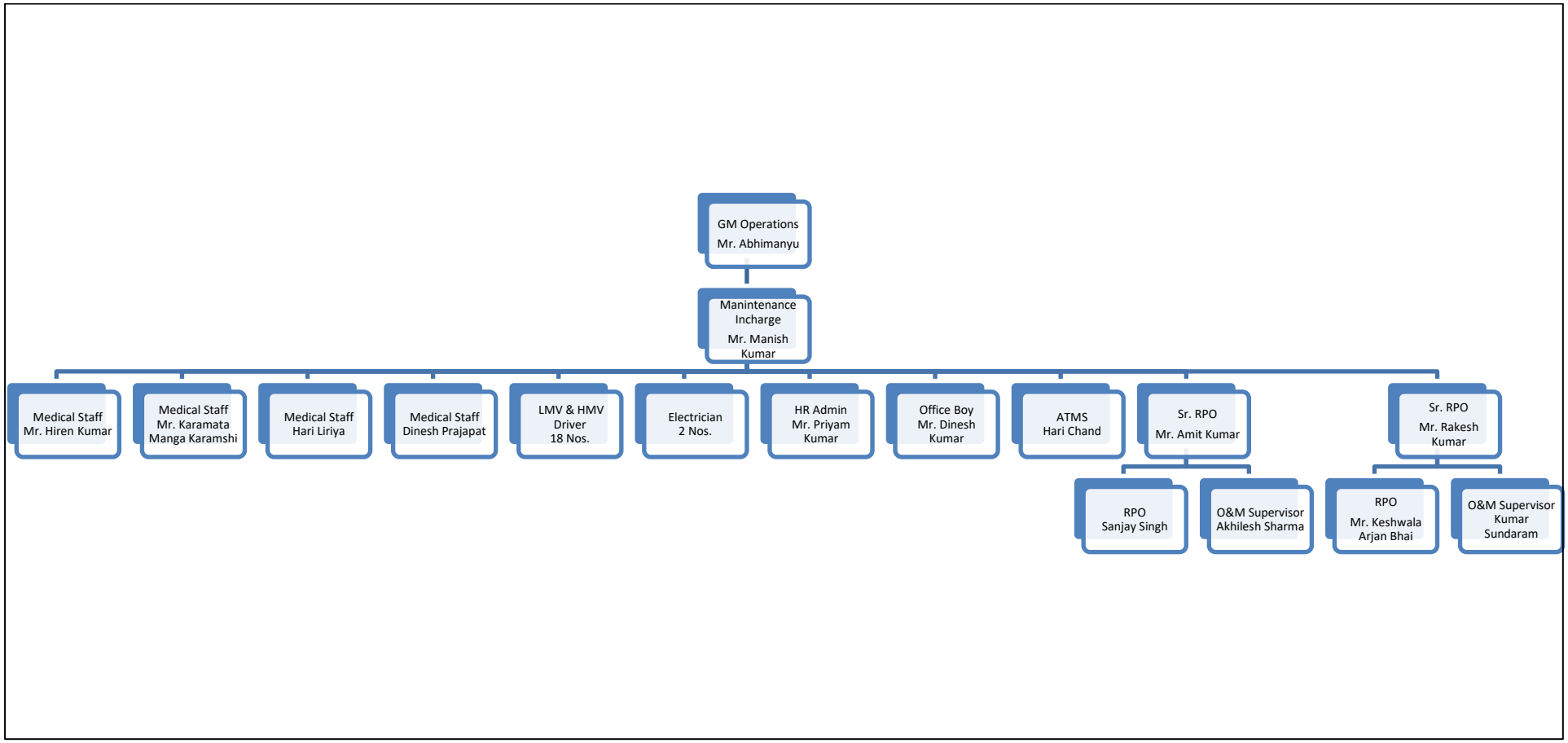
Under routine maintenance, the road is to be maintained in good, safe and motorable condition. The specifications in contracts are kept as same as per design and construction specification.

The periodical maintenance will have to be done during O&M period as per requirement of Concession Agreement and as per site requirement to maintain the design standards and level.

O&M Organization Chart

The Concessionaire has given the organization chart at site for Operation and maintenance. Accordingly, there is 01 GM, 01 O&M In charge, 04 Medical staff, 18 LMV / HMV drivers, 02 Electrician, 01 HR / Admin, 01 Office boy, 01 ATMS, 02 Sr. RPO, 02 RPO & 02 O&M Supervisors to carry out O&M activities. The team controls the maintenance activities along with other supporting staff. However, the maintenance work is undertaken and executed through competent sub-contractors.

Organization Structure for PDEPL



List of Manpower (SPV):

Sr. No.	Responsibilities	Name
1.	O&M In-Charge	Mr. Manish Kumar
2.	Route Patrol Officer	i) Mr. Keshwala Arjan Bhai ii) Mr. Amit Kumar iii) Mr. Rakesh Kumar iv) Mr. Sanjay Singh
3.	O&M Supervisors	i) Mr. Akhilesh Sharma ii) Mr. Kumar Sundaram
4.	Medical Attendants	iii) Mr. Hiren Kumar iv) Mr. Hari Liriya v) Mr. Karamata Manga Karamshi vi) Mr. Dinesh prajapat
5.	Drivers	i) Mr. Pawan Gujar ii) Mr. Raiya Bhai iii) Mr. Tej Kumar iv) Mr. Kunti Karam v) Mr. Bhawani Singh vi) Mr. Nemi Chand vii) Mr. Magu Singh viii) Mr. Mahesh Yogi ix) Mr. Jayesh Chaitariya x) Mr. Pramod Kumar xi) Mr. Devsi Bhai Sutreja xii) Mr. Babulal Meena xiii) Mr. Dalveer Singh xiv) Mr. Laxman Singh xv) Mr. Budhani Yaseen xvi) Mr. Prabhu lal Gujar xvii) Mr. Jag veer Singh xviii) Mr. Sanjay bhai
6.	Electrician	i) Mr. Subhash Kumawat ii) Mr. Shankar Dan
7.	Administration & Accounts, In-Charge	i) Mr. Priyam Kumar ii) Mr. Dinesh Kumar
8.	In-charge HSMU	i) Mr. Raniya Rizvan ii) Mr. Mahesh iii) Mr. Hari Chand

8.3 Operation Cost

Operations cost is comprised of manpower cost, power and electricity cost, office operating expenses, vehicle running expenses, administrative expenses and other miscellaneous expenses. The Concessionaire has provided the expenses occurred towards operation expenses for current / past years. Necessary assumptions have made from the expenses of similar type of projects to arrive at the operation cost. The estimates are projected based on best industry practice and are compared with the operating cost in the vicinity of the project area.

The estimated Operating cost base month of August 2022 is **Rs. 6.16 Crores**. The detailed working of the same is attached in **Annexure-I**.

8.4 Routine Maintenance Cost

The Routine Maintenance cost is derived based on the Ministry of Road Transport and Highways - Report of the Committee on Norms for Maintenance of Roads in India (published by Indian Road Congress New Delhi 2001) along with actual pavement condition assessed during condition survey.

Maintenance cost constitutes the routine, day-to-day maintenance activities for project assets, including road pavement, shoulders, embankment, drainage, structures, plantations, roadside furniture, traffic signs, traffic safety devices etc., Past data has been used to assess maintenance costs due to normal usage or "wear-and-tear". Likely costs of maintenance of structures are assessed based on their present condition and vintage, in combination with well-established guidelines and thumb rules given in Indian codes and standards.

The estimated cost of Routine Maintenance works out to be **Rs. 1.64 Crores (1.39 Lakhs per km)** for the base month August 2022. The detailed working of the same is attached in **Annexure-II**.

8.5 Major Maintenance Cost

Unlike the old Concession Agreements where periodicity and threshold limits were clearly described for the major maintenance, the Concession Agreement of this project does not specify the periodicity or the threshold limits for carrying out the full-length major maintenance. Schedule-K of the Concession Agreement specifies the threshold limits and the timelines for carrying out repairs to the distresses during the operation period.

The maintenance thus can be carried out as and when required basis and to the compliance of Schedule-K requirement to maintain the road in serviceable condition. Only improvement to Riding Quality is expected if the roughness value exceeds 2750 mm/km. However, the average roughness value of the project highway lies within the limit as mentioned above.

Any New pavement is not expected to show any distresses at least for 6 to 7 years with the proper routine maintenance. Mere Routine Maintenance would suffice to meet the performance standard mentioned in Schedule-K. In this project, there is no specific requirement to carry out the major maintenance at the end of concession period.

Hence, major maintenance is planned every 7th year from the date of COD till end of concession period.

The summary of the major maintenance planned up to end of concession period is presented in the below table.

The total base cost of major maintenance works out to be **Rs. 36.20 Crores** for the base month of August 2022 i.e., till 31st August 2022. The detailed working for the same is shown in **Annexure-III**.

Generally, it is observed that the routine and MMR cost of rigid pavement is less as compared with flexible pavement. The project highway being of more length as rigid pavement, the routine and MMR cost is less.

8.6 Paved Shoulders

As per design specifications, the paved shoulder is designed as an integral part of the pavement for main carriageway. Therefore, the total pavement thickness in paved shoulder would be the same as in the carriageway.

8.7 Summary of Major Maintenance Cycle

The table below shows the major maintenance cycle throughout the concession period for the project stretch.

Table 8-1 Maintenance Cycle

Sr. No.	Year	Main Carriageway	Service Road
1	FY 2023	-	-
2	FY 2024	-	
3	FY 2025	-	-
4	FY 2026	-	-
5	FY 2027	1st Major Maintenance	-
6	FY 2028	1st Major Maintenance	1st Major Maintenance (20% BC + 80% Micro-surfacing)
7	FY 2029	-	-
8	FY 2030	-	-
9	FY 2031	-	-
10	FY 2032	-	-
11	FY 2033	-	-
12	FY 2034	2nd Major Maintenance	-
13	FY 2035	2nd Major Maintenance	2nd Major Maintenance (20% BC + 80% Micro-surfacing)
14	FY 2036	-	-

8.8 Projected Maintenance Cost without escalation

The below table shows the total cost of operation and routine maintenance, periodic maintenance and strengthening up to end of the concession period without escalation.

Table 8-2 Summary of Operation & Maintenance Cost without escalation

Sr. No.	Item Description	Length (km)	Year of Execution	Rate (Lakhs / km)	Total Amount (Crores)
1	**Total Operation and Routine Maintenance Cost**	117.748	Every year	6.62	**7.79**
2	**Major Maintenance Cost**				
i)	1st major maintenance	117.748	FY 2027	15.37	**18.10**
ii)	2nd major maintenance	117.748	FY 2034	15.37	**18.10**
	Total Major Maintenance Cost				**36.20**

Notes:

1. It is to be noted that, the rates considered for calculating all the above cost are exclusive of Goods and Service Tax (GST).
2. The estimated cost in table above is for base month of August 2022 i.e., till 31st August 2022.

3. The material rates are based on SOR of Govt. of Gujrat NH Division Rajkot for the year 2015-2016. The plant & machinery rates are adopted from the revised standard data book 2019 and escalated @ 5% every year. The current market rates are considered for bitumen, cement and steel.
4. The labour rate adopted from Govt. of India, Ministry of Labour and Employment Office of the Chief Labour Commissioner (C) w.e.f. 29/07/2022.

8.9 Projected Maintenance Cost with escalation

The below table shows the total cost of operation and routine maintenance and major maintenance cost up to end of the concession period with assumed escalation of 5% every year.

Table 8-3 Summary of Operation & Maintenance Cost with escalation

Sr. No.	Year	WPI Inflation	Total O&M Cost (Crores)	Major Maintenance Cost (Crores)
1	FY 2023		7.79	-
2	FY 2024	2.87*%	8.02	-
3	FY 2025	5.00%	8.42	-
4	FY 2026	5.00%	8.84	-
5	FY 2027	5.00%	9.28	10.78
6	FY 2028	5.00%	9.75	11.32
7	FY 2029	5.00%	10.23	-
8	FY 2030	5.00%	10.75	-
9	FY 2031	5.00%	11.28	-
10	FY 2032	5.00%	11.85	-
11	FY 2033	5.00%	12.44	-
12	FY 2034	5.00%	13.06	15.16
13	FY 2035	5.00%	13.71	15.92
14	FY 2036	5.00%	0.67	-
	Total Cost (Crores)		**136.10**	**53.18**

* Considering the base month for calculation as August 2022.

The company may carry out necessary investigation prior to O&M and Major Maintenance. This will help in proper assessment of maintenance work based on the actual pavement condition. The spending on major maintenance can then be reduced if the road is adequately and timely maintained.

9 TOLL PLAZA EQUIPMENT & ATMS

An assessment of Toll Plaza in terms of no. of lanes, Toll Collection System installed and working status is carried out based on Section 10 of IRC:SP:84-2014 and the Authority's requirements of Hybrid ETC System. Advanced Traffic Management System (ATMS) is assessed based on Section 816 of MoRTH Specifications for Road and Bridge Works as required by Section 12.12 of the Manual.

9.1 Toll Plaza Equipment

Two toll plazas are provided at km. 409+500 at Kuchadi and km. 470+875 at Okhamadi. The Toll Collection System installed at the toll plazas is provided by Qualix Information Systems LLP.

The toll plazas have 5+5 lanes. All lanes are functional with Hybrid ETC equipment and additional equipment is provided on reversible lanes (one in each direction). View of the toll plazas are shown in Figure 9-1 and Figure 9-2.



Figure 9-1 View of Kuchadi Toll Plaza (km. 409+500)



Figure 9-2 View of Okhamadi Toll Plaza

9.1.1 Lane Equipment

Lane hardware and equipment installed at each toll plaza are the following:

1. RFID ETC Transceiver
2. Lane Controller with Industrial PC
3. AVC Sensors
4. Automatic Lane Barrier (ALB)
5. Incident Capture Camera
6. Overhead Lane Signals
7. Traffic Lights
8. Toll Booth Equipment

9.1.1.1 RFID ETC Transceiver

RFID ETC Transceiver reads tags installed on the windshield of vehicles and mounted on a pole at about 6 m height. Handheld RFID readers are provided (1 no. in each direction) in case a tag is not detected by the fixed reader.



Figure 9-3 RFID ETC Reader mounted on Pole

9.1.1.2 Lane Controller with Industrial PC

Toll Lane Controller is located within the Electronic Enclosure placed inside each toll booth which are connected to the common server and are capable of independent storage of data.



TP-1 at km. 409+500



TP-2 at km. 470+875

Figure 9-4 Toll Lane Controller (TLC)

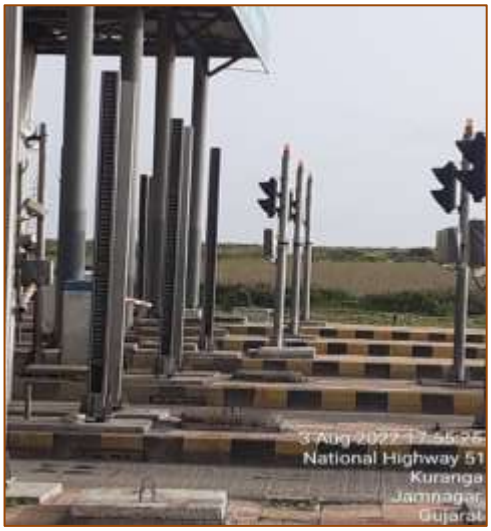
9.1.1.3 Automatic Vehicle Classification (AVC) Sensors

The AVC equipment comprises of a pair of height sensor poles, axle sensors and inductive loops. The height detector has a high sensing resolution and detects height when object blocks the path. The presence of vehicle is detected by inductive loop. The loop sensors embedded on the pavement trigger the AVC height sensors located on parallel pillars.





TP-1 at km. 409+500





TP-2 at km. 470+875

Figure 9-5 View of Toll Lane with Equipment

9.1.1.4 Automatic Lane Barrier

Boom barriers installed on all lanes are in working condition and have a working time of 0.6 sec - 0.9 sec. Automatic Lane Barrier is used to allow only authorized vehicles to pass through the lane. The barrier is activated only on generation of user fee receipt or other relevant vehicle processing activity. A torque motor powers the barrier for raising and lowering the boom. The motor can be blocked at any position without causing any damage. In the event of power failure, the boom is automatically raised. The boom weight is exactly balanced by built-in springs.



Figure 9-6 Automatic Lane Barrier

9.1.1.5 Lane Traffic Light (LTL) and User Fare Display (UFD)

Lane Traffic Light (LTL) is used to instruct vehicles to stop or pass through the lane. The LTL is RED when the toll collector is expecting the vehicle at the booth. After the transaction is done; the LTL turns Green to instruct the vehicle to pass through the lane. The User Fare Display is a part of electronic toll collection equipment located at the toll booth. It is a mini variable message sign (VMS) made of Light Emitting Diodes (LED). The user fare display is used to display the toll fare that is due and that must be paid by the motorist and the classification of vehicle selected by the collector.



TP-1 at km. 409+500



TP-2 at km. 470+875

Figure 9-7 Traffic Light and User Fare Display

9.1.1.6 Incident Capture Camera (AVC Camera)

The incident capture camera is installed on island of the booth to capture the image of the vehicle from the back side. The AVC triggers the Image capture system.

9.1.1.7 License Plate Image Capture Camera (LPIC)

License Plate Image capture camera is installed on a 3 m pole facing incoming vehicle to capture the image of the vehicle number plate.



Figure 9-8 LPIC and AVC cameras

9.1.1.8 Over Head Lane Signal (OHLS)

The **Overhead Lane Signal (OHLS)** for lane “Open” and “Close” sign consists of a pair of “GREEN” (arrow) and “RED” (cross) lights. The OHLS is located at the vehicle approaching side of the canopy to show the drivers whether the lane is open or closed.



TP-1 at km. 409+500



TP-2 at km. 470+875

Figure 9-9 OHLS indicating green arrows for operational lanes

9.1.1.9 Toll Booth Equipment

Toll Booth Hardware / Equipment provided are:

- Toll Collector Display (Operator Monitor)
- Customized Industrial Keyboard
- Receipt Printer
- Intercom Slave unit
- Bar code reader
- Violation Light and alarm
- Manual Booth Control (MBC)
- Booth Camera

The operator monitor termed as Toll Collector Display (TCD) is located on the toll collector's desk. It is the system's interface to the toll collector, to display the status of transactions and status of the lane peripherals.

The keyboard on the toll terminal is a programmable keyboard for Registration of toll operations and is customized for different vehicle types and type of ticket.



TP-1 at km. 409+500



TP-2 at km. 470+875

Figure 9-10 Booth Equipment

Thermal Printers are installed at the toll booths to print tickets. Intercom slave unit facilitates communication with the master unit located in the control room.

Violation system has an alarm switch which is triggered whenever there is a violation such as run-through happening on the lane. When there is an emergency, a foot switch pressed by the booth operator alerts the control room.

Booth Cameras are provided on the inside roof corner of the booth to provide surveillance through CCTV screen located in the control room. Manual Booth Controller is used to release exempt vehicles.

9.1.1.10 Medium Speed Weigh in Motion (MSWIM)

Medium Speed Weigh in Motion (MSWIM) is installed on entry lanes with a platform size of 1500mm x 620mm for normal lanes and 1750mm x 620mm for extra wide lanes and capacity of 30 ton/axle. Bending plate strain gauge technology is used with hardware and software support to calculate weight of vehicles running through it up to a speed of 50 km/hr.

9.1.2 Plaza Equipment

9.1.2.1 Plaza Server

Plaza Server is provided in a hot standby configuration and provided with 42 U switch rack, 28 port non-POE network switch and 10 Port PoE switch. Firewall and 2 broadband internet lease line with 4 Mbps link for CCH connectivity is available.



TP-1 at km. 409+500



TP-2 at km. 470+875

Figure 9-11 Control Room Equipment - Server & Switch rack

9.1.2.2 55" LED screen for CCTV monitoring

55" LED screen for CCTV monitoring installed at the toll plaza admin block provides view of all the toll booths , important zones within the plaza where cash transactions take place (server room, control room, cash up).



TP-1 at km. 409+500



TP-2 at km. 470+875

Figure 9-12 CCTV screen at the Toll Plaza Control Room

The toll plaza manager is able to observe the activities at the toll lanes and toll booth. When the toll collector calls up on the intercom, the manager is able to comprehend the situation at the lane by a zoomed view of the particular lane.

9.1.2.3 Workstations in Control Room, PoS and Cash up room

Workstations are available in control room (lane monitoring, administration, and audit), cash room and PoS with 4 GB RAM and 1 TB HDD.



TP-1 at km. 409+500



TP-2 at km. 470+875

Figure 9-13 Incident Management Workstation at Control room

9.2 Advanced Traffic Management System (ATMS)

Advanced Traffic Management System (ATMS) installed for the project road is controlled by the ATMS centre at the toll plaza location. It comprises of the following:

- Mobile Radio communication system
- Meteorological Data system
- Variable Message Signboards (VMS)
- Automatic Traffic Counter cum Classifier (ATCC)
- CCTV system

9.2.1 Mobile Radio communication System (MRCS)

Communication between patrol vehicles, ambulances, crane operators and the control centre is managed using MRCS installed at the two locations, km. 409+400 and km. 470+700.

9.2.2 MET system

Meteorological sensors comprise of sensors to measure the atmospheric temperature, humidity, pavement surface temperature, visibility and equipment for measuring wind speed and direction and installed at Km 470.700.

9.2.3 Variable Message Signboards (VMS)

Variable message sign boards are installed at 6 locations. These display specific messages to the users based on the prevailing conditions on the highway. The message can be changed at any point of time from the ATMS centre. About 250 customised messages can be stored on the system.

9.2.4 Automatic Traffic Counter cum Classifier (ATCC)

Automatic Traffic Counter cum Classifiers (ATCC) is installed at entry and exit of each toll plaza location (total 8 Nos.). The ATCC are infrared Traffic Logger (TIRTL) type and count at an accuracy of 95%.

9.2.5 CCTV and Surveillance Cameras

Surveillance Cameras are installed at 4 locations along the project corridor in addition to the toll plaza location. The ATMS control room has video wall to monitor these locations through the cameras installed.

9.3 Adequacy of Toll Collection System and ATMS

- Adequacy - The software and hardware as a part of Toll Collection and Management System (TMS) was commissioned on 15th February 2022. The plaza went live on 29th September 2020. All lanes are Hybrid ETC system as stipulated by NHAI in Technical specifications of Hybrid ETC system. NHAI has approved maintenance costs for TMS. As per supplementary agreement, TMS shall be upgraded every 5 years, at the cost of the Authority.

- Advanced Traffic Management System (ATMS) installed is as per specifications required by the Authority and in working condition. Equipment such as cameras may require replacement every 5-8 years.

10 ACCIDENT DATA ANALYSIS

Accident Data Records for the project have been studied in order to analyse the nature of accidents occurring on the stretch and identify blackspots.

10.1 Accident Trend

Accident Data for the period October 2021 to June 2022 has been made available for analysis. 23 Accidents have occurred out of which 1 no. were fatal, and 21 were minor. More number of accidents have occurred during the daytime than at night-time. Monthly data analysis does not show any consistent seasonal trend. Over speeding has been recorded as a major cause of accident which alone or in combination with faulty driver behaviour.

10.2 Blackspots Identification

There are no black spot found in the project stretch however the details of accidents in the project length are given in Table below:

Table 10-1 Accidents details on Project Road

DATE	MONTH	LOCATION	SIDE	TIME	TYPE	REASON
14/10/2021	October	388+100	LHS	10:00 PM		Vehicle Out of Control
NIL	November	NIL	NIL	NIL		Nil
01/12/2021	December	396+2000	RHS	11:30 PM	MINOR	Vehicle Out of Control
15/12/2022		431+500	RHS	9:30 PM	MINOR	Over speeding
22/12/2022		428+450	LHS	6:30 PM	MINOR	Vehicle Out of Control
18/01/2022	January	462+000	LHS	8:30 PM	MINOR	Vehicle Out of Control
25/01/2022		459+100	LHS	5:00 PM	MINOR	Over speeding
03/02/2022	February	472+150	MEDIAN	-	MINOR	No Record
06/02/2022		440+200	RHS	-	MINOR	No Record
06/02/2022		416+150	LHS	-	MINOR	No Record
20/02/2022		464+400	LHS	8:00 PM	MINOR	Over speeding
22/02/2022		427+650	LHS	9:30 PM	MINOR	Over speeding
27/02/2022		390+000	LHS	-	-	Vehicle Out of Control
10/03/2022	March	465+000	LHS	3:00 PM	MINOR	Vehicle Out of Control
10/03/2022		409+600	LHS	5:00 PM	MINOR	Vehicle Out of Control
19/03/2022		401+600	RHS	11:00 AM	NIL	Vehicle Out of Control
30/03/2022		476+180	RHS	2:30 PM	MINOR	Over speeding
06/04/2022	April	418+600	LHS	3:50 PM	MINOR	Vehicle Out of Control
17/04/2022		409+400	RHS	5:20 PM	MINOR	Door Open by Passenger
07/05/2022	May	477+200	LHS	11:00 AM	NIL	Fault Of Driver

DATE	MONTH	LOCATION	SIDE	TIME	TYPE	REASON
01/06/2022	June	469+550	LHS	4:30 PM	MINOR	Vehicle Out of Control
04/06/2022		469+450	LHS	2:10 PM	FATAL	Vehicle Out of Control
04/06/2022		409+000	LHS	4:10 PM	MINOR	Vehicle Out of Control
11/06/2022		485+860	LHS	12:10 PM	MINOR	Vehicle Out of Control

10.3 Conclusions & Recommendations

As there are no major accidents found in the project length and as informed by the Company, all accidents occur due to overloading and uncontrolled driving on project highway. Hence, there are no black spot identified from Authority's Engineer and from Concessionaire. However, Concessionaire needs to maintain all road furniture as per schedule given in CA.

Annexures

Annexure I : Operation Cost

Sr. No.	Particulars	Cost per Annum (Rs.)	Cost per Annum (Cr.)
1	Incidental Management Expenses		
a	*Ambulance - 2 Nos.*	3,641,702	0.36
b	*Patrolling Vehicle - 2 Nos.*	4,846,030	0.48
c	*Crane - 2 Nos.*	2,808,095	0.28
d	*Other Vehicle - 3 Nos.*	1,828,499	0.18
e	*JCB - 1 Nos.*	1,108,447	0.11
f	*Corridor Manager & Officer*	953,280	0.10
2	Maintenance Staff Expenses	6,600,000	0.66
3	Routine Maintenance Cost (Civil Works)	16,355,213	1.64
4	Professional & IE Fee	5,235,076	0.52
5	Insurance Expenses	16,547,269	1.65
6	Staff Welfare Expenses	701,000	0.07
7	Electricity Expenses + Maintenance of parts	9,798,436	0.98
8	ATMS/HTMS Expenses	4,592,172	0.46
9	Contingency @ 5% (Excl. Civil works)	2,933,000	0.29
	Total Cost (Rs)	**77,948,219**	**7.79**
	Per km Cost (Lakh)		**6.62**

Annexure II : Routine Maintenance Cost

Routine Maintenance Cost	
Ordinary Repair Cost for Flexible Pavement	15,68,928
(Exclusive of GST) (including Service Road)	= 1.56 lakhs per km
Ordinary Repair Cost for Rigid Pavement	1,47,86,285
(Exclusive of GST)	= 1.29 lakhs per km
Total Cost (Exclusive of GST)	**1,63,55,213**
	= 1.39 lakhs per km

CONVERSION FACTORS									
National Highways / State Highways - Rigid Pavement									
Reference cost taken for Two / four lane (7.0 or 14m or 21m) with 1.5m/2m wide shoulders									
(Refer Chapter 6.17 of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 45)									
Sr. No.	**Description for Rigid Pavement**		**Factor**	**Rigid Pavement**		**Project Length (km)**		**Per Year Project Maintenance Cost**	
				Normal	**Urban**				
				More than 4500 CVD	More than 4500 CVD				
				94,533	**1,06,899**				
						Normal	**Urban**	**Normal**	**Urban**
1	Four-lane with divided carriageway	Without paved shoulder	1.53	144635.00	163555.00	-	-	-	-
		Paved shoulder	1.70	160705.00	181728.00	107.69	7.07	15,401,647	1,158,992
2	Four-lane with divided carriageway and service lane on either side	Without paved shoulder	2.00	189065.00	213797.00	-	-	-	-
		Paved shoulder	2.20	207972.00	235177.00	-	-	-	-
TOTAL						**114.75**		**16,560,639**	

CONVERSION FACTORS									
National Highways / State Highways - Flexible Pavement									
Reference cost taken for Two / four lane (7.0 or 14m or 21m) with 1.5m/2m wide shoulders									
(Refer Chapter 6.17 of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 45)									
Sr. No.	**Description for Flexible Pavement**		**Factor**	**Flexible Pavement**		**Project Length (km)**		**Per Year Project Maintenance Cost**	
				Normal	**Urban**				
				More than 4500 CVD	More than 4500 CVD				
				1,42,344	**1,56,114**				
						Normal	**Urban**	**Normal**	**Urban**
1	Two-lane without shoulder		0.90	128110.00	140503.00	7.07	-	9,05,097	-
2	Four-lane with divided carriageway	Without paved shoulder	1.53	217787.00	238855.00	-	-	-	-
		Paved shoulder	1.70	241985.00	265394.00	1.75	-	4,23,474	-
3	Four-lane with divided carriageway and service lane on either side	Without paved shoulder	2.00	284688.00	312229.00	-	-	-	-
		Paved shoulder	2.20	313157.00	343452.00	-	1.25	-	4,28,628
TOTAL						**10.063**		**17,57,199**	

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity**
				More than 4500 CVD
				CC Surface
1	**2**	**3**	**4**	**5**
1	**Maintenance of Carriageway & Paved Shoulders (1.5m wide); B.T. Surface**			
	i) Pot holes repair (50 mm deep)	100 % Pot hole free	As & when required	0.00%
	Volume (cum)			0.00
	Rs/m^3			0
	Cost in Rupees			0
	ii) Patch repair	100 % Patch less	As & when required	0.00%
	Area (sqm)			0
	Rs/m^2			419
	Cost in Rupees			0
	iii) Sealing (Crack)			
	a) Wider than 3 mm	100 % Crack Less	As & when required	0.50%
	Area (sqm)			50
	Rs/m^2			86
	Cost in Rupees			4,312
	b) Width less than 3 mm	75 % Crack Less	As & when required	1.00%
	Area (sqm)			75
	Rs/m^2			58
	Cost in Rupees			4,368
	iv) Repair of ruts and undulations			
	a) Greater than 20 mm	75%	As & when required	0.00%
	Area (sqm)			0
	Rs/m^2			419
	Cost in Rupees			0

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
	v) Road marking	7%	Once in 15 year & @ Repaired location	9480
	vi) Joint Sealant Repair/Replacement	5%		16115
	vii) Slab Replacement	0.00%		0
	SUB TOTAL			**34,276**
2	**Maintenance of earthen Shoulders:**			
	i) Renewal of earthen shoulders	70%	Once in a Year	5177
	ii) Jungle Clearance	70%	Twice in a Year	1359
	iii) Kuccha Drain Maintenance	70%	Twice in a Year	728
	SUB TOTAL			**7,264**
3	**Maintenance of Cross Drainage works:**			
	i) Cleaning of culvert bed	70%	Once in a Year	1835
	ii) Repair of floors	70%	Once in a Year	3320
	iii) Repair of parapets	70%	As & when required	1383
	SUB TOTAL			**6,538**
4	**Maintenance of Minor & Major Bridges:**			
	i) Cleaning and removal of dirt & vegetation from pier caps, Bearings, Expansion Joints, Superstructure, Substructure and Retaining wall etc.	50%	As & when required	17,334
	ii) Spot painting & protective Coating required on Bearing and greasing of Bearings, railing, structural members, Expansion joints			
	iii) Repair of minor washouts, erosion scour and animal holes			
	iv) Sealing Cracks with Cement/ Epoxy Mortar			
	v) Replacement & Correction of safety barriers, Guard rails and damaged members			

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
	SUB TOTAL			**17,334**
5	**Miscellaneous Items:**			
	i) Turfing and Arboriculture		Once in a Year	2311
	ii) Maintenance of gang hut store, sheds, animal & debries removal		Once in a Year	3467
	iii) Lettering, Painting of Km stones & kerbs, sign boards, hectometer stone etc.		Once in a Year	3467
	iv) Replacement and providing additional retro reflective signage	20%	Covering Total Network in 5 Years	6934
	v) Providing first aid kits, Umbrella, Safety Jackets, Vardi etc.		Once in a Year	1156
	vi) Traffic Census		Once in a Year	0
	vii) Provision for roughness measurement		Twice in a Year	1386
	SUB TOTAL			**18,721**
	GRAND TOTAL (Normal)			**84,132**
6	**Additional Cost required for Urban Area**			
	i) Renewal of Center Line, Edge Marking, Kerb Marking/ Zebra crossing etc. in City Portion	7%	Once in 15 years with thermoplastic paint	695
	ii)Repairs to footpath	0%	As & when required	0
	iii) ROB/ Fly-over Railings & repair	50%	As & when required	2311
	iv) Street Lighting	0%	As & when required	0
	v) Encroachment Removal Squad	50%	As & when required	3583
	vi) Repair of divider/ Railing in City portion	50%	As & when required	4623
	vii) Provision for maintenance of pedestrian underpass	50%	As & when required	1156
	SUB TOTAL			**12,366**
	GRAND TOTAL (Urban)			**96,498**

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. More than 4500 CVD BT Surface**
1	**2**	**3**	**4**	**5**
1	**Maintenance of Carriageway & Paved Shoulders (1.5m wide); B.T. Surface**			
	i) Potholes repair (50 mm deep)	100 % Pothole free	As & when required	0.50%
	Volume (cum)			2.50
	Rs/m^3			10472
	Cost in Rupees			26,180
	ii) Patch repair	100 % Patch less	As & when required	0.50%
	Area (sqm)			50
	Rs/m^2			419
	Cost in Rupees			20,944
	iii) Sealing (Crack)			
	a) Wider than 3 mm	100 % Crack Less	As & when required	1.00%
	Area (sqm)			100
	Rs/m^2			86
	Cost in Rupees			8,624
	b) Width less than 3 mm	75 % Crack Less	As & when required	1.00%
	Area (sqm)			75
	Rs/m^2			58
	Cost in Rupees			4,368
	iv) Repair of ruts and undulations			
	a) Greater than 20 mm	75%	As & when required	1.00%
	Area (sqm)			75
	Rs/m^2			419
	Cost in Rupees			31,416
	v) Road marking	10%	Once in 10 year & @ Repaired location	14823

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. More than 4500 CVD BT Surface**
1	**2**	**3**	**4**	**5**
	SUB TOTAL			**1,06,355**
2	**Maintenance of earthen Shoulders:**			
	i) Renewal of earthen shoulders	70%	Once in a Year	5177
	ii) Jungle Clearance	70%	Twice in a Year	1359
	iii) Kuccha Drain Maintenance	70%	Twice in a Year	728
	SUB TOTAL			**7,264**
3	**Maintenance of Cross Drainage works:**			
	i) Cleaning of culvert bed	70%	Once in a Year	1835
	ii) Repair of floors	70%	Once in a Year	3320
	iii) Repair of parapets	70%	As & when required	1383
	SUB TOTAL			**6,538**
4	**Maintenance of Minor & Major Bridges:**			
	i) Cleaning and removal of dirt & vegetation from pier caps, Bearings, Expansion Joints, Superstructure, Substructure and Retaining wall etc.	10%	As & when required	3,467
	ii) Spot painting & protective Coating required on Bearing and greasing of Bearings, railing, structural members, Expansion joints			
	iii) Repair of minor washouts, erosion scour and animal holes			
	iv) Sealing Cracks with Cement/ Epoxy Mortar			
	v) Replacement & Correction of safety barriers, Guard rails and damaged members			
	SUB TOTAL			**3,467**
5	**Miscellaneous Items:**			
	i) Turfing and Arboriculture		Once in a Year	2311
	ii) Maintenance of gang hut store, sheds, animal & debris removal		Once in a Year	3467
	iii) Lettering, Painting of Km stones & kerbs, sign boards, hectometre stone etc.		Once in a Year	3467

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. More than 4500 CVD BT Surface**
1	**2**	**3**	**4**	**5**
	iv) Replacement and providing additional retro reflective signage	20%	Covering Total Network in 5 Years	6934
	v) Providing first aid kits, Umbrella, Safety Jackets, Vardi etc.		Once in a Year	1156
	vi) Traffic Census		Once in a Year	0
	vii) Provision for roughness measurement		Twice in a Year	1386
	SUB TOTAL			**18,721**
	GRAND TOTAL (Normal)			**1,42,344**
6	**Additional Cost required for Urban Area**			
	i) Renewal of Centre Line, Edge Marking, Kerb Marking/ Zebra crossing etc. in City Portion	10%	Once in 10 years with thermoplastic paint	2099
	ii) Repairs to footpath	0%	As & when required	0
	iii) ROB/ Fly-over Railings & repair	50%	As & when required	2311
	iv) Street Lighting	0%	As & when required	0
	v) Encroachment Removal Squad	50%	As & when required	3583
	vi) Repair of divider/ Railing in City portion	50%	As & when required	4623
	vii) Provision for maintenance of pedestrian underpass	50%	As & when required	1156
	SUB TOTAL			**13,770**
	GRAND TOTAL (Urban)			**1,56,114**

Annexure III : Major Maintenance Cost

Major Maintenance Cost (Every 6th / 7th year) FY 2027 & FY 2034										
Sr. No.	**Description**	**Unit**	**No.**	**Length (m)**	**Width (m)**	**Depth (m)**	**Quantity**	**Total Quantity**	**Rate (Rs.)**	**Amount (Rs.)**
I. Main Carriageway, Service Road / Slip Road & Miscellaneous location										
A	**Main Carriageway: Flexible Pavement**									
1	Milling	Sqm	100%	2,998.00	18.00		53,964.00	53,964.00	55.00	2,968,020
2	Tack Coat for DBM	Sqm	10%	2,998.00	15.00		4,497.00	4,497.00	19.00	85,443
3	DBM Overlay	Cum	10%	2,998.00	15.00	0.05	224.85	224.85	9,029.00	2,030,171
4	Tack Coat for BC	Sqm	1	2,998.00	18.00		53,964.00	53,964.00	19.00	1,025,316
5	BC Overlay	Cum	1	2,998.00	18.00	0.03	1,618.92	1,618.92	10,668.00	17,270,639
6	Filling of Earthen shoulder	Cum	0	1,750.00	4.00	0.03	-	-	284.00	-
B	**Main Carriageway: Rigid Pavement**									
7	Replacement of Joint Sealant	Rmt	5%	838,581.33			41,929.07	41,929.07	55.00	2,306,099
8	Dismantling of CC Panels @ 1.5% area	Cum	1.5%	110,063.80	15.00	0.30	7,429.31	7,429.31	874.00	6,493,214
9	Replacement of Panels - PQC @ 1.5% area	Cum	1.5%	110,063.80	15.00	0.30	7,429.31	7,429.31	6,814.00	50,623,294
10	Replacement of Panels - DLC @ 0% area	Cum	0.0%	110,063.80	15.00	0.15	-	-	3,014.00	-
11	Diamond Grinding	Sqm	3%	110,063.80	15.00		49,528.71	49,528.71	50.00	2,476,436
C	**Rigid Pavement at Toll Plaza**									
12	Replacement of Joint Sealant	Rmt	5%	6,884.55			344.23	344.23	55.00	18,933
13	Dismantling of CC Panels @ 1.5% area	Cum	1.5%		13,553.95	0.30	60.99	60.99	874.00	53,308
14	Replacement of Panels - PQC @ 1.5% area	Cum	1.5%		13,553.95	0.30	60.99	60.99	6,814.00	415,605
15	Replacement of Panels - DLC @ 0% area	Cum	0.0%		13,553.95	0.15	-	-	3,014.00	-
16	Diamond Grinding	Sqm	0%		13,553.95		-	-	50.00	-
D	**Service Roads (Flexible Pavement)**									
17	Tack Coat for BC	Sqm	20%	8,313.00	13.55		22,527.60	22,527.60	19.00	428,024
18	BC Overlay with 30mm	Cum	20%	8,313.00	13.55	0.03	675.83	675.83	10,211.00	6,900,880
19	Micro surfacing	Sqm	80%	8,313.00	13.55		90,110.40	90,110.40	133.00	11,984,683
20	Filling of Earthen shoulder	Cum	1	8,313.00	-	0.03	-	-	284.00	-
E	**Structural Deck area**									
21	Milling	Sqm	50%	4,314.20	23.00		49,613.30	49,613.30	55.00	2,728,732
22	Tack Coat	Sqm	50%	4,314.20	23.00		49,613.30	49,613.30	19.00	942,653
23	Mastic Asphalt Overlay	Sqm	50%	4,314.20	23.00		49,613.30	49,613.30	516.00	25,600,463
F	**Miscellaneous**									
24	Replacement of Kerb	Rmt	10%	233,440.00			23,344.00	23,344.00	237.00	5,532,528
25	Painting of Kerbs	Sqm	1	233,440.00		0.32	73,533.60	73,533.60	89.00	6,544,490
26	Painting of Crash Barrier	Sqm	1	21,368.80		1.12	23,826.21	23,826.21	89.00	2,120,533
27	Thermoplastic paint									
	a) Median & Edge line	Sqm	50%				46,449.83	46,449.83	451.00	20,948,873
	Main Carriageway 4L		4	120,102.96	0.15		72,061.78			
	Service Road		2	16,958.52	0.10		3,391.70			
	b) Lane line									
	Main Carriageway 4L		2	42,036.04	0.10		8,407.21			
	Service Road		1	5,935.48	0.10		593.55			
	c) Junction crossing						8,445.42			
28	Replacement of Road Stud	No	50%				14,289.00	14,289.00	201.00	2,872,089
	Main Carriageway 4L		4	6,673.00			26,692.00			
	Service Road		2	943.00			1,886.00			
29	Miscellaneous	5%								8,618,521
Total Amount (MCW + Service Road + Toll Plaza + Miscellaneous)										**180,988,944.54**
Total Cost in Lakhs (MCW + Service Road + Toll Plaza + Miscellaneous)										**1,809.89**
Per km Cost in lakhs (MCW + Service Road + Toll Plaza + Miscellaneous)										**15.37**

Annexure IV : Pavement Condition Survey

LHS

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
1	379.1	380	Good		PQC	300		G							F	PQC	G	F				
2	380	381	Good		PQC	300		G							F	PQC	G	F				
3	381	382	Good		PQC	300		G							F	PQC	G	F				
4	382	383	G/F		PQC	300		G	0.1						F	PQC	G	F				
5	383	384	Good		PQC	300		G							F	PQC	G	F				
6	384	385	Good		PQC	300		G							F	PQC	G	F				
7	385	386	Good		PQC	300		G							F	PQC	G	F				
8	386	387	Good		PQC	300		G							F	PQC	G	F				
9	387	388	Good		PQC	300		G							F	PQC	G	F				
10	388	389	Good		PQC	300		G							F	PQC	G	F				
11	389	390	Good		PQC	300		G							F	PQC	G	F				
12	390	391	Good		PQC	300		G							F	PQC	G	F				
13	391	392	Good		PQC	300		G							F	PQC	G	F				
14	392	393	Good		PQC	300		G							F	PQC	G	F				
15	393	394	Good		PQC	300		G							F	PQC	G	F				
16	394	395	Good		PQC	300		G							F	PQC	G	F				
17	395	396	Good		PQC	300		G							F	PQC	G	F				
18	396	397	Good		PQC	300		G							F	PQC	G	F				
19	397	398	Good		PQC	300		G							F	PQC	G	F				
20	398	399	Good		PQC	300		G							F	PQC	G	F				
21	399	400	Good		PQC	300		G							F	PQC	G	F				
22	400	401	G/F		PQC	300		G/F							F	PQC	G	F				
23	401	402	Good		PQC	300		G							F	PQC	G	F				
24	402	403	G/F		PQC	300		G							F	PQC	G	F				
25	403	404	G/F		PQC	300		G							F	PQC	G	F				
26	404	405	Good		PQC	300		G							F	PQC	G	F				
27	405	406	Good		PQC	300		G							F	PQC	G	F				
28	406	407	Good		PQC	300		G							F	PQC	G	F				
29	407	408	G/F		PQC	300		G							F	PQC	G	F				
30	408	409	Good		PQC	300		G							F	PQC	G	F				
31	409	410	Good		PQC	300		G							F	PQC	G	F				
32	410	411	G/F		PQC	300		G							F	PQC	G	F				
33	411	412	Good		PQC	300		G							F	PQC	G	F				
34	412	413	Good		PQC	300		G							F	PQC	G	F				
35	413	414	Good		PQC	300		G							F	PQC	G	F				
36	414	415	Good		PQC	300		G							F	PQC	G	F				
37	415	416	Good		PQC	300		G							F	PQC	G	P				

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
38	416	417	Good		PQC	300		G							F	PQC	G	P				
39	417	418	Good		PQC	300		G							F	PQC	G	F				
40	418	419	Good		PQC	300		G							F	PQC	G	F				
41	419	420	G/F		PQC	300		G							F	PQC	G	F				
42	420	421	G/F		PQC	300		G							F	PQC	G	F				
43	421	422	Fair		PQC	300		F	0.2						F	PQC	G	P				
44	422	423	Good		PQC	300		G							F	PQC	G	P				
45	423	424	G/F		PQC	300		G							F	PQC	G	F				
46	424	425	G/F		PQC	300		G							F	PQC	G	F				
47	425	426	G/F		PQC	300		G							F	PQC	G	F				
48	426	427	G/F		PQC	300		G	0.1						F	PQC	G	F				
49	427	428	Good		PQC	300		G							F	PQC	G	F				
50	428	429	Good		PQC	300		G							F	PQC	G	F				Water Logging on MCW
51	429	430	Good		PQC	300		G							F	PQC	G	F				
52	430	431	Good		PQC	300		G							F	PQC	G	F				
53	431	432	Good		PQC	300		G							F	PQC	G	F				
54	432	433	G/F		PQC	300		G							F	PQC	G	F				
55	433	434	Good		PQC	300		G							F	PQC	G	F				
56	434	435	Good		PQC	300		G							F	PQC	G	F				
57	435	436	G/F		PQC	300		G							F	PQC	G	F				
58	436	437	G/F		PQC	300		G							F	PQC	G	F				
59	437	438	G/F		PQC	300		G							F	PQC	G	F				
60	438	439	G/F		PQC	300		G							F	PQC	G	F				
61	439	440	G/F		PQC	300		G/F	0.1						F	PQC	G	F				
62	440	441	Good		PQC	300		G							F	PQC	G	P				
63	441	442	Good		PQC	300		G							F	PQC	G	F				
64	442	443	G/F		PQC	300		G							F	PQC	G	F				
65	443	444	G/F		PQC	300		G							P	PQC	G	P				
66	444	445	G/F		PQC	300		G							F	PQC	G	F				
67	445	446	G/F		PQC	300		G							F	PQC	G	F				
68	446	447	G/F		PQC	300		G/F	0.1						P	PQC	G	P				
69	447	448	G/F		PQC	300		G							F	PQC	G	F				
70	448	449	G/F		PQC	300		G							F	PQC	G	F				
71	449	450	G/F		PQC	300		G							F	PQC	G	F				
72	450	451	G/F		PQC	300		G							F	PQC	G	F				
73	451	452	Good		PQC	300		G							F	PQC	G	F				
74	452	453	Poor		PQC	300		P	0.2						F	PQC	G	F				MCWConcrete pannel settle
75	453	454	G/F		PQC	300		G							F	PQC	G	F				
76	454	455	Good		PQC	300		G							P	PQC	G	F				
77	455	456	G/F		PQC	300		G							F	PQC	G	F				

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
78	456	457	Poor		PQC	300		P	0.2						P	PQC	G	P				MCW Concrete panel settle
79	457	458	Good		PQC	300		G							F	PQC	G	F				
80	458	459	Good		PQC	300		G							F	PQC	G	F				
81	459	460	Good		PQC	300		G							P	PQC	G	P				
82	460	461	Good		PQC	300		G							F	PQC	G	F				
83	461	462	Good		PQC	300		G							F	PQC	G	F				
84	462	463	Good		PQC	300		G							F	PQC	G	F				
85	463	464	G/F		PQC	300		G							F	PQC	G	F				
86	464	465	Good		PQC	300		G							F	PQC	G	F				
87	465	466	Good		PQC	300		G/F	0.1						P	PQC	G	P				MCW Concrete panel settle
88	466	467	Good		PQC	300		G							P	PQC	G	P				
89	467	468	Good		PQC	300		G							P	PQC	G	P				
90	468	469	G/F		PQC	300		G							F	PQC	G	F				
91	469	470	G/F		PQC	300		G							F	PQC	G	F				
92	470	471	G/F		PQC	300		G							F	PQC	G	F				
93	471	472	G/F		PQC	300		G							F	PQC	G	F				
94	472	473	G/F		PQC	300		G							F	PQC	G	F				
95	473	474	G/F		PQC	300		G							P	PQC	G	P				
96	474	475	Good		PQC	300		G							F	PQC	G	P				
97	475	476	Good		PQC	300		G							F	PQC	G	P				
98	476	477	Good		PQC	300		G							F	PQC	G	F				
99	477	478	G/F		PQC	300		G							F	PQC	G	F				
100	478	479	G/F		PQC	300		G							F	PQC	G	F				
101	479	480	G/F		PQC	300		G							F	PQC	G	F				
102	480	481	Good		PQC	300		G							F	PQC	G	F				
103	481	482	G/F		PQC	300		G							F	PQC	G	F				
104	482	483	Good		PQC	300		G							F	PQC	G	F				
105	483	484	G		PQC	300		G							F	PQC	G	F				
106	484	485	G/F		PQC	300		G							F	PQC	G	F				
107	485	486	G/F		PQC	300		G							F	PQC	G	F				
108	486	487	G/F		PQC	300		G							F	PQC	G	F				
109	487	488	G/F		PQC	300		G							F	PQC	G	F				
110	488	489	G/F		PQC	300		G	0.1						F	PQC	G	F				
111	489	490	G/F		PQC	300		G							F	PQC	G	F				
112	490	491	G/F		PQC	300		G							F	PQC	G	F				
113	491	492	G/F		PQC	300		G		0.15					F	PQC	G	F				
114	492	493	G/F		PQC	300		G							F	PQC	G	F				
115	493	494	Good		BT/PQC	300/50		G/F							F	PQC	G	F				
116	494	495	Fair		BT	50		F	1			10			F	BT	G	F				

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
117	495	496	Fair		BT	50		F	1			10			F	BT	G	F				
118	496	497	Fair		BT	50		F	1			15			F	BT	G	F				

RHS

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
1	379.1	380	Good		PQC	300		G							F	PQC	G	F				
2	380	381	Good		PQC	300		G							F	PQC	G	F				
3	381	382	Good		PQC	300		G							F	PQC	G	F				
4	382	383	Good		PQC	300		G							F	PQC	G	F				
5	383	384	Good		PQC	300		G							F	PQC	G	F				
6	384	385	G/F		PQC	300		G							F	PQC	G	F				
7	385	386	G/F		PQC	300		G							F	PQC	G	F				
8	386	387	Good		PQC	300		G							F	PQC	G	F				
9	387	388	Good		PQC	300		G							F	PQC	G	F				
10	388	389	G/F		PQC	300		G							F	PQC	G	F				
11	389	390	G/F		PQC	300		G							F	PQC	G	F				
12	390	391	G/F		PQC	300		G							F	PQC	G	F				
13	391	392	G/F		PQC	300		G							F	PQC	G	F				
14	392	393	Good		PQC	300		G							F	PQC	G	F				
15	393	394	G/F		PQC	300		G							F	PQC	G	F				
16	394	395	G/F		PQC	300		G							F	PQC	G	F				
17	395	396	Fair		PQC	300		F							F	PQC	G	F				
18	396	397	Good		PQC	300		G							F	PQC	G	F				
19	397	398	G/F		PQC	300		G							F	PQC	G	F				
20	398	399	G/F		PQC	300		G							F	PQC	G	F				
21	399	400	G/F		PQC	300		G							F	PQC	G	F				
22	400	401	G/F		PQC	300		G							F	PQC	G	F				
23	401	402	G/F		PQC	300		G							F	PQC	G	F				
24	402	403	Good		PQC	300		G							F	PQC	G	F				

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
25	403	404	G/F		PQC	300		G							F	PQC	G	F				
26	404	405	G/F		PQC	300		G							F	PQC	G	F				
27	405	406	Good		PQC	300		G							F	PQC	G	F				
28	406	407	G/F		PQC	300		G							F	PQC	G	F				
29	407	408	G/F		PQC	300		G							F	PQC	G	F				
30	408	409	G/F		PQC	300		G							F	PQC	G	F				
31	409	410	Good		PQC	300		G							F	PQC	G	F				
32	410	411	G/F		PQC	300		G							F	PQC	G	F				
33	411	412	Good		PQC	300		G							F	PQC	G	F				
34	412	413	Good		PQC	300		G							F	PQC	G	F				
35	413	414	G/F		PQC	300		G							F	PQC	G	F				
36	414	415	G/F		PQC	300		G							F	PQC	G	F				
37	415	416	Good		PQC	300		G							F	PQC	G	P				
38	416	417	Good		PQC	300		G							P	PQC	G	P				
39	417	418	G/F		PQC	300		G		0.25					F	PQC	G	F				
40	418	419	Good		PQC	300		G							F	PQC	G	F				
41	419	420	Fair		PQC	300		F	0.15						F	PQC	P	F				MCW Concrete panel settle
42	420	421	Good		PQC	300		G							F	PQC	G	F				
43	421	422	G/F		PQC	300		G							F	PQC	G	P				
44	422	423	Good		PQC	300		G							F	PQC	G	P				
45	423	424	Good		PQC	300		G							F	PQC	G	F				
46	424	425	G/F		PQC	300		G	0.1						F	PQC	G	F				
47	425	426	G/F		PQC	300		G	0.1						F	PQC	G	F				
48	426	427	G/F		PQC	300		G							F	PQC	G	F				
49	427	428	G/F		PQC	300		G		0.1					F	PQC	G	F				
50	428	429	Good		PQC	300		G							F	PQC	G	F				
51	429	430	Good		PQC	300		G							F	PQC	G	F				
52	430	431	Good		PQC	300		G							F	PQC	G	F				
53	431	432	Good		PQC	300		G							F	PQC	G	F				
54	432	433	Fair		PQC	300		F	0.15						F	PQC	G	F				
55	433	434	Good		PQC	300		G							F	PQC	G	F				
56	434	435	Good		PQC	300		G							F	PQC	G	F				
57	435	436	G/F		PQC	300		G							F	PQC	G	F				
58	436	437	Good		PQC	300		G							F	PQC	G	F				
59	437	438	G/F		PQC	300		G							F	PQC	G	F				
60	438	439	G/F		PQC	300		G							F	PQC	G	F				
61	439	440	G/F		PQC	300		G							F	PQC	G	F				
62	440	441	Good		PQC	300		G							P	PQC	G	P				
63	441	442	Good		PQC	300		G							F	PQC	G	F				
64	442	443	G/F		PQC	300		G							F	PQC	G	F				

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
65	443	444	Good		PQC	300		G							P	PQC	G	P				
66	444	445	Good		PQC	300		G							F	PQC	G	F				
67	445	446	Good		PQC	300		G							F	PQC	G	F				
68	446	447	G/F		PQC	300		G							P	PQC	G	P				
69	447	448	Good		PQC	300		G							F	PQC	G	F				
70	448	449	Good		PQC	300		G							F	PQC	G	F				
71	449	450	G/F		PQC	300		G							F	PQC	G	F				
72	450	451	Good		PQC	300		G							F	PQC	G	F				
73	451	452	Good		PQC	300		G							F	PQC	G	F				
74	452	453	Good		PQC	300		G							F	PQC	G	F				
75	453	454	Fair		PQC	300		F	0.15						F	PQC	G	F				
76	454	455	Good		PQC	300		G							P	PQC	G	P				
77	455	456	Good		PQC	300		G							F	PQC	G	F				
78	456	457	Good		PQC	300		G							P	PQC	G	P				
79	457	458	Good		PQC	300		G							F	PQC	G	F				
80	458	459	Good		PQC	300		G							P	PQC	G	P				
81	459	460	G/F		PQC	300		G/F							P	PQC	G	P				
82	460	461	Good		PQC	300		G							F	PQC	G	F				
83	461	462	Good		PQC	300		G							F	PQC	G	F				
84	462	463	Good		PQC	300		G							F	PQC	G	F				
85	463	464	Good		PQC	300		G							F	PQC	G	F				
86	464	465	Good		PQC	300		G							F	PQC	G	F				
87	465	466	Good		PQC	300		G							F	PQC	G	F				
88	466	467	G/F		PQC	300		G							F	PQC	G	F				
89	467	468	G/F		PQC	300		G							F	PQC	G	F				
90	468	469	G/F		PQC	300		G							F	PQC	G	F				
91	469	470	Good		PQC	300		G							F	PQC	G	F				
92	470	471	Good		PQC	300		G							F	PQC	G	F				
93	471	472	Good		PQC	300		G							F	PQC	G	F				
94	472	473	G/F		PQC	300		G							F	PQC	G	F				
95	473	474	Good		PQC	300		G							F	PQC	G	F				
96	474	475	Good		PQC	300		G							F	PQC	G	P				
97	475	476	Good		PQC	300		G							F	PQC	G	P				
98	476	477	Good		PQC	300		G							F	PQC	G	F				
99	477	478	Good		PQC	300		G							F	PQC	G	F				
100	478	479	Good		PQC	300		G							F	PQC	G	F				
101	479	480	G/F		PQC	300		G							F	PQC	G	F				
102	480	481	Good		PQC	300		G							F	PQC	G	F				
103	481	482	Good		PQC	300		G							F	PQC	G	F				
104	482	483	Fair		PQC	300		F	0.25						F	PQC	G	F				
105	483	484	G/F		PQC	300		G	0.2						F	PQC	G	F				

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
106	484	485	Good		PQC	300		G							F	PQC	G	F				
107	485	486	Good		PQC	300		G							F	PQC	G	F				
108	486	487	Good		PQC	300		G							P	PQC	G	P				
109	487	488	G/F		PQC	300		F	0.1						P	PQC	G	P				
110	488	489	Good		PQC	300		G							F	PQC	G	F				
111	489	490	G/F		PQC	300		G							F	PQC	G	F				
112	490	491	Good		PQC	300		G							F	PQC	G	F				
113	491	492	Good		PQC	300		G							F	PQC	G	F				
114	492	493	Good		PQC	300		G							F	PQC	G	F				
115	493	494	Good		BT/PQC	300/50		G							F	PQC	G	F				
116	494	495	Fair		BT	50		F	3			10			F	BT	G	F				
117	495	496	Fair		BT	50		F	3			10			F	BT	G	F				
118	496	497	Fair		BT	50		F	3			8			F	BT	G	F				

Four laning of Gundugolanu - Devarapalli - Kovvuru from km. 15.320 to km. 85.204 in the state of Andhra Pradesh under Bharatmala Pariyojana on Hybrid Annuity Mode under NHDP PHASE-V

Technical Due Diligence Study

Final Report

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FOUR LANING OF GUNDUGOLANU - DEVARAPALLI - KOVVURU SECTION OF NH-16 (OLD SH-107) FROM KM. 15.320 (EXISTING KM. 15.700) TO KM. 85.204 (EXISTING KM. 81.400) (DESIGN LENGTH - 69.884 KM) IN THE STATE OF ANDHRA PRADESH UNDER BHARATMALA PARIYOJANA ON HYBRID ANNUITY MODE UNDER NHDP PHASE-V

TECHNICAL DUE DILIGENCE STUDY

FINAL REPORT

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1 INTRODUCTION

1.1 Background

The Government of India had entrusted to the Authority the project of development, maintenance and management of National Highway No. 16 (Old SH-107) including the section from Chainage from km. 15.320 to km. 85.204 (Approx. kms 69.884). The Authority had resolved to augment the existing road from km. 15.700 to km. 81.400 (Design Chainage from km. 15.320 to km. 85.204). Approx. km. 69.884 on the section of National Highway No.16 (Old SH-107) in the state of Andhra Pradesh for four laning (the "Project") on Design, Build, Operate and Transfer (the "DBOT Annuity" or "Hybrid Annuity" basis) under Bharatmala Pariyojana which shall be partly financed by the Concessionaire who shall recover its investment and costs through payments to be made by the Authority, in accordance with the terms and conditions to be set forth in a Concession Agreement.

The National Highways Authority of India invited proposals of 4-laning of Gundugolanu - Devarapalli - Kovvuru section of NH-16 (Old SH-107) Design chainage from km. 15.320 to km. 85.204 for a length of 69.884 kms on "DBOT Annuity" or "Hybrid Annuity" basis. The project was awarded to **M/s. GR Gundugolanu Devarapalli Highway Pvt. Ltd.** based on lowest Net Present Value of both Bid Project Cost during construction period and O&M cost during the operations period.

The Appointed Date of the project was 22nd October 2018. The concession period of the project highway is 17.5 years from the Appointed Date including construction period of 2.5 years. The Scheduled Completion Date of the project highway was on 19th April 2021. The NHAI had granted Extension of Time (EOT) for 83 days. The project has received Provisional Completion Certificate on 10th July 2021.

During maintenance period of the project highway, **GR Highways Investment Manager Pvt. Ltd.** (in its capacity as the Investment Manager of Bharat Highways InvIT) has appointed **FP Project Management Consultancy Services Private Limited** [Formerly Frischmann Prabhu (I) Pvt. Ltd.] as Technical Consultant for carrying out techincal study and assessment of Opex and Major Maintenance requirement (MMR) for balance concession period. The scope includes review of operation and maintenance system and to prepare maintenance schedule for entire duration of concession period based on a technical analysis. In turn, FP Project Management undertook the site visits to carry out site inspection. The report is based on findings during this period.

1.2 Our Approach Philosophy

Composition of Team

Our team consists of well-qualified Engineers and other professionals, whose experience covers all the skills and specializations required for undertaking such assignments. All the team personnel are our regular employees and have a long and stable working relationship with our firm.

The Team Leader coordinates the activities between all the key staff who work closely together. The key staff is assisted by various support staff, who report to the respective key staff in their field of expertise. The Team Leader is the point of contact for Client on Technical Study.

The technical study includes review of all the available documents namely:

a) Concession Agreement including Technical Schedules

b) EPC Agreement
c) Pavement design reports
d) O&M Manual prepared by the Concessionaire
e) O&M Contract, work order and their provisions
f) Recent O&M Report submitted to Authority
g) Quality of construction based on available data, design and drawings
h) Documents on historical expenditure on operation and maintenance
i) Reports on past accidents
j) O&M cost schedule for the concession period
k) Completion / Provisional Completion and status of items in punch list items
l) Correspondence regarding scope of works and during O&M
m) Toll operation manual / ATMS related documents

The review of the above documents is the first step towards accomplishment of the assignment. This gives a complete idea of the project and is used as input data for preparation of report after necessary analysis.

Site Visit and Data Collection

A team of experts from various streams has carried out the preliminary site visit to understand the assessment of project assets mainly condition of the pavement and structures.

- The site visit is undertaken for detailed reconnaissance and visual pavement condition assessment
- The condition assessment of major structures by visual inspection
- The information like material sources and the probable cost is collected for the purpose of cost estimate

The detailed design / drawings viz. Plan & L-sections, drainage design, structure design, layout drawings for project facilities like toll plaza, bus bay, truck lay-byes, highway lighting facilities etc., would be studied. Also, design / drawing and provision pertaining to road furniture are studied.

The adequacy of design is verified in accordance with the concession agreement, manual of specifications and standards as well as relevant IRC standards.

The information on availability of material in the vicinity is gathered. It has direct impact on cost of maintenance work and balance work if any.

The basic approach for preparation for cost estimates for operation and maintenance is as per the practice of State PWD / MoRT&H in respect of highways and structures.

Data Analysis

Based on the study of the available information and preliminary site visits, the consultants share their preliminary observations with the Client.

1.3 About this Report

This report has been prepared based on the information, reports and documents made available to us by the Company. We have also referred to publicly available reports, literature etc., and have made our best efforts to check the authenticity of the information available, analyse the same as per the best engineering / industry practices.

The site visit and inspection were carried out between the periods of **11th August 2022 to 14th August 2022**.

The report is organized with the following chapters for easy understanding of various issues.

- **Introduction -** This chapter gives an overview of the project background, approach and methodology of Due Diligence studies.
- **Project Description -** This chapter describes existing project features.
- **Development of Project Highway -** This chapter gives an overview of project development.
- **Balance works -** This chapter summarizes the balance works to be executed at Site.
- **Pavement and Site Investigation -** This chapter describes present condition of pavement, surveys and investigations carried out on site and proposals for maintenance as per contract requirements.
- **Operation and Maintenance -** This chapter describes O&M set up as well as O&M cost over the concession period.
- **Review of Concession Agreement -** This chapter summarizes the observations on the Concession Agreement.
- **Review of O&M Agreement -** This chapter summarizes the observations on the O&M Agreement executed.
- **Accident Data Analysis -** This chapter deals with the analysis of nature of accidents occurring on the stretch and to identify blackspots.
- **Annexures**

2 PROJECT DESCRIPTION

2.1 Location

The site of the Four Laning of Project Highways comprises the section of National Highway NH-16 (Old SH-107) commencing from km. 15.700 to km. 81.400 (Design Chainage from km. 15.320 to km. 85.204).

The proposed alignment of Four-Lane Project Highway starts from chainage km. 15.700 of existing NH-16 and run on existing NH-16 upto existing chainage km. 81.400. The entire alignment is passing through West Godavari District and mainly passes through settlements like Surappagudem, Bhimdole, Dubacherla, Pullalapadu, Nallajerla, Yerragudem, Devarapalli, Pangidi, Duddukuru, Dommeru, and ends at Kovvuru. After that the proposed alignment of Four-Lane Project Highway leaves the existing NH and takes the bypasses at following areas Bhimadole, Dubacherla, Nallajarla, Ananthapalli, Yernagudem, Devarapalli and project road ends at kovvuru.

The project highway is of four lane divided carriageway with paved shoulder & earthen shoulder and Six-Lane configuration structures (Interchange / Flyover / VUP / LVUP) with their 6-lane carriageway approaches.

Flexible Pavement is provided for the entire project highway including bypasses, Realignments, Slip roads and Service roads except toll plaza location. Rigid Pavement is provided for Toll Plaza location. The proposed length of the project highway is 69.884 kms.

The Location Map of the project highway is presented below:

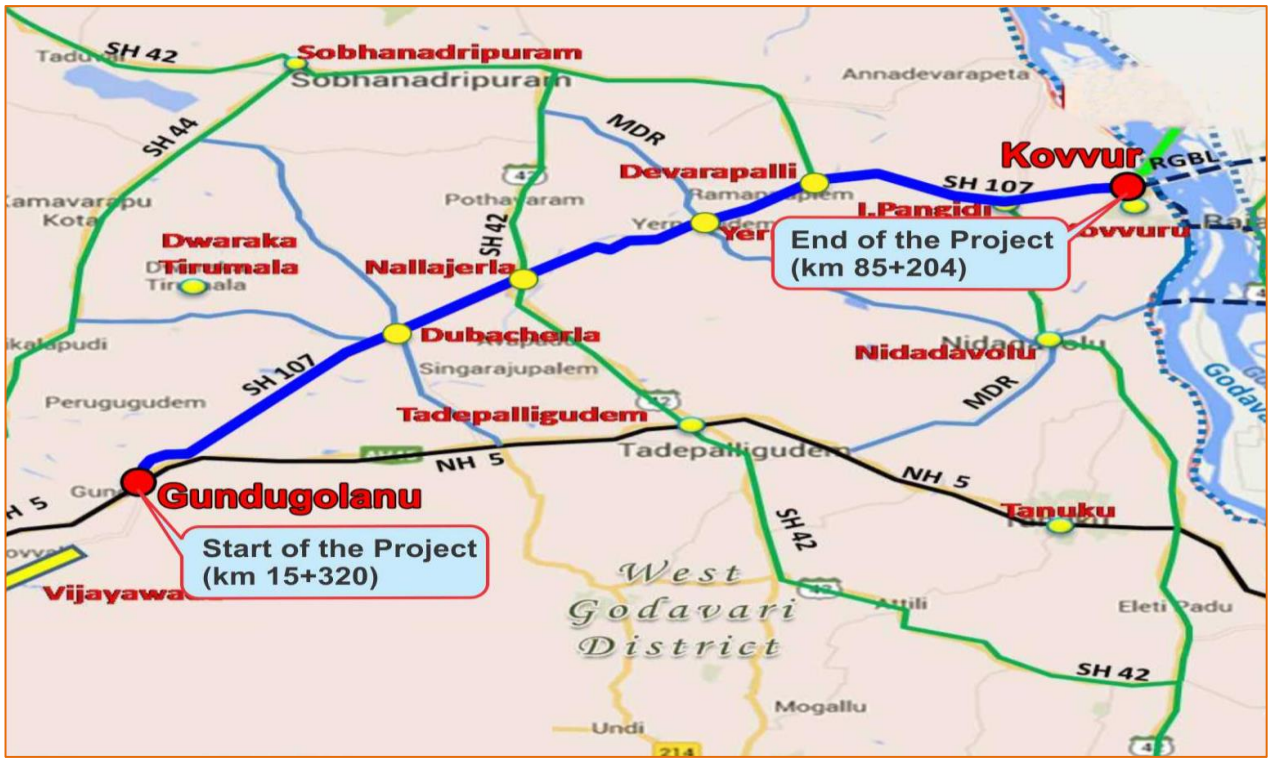


Figure 2-1 Location Map

2.2 Climate

The climate of the project area is generally dry except during the monsoon season between July and August are being the peak rainy months. The average annual rainfall in the area is around 1179 mm. The hottest season is from April to June, with temperature ranging from 34 °C (93 °F) to 48 °C (118 °F) with maximum of 52 °C (126 °F). The month with the highest relative humidity is September (82.60 %). The month with the lowest relative humidity is May (61.01 %).

2.3 Terrain

This section of National Highway traverses through plain / rolling terrain.

2.4 Abutting Land Use

The land use along the highway is predominantly agriculture, built up and barren.

2.5 Right of Way

The width of existing Right of Way (RoW) throughout the project stretch is 60.0 m.

2.6 Existing Utilities

During widening of the project highway, various affected utility services located along the project road were shifted to the PROW. The different types of utilities found along the road include, electrical poles, telephone poles, OFC Cables, etc.

3 DEVELOPMENT OF PROJECT ROAD

3.1 Project Road

The existing two-lane road with earthen shoulder from km. 15+700 to km. 81+400 has been developed as four lane divided carriageway during the construction stage for the length of 69.884 kms. The project road passes through rural as well as built-up sections. The stretches falling in built-up areas have been provided with service road as per scope of works. The development of entire project road has been carried out in accordance with schedule-B and schedule-C as per standards set forth in schedule-D under the Concession Agreement.

M/s. GR Gundugolanu Devarapalli Highway Pvt. LTD. has completed construction of the project road for the length of 69.884 kms.

The stretch of the project highway under the scope of study runs predominantly through plain / rolling terrain. The design standards have been adhered to with a realistic compatibility with the existing ROW, utilities and optimum land acquisition. Generally, the cross-sectional dimensions of project road are as below:

Table 3-1 Cross sectional dimension

Main Carriageway	Width (m)
Carriageway	15.0 to 26.0
Paved Shoulder width - one side	2.0
Earthen Shoulder width - one side	2.0
Median width	1.5 - 4.0
Service Road	5.5 to 7.5

3.2 Width of Carriageway

The paved carriageway is 4 lane varies from 18 m to 27 m wide including paved shoulders, shyness and excluding the median for 4-lane divided carriageway.

3.3 Bypass and Realignment

A) Realignment

There are 03 locations where realignments are made. The same is as listed below.

Table 3-2 Details of Realignment

Sr. No.	Existing Chainage (km)		Design Chainage (km)		Design Length (km)	Remarks
	From	To	From	To		
1	Realignment	16.680	15.320	16.660	1.340	Start of project
2	18.720	18.940	18.690	18.910	0.220	Curve Improvement
3	52.950	53.390	54.380	54.820	0.440	Curve Improvement
				Total	**2.000**	

B) Bypasses

There are 06 Nos. of bypass on the project highway. The same is as listed below,

Table 3-3 Details of Bypasses

Sr. No.	Name of Bypass	Existing Chainage (km)		Design Chainage (km)		Design Length (km)
		From	To	From	To	
1	Bhimadole Bypass	20.380	24.880	20.330	25.610	5.280
2	Dubacherla Bypass	33.970	38.300	34.680	39.190	4.510
3	Nallajerla Bypass	41.770	44.590	42.660	46.010	3.350
4	Ananthapalli Bypass	47.160	50.260	48.610	51.700	3.090
5	Yernagudem Bypass	54.570	57.550	56.010	59.130	3.120
6	Devarapalli Bypass	58.320	81.410	59.890	85.204	25.314
	Total Length					**44.664**

3.4 Typical Cross Sections

A) Cross Section Type along the Project Corridor

The Typical Cross Sections as listed below:

Table 3-4 Details of Typical Cross Sections

Sr. No.	Design Chainage (km)		Length (m)	Type of C/S	Remarks
	From	To			
1	15.320	15.755	435	Fig 2.4A	
2	15.755	15.845	90	Fig 2.4A*	Uni directional Flyover LHS- At Grade Road RHS- Elevated Structure
3	15.845	16.220	375	Fig 2.4A	
4	16.220	18.060	1840	Fig 2.4 of 4 laning manual	
5	18.060	18.550	490	Fig 2.4D	
6	18.550	18.757	207	Fig 7.3 of 4 laning manual	ROB
7	18.757	19.210	453	Fig 2.4D	
8	19.210	19.915	705	Fig 2.6A	
9	19.915	20.450	535	Fig 2.4A	
10	20.450	20.490	40	Fig 2.4A*	Uni directional Flyover LHS- At Grade Road RHS- Elevated Structure
11	20.490	20.960	470	Fig 2.4A	
12	20.960	22.404	1444	Fig 2.5 of 4 laning manual	
13	22.404	22.614	210	Fig 7.3 of 4 laning manual	Major Bridge
14	22.614	22.850	236	Fig 2.5 of 4 laning manual	
15	22.850	23.120	270	Fig 2.4C	
16	23.120	23.180	60	Fig 7.8 of 4 laning manual	Flyover
17	23.180	23.580	400	Fig 2.4C	
18	23.580	24.910	1330	Fig 2.5 of 4 laning manual	
19	24.910	25.370	460	Fig 2.4A	
20	25.370	25.410	40	Fig 2.4A*	Uni directional Flyover LHS- At Grade Road RHS- Elevated Structure
21	25.410	25.730	320	Fig 2.4A	
22	25.730	27.500	1770	Fig 2.4 of 4 laning manual	

Sr. No.	Design Chainage (km)		Length (m)	Type of C/S	Remarks
	From	To			
23	27.500	27.784	284	Fig 2.6B	
24	27.784	27.796	12	Fig 7.8 of 4 laning manual	LVUP
25	27.796	28.315	519	Fig 2.6B	
26	28.315	31.597	3282	Fig 2.4 of 4 laning manual	
27	31.597	31.723	126	Fig 7.3 of 4 laning manual	Major Bridge
28	31.723	34.620	2897	Fig 2.4 of 4 laning manual	
29	34.620	34.920	300	Fig 2.4A	
30	34.920	34.960	40	Fig 2.4A*	Uni directional Flyover LHS- At Grade Road RHS- Elevated Structure
31	34.960	35.500	540	Fig 2.4A	
32	35.500	35.995	495	Fig 2.5 of 4 laning manual	
33	35.995	36.404	409	Fig 2.4C	
34	36.404	36.416	12	Fig 7.8 of 4 laning manual	LVUP
35	36.416	36.770	354	Fig 2.4C	
36	36.770	37.060	290	Fig 2.5 of 4 laning manual	
37	37.060	37.394	334	Fig 2.4C	
38	37.394	37.406	12	Fig 7.8 of 4 laning manual	LVUP
39	37.406	37.835	429	Fig 2.4C	
40	37.835	38.535	700	Fig 2.5 of 4 laning manual	
41	38.535	38.915	380	Fig 2.4A	
42	38.915	38.955	40	Fig 2.4A*	Uni directional Flyover LHS- At Grade Road RHS- Elevated Structure
43	38.955	39.450	495	Fig 2.4A	
44	39.450	42.460	3010	Fig 2.4 of 4 laning manual	
45	42.460	42.855	395	Fig 2.4A	
46	42.855	42.895	40	Fig 2.4A*	Uni directional Flyover LHS- At Grade Road RHS- Elevated Structure
47	42.895	43.255	360	Fig 2.4A	
48	43.255	44.060	805	Fig 2.5 of 4 laning manual	
49	44.060	44.368	307.5	Fig 2.4C	
50	44.368	44.383	15	Fig 7.8 of 4 laning manual	VUP
51	44.383	44.720	337.5	Fig 2.4C	
52	44.720	45.350	630	Fig 2.5 of 4 laning manual	
53	45.350	45.610	260	Fig 2.4C	
54	45.610	45.650	40	Fig 7.8 of 4 laning manual	Flyover
55	45.650	46.250	600	Fig 2.4C	
56	46.250	46.544	294	Fig 2.6B	
57	46.544	46.556	12	Fig 7.8 of 4 laning manual	LVUP
58	46.556	46.890	334	Fig 2.6B	
59	46.890	48.117	1227	Fig 2.4 of 4 laning manual	
60	48.117	48.272	155	Fig 7.3 of 4 laning manual	Major Bridge
61	48.272	48.415	143	Fig 2.4 of 4 laning manual	
62	48.415	48.810	395	Fig 2.4B	
63	48.810	48.850	40	Fig 2.4B**	Uni directional Flyover LHS- Elevated Structure RHS- At Grade Road
64	48.850	49.230	380	Fig 2.4B	

Sr. No.	Design Chainage (km)		Length (m)	Type of C/S	Remarks
	From	To			
65	49.230	49.760	530	Fig 2.5 of 4 laning manual	
66	49.760	50.039	279	Fig 2.4C	
67	50.039	50.051	12	Fig 7.8 of 4 laning manual	LVUP
68	50.051	50.480	429	Fig 2.4C	
69	50.480	51.095	615	Fig 2.5 of 4 laning manual	
70	51.095	51.415	320	Fig 2.4B	
71	51.415	51.455	40	Fig 2.4B**	Uni directional Flyover LHS- Elevated Structure RHS- At Grade Road
72	51.455	51.735	280	Fig 2.4B	
73	51.735	51.820	85	Fig 2.4 of 4 laning manual	
74	51.820	52.020	200	Fig 7.3 of 4 laning manual	Major Bridge
75	52.020	54.380	2360	Fig 2.4 of 4 laning manual	
76	54.380	55.310	930	Fig 2.6A	
77	55.310	55.840	530	Fig 2.5 of 4 laning manual of 4 laning manual	
78	55.840	56.245	405	Fig 2.4A	
79	56.245	56.285	40	Fig 2.4A*	Uni directional Flyover LHS- At Grade Road RHS- Elevated Structure
80	56.285	56.645	360	Fig 2.4A	
81	56.645	57.260	615	Fig 2.5 of 4 laning manual	
82	57.260	57.784	524	Fig 2.4C	
83	57.784	57.796	12	Fig 7.8 of 4 laning manual	LVUP
84	57.796	58.100	304	Fig 2.4C	
85	58.100	58.570	470	Fig 2.5 of 4 laning manual	
86	58.570	58.920	350	Fig 2.4A	
87	58.920	58.960	40	Fig 2.4A*	Uni directional Flyover LHS- At Grade Road RHS- Elevated Structure
88	58.960	59.380	420	Fig 2.4A	
89	59.380	59.708	328	Fig 2.4 of 4 laning manual	
90	59.708	59.832	124	Fig 7.3 of 4 laning manual	Major Bridge
91	59.832	59.890	58	Fig 2.4 of 4 laning manual	
92	59.890	60.180	290	Fig 2.4A	
93	60.180	60.220	40	Fig 2.4A*	Uni directional Flyover LHS- At Grade Road RHS- Elevated Structure
94	60.220	60.545	325	Fig 2.4A	
95	60.545	61.560	1015	Fig 2.5 of 4 laning manual	
96	61.560	61.919	359	Fig 2.4C	
97	61.919	61.931	12	Fig 7.8 of 4 laning manual	LVUP
98	61.931	62.240	309	Fig 2.4C	
99	62.240	63.075	835	Fig 2.5 of 4 laning manual	
100	63.075	63.448	373	Fig 2.4C	
101	63.448	63.473	25	Fig 7.8 of 4 laning manual	VUP
102	63.473	64.390	917	Fig 2.4C	
103	64.390	66.200	1810	Fig 2.5 of 4 laning manual	
104	66.200	66.655	455	Fig 2.4C	
105	66.655	66.745	90	Fig 7.8 of 4 laning manual	Flyover

Sr. No.	Design Chainage (km)		Length (m)	Type of C/S	Remarks
	From	To			
106	66.745	67.390	645	Fig 2.4C	
107	67.390	67.700	310	Fig 2.5 of 4 laning manual	
108	67.700	67.969	269	Fig 2.4C	
109	67.969	67.981	12	Fig 7.8 of 4 laning manual	LVUP
110	67.981	68.480	499	Fig 2.4C	
111	68.480	68.645	165	Fig 2.5 of 4 laning manual	
112	68.645	68.765	120	Fig 7.3 of 4 laning manual	Major Bridge
113	68.765	70.780	2015	Fig 2.5 of 4 laning manual	
114	70.780	71.134	354	Fig 2.4C	
115	71.134	71.146	12	Fig 7.8 of 4 laning manual	LVUP
116	71.146	71.530	384	Fig 2.4C	
117	71.530	73.650	2120	Fig 2.5 of 4 laning manual	
118	73.650	73.994	344	Fig 2.4C	
119	73.994	74.006	12	Fig 7.8 of 4 laning manual	LVUP
120	74.006	74.430	424	Fig 2.4C	
121	74.430	76.673	2243	Fig 2.5 of 4 laning manual	
122	76.673	76.753	80	Fig 7.3 of 4 laning manual	Major Bridge
123	76.753	77.455	702	Fig 2.5 of 4 laning manual	
124	77.455	77.535	80	Fig 7.3 of 4 laning manual	Major Bridge
125	77.535	77.800	265	Fig 2.5 of 4 laning manual	
126	77.800	78.314	514	Fig 2.4C	
127	78.314	78.326	12	Fig 7.8 of 4 laning manual	LVUP
128	78.326	78.860	534	Fig 2.4C	
129	78.860	79.021	161	Fig 2.4C	
130	79.021	79.111	90	Fig 7.3 of 4 laning manual	Major Bridge
131	79.111	79.265	154	Fig 2.4C	
132	79.265	79.305	40	Fig 7.8 of 4 laning manual	Flyover
133	79.305	79.790	485	Fig 2.4C	
134	79.790	82.980	3190	Fig 2.5 of 4 laning manual	
135	82.980	83.398	418	Fig 2.4C	
136	83.398	83.423	25	Fig 7.8 of 4 laning manual	VUP
137	83.423	83.800	377	Fig 2.4C	
138	83.800	85.204	1404	Fig 2.5 of 4 laning manual	Overpass to be con- structed for existing road @ 84+795 as per GAD

The cross-section has developed as per the Manual Specifications and Standards for four-laning of highways through Public Private Partnership published by the IRC:SP:84-2014.

Figure 3-1 Start and end of Project Road



Start of Project Road at km. 15+700



End of Project Road km. 85+204

3.5 Built-up Area

The Project Highway passes through the following built up areas.

Table 3-5 Details of Built-up area

Sr. No.	Design Chainage (km)		Length (m)	Location Name
	From	To		
1	19.210	19.915	705	Surappagudem
2	27.500	28.315	815	Gopalapuram
3	46.110	46.890	780	Achchannapeta
4	54.380	55.310	930	Surya Narayanapuram
		Total	**3230**	

3.6 Pavement Design

The entire stretch of the project highway including service road and slip road are flexible pavement except toll plaza which is rigid pavement.

3.6.1 Pavement design

Design of Flexible pavement has been carried out in accordance with Section 5 of the Manual for minimum design traffic of 80 MSA for section from design km. 15.320 to km. 34.680 of main carriageway. Minimum crust has composition of 40 mm BC, 105 mm DBM, 250mm WMM and 200 mm GSB.

Design of Flexible pavement has been carried out in accordance with Section 5 of the Manual for minimum design traffic of 84 MSA for section from design km. 34.680 to km. 42.660 of main carriageway. Minimum crust has composition of 50 mm BC, 110 mm DBM, 250mm WMM and 200 mm GSB.

Design of Flexible pavement has been carried out in accordance with Section 5 of the Manual for minimum design traffic of 100 MSA and for section from design km. 42.660 to km. 59.890 of main carriageway. Minimum crust has composition of 50 mm BC, 110mm DBM, 250mm WMM and 200 mm GSB.

Design of Flexible pavement has been carried out in accordance with Section 5 of the Manual for minimum design traffic of 150 MSA and for section from design km. 59.890 to km. 85.204 of main carriageway. Minimum crust has composition of 50 mm BC, 125 mm DBM, 250mm WMM and 200 mm GSB.

Design of Flexible pavement has been carried out in accordance with Section 5 of the Manual for minimum design traffic of 10 MSA for Service roads and Slip roads. Minimum crust has composition of 40 mm BC, 50 mm DBM, 250mm WMM and 200 mm GSB.

Design of Rigid pavement has been carried out in accordance with Section 5 of the Manual. Minimum crust has composition of 270 mm PQC, 150mm DLC and 150 mm GSB.

3.6.2 Type of Pavement

Flexible Pavement has been provided for the entire project highway including bypasses, Rea-alignments, Slip roads and Service roads except toll plaza location. However, overlay on existing carriage has been provided as per detailed design. Rigid Pavement has been provided for Toll Plaza location.

3.7 Intersections

i) At grade intersections

At grade intersections has been provided with the intersecting roads at the following locations.

a) Major Intersections

Table 3-6 Details of Major Intersections

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type of Junction	Cross Road Category	Leads to	Remarks
1	15.700	15.800	T	NH	Tanuku	Start of project
2	20.540	20.470	Y	SH	Bhimadole	Bypass start
3	24.660	25.390	Y	SH	Bhimadole	Bypass end
4	34.260	34.940	Y	SH	Dubacherla	Bypass start
5	38.020	38.935	Y	SH	Dubacherla	Bypass end
6	42.030	42.875	Y	SH	Nallagerla	Bypass start
7	47.420	48.830	Y	SH	Anatapalli	Bypass start
8	49.980	51.435	Y	SH	Anatapalli	Bypass end
9	54.940	56.265	T	SH	Yernagudem	Bypass start
10	57.350	58.940	Y	SH	Yernagudem	Bypass end
11	58.680	60.200	Y	SH	Devarapalli	Bypass start

b) Minor Intersections

Table 3-7 Details of Minor Intersections

Sr. No.	Existing Chainage	Design Chainage	Type	Cross road leads to		Category of cross road	Carriageway width cross road
				LHS	RHS		
1	17.380	17.350	Y	sitampeta		VR	Single Lane
2	19.090	19.070	Y	Gandivarigudem		VR	Single Lane
3	19.660	19.630	T		Patthuru	VR	Single Lane

Sr. No.	Existing Chainage	Design Chainage	Type	Cross road leads to		Category of cross road	Carriageway width cross road
				LHS	RHS		
4	25.060	25.800	+		K.Amberpeta	VR	Single Lane
5	29.210	29.900	T		Buttayagudem	VR	Single Lane
6	30.790	31.480	T		Gunnampalli	VR	Single Lane
7	39.530	40.420	T	Pullalapadu		VR	Single Lane
8	45.580	47.030	T		Village road	VR	Single Lane
9	50.320	51.765	T	Village road		VR	Single Lane
10	Bypass	65.025	+	Vadalakunta	Devarapalli	VR	Single Lane

Figure 3-2 Photographs of Major Junction



Major intersection at km. 60+000



End of Project Road km. 48+830

3.8 Underpasses

The details of the underpasses provided are tabulated as below.

Table 3-8 Details of lateral and Vertical Clearances at Underpasses

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Clear Span / Opening (m)	Width (m)	Type of Structure	Remarks
1	15.700	15.800	3 x 30.0	1 x 14.5	Uni directional Flyover	Realignment Start
2	20.540	20.470	2 x 20.0	1 x 14.5	Uni directional Flyover	Bhimadole Bypass Start
3	Bypass	23.150	2 x 30.0	2 x 14.5	Flyover	Bhimadole Bypass
4	24.660	25.390	2 x 20.0	1 x 14.5	Uni directional Flyover	Bhimadole Bypass end
5	27.100	27.790	1 x 12.0	2 x 14.5	LVUP	Konda Reddy Nagar
6	34.260	34.940	2 x 20.0	1 x 14.5	Uni directional Flyover	Dubhacherla Bypass start
7	Bypass	36.413	1 x 12.0	2 x 14.5	LVUP	Dubacherla Bypass Road Crossing
8	Bypass	37.400	1 x 12.0	2 x 14.5	LVUP	Dubacherla Bypass Towards Lakkavaram
9	38.020	38.935	2 x 20.0	1 x 14.5	Uni directional Flyover	Dubhacherla Bypass End

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Clear Span / Opening (m)	Width (m)	Type of Structure	Remarks
10	42.030	42.875	2 x 20.0	1 x 14.5	Uni directional Flyover	Nallajerla Bypass Start
11	Bypass	44.375	1 x 15.0	2 x 14.5	VUP	Nallajerla Bypass
12	Bypass	45.630	2 x 20.0	2 x 14.5	Flyover	Nallajerla Bypass
13	45.100	46.550	1 x 12.0	2 x 14.5	LVUP	
14	47.420	48.830	2 x 20.0	1 x 14.5	Uni directional Flyover	Ananthapalli Bypass Start
15	Bypass	50.045	1 x 12.0	2 x 14.5	LVUP	Ananthapalli Bypass Towards Chowdavaram
16	49.980	51.435	2 x 20.0	1 x 14.5	Uni directional Flyover	Ananthapalli Bypass End
17	54.940	56.265	2 x 20.0	1 x 14.5	Uni directional Flyover	Yernagudem Bypass Start
18	Bypass	57.790	1 x 12.0	2 x 14.5	LVUP	Yernagudem Bypass Towards Chinnayyagudem
19	57.350	58.940	2 x 20.0	1 x 14.5	Uni directional Flyover	Yernagudem Bypass End
20	58.680	60.200	2 x 20.0	1 x 14.5	Uni directional Flyover	Devarapalli Bypass Start
21	Bypass	61.925	1 x 12.0	2 x 14.5	LVUP	Devarapalli Bypass Towards Kothagudem
22	Bypass	63.460	1 x 25.0	2 x 14.5	VUP	Devarapalli Bypass Yadhavolu Rd
23	Bypass	66.700	3 x 30.0	2 x 14.5	Flyover	Devarapalli Bypass
24	Bypass	67.975	1 x 12.0	2 x 14.5	LVUP	Devarapalli Bypass
25	Bypass	71.140	1 x 12.0	2 x 14.5	LVUP	Devarapalli Bypass
26	Bypass	74.000	1 x 12.0	2 x 14.5	LVUP	Devarapalli Bypass Towards Gowripatnam
27	Bypass	78.320	1 x 12.0	2 x 14.5	LVUP	Devarapalli Bypass
28	Bypass	79.285	1x20 +1x35	2 x 14.5	Flyover	Devarapalli Bypass
29	Bypass	83.410	1 x 25.0	2 x 14.5	VUP	Devarapalli Bypass

3.8.1 Overpasses

The details of the Overpasses provided are tabulated as below.

Table 3-9 Details of lateral and vertical clearances at Over passes

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Span / Opening (m)	Deck Width (m)	Remarks
1	81.000	84.795	2 x 45.0m	1 x 12.0	At Kovvur Road

3.9 Service Road and slip roads

a) Service Road

Service roads has been constructed at the following sections excluding lengths of taper:

Table 3-10 Details of Service Roads

Sr. No.	From (km)	To (km)	Length in km	Side	Service road width, m	Total Length, km
1	19.210	19.915	0.705	Both	7.5	1.410
2	20.960	22.390	1.430	Both	7	2.860
3	23.580	24.910	1.330	Both	7	2.660
4	27.500	28.315	0.815	Both	7.5	1.630
5	35.500	35.995	0.495	Both	7	0.990
6	36.770	37.060	0.290	Both	7	0.580
7	37.835	38.535	0.700	Both	7	1.400
8	43.255	44.060	0.805	Both	7	1.610
9	44.720	45.350	0.630	Both	7	1.260
10	46.250	46.890	0.640	Both	7.5	1.280
11	49.230	49.760	0.530	Both	7	1.060
12	50.480	51.095	0.615	Both	7	1.230
13	54.380	55.310	0.930	Both	7.5	1.860
14	55.310	55.840	0.530	Both	7	1.060
15	56.645	57.260	0.615	Both	7	1.230
16	58.100	58.570	0.470	Both	7	0.940
17	60.545	61.560	1.015	Both	7	2.030
18	62.240	63.075	0.835	Both	7	1.670
19	64.390	66.200	1.810	Both	7	3.620
20	67.390	67.700	0.310	Both	7	0.620
21	68.900	70.780	1.880	Both	7	3.760
22	71.530	73.650	2.120	Both	7	4.240
23	74.430	76.650	2.220	Both	7	4.440
24	76.800	77.420	0.620	Both	7	1.240
25	77.580	77.800	0.220	Both	7	0.440
26	79.790	82.980	3.190	Both	7	6.380
27	83.800	85.204	1.404	Both	7	2.808
Total Length (km)			**27.154**			**54.308**

b) Slip Road

Slip roads has been constructed at the following sections excluding taper.

Table 3-11 Details of Slip Road

Sr. No.	Design Chainage (km)		Length (km)	Side	Slip Road Width (m)	Total Length (km)
	From	To				
1	15.320	16.220	0.900	Both	7.0	1.800
2	18.060	19.210	1.150	Both	5.5	2.300
3	19.915	20.960	1.045	Both	7.0	2.090
4	22.850	23.580	0.730	Both	7.0	1.460
5	24.910	25.730	0.820	Both	7.0	1.640
6	34.620	35.500	0.880	Both	7.0	1.760
8	35.995	36.770	0.775	Both	7.0	1.550
9	37.060	37.835	0.775	Both	7.0	1.550
10	38.535	39.450	0.915	Both	7.0	1.830
11	42.460	43.255	0.795	Both	7.0	1.590
12	44.060	44.720	0.660	Both	7.0	1.320
13	45.350	46.250	0.900	Both	7.0	1.800

Sr. No.	Design Chainage (km)		Length (km)	Side	Slip Road Width (m)	Total Length (km)
	From	To				
14	48.415	49.230	0.815	Both	7.0	1.280
16	49.760	50.480	0.720	Both	7.0	1.610
17	51.095	51.735	0.640	Both	7.0	1.680
18	55.840	56.645	0.805	Both	7.0	1.620
21	57.260	58.100	0.840	Both	7.0	1.310
22	58.570	59.380	0.810	Both	7.0	1.360
23	59.890	60.545	0.655	Both	7.0	2.630
24	61.560	62.240	0.680	Both	7.0	2.380
25	63.075	64.390	1.315	Both	7.0	1.560
26	66.200	67.390	1.190	Both	7.0	1.500
27	67.700	68.480	0.780	Both	7.0	1.560
28	70.780	71.530	0.750	Both	7.0	2.120
29	73.650	74.430	0.780	Both	7.0	1.860
30	77.800	78.860	1.060	Both	7.0	1.640
31	78.860	79.790	0.930	Both	7.0	1.280
32	82.980	83.800	0.820	Both	7.0	1.610
Total Length, km			**23.935**			**47.870**

Figure 3-3 Photographs of Service Road



km. 23+800 (LHS)



km. 27+790 (LHS)



km. 36+420 (RHS)



km. 78+800 (RHS)



km. 50+700 (LHS)



km. 44+800 (LHS)

3.10 Culverts reconstructed / widened / newly constructed

The culverts reconstructed / widened / newly constructed are given below:

a) Widening of Box / Slab Culverts

Table 3-12 Details of Widening of Box / Slab Culverts

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type of Flow	Type of Existing Culvert	Span Arrangement (m)	
					Existing	Proposed
1	25.870	26.611	Nala	Slab Culvert	3 x 1.5	3 x 1.5
2	28.610	29.314	Nala	Slab Culvert	3 x 1.5	3 x 1.5
3	30.170	30.874	Nala	Slab Culvert	1 x 1.5	1 x 1.5
4	39.920	40.829	Nala	Slab Culvert	1 x 4.3	1 x 4.3
5	41.145	42.054	Nala	Slab Culvert	1 x 1.6	1 x 1.6
6	45.450	46.914	Canal	Slab Culvert	2 x 1.5	2 x 1.5
7	51.695	53.144	Nala	Slab Culvert	1 x 2.2	1 x 2.2
8	52.760	54.234	Nala	Slab Culvert	1 x 2	1 x 2

b) Widening of Hume Pipe Culverts (HPC)

Table 3-13 Details of Widening of Hume Pipe Culverts (HPC)

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type of Flow	Type of Culvert		Span Arrangement (m)	
				Existing	Proposed	Existing	Proposed
1	16.880	16.846	Nala	Pipe Culvert	Pipe Culvert	1 x 0.9	1 x 0.9
2	17.070	17.042	Nala	Pipe Culvert	Pipe Culvert	1 x 0.9	1 x 0.9
3	17.300	17.280	Nala	Pipe Culvert	Pipe Culvert	1 x 0.9	1 x 0.9
4	17.440	17.420	Nala	Pipe Culvert	Pipe Culvert	1 x 0.9	1 x 0.9
5	19.430	19.401	Nala	Pipe Culvert	Pipe Culvert	2 x 0.9	2 x 0.9
6	19.660	19.631	Nala	Pipe Culvert	Pipe Culvert	3 x 0.9	3 x 0.9
7	19.995	19.961	Nala	Pipe Culvert	Pipe Culvert	1 x 0.9	1 x 0.9
8	28.320	29.016	Nala	Pipe Culvert	Pipe Culvert	1 x 0.9	1 x 0.9
9	29.070	29.774	Nala	Pipe Culvert	Pipe Culvert	1 x 0.9	1 x 0.9
10	46.016	47.804	Nala	Pipe Culvert	Pipe Culvert	4 x 1.1	4 x 1.2
11	50.710	52.164	Nala	Pipe Culvert	Pipe Culvert	1 x 0.9	1 x 0.9
12	52.020	53.464	Nala	Pipe Culvert	Pipe Culvert	1 x 0.9	1 x 0.9
13	52.260	53.704	Nala	Pipe Culvert	Pipe Culvert	3 x 0.9	3 x 0.9

c) Reconstruction of Box / Slab Culverts

Table 3-14 Details of Reconstruction of Box / Slab Culverts

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type of Flow	Total Length (m)
1	31.580	32.294	Nala	2.0

d) Reconstruction of Pipe to Box Culverts

Table 3-15 Details of Reconstruction of Pipe to Box Culverts

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type of Flow	Total Length (m)
1	20.190	20.156	Nala	2.0
2	25.030	25.740	Nala	2.0
3	29.560	30.274	Nala	2.0
4	31.060	31.764	Nala	2.0

5	46.372	48.580	Canal	2.0
6	53.760	55.200	Nala	3.0

e) New Construction of Box / Slab Culverts

Table 3-16 Details of New Construction of Box / Slab Culverts

Sr. No.	Design Chainage (km)	Type of flow	Total Length (m)
1	15.600	Nala	2.0
2	15.720	Nala	5.0
3	15.900	Nala	2.0
4	16.390	Nala	2.0
5	20.740	Nala	5.0
6	20.811	Nala	6.0
7	21.800	Nala	2.0
8	21.901	Nala	2.0
9	22.340	Canal	4.0
10	23.011	Nala	4.0
11	23.650	Canal	4.0
12	23.850	Canal	4.0
13	23.900	Canal	4.0
14	24.111	Canal	4.0
15	24.217	Canal	4.0
16	25.113	Nala	5.0
17	25.456	Nala	2.0
18	34.984	Nala	2.0
19	35.774	Nala	4.0
20	37.434	Nala	4.0
21	38.320	Nala	4.0
22	38.420	Canal	4.0
23	38.725	Canal	3.5
24	39.963	Canal	6.0
25	42.784	Nala	2.0
26	43.184	Nala	2.0
27	43.504	Nala	2.0
28	43.734	Nala	2.0
29	44.154	Nala	2.0
30	44.334	Nala	2.0
31	44.584	Nala	2.0
32	44.734	Nala	2.0
33	44.784	Nala	2.0
34	45.254	Nala	2.0
35	45.664	Nala	2.0
36	47.014	Canal	2.0
37	47.120	Nala	2.0
38	47.260	Canal	2.0
39	47.480	Canal	2.0
40	47.836	Canal	2.5
41	49.084	Canal	2.0
42	49.450	Canal	2.0
43	49.796	Canal	4.0
44	50.060	Canal	2.0
45	50.084	Canal	2.0

Sr. No.	Design Chainage (km)	Type of flow	Total Length (m)
46	50.434	Nala	2.0
47	50.700	Nala	2.0
48	50.820	Nala	2.0
49	51.210	Canal	2.0
50	51.494	Nala	2.0
51	51.694	Nala	2.0
52	56.310	Nala	2.0
53	56.500	Canal	2.0
54	56.650	Nala	2.0
55	56.700	Nala	2.0
56	57.000	Nala	2.0
57	57.510	Nala	2.0
58	57.810	Nala	2.0
59	58.160	Nala	2.0
60	58.725	Nala	2.0
61	58.840	Canal	5.0
62	60.430	Nala	2.0
63	60.810	Nala	4.0
64	61.010	Nala	5.0
65	61.980	Nala	4.0
66	62.410	Nala	2.0
67	62.782	Nala	4.0
68	63.020	Canal	2.0
69	63.200	Canal	2.0
70	63.490	Canal	2.0
71	63.700	Canal	2.0
72	63.900	Canal	2.0
73	64.400	Canal	2.0
74	64.600	Canal	2.0
75	64.674	Nala	3.0
76	64.900	Canal	2.0
77	65.130	Nala	2.0
78	65.200	Canal	2.0
79	65.470	Nala	6.0
80	65.725	Canal	2.0
81	66.860	Nala	2.0
82	67.310	Nala	2.0
83	68.000	Nala	2.0
84	68.040	Nala	3.0
85	69.055	Nala	3.0
86	70.130	Nala	2.0
87	70.230	Nala	2.0
88	70.600	Nala	6.0
89	71.160	Nala	2.0
90	72.080	Nala	3.0
91	72.195	Nala	2.0
92	73.206	Nala	2.0
93	73.480	Nala	4.0
94	74.030	Nala	2.0
95	75.960	Nala	6.0
96	76.180	Nala	2.0
97	77.210	Nala	2.0

Sr. No.	Design Chainage (km)	Type of flow	Total Length (m)
98	78.100	Nala	5.0
99	78.310	Nala	2.0
100	78.720	Nala	2.0
101	80.203	Nala	4.0
102	81.012	Nala	2.0
103	81.103	Nala	5.0
104	83.360	Nala	2.0
105	83.872	Nala	2.0
106	84.772	Nala	2.0

f) New Hume Pipe Culverts

Table 3-17 Details of New Hume Pipe Culverts

Sr. No.	Design Chainage (km)	Type of Flow	Total Length (m)
1	35.350	Nala	1.2

g) New Pipe culverts proposed at minor junctions

Table 3-18 Details of New Pipe culverts proposed at minor junctions

Sr. No.	Design Chainage (km)	Total Length (m)	Type of Jn.	Nos.
1	17.350	1 x 1.2	Y	1
2	19.070	1 x 1.2	Y	1
3	19.630	1 x 1.2	T	1
4	25.800	1 x 1.2	+	2
5	29.900	1 x 1.2	T	1
6	31.480	1 x 1.2	T	1
7	40.420	1 x 1.2	T	1
8	47.030	1 x 1.2	T	1
9	51.765	1 x 1.2	T	1
10	65.025	1 x 1.2	+	2

h) New Hume Pipe culverts at Ramps of Diamond Interchange

Table 3-19 Details of New Hume Pipe culverts at Ramps of Diamond Interchange

Sr. No.	Total Length (m)	Width (m)
1	1 x 1.2	9.0
2	1 x 1.2	9.0
3	1 x 1.2	9.0
4	1 x 1.2	9.0

i) New Box culverts at Junction Improvement

Table 3-20 Details of New Box culverts at Junction Improvement

Sr. No.	Chainage (Km)	Total Length (m)	Width (m)
1	25.390	1 x 5.0	18.0

3.11 Details of Bridges reconstructed / widened / newly constructed

Details of Major Bridges and Minor Bridges reconstructed / widened / newly constructed are given below:

A) Rehabilitation & Repair of Existing Major Bridges and Construction of New Major Bridges

The following existing major bridges are retained and utilized as a bridge for main carriageway on one side and these are repaired / strengthened as per the details given below. New three Lane major bridges for main carriageway on other side has been constructed as per the details given below:

Table 3-21 Details of Rehabilitation & Repair of Existing Major Bridges and Construction of new Major Bridges

Sr. No.	Chainage (km)		Type of Crossing	Existing Structure Details		Proposal	Proposed New Bridge		Nature of Extent of Repairs/ Strengthening
	Existing	Design		Existing Span Arrangement (m)	Carriageway Width (m)		Total Length (m)	Width (m)	
1	30.960	31.659.9	Indira Sagar Canal	6 x 21.0	10.5	LHS-New Construction RHS-Retain	LHS - 126.0	LHS - 1 x 16.0	Cleaning, painting, replacement of railing with crash barrier, replacement of expansion joint & wearing coat, epoxy application. Rain spouts, Kerb, foot- path shall be retro- fitted. Bearings shall be checked and re-placed if required.
2	46.740	48.194.5	Indira Sagar Canal	10 x 15.5	10.5	LHS -New Construction RHS-Retain	LHS - 155.0	LHS - 1 x 16.0	
3	58.210	59.770	Indira Sagar Canal	8 x 15.5	10.5	LHS - New Construction RHS - Retain	LHS –124.0	LHS - 1 x 16.0	

B) Rehabilitation & Repair of Existing Minor Bridges and Construction of New Minor Bridges:

The following existing minor bridge, retained and utilized as a bridge for main carriageway on one side, was repaired /strengthened as per the details given below. New three Lane minor bridges for main carriageway on other side constructed as per the details given below:

Table 3-22 Details of Rehabilitation & Repair of Existing Minor Bridges and Construction of New Minor Bridges

Sr. No.	Chainage (km)		Type of Crossing	Existing Structure Details		Proposal	Proposed New Bridge			Nature of Extent of Repairs / Strengthening to be carried out for Existing Bridge
	Existing	Design		Span Arrangement (m)	Carriage-way Width (m)		Total Length (m)	Proposed Width (m)		
								Main Carriageway (m)	Service/ Slip Road (m)	
1	51.415	52.845	Canal	3 x 10.0	10.5	LHS-New Construction RHS-Retain	LHS- 30.0	LHS-1X16.0	-	Cleaning, painting, replacement of railing with crash barrier, replacement of expansion joint & wearing coat, epoxy application etc.

C) Widening, Rehabilitation & Repair of Existing Minor Bridges and Construction of new Minor Bridges

The following existing narrow minor bridges, widened and utilized as a bridge for main carriageway on one side, repaired / strengthened as per the details given below. New three Lane minor bridges for main carriageway on other side constructed as per the details given below. Also, service road bridge on both sides constructed as per the details given below:

Table 3-23 Details of Widening, Rehabilitation & Repair of Existing Minor Bridges and Construction of New Minor Bridges

Sr. No.	Chainage (km)		Type of Crossing	Existing Structure Details		Proposal	Proposed New Bridge			Nature of Extent of Repairs/ Strengthening to be carried out for Existing Bridge
	Existing	Design		Span Arrangement (m)	Carriage-way Width (m)		Total Length (m)	Proposed Width (m)		
								Main Carriageway (m)	Service/ Slip Road	
1	28.880	29.568.6	Nala	4 x 6.5m	10.5m	LHS-New Construction RHS-Retain & Widening	LHS – 26.0	LHS- 1 x 16.0m RHS-Widening to 16.0m	-	Cleaning, painting, replacement of railing with crash barrier, replacement of expansion joint & wearing coat, epoxy application etc.
2	30.080	30.769.7	Canal	2 x 9.5m	10.5m	LHS-New Construction RHS-Retain & Widening	LHS - 20.0	LHS- 1 x 16.0m RHS-Widening to 16.0m	-	
3	44.780	46.225.7	Nala	3 x 2.8m	10.5m	LHS - Retain & Widening RHS - New Construction	RHS - 9.0	LHS-Widening to 14.5m RHS-1x14.5m	2 x10.8m	
4	57.980	59.550.7	Canal	3 x 10.0m	10.0m	LHS - New Construction RHS - Retain & Widening	LHS - 30.0	LHS-1x 16.0m RHS-Widening to 16.0m	-	

3.12 Reconstruction & New Construction of Major Bridges

The existing bridge at the following location is re-constructed as new structures:

Table 3-24 Details of Reconstruction & New Construction of Major Bridges

Sr. No.	Chainage (km)		Type of Crossing	Proposal	Proposed New Bridge	
	Existing	Design			Total Length (m)	Width (m)
1	50.470	51.920.3	Yerram Caluva	LHS-New construction RHS- Re-construction	200.0m	2 x 16.0m

E) Reconstruction & New Construction of Minor Bridges

The existing bridge at the following locations are re-constructed as new structures:

Table 3-25 Details of Reconstruction & New Construction of Minor Bridges

Sr. No	Chainage (km)		Type of Crossing	Proposal	Total Length (m)	Proposed Width (m)	
	Existing	Design				Main Carriageway	Service/ Slip Road
1	18.450	18.419.2	Nala	LHS-Re-construction RHS-New Construction	13.5m	2 x 16.0m	2x10.8
2	20.330	20.298.2	Nala	LHS - New Construction RHS – Re-construction	16.0m	2 x 14.5m	2x10.8
3	27.840	28.534.8	Canal	LHS-Reconstruction RHS-New Construction	17.0m	2 x 16.0m	-
4	28.080	28.772.7	Nala	LHS – Re-construction RHS-New Construction	50.0m	2 x 16.0m	-

F) New Major Bridges

New major bridges at the following locations on the Project Highway are constructed.

Table 3-26 Details of New Major Bridges

Sr. No.	Design Chainage (km)	Type of Crossing	Total Length (m)	Proposed Width (m)	
				Main Carriageway	Service/ Slip Road
1	22.509	Pond	210m	2 x 16.0m	-
2	68.705	Indira Sagar Canal	120m	2 x 16.0m	-
3	76.713	Rallamadugu River	80m	2 x 16.0m	-
4	77.495	Rallamadugu River	80m	2 x 16.0m	-
5	79.066	Rallamadugu River	90m	2 x 14.5m	2 x 10.8m

G) New Minor Bridges

New minor bridges at the following locations on the Project Highway are constructed.

Table 3-27 Details of New Minor Bridge

Sr. No.	Design Chainage (km)	Type of Crossing	Total Length (m)	Proposed Width (m)	
				Main Carriageway	Service/ Slip Road
1	24.415	Nala	12.5	2 x 14.0	2 x 10.8
2	24.581	GAIL Pipe	25.0	2 x 14.0	2 x 10.8
3	26.850	Canal	8.0	2 x 16.0	-
4	36.660	Nala	10.0	2 x 14.5	2 x 10.8
5	38.612	Nala	7.0	2 x 14.5	2 x 10.8
6	44.692	Nala	12.5	2 x 14.5	2 x 10.8
7	56.445.3	Nala	15.0	2 x 14.5	2 x 10.8
8	56.860.3	Nala	22.5	2 x 14.0	2 x 10.8
9	66.240	Canal	12.0	2 x 14.5	2 x 10.8
10	70.210	Nala	15.0	2 x 14.0	2 x 10.8
11	72.060	Nala	7.0	2 x 14.0	2 x 10.8
12	75.676	Nala	10.0	2 x 14.0	2 x 10.8
13	83.310	Nala	12.5	2 x 14.5	2 x 10.8

3.12.1 Interchanges

The Interchanges are constructed at the following locations:

Table 3-28 Details of Interchanges

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Location	Type of Interchange	Remarks
1	Bypass	66.700	On Devarapalli Bypass, Khammam cross road	Diamond	For layout & details Refer Appendix B-1

Chain link fencing provided at the end of ROW of Diamond Interchange.

3.12.2 Road Over Bridges (ROB)

A) The details of Reconstruction and new construction of ROBs are given below

Table 3-29 Details of the details of Reconstruction and New Construction of ROBs

Sr. No.	Chainage (km)		Type of Crossing	Existing Span Arrangement (m)	Proposal	Proposed Structure Details	
	Existing	Design				Span Arrangement (m)	Width
1	18.680	18.653.8	Railway	1 x 15.0	LHS-Re-construction RHS-New Construction	35.0+76.0+45.4+35.0	L-16.0m R-16.0m

3.12.3 Right of Way

The ROW for the entire project highway is 60 m.

3.13 Condition Survey of Bridges

The inventory of structures including major bridges, minor bridges, ROB, underpasses and culverts is presented in table as below:

Table 3-30 Summary of Structures

Type of Structure	Total Number of Structures
Major Structures:	
Road Over Bridge (ROB)	1
Overpasses	1
Flyover	16
Vehicular Underpass (VUP)	2
Light Vehicular Underpass (LVUP)	11
Cattle Underpass (CUP)	5
Major Bridges (MJB)	9
Minor Bridges (MNB)	22
Culverts:	
Box	122
Pipe Culverts	28
Total	**217**

The detailed condition survey of structures was carried out by visual inspection. The observations and findings are presented in table below:

Table 3-31 Structure Condition Survey

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
1	27.790	1 x 12.00	Light Vehicular Underpass	2 x 14.5	LHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
2	36.420	1 x 12.00	Light Vehicular Underpass	2 x 14.5	LHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
3	37.425	1 x 12.00	Light Vehicular Underpass	2 x 14.5	LHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									constructed, Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
4	44+135	1 x 12.00	Light Vehicular Underpass	2 x 14.5	LHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
5	47+044	1 x 12.00	Light Vehicular Underpass	2 x 14.5	LHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									constructed, Electrification work is completed in the Underpass.
6	50050	1 x 12.00	Light Vehicular Underpass	2 x 14.5	LHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
7	57.796	1 x 12.00	Light Vehicular Underpass	2 x 14.5	LHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
8	61.932	1 x 12.00	Light Vehicular Underpass	2 x 14.5	LHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									constructed, Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
9	68.029	1 x 12.00	Light Vehicular Underpass	2 x 14.5	LHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
10	71.140	1 x 12.00	Light Vehicular Underpass	2 x 14.5	LHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									constructed, Electrification work is completed in the Underpass.
11	74.000	1 x 12.00	Light Vehicular Underpass	2 x 14.5	LHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation	RCC Box type underpass, Structure is Newly constructed. It is sound in condition and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
12	63.466	1 x 25.0	Vehicular Underpass	2 x 14.5	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
13	83.405	1 x 25	Vehicular Underpass	2 x 14.5	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
14	23.150	2 x 30.0	Flyover	2 x 14.5	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
15	45.630	2 x 20.0	Flyover	2 x 14.5	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
16	56.275		Flyover	2 x 14.5	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
17	66.702	3 x 30.0	Flyover	2 x 14.5	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
18	79.277	1x20 +1x35	Flyover	2 x 14.5	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
19	84.795		Flyover	2 x 14.5	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
20	15.800	3 x 30.0	Uni directional Flyover	1 x 14.5	RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
21	20.440	2 x 20.0	Uni directional Flyover	1 x 14.5	RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
22	25.409	2 x 20.0	Uni directional Flyover	1 x 14.5	RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
23	34.915	2 x 20.0	Uni directional Flyover	1 x 14.5	RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
24	38.955	2 x 20.0	Uni directional Flyover	1 x 14.5	RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
25	42.875	2 x 20.0	Uni directional Flyover	1 x 14.5	RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
26	48.830	2 x 20.0	Uni directional Flyover	1 x 14.5	RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
27	51.477	2 x 20.0	Uni directional Flyover	1 x 14.5	RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
28	58.940	2 x 20.0	Uni directional Flyover	1 x 14.5	RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
29	60.160	2 x 20.0	Uni directional Flyover	1 x 14.5	RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
30	84.795	2 x 45.0	Over pass	1 x 12.0		RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 3 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
31	31.647	LHS 126 m RHS 6 x 21.0	Major Bridge	1X16.0+ 10.5	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders. RCC Crash Barrier constructed for Main Carriageway.
32	48.222	LHS 155 m RHS 10 x 15.5	Major Bridge	1X16.0+ 10.5	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos. each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									Girders. RCC Crash Barrier constructed for Main Carriageway.
33	59.770	LHS 124 m RHS 8 x 15.5	Major Bridge	1X16.0+ 10.5	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders 5 nos each span is used for Main Carriageway. RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is sound in condition and satisfactory. Elastomeric Type bearings are used, Precast Girders. RCC Crash Barrier constructed for Main Carriageway
34	51.929	200m	Major Bridge	2x16	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, RCC Crash Barrier constructed for Main Carriageway
35	22.509	210m	Major Bridge	2 x 16.0m	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									satisfactory. Elastomeric Type bearings are used, RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, RCC Crash Barrier constructed for Main Carriageway
36	68.742	120m	Major Bridge	2 x 16.0m	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, RCC Crash Barrier constructed for Main Carriageway
37	76.722	80m	Major Bridge	2 x 16.0m	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									bearings are used, RCC Crash Barrier constructed for Main Carriageway
38	77.505	80m	Major Bridge	2 x 16.0m	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, RCC Crash Barrier constructed for Main Carriageway
39	79.071	90m	Major Bridge	2 x 14.0m	LHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Girder Type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. Elastomeric Type bearings are used, RCC Crash Barrier constructed for Main Carriageway
40	18+433	13.5m	Minor Bridge	2 x 16.0m	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									constructed for Main Carriageway.
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
41	20+322	16.0m	Minor Bridge	2 x 14.5m	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway.
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
42	24+400	12.5m	Minor Bridge	2 x 14.0	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
43	24+603	25.0m	Minor Bridge	2 x 14.0	LHS	RCC Girder type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									constructed for Main Carriageway
					RHS	RCC Girder type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
44	26+850	8m	Minor Bridge	2 x 16.0	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
45	28+542	17m	Minor Bridge	2 x 16.0	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
46	28+782	50.0m	Minor Bridge	2 x 16.0m	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
47	29+577	26m	Minor Bridge	LHS- 1 x 16.0m RHS- Widening to 16.0m	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
48	30+774	20m	Minor Bridge	LHS- 1 x 16.0m RHS- Widening to 16.0m	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
49	36+665	10	Minor Bridge	2 x 14.0	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
50	38+612	7	Minor Bridge	2 x 14.0	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
51	44+703	12.5	Minor Bridge	2 x 14.0	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
52	46+237	3 x 2.8m	Minor Bridge	LHS-Widening to 14.5m	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
				RHS-1x14.5m	RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
53	52+853	3 x 10.0	Minor Bridge	10.5+16	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
54	56+467	15	Minor Bridge	2 x 14.0	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
55	56+860	22.5	Minor Bridge	2 x 14.0	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
56	59+522	3 x 10.0m	Minor Bridge	LHS - New Construction RHS - Retain & Widening	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
57	66+242	12m	Minor Bridge	2 x 14.0	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
58	70.238	15	Minor Bridge	2 x 14.0	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
59	72.052	7	Minor Bridge	2 x 14.0	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
60	75.676	10	Minor Bridge	2 x 14.0	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
61	83.307	12	Minor Bridge	2 x 14.5	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
62	19+636		Cattle Underpass		LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
63	22+400		Cattle Underpass		LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
64	35+488		Cattle Underpass		LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
65	48+600		Cattle Underpass		LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
66	82+200		Cattle Underpass		LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
67	18+868	35.0+76.0+45.4+35.0	Rail Over Bridge	L-16.0m R-16.0m	LHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway
					RHS	RCC Box type	RCC Slab	Open Foundation	Structure is Newly constructed. It is sound in condition and satisfactory. RCC Crash Barrier constructed for Main Carriageway

Figure 3-4 Photographs of Major Structures



View of LVUP at km 27+790



View of LVUP at km 36+420



View of LVUP at km 44+135



View of LVUP at km 71+140



View of VUP at km 63+466



View of VUP at km 83+405



View of CUP at km 48+60



View of LVUP at km 61+932



View of Major Bridge at km. 31+647



View of Major Bridge at km. 48+222



View of Major Bridge at km. 51+929



View of Major Bridge at km. 68+742



View of Minor Bridge at km. 24+603



View of Minor Bridge at km. 26+850



View of Minor Bridge at km. 28+782



View of Minor Bridge at km. 30+774



View of UDFO at km. 15+800



View of UDFO at km. 20+440



View of UDFO at km. 34+915



View of UDFO at km. 48+830



View of Flyover at km. 23+164



View of Flyover at km. 45+645



View of ROB at km. 18+677



View of ROB at km. 18+677

3.14 Condition Survey of Culverts

The cross-drainage structure includes hume pipe culverts at various locations. There are 28 nos. of pipe culverts along the project highway. There are 122 nos. box / slab culverts along the project highway. During the condition survey of structure, these culverts were inspected on Site.

The project involves construction of four lane divided carriageway. The culverts beneath existing alignment are either widened or reconstructed. The condition of culverts is generally found in sound condition. The quality of surface concrete of box culverts is satisfactory. The RCC parapet, has been provided at culvert locations, which is maintained properly.

Vegetation growth and accumulation of debris at waterway is being removed and cleaned by the Concessionaire on regular basis.

Figure 3-5 Photographs of Culverts



Box Culvert at km. 30+874



Box Culvert at km. 26+605



Box Culvert at km. 35+736



Box Culvert at km. 56+650

3.15 Drainage System

There are RCC box drains at the built-up areas and earthen drain at rural areas provided for the project stretch. Lined median longitudinal drain is provided at super-elevated sections. V shaped lined drain is provided at some locations. The roadside drainage along the project highway as well as lined drains at median portion needs to be maintained by cleaning debris on regular basis. Some of the photographs of the drains provided are presented as below.

Figure 3-6 Photographs of Drains provided



V Drain at km. 78+900



Built-up Drain cum footpath at km. 36+450

3.16 Road Furniture

Pavement Marking

Pavement marking for the project highway is done as per the design standards indicated in section 12 of Schedule-D. The painting is being done wherever is required on regular basis as a part of routine maintenance. Some of the photographs of road marking are presented below.

Figure 3-7 Photographs of Road Markings



Road Markings at km. 29+400



Road Markings at km. 56+760

Traffic Signage

Traffic signs includes roadside signs, overhead signs, kerb mounted signs and median signs along the project highway. The design for the traffic signs along the project highway is done as per the design standards indicated in section 11 of Schedule-D.

The height, lateral clearance, location and installation are as per relevant clauses of Schedule 'D'. Overhead sign has been installed ahead of major intersections, start / end of project highway and urban areas as per detailed design requirements.

The sign boards, kilometer stones and hectometer stones are being replaced wherever damaged. Some of the photographs of sign boards are presented below.

Figure 3-8 Photographs of Road Sign Boards



Cantilever Sign at km. 67+000



Sign Board at km. 59+000

Highway Lighting

Highway lighting is provided at underpasses, flyovers, ROBs and built-up locations. Lighting in some Underpasses are theft by Local peoples.

At underpass and flyover locations, highway lighting is provided at the structure locations and at its approaches.

Solar amber blinker signals are provided at each at-grade intersections and at median opening locations. These lights are properly maintained and are in good working condition. Regular maintenance work is carried out to ensure their efficient operation. Some of the photographs of highway lightings are presented below.

Figure 3-9 Photographs of Highway Lighting



Highway Lighting at km. 45+645



Highway Lighting at km. 44+135

Crash Barriers

Metal beam crash barriers are provided at bridge approaches, locations of high embankment and sharp curves. All the crash barriers provided by the Concessionaire are maintained at site. Some of the photographs of metal beam crash barriers are presented below.

Figure 3-10 Photographs of Crash Barriers



W beam Crash Barrier at km. 52+300



W beam Crash Barrier at km. 85+204

Chain fencing

The chain fencing is provided between main road and service road.

Figure 3-11 Photographs of Chain fencing



Chain fencing at km. 85+150



Chain fencing at km. 78+800

Road Land Boundary

Road land (ROW) boundary demarcation is required to be maintained by the Concessionaire on the project highway during the concession period. During the site visit, road land boundary pillars are found to be fixed at site. The road land boundary pillars are being fixed at required locations whenever missing.

3.17 Avenue Plantation and Median Plantation

Avenue plantation and median plantation is available intermittently along the project highway. Variety of trees and plants are planted throughout the corridor at road side and at median side respectively. Median plantation is maintained in good condition. The plantation is being done wherever required on regular basis. Some of the photographs of avenue plantation and median plantation are presented below.

Figure 3-12 Photographs of Avenue and Median Plantation



Median Plantation at km. 22+900



Median Plantation at km. 25+260

3.18 Project Facilities

The Concessionaire has constructed the Project Facilities as described in Technical Schedules. The Project Facilities includes:

(a) Toll Plazas;
(b) Roadside Furniture;
(c) Street Lighting;
(d) Pedestrian Facilities;
(e) Rest areas (way side amenities);
(f) Truck lay-byes;
(g) Bus-bays and bus shelters;
(h) Landscaping and tree plantation
(i) Traffic aid posts;
(j) Medical aid posts;
(k) Vehicle rescue posts;
(l) Others

3.18.1 Plaza

i) Toll Plazas are provided at the following locations:

Table 3-32 Details of Toll Plaza

Location	Location of Toll Plaza (km)		Minimum Number of Toll Lanes	
	Existing Chainage	Design Chainage	Entry	Exit
Near Ananthapalli	52.250	53.700	7+1	7+1



Figure 3-13 View of Toll Plaza

3.18.2 Road Side Furniture

Road side furniture are provided in accordance with the Manual of Specifications and Standards as referred in Schedule D.

Traffic Signs: Traffic signs include roadside signs, overhead signs and kerb mounted signs etc. along the entire project highway.

Overhead signs: The details of Overhead Signs are provided as listed below.

Table 3-33 Details of Overhead signs

Sr. No.	Design Chainage	Side	Type of Sign
1	15.400	LHS	Gantry
2	16.400	RHS	Gantry
3	19.800	LHS	Cantilever
4	25.900	RHS	Cantilever
5	34.450	LHS	Cantilever
6	39.600	RHS	Cantilever
7	42.300	LHS	Cantilever
8	45.200	LHS	Gantry
9	46.300	RHS	Gantry
10	48.200	LHS	Cantilever
11	51.900	RHS	Cantilever
12	55.700	LHS	Cantilever
13	59.600	RHS	Cantilever
14	59.600	LHS	Cantilever
15	66.000	LHS	Gantry
16	67.650	RHS	Gantry
17	77.600	LHS	Gantry
18	80.000	RHS	Gantry
19	84.600	LHS	Gantry
20	85.000	RHS	Gantry

i) **Hectometer / Kilometer stones**: Hectometer and kilometer stones are provided for the entire Project Highway as per the manual.

Figure 3-14 Photographs of kilometer stones



Kilimeter stone at km 22+000



kilometer stone at km 80+000

ii) **Boundary Stones**: Boundary Stones are provided at the boundary on both sides of Right of Way.

3.18.3 Highway Lighting

a) Highway lighting (LED) provided at the following locations:

i) At Toll Plazas, Rest area, Truck lay bye, Bus bays, bus shelter as given in

Schedule-C, Interchanges, Grade separators, built up sections, ROB & junctions as location given in schedule-B.

ii) Solar lighting provided near junctions, interchanges and at toll plaza locations.

3.18.4 Pedestrian Facilities

Pedestrian Facilities have been provided in accordance with the Manual of Specifications and Standards as referred in Schedule-D.

a) Rest Areas (Wayside Amenities):

Wayside Amenities are provided at following locations.

Table 3-34 Details of Wayside Amenities

Sr. No.	Existing Chainage	Design Chainage	Side	Location Name	L: B Ratio	Area(Ha)
1	32.000	33.500	LHS	Near Lakshmi Nagaram	3:2	4 Ha
2	32.400	33.900	RHS	Near Lakshmi Nagaram	3:2	4 Ha
3	Devarapalli Bypass	66.600	LHS	At Diamond Interchange	Area between the ramps of Diamond interchange To be utilized*.	
4	Devarapalli Bypass	66.800	RHS			

Figure 3-15 Photographs of Rest Area



Rest Area at km. 66+600



Rest Area at km. 66+800

3.18.5 Truck lay-byes

The truck lay-byes has provided at below location.

Table 3-35 Details of Truck lay-bye

Sr. No.	Existing km	Design Chainage	Side	Name / Location
1	39.800	41.500	Both	Near Pullalapadu
2		16+520	Both	

Figure 3-16 Photographs of Truck Lay bye



Truck Lay bye at km. 41+500



Truck Lay bye at km. 16+520

3.18.6 Bus bays and Passenger Shelters

Bus bays are constructed at following locations. Toilet block is provided at each of the bus bay and bus shelter locations.

Table 3-36 Details of Bus Bays and Passengers Shelters

Sr. No.	Existing km	Design Chainage	Side	location	Remarks
1	Realignment	15.700	LHS	Gundugolanu	Bus shelter on slip road
2	Realignment	15.900	RHS		Bus shelter
3	17.240	17.210	LHS		Bus Bay with Shelter
4	17.530	17.500	RHS		Bus Bay with Shelter
5	20.340	19.800	LHS		Bus shelter
6	20.440	19.900	RHS		Bus shelter
7	Bypass	23.050	LHS		Bus shelter on slip road
8		23.300	RHS		Bus shelter on slip road
9	25.750	25.250	LHS	Bhimadole by-pass Ends	Bus shelter
10	25.850	26.440	RHS		Bus shelter on slip road
11	27.370	28.060	LHS	Gopalapuram	Bus shelter on service road
12	27.470	28.160	RHS		Bus shelter on service road
13	29.100	29.750	LHS		Bus Bay with Shelter
14	29.400	30.050	RHS		Bus Bay with Shelter
15	30.570	31.260	LHS	Gunnampalli	Bus Bay with Shelter
16	30.580	31.360	RHS		Bus Bay with Shelter
17	31.470	32.400	LHS	Kappalgunta	Bus Bay with Shelter
18	31.540	32.600	RHS		Bus Bay with Shelter
19	33.610	34.200	RHS	Dubbacherla	Bus Bay with Shelter

Sr. No.	Existing km	Design Chainage	Side	location	Remarks
				Bypass Starts	
20	33.710	34.350	LHS		Bus Bay with Shelter
21	Bypass	37.285	LHS		Bus shelter on slip road
22		37.500	RHS		Bus shelter on slip road
23	38.700	39.700	RHS	Dubbacherla Bypass ends	Bus Bay with Shelter
24	38.800	40.000	LHS		Bus Bay with Shelter
25	41.320	42.200	LHS	Nelligerla By-pass starts	Bus Bay with Shelter
26	41.270	42.140	RHS		Bus Bay with Shelter
27	Bypass	45.500	LHS		Bus shelter on slip road
28		45.750	RHS		Bus shelter on slip road
29	45.100	46.560	LHS		Bus shelter
30	45.200	46.660	RHS		Bus shelter
31		48.700	LHS	Ananthapalli Bypass starts	Bus shelter on slip road
32		48.950	RHS		Bus shelter
33	Bypass	49.960	LHS		Bus shelter on slip road
34		50.165	RHS		Bus shelter on slip road
35	Bypass	51.300	LHS		Bus shelter on slip road
36		51.550	RHS		Bus shelter
37	53.550	54.800	LHS		Bus shelter
38	53.700	54.950	RHS		Bus shelter
39	Bypass	56.140	LHS	Yarnagudem Bypass starts	Bus shelter
40		56.410	RHS		Bus shelter on slip road
41		57.680	LHS		Bus shelter on slip road
42		57.900	RHS		Bus shelter on slip road
43	57.500	59.050	LHS	Yarnagudem Bypass ends	Bus shelter
44	Bypass	58.870	RHS		Bus shelter on slip road
45	Bypass	65.800	LHS		Bus Bay with Shelter
46		65.800	RHS		Bus Bay with Shelter
47		71.150	LHS	Duddukuru	Bus shelter
48		71.250	RHS		Bus shelter
49		73.000	RHS	Gowripatnam	Bus Bay with Shelter
50		73.350	LHS		Bus Bay with Shelter
51		79.200	LHS		Bus shelter on slip road
52		79.410	RHS		Bus shelter on slip road
53		82.050	LHS		Bus Bay with Shelter
54		81.950	RHS		Bus Bay with Shelter
55		84.475	LHS		Bus shelter
56		84.540	RHS		Bus shelter

Figure 3-17 Photographs of Bus bays



Bus Bay with Shelter at km. 79+200



Bus Bay with Shelter at km. 56+140

3.18.7 Others

i. Traffic Aid Posts

Traffic aid post is constructed at the toll plaza in consultation with the Independent Engineer / Project Director, NHAI.

ii. Medical Aid Posts

Medical aid is constructed at the toll plaza in consultation with the Independent Engineer / Project Director, NHAI. 2 Nos of ambulance(s) services are provided.

iii. Vehicle Rescue Posts

Vehicle Rescue is constructed at the toll plaza in consultation with the Independent Engineer/Project Director, NHAI. 2 Nos of crane services to tow away the disabled vehicles are provided.

Figure 3-18 Photographs of Emergency Medical Service



Ambulance at toll plaza



Medical bed at toll plaza medical aid post

iv. Communication system:

Communication system is provided as specified in the manual.

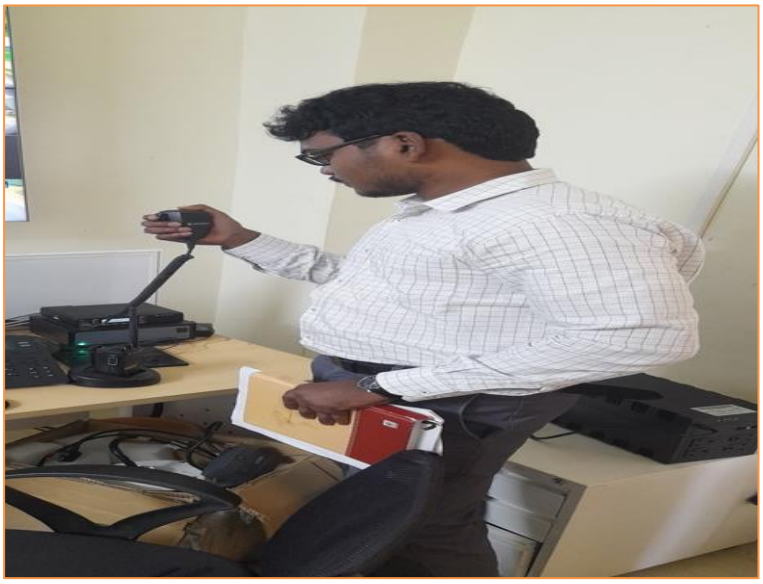


Figure 3-19 Emergency communication system is checking at Toll plaza

v. Operation and Maintenance Centre

Operation and Maintenance Centre is provided at Toll Plaza location.



Figure 3-20 Operation and maintenance building at Toll Plaza

4 BALANCE WORKS

As informed by the Concessionaire, all works as mentioned in the Technical Schedules of Concession Agreement are completed. There are no balance works to be executed as per CA.

5 PAVEMENT AND SITE INVESTIGATION

5.1 General

The project has been developed on Hybrid Annuity Mode basis.

The concession period of the project is 17 years from Appointment Date i.e., 22nd October 2018 including construction period of 910 days. The Provisional Completion (PCOD) for the entire project has been achieved on 10th July 2021. The project is currently under operation and maintenance (O&M) stage.

5.2 Details of As-built Pavement

The following table shows crust details based on pavement design report submitted by the Concessionaire. The details of pavement crust are as provided during the development of existing two lane to four lane divided carriageway. The pavement design report states that pavement was designed as per IRC:58-2015.

Table 5-1 Existing Pavement Crust Details

From	To	Effective CBR	Minimum Design Traffic as Per CA	carriage Way	Crust Details			
					GSB (mm)	WMM (mm)	DBM (mm)	BC (mm)
15320	34680	10%	80 MSA	MCW	200	250	105	40
34680	42660	10%	84 MSA	MCW	200	250	110	50
42660	59890	10%	100 MSA	MCW	200	250	110	50
59890	85204	10%	150 MSA	MCW	200	250	125	50
				SR	200	250	50	40

5.3 Surveys and Investigation

5.3.1 Pavement Condition Survey

Pavement condition survey was carried out from 11th **August to 13th August 2022** through visual inspection for the entire project length. The details of the visual condition survey are provided in **Annexure-V.**

The summary of pavement condition based on the visual inspection is tabulated below.

Table 5-2 Summary of Pavement Condition

Design Chainage (km)		Length	Visual Condition (As per IRC:115-2014)	
From	To		LHS Carriageway	RHS Carriageway
15+320	20+000	4.680	Good	Good
20+000	30+000	10.000	Good	Good
30+000	40+000	10.000	Good	Good
40+000	50+000	10.000	Good	Good
50+000	60+000	10.000	Good	Good
60+000	70+000	10.000	Good	Good
70+000	80+000	10.000	Good	Good
80+000	85+204	5.204	Good	Good

Observation and Conclusion:

From the above table, it is observed that the overall pavement condition for the entire project stretch is found to be good.

Following Photographs were taken at the time of visual pavement condition survey.

Figure 5-1 Photographs of Pavement Condition Survey



Pavement Condition at km. 41+200



Pavement Condition at km. 46+700



Pavement Condition at km. 55+100



Pavement Condition at km. 57+200



Pavement Condition at km. 71+300



Pavement Condition at km. 76+900

5.3.2 Roughness Index test

Prior period report for the Roughness Index Test conducted by **Aadharshila Infratech Pvt. Ltd.** Dated **17th** and **18th August 2022** has been provided by the Concessionaire. This test was done using Network Survey Vehicle (NSV) to assess the riding quality on each direction (each lane) of the carriageway of project highway.

As per IRC:SP:16-2019, condition of pavement is categorised under:

Table 5-3 Roughness Values (BI Value - mm / km)

Sr. No.	Roughness Range (m/km)	Severity	Inner Lane (Lane-1) LHS Length (km)	Outer Lane (Lane-2) LHS Length (km)	Inner Lane (Lane-1) RHS Length (km)	Outer Lane (Lane-2) RHS Length (km)
1	Less than 2.55	Good	69.884	69.884	69.884	69.884
2	2.55 - 3.30	Fair	-	-	-	-
3	More Than 3.30	Poor	-	-	-	-

6 OPERATION AND MAINTENANCE

6.1 Introduction

Article 17 and Schedule-K of the Concession Agreement defines the Operation and Maintenance requirement during the concession period.

The Company has received Provisional Completion Certificate on 10th July 2021.

The project is currently under Operation and Maintenance stage. The O&M period of the project highway is 15 years from the date of COD.

6.2 O & M Set Up

O & M Contract

As per Clause 17.1 of the Concession Agreement, the Concessionaire shall operate and maintain the Project Highway by itself, or through O&M Contractors and if required, modify, repair, improve the Project Highway to comply with Specifications and Standards, and other requirements set forth in the Agreement through Good Industry Practice, Applicable Laws and Applicable Permits and manufacturer's guidelines. The Operation and Maintenance activities will confirm to all the requirements laid down in MoRT&H, IRC Specifications and the Concession Agreement.

The Concessionaire (M/s. GR Gundugolanu Devarapalli Highway Private Limited) has been carrying out the activities related to operation and maintenance of the project highway.

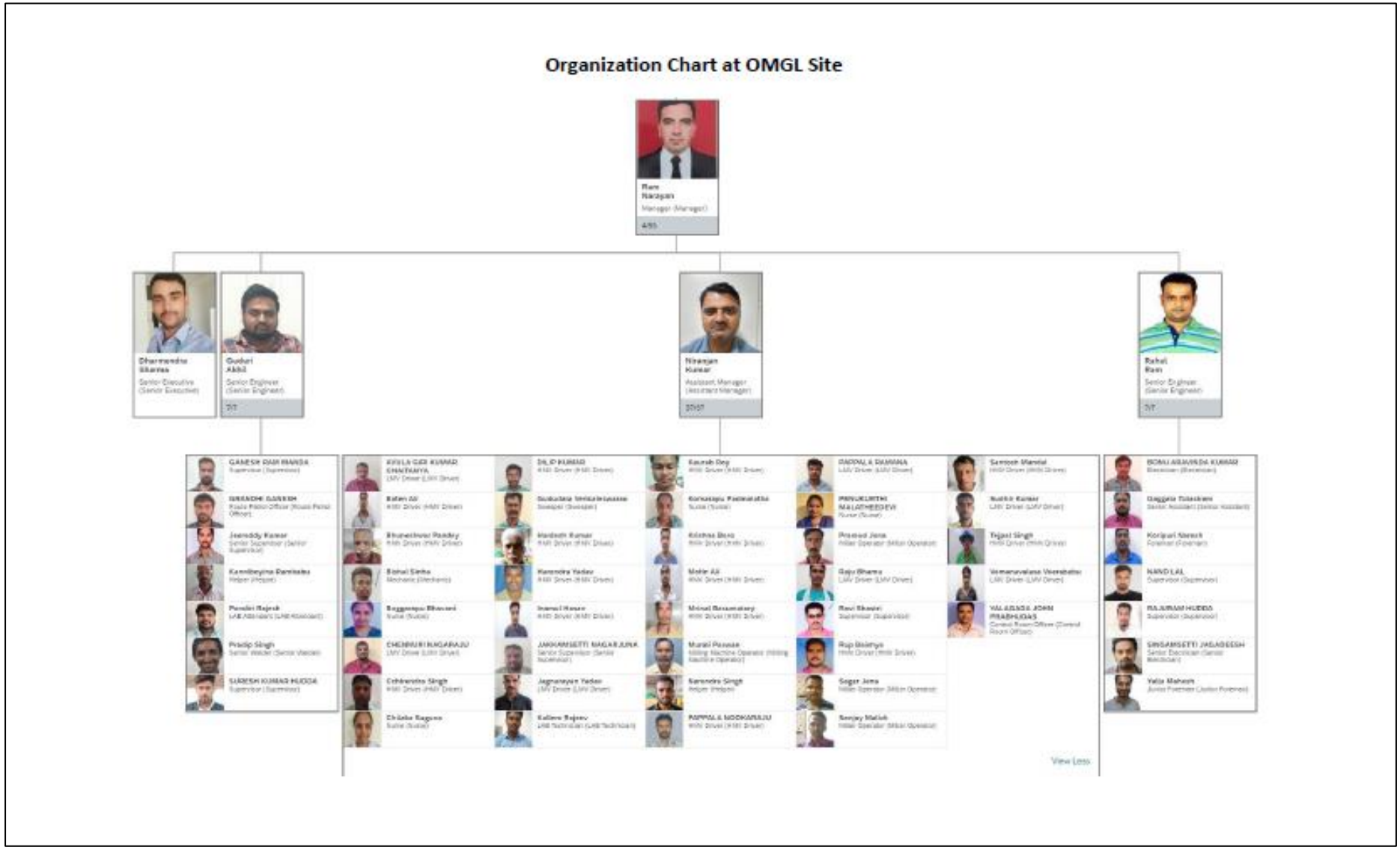
Under Routine maintenance, the road is to be maintained in good, safe and motorable condition. The specification in contracts are kept as same as per design and construction specification.

The periodical maintenance will have to be done during O&M period as per requirement of Concession Agreement and as per site requirement to maintain the design standards and level.

O&M Organization Chart

The Concessionaire has given the organization chart at site for Operation and maintenance. Accordingly, there is 01 Manager, 01 Asst Manager, 02 Senior Executive, 01 Senior Engineers, 01 Controll room officer, 01 route petrolling officer, 02 Sr supervisor, 06 supervisors 26 Miller operator / LMV / HMV / Tractor Drivers, to carry out O&M activities. The team controls the maintenance activities along with other supporting staff.

Organization Structure for GDHPL



List of Manpower

Sr. No.	Name of Employee's	Designation	Department
1	MURALI DHAR PASWAN	MILLING MACHINE OPERATOR	PLANT & EQUIPMENT
2	TEJPAL SINGH	HMV DRIVER	PLANT & EQUIPMENT
3	VEMANAVALASA VEERABABU	LMV DRIVER	PLANT & EQUIPMENT
4	MOTIN ALI	HMV DRIVER	PLANT & EQUIPMENT
5	KORIPURI NARESH	JR. FOREMAN	HIGHWAY
6	KRISHNA BORO	HMV DRIVER	PLANT & EQUIPMENT
7	GUDURI GNANANANDA AKHIL	SR. ENGINEER	HIGHWAY
8	INAMUL HASAN	HMV DRIVER	PLANT & EQUIPMENT
9	RUP KUMAR BAISHYA	HMV DRIVER	PLANT & EQUIPMENT
10	BATEN ALI	HMV DRIVER	PLANT & EQUIPMENT
11	YALLA MAHESH	SR. SUPERVISOR	HIGHWAY
12	PRAMOD KUMAR JENA	MILLER OPERATOR	PLANT & EQUIPMENT
13	JAGNARAYAN SINGH YADAV	LMV DRIVER	PLANT & EQUIPMENT
14	GAGGALA TULASIRAM	ASSISTANT	LEGAL & LIASONING
15	RAJU RAM BHAMU	LMV DRIVER	PLANT & EQUIPMENT
16	KANNIBOYINA RAMBABU	HELPER	QUALITY CONTROL
17	KALLEM RAJEEV	LAB. TECHNICIAN	QUALITY CONTROL
18	MRINAL BASUMATARY	HMV DRIVER	PLANT & EQUIPMENT
19	JEEREDDY VENKATA PAVAN KUMAR	SUPERVISOR	HIGHWAY
20	BHUNESHWAR PANDEY	HMV DRIVER	PLANT & EQUIPMENT
21	SINGAMSETTI VEERA VENKATA JAGADEESH	SR. ELECTRICIAN	PLANT & EQUIPMENT
22	PRADIP KUMAR SINGH	SR. WELDER	PLANT & EQUIPMENT
23	SANJAY MALICK	MILLER OPERATOR	PLANT & EQUIPMENT
24	SAGAR JENA	MILLER OPERATOR	PLANT & EQUIPMENT
25	KAURAB ROY	HMV DRIVER	PLANT & EQUIPMENT
26	HARENDRA YADAV	HMV DRIVER	PLANT & EQUIPMENT
27	PANDIRI CHINNA RAJESH	LAB. TECHNICIAN	QUALITY CONTROL
28	SANTOSH MANDAL	HMV DRIVER	PLANT & EQUIPMENT
29	HARDESH KUMAR	HMV DRIVER	PLANT & EQUIPMENT
30	NARENDRA SINGH	HELPER	PLANT & EQUIPMENT
31	RAVI SHASTRI	SUPERVISOR	HIGHWAY
32	SUDHIR KUMAR	LMV DRIVER	PLANT & EQUIPMENT

Sr. No.	Name of Employee's	Designation	Department
33	CCHIRENDRA SINGH	HMV DRIVER	PLANT & EQUIPMENT
34	CHILAKA SUGUNA	NURSE	SAFETY
35	KOMARAPU PADMALATHA	NURSE	SAFETY
36	GUDUDALA VENKATESWARAO	SWEEPER	HR & ADMINISTARTION
37	PENUKURTHI MALATHEEDEVI	NURSE	SAFETY
38	GRANDHI GANESH	Route Patrol Officer	OPERATIONS & MAINTENANCE
39	BONU ARAVINDA KUMAR	ELECTRICIAN	PLANT & EQUIPMENT
40	PAPPALA VENKATA RAMANA	LMV DRIVER	PLANT & EQUIPMENT
41	CHENNURI NAGARAJU	LMV DRIVER	PLANT & EQUIPMENT
42	JAKKAMSETTI NAGARJUNA	SR. SUPERVISOR	HIGHWAY
43	YALAGADA JOHN PRABHUDAS	Control Room Officer	OPERATIONS & MAINTENANCE
44	AVULA GIRI KUMAR CHAITANYA	LMV DRIVER	PLANT & EQUIPMENT
45	PAPPALA NOOKARAJU	HMV DRIVER	PLANT & EQUIPMENT
46	DILIP KUMAR	HMV DRIVER	PLANT & EQUIPMENT
47	RAJURAM HUDA	SUPERVISOR	HIGHWAY
48	NAND LAL	SUPERVISOR	HIGHWAY
49	SURESH KUMAR HUDA	SUPERVISOR	HIGHWAY
50	GANESH RAM MANDA	SUPERVISOR	HIGHWAY
51	RAHUL RAM	SR.ENGINEER	HIGHWAY
52	RAM NARAYAN	MANAGER	OPERATIONS & MAINTENANCE
53	NIRANJAN KUMAR	ASST. MANAGER	OPERATIONS & MAINTENANCE
54	BISHAL SINHA	MECHANIC	PLANT & EQUIPMENT
55	DHARMENDRA KUMAR SHARMA	SR. EXECUTIVE	HORTICULTURE
56	BOGGARAPU BHAVANI	NURSE	SAFETY

6.3 Operation Cost

Operations cost is comprised of manpower cost, power and electricity cost, office operating expenses, vehicle running expenses, administrative expenses and other miscellaneous expenses. The Concessionaire has provided the expenses occurred towards operation expenses for current / past years. Necessary assumptions have made from the expenses of similar type of projects to arrive at the operation cost. The estimates are projected based on best industry practices and are compared with the operating cost in the vicinity of the project area.

The estimated Operating Cost for the base month of August 2022 is **Rs. 8.53 Crores**. The detailed working of the same is attached in **Annexure-I**.

6.4 Routine Maintenance Cost

The Routine Maintenance cost is derived based on the Ministry of Road Transport and Highways - Report of the Committee on Norms for Maintenance of Roads in India (published by Indian Road Congress New Delhi 2001) along with actual pavement condition assessed during condition survey.

Maintenance cost constitutes the routine, day-to-day maintenance activities for project assets, including road pavement, shoulders, embankment, drainage, structures, plantations, roadside furniture, traffic signs, traffic safety devices etc. Past data has been used to assess maintenance costs due to normal usage or “wear-and-tear”. Likely costs of maintenance of structures are assessed based on their present condition and vintage, in combination with well-established guidelines and thumb rules given in Indian codes and standards.

The estimated cost of Routine Maintenance works out to be **Rs. 2.27 Crores (3.24 Lakhs per km)** for the base month of August 2022. The detailed working of the same is attached in **Annexure-II**.

6.5 Major Maintenance Cost

Unlike the old Concession Agreements where periodicity and threshold limits were clearly described for the major maintenance, the Concession Agreement of this project does not specify the periodicity or the threshold limits for carrying out the full-length major maintenance. Schedule-K of the Concession Agreement specifies the threshold limits and the timelines for carrying out repairs to the distresses during the operation period.

The maintenance thus can be carried out as and when required basis and to the compliance of Schedule-K requirement to maintain the road in serviceable condition. Only improvement to Riding Quality is expected if the roughness value exceeds 2750 mm/km. However, the average roughness value of the project highway lies within the limit as mentioned above.

Any New pavement is not expected to show any distresses at least for 6 to 7 years with the proper routine maintenance. Mere Routine Maintenance would suffice to meet the performance standard mentioned in Schedule-K. In this project, there is no specific requirement to carry out the major maintenance at the end of concession period.

Hence, major maintenance is planned every 7th year from the date of COD till end of concession period.

The summary of the major maintenance planned up to end of concession period is presented in the below table.

The total Base cost of major maintenance works out to be **Rs. 190.90 Crores** for the base month of August 2022 i.e., till 31st August 2022.The detailed working for the same is shown in **Annexure-III**.

6.6 Paved Shoulders

As per design specifications, the paved Shoulder is designed as an integral part of the pavement for main carriageway. Therefore, the total pavement thickness in paved shoulders would be the same as in the carriageway.

6.7 Summary of Major Maintenance Cycle

The table below shows the major maintenance cycle throughout the concession period for the project stretch.

Table 6-1 Maintenance Cycle

Sr. No.	Year	Main Carriageway	Service Road
1	FY 2023	-	-
2	FY 2024	-	-
3	FY 2025	-	-
4	FY 2026	-	-
5	FY 2027	-	-
6	FY 2028	-	-
7	FY 2029	1st Major Maintenance (100% BC + 10% DBM)	1st Major Maintenance (20% BC + 80% Micro-surfacing)
8	FY 2030	1st Major Maintenance (100% BC + 10% DBM)	1st Major Maintenance (20% BC + 80% Micro-surfacing)
9	FY 2031	-	-
10	FY 2032	-	-
11	FY 2033	-	-
12	FY 2034	-	-
13	FY 2035	2nd Major Maintenance (100% BC + 10% DBM)	2nd Major Maintenance (20% BC + 80% Micro-surfacing)
14	FY 2036	2nd Major Maintenance (100% BC + 10% DBM)	2nd Major Maintenance (20% BC + 80% Micro-surfacing)
15	FY 2037	-	-

6.8 Projected Maintenance Cost without escalation

The below table shows the base cost of operation and routine maintenance, periodic maintenance and strengthening up to end of the concession period without escalation.

Table 6-2 Summary of Operation & Maintenance Cost without escalation

Sr. No.	Item Description	Length (km)	Year of Execution	Rate (Lakhs / km)	Total Amount (Crores)
1	**Total Operation and Routine Maintenance Cost**	69.885	Every year	15.45	**10.79**

Sr. No.	Item Description	Length (km)	Year of Execution	Rate (Lakhs / km)	Total Amount (Crores)
2	**Periodic Maintenance Cost**				
i)	1st Major Maintenance - MCW & SR	69.885	FY 2029	136.58	**95.45**
ii)	2nd Major Maintenance - MCW & SR	69.885	FY 2035	136.58	**95.45**
	Total Major Maintenance Cost				**190.90**

Notes:

1. It is to be noted that, the rates considered for calculating all the above cost are exclusive of Goods and Service Tax (GST).
2. The estimated cost in table above is for base month of August 2022.
3. The rates are based on SOR of Govt. of Andhra Pradesh for the year 2022-2023. The current market rates are considered for Bitumen, cement and steel.
4. The labour rate adopted from Govt. of India, Ministry of Labour and Employment Office of the Chief Labour Commissioner © w.e.f. 25.07.2022.

6.9 Projected Maintenance Cost with escalation

The below table shows the total cost of operation and routine maintenance, periodic maintenance and strengthening up to end of the concession period with escalation as per WPI provided by the company.

Table 6-3 Summary of Operation & Maintenance Cost with escalation

Sr. No.	Year	WPI Inflation	Total O & M Cost	Major Maintenance Cost
1	FY 2023		10.79	-
2	FY 2024	2.87*%	11.10	-
3	FY 2025	5.00%	11.66	-
4	FY 2026	5.00%	12.24	-
5	FY 2027	5.00%	12.85	-
6	FY 2028	5.00%	13.50	-
7	FY 2029	5.00%	14.17	62.66
8	FY 2030	5.00%	14.88	65.79
9	FY 2031	5.00%	15.62	-
10	FY 2032	5.00%	16.41	-
11	FY 2033	5.00%	17.23	-
12	FY 2034	5.00%	18.09	-
13	FY 2035	5.00%	18.99	83.97
14	FY 2036	5.00%	19.94	88.17
15	FY 2037	5.00%	5.23	-
	Total Cost (Cr)		**212.71**	**300.59**

* Considering the base month for calculation as August 2022.

The company may carry out necessary investigation prior to O&M and major maintenance. This will help in proper assessment of maintenance work based on the actual pavement condition. The spending on periodic maintenance / strengthening can then be reduced if the road is adequately and timely maintained.

7 REVIEW OF CONCESSION AGREEMENT

The Ministry of Road Transport & Highways in accordance with the statutory powers vested on it by the Government of India has entered into in to a Concession Agreement with **GR Gundugolanu Devarapalli Highway Private Limited (GDHPL)** a Special Purpose Vehicle (SPV) formed for implementing this project, a company incorporated under Indian Companies Act, 2013 to Design, Built, finance, operate and Transfer (the "DBFOT Annuity" or Hybrid Annuity") basis for the For Four Laning of Gundugolanu - Devarapalli - Kovvuru section from km. 15.320 to km. 85.204 (Length 69.884 km.) of NH-16 on Hybrid Annuity Mode under Bharatmala Pariyojana in the state of Andhra Pradesh.

The Documents we studied from the point of interest of Lenders and our comments on Concession Agreement are given below.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 3 Clause 3.1	The Concession	Subject to and in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits, the Authority hereby grants to the Concessionaire the concession set forth herein including the exclusive right, license and authority to construct, operate and maintain the Project (the "**Concession**") during the Construction Period of 910 (Nine Hundred and Ten Days) days and Operation Period of 15 (Fifteen) years commencing from COD, and the Concessionaire hereby accepts the Concession and agrees to implement the Project subject to and in accordance with the terms and conditions set forth herein.	This construction work is completed, and PCOD is achieved on 10th July 2021.
Article 4 Clause 4.1.2	Condition Precedent	a) Procured for the concessionaire the Right of way to the Site in accordance with the provisions of Clauses 10.3.1 and 10.3.2. b) Procured all Applicable Permits relating to environmental protection, and conservation in respect land forming part of the Right of Way under Clause 10.3.1 and 10.3.2 c) Procured forest clearance for and in respect land forming part of the Right of Way under Clause 10.3.1 and 10.3.2, save and except permission for cutting trees; and d) Procured approval of the General Arrangement Drawings for the road over bridges/under bridges at level crossings on the project.	All issues complied and PCOD is achieved.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 4 Clause 4.2	Conditions Precedent- Damages for delay by the Authority	a) Procured for the concessionaire the right of way to the site in accordance with the provisions of the clause 10.3.1 and 10.3.2 b) Procure all applicable permits relating to environmental protection and conservation in respect land forming part of the right of way under clause 10.3.1 and 10.3.2 c) Procured project clearance for and in respect land forming part of the right of way under clause 10.3.1 and 10.3.2 save and except permission for cutting trees d) Procured approval of the general arrangement drawings for the road over bridges / under bridges at level crossing on the project	All issues complied and PCOD is achieved.
Article 4 Clause 4.3	Damages for delay by the concessionaire	In the event that (i) the Concessionaire does not procure fulfillment of any or all of the Conditions Precedent set forth in Clause 4.1.3 within the period specified in respect thereof, and (ii) the delay has not occurred as a result of failure to fulfill the obligations under Clause 4.1.2 or other breach of this Agreement by the Authority, or due to Force Majeure, the Concessionaire shall pay to the Authority Damages in an amount calculated at the rate of 0.3% (zero point three per cent) of the Performance Security for each day's delay until the fulfillment of such Conditions Precedent.	The PCOD is achieved.
Article 5 Clause 5.1.4 (d, e & f)	Obligation of the Concessionaire	d) The Concessionaire shall make reasonable efforts to maintain harmony and good industrial relations among the personnel employed by it or its Contractors in connection with the performance of its obligations under this Agreement. e) Make reasonable efforts to facilitate the acquisition of land required for the purposes of the Agreement f) Ensure and procure that its Contractors comply with all Applicable Permits and Applicable Laws in the performance by them of any of the Concessionaire's obligations under this agreement.	The risk of lender is covered.
Article 8 Clause 8.1.5	Disclaimer	Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Concessionaire and the	The Concessionaire shall note this provision and perform.

Article & Clause No.	Subject	Description in Brief	Remarks
		Authority shall not be liable in any manner for such risks or the consequences thereof.	
Article 9 Clause 9.1.1	Performance Security	The Concessionaire shall, for the performance of its obligations hereunder during the Construction Period, provide to the Authority no later than 30 (thirty) days from the date of this Agreement, an irrevocable and unconditional guarantee from a Bank for a sum equivalent to Rs.91.35 Crores (Rs. Ninety-one Crore and thirty-five Lakhs only) in the form set forth in Schedule-F (the "Performance Security"). Until such time the Performance Security is provided by the Concessionaire pursuant hereto and the same comes into effect, the Bid Security shall remain in force and effect, and upon such provision of the Performance Security pursuant hereto, the Authority shall release the Bid Security to the Concessionaire.	The Performance Security is Rs. 91.35 Crores. The Concessionaire should perform as per agreement to safeguard the Performance Security.
Article 10 Clause 10.3.2	Procurement of the site -	Without prejudice to the provisions of Clause 10.3.1, the Parties hereto agree that on or prior to the Appointment Date, the Authority shall have granted vacant access and Right of Way such that the Appendix shall not include land which shall in any manner prevent the Concessionaire from undertaking construction of the project to the extent of at least 80% (eighty percent) of the length thereof, and in the event Financial Close is delayed on account of delay in grant of such vacant access and Right of Way, the Authority shall be liable to payable to damages solely under the provisions of Clause 4.2.	The Concessionaire received the land as per Schedule to work and work is completed.
Article 10 Clause 10.3.4	Procurement of the site-Right of Way	The Authority shall make best efforts to procure and grant no later than 90 (ninety) days from the Appointed date, Right of Way to the Concessionaire in respect of all land included in the Appendix, and in the event of delay for any reason other than Force Majeure or breach of this Agreement by the Concessionaire, it shall pay to the Concessionaire Damages in a sum calculated at the rate of Rs.1 per day for every 10 square meter or part thereof, commencing	The land is received to work timely.

Article & Clause No.	Subject	Description in Brief	Remarks
		from the 91st day of the Appointed Date and until such Right of Way is procured or 180 days from Appointed date whichever is earlier.	
Article 11 Clause 11.4	Utilities, Associated Roads and Trees-Felling of trees	The Authority shall assist the Concessionaire in Obtaining the Applicable Permits for felling of trees to be identified by the Authority for this purpose if and only if such trees causes a material adverse effect on the construction, operation or maintenance of Project Highway. The Cost of such felling shall borne by the Authority and in the event of any delay in felling thereof for reasons beyond the control of the Concessionaire, it shall be excused to perform any of its obligations hereunder if such failure is a direct consequence of delay in the felling of trees.	The work is completed. No obstructions of trees.
Article 12 Clause 12.3.1	Construction of the Project	On or after the Appointed Date, the Concessionaire shall undertake construction of the Project as specified in Schedule-B and Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-D. The 910th (nine hundred and tenth) day from the Appointed Date shall be the scheduled date for completion of the Project (the **"Scheduled Completion Date"**) and the Concessionaire agrees and undertakes that the Project shall be completed on or before the Scheduled Completion Date.	The work is now completed, and PCOD is achieved.
Article 12 Clause 12.3.2	Construction of the Project Highway and Mile Stone	The Concessionaire shall construct the Project Highway in accordance with the Project Completion schedule set forth in Schedule-G. In the event that the Concessionaire fails to achieve any Project Milestone within a period of 90 (ninety) days from the date set forth for such Milestone in Schedule G, unless such failure has occurred due to Force Majeure or for reasons solely attributable to the Authority, it shall pay Damages to the Authority in a sum calculated at the rate of 0.1% (zero point one percent) of the amount of performance Security for delay of each day until such Milestone is achieved.	The Concessionaire shall avoid such situations of payment of damages by achieving Milestone timely.
Article 12 Clause 12.3.3	Construction of the Project	In the event that the project is not completed, and COD does not occur within 270 (two hundred and seventy) days from the	The work is competed as per Milestone.

Article & Clause No.	Subject	Description in Brief	Remarks
	Highway and Mile Stone	Scheduled Completion Date, unless the delay is on account of reasons solely attributable to the Authority or due to Force Majeure, the Authority shall be entitled to terminate this Agreement.	
Article 13 Clause 13.2	Inspection	During the construction period, the independent Engineer shall inspect the Project at least once a month and make a report of such inspection (the "Inspection Report") stating all reasonable detail the defects or deficiencies, if any, with particular reference to the Project Completion Schedule, Scope of the Project and specification and standards	The work is completed with quality. The defect will be attended during Defect Liability Period.
Article 14 Clause 14.3.2	Provisional Certificate	The parties hereto expressly agree that a Provisional Certificate under this Clause 14.3 may, upon requested of the Concessionaire to this effect, be issued for operating part of the Project, if the Concessionaire has completed construction of 100% of the site made available to the Concessionaire up to 182 days from the Appointed Date. Upon issue of such Provisional Certificate, the provisions of Article 15 shall apply to such completed part, and the rights and obligations of the Concessionaire for and in respect of such completed part of the Project shall be constructed accordingly.	This Clause covers the risk and give relief to Concessionaire and Lender in case full Project Completion is delayed due to land or utility problems and gives the relief.
Article 15 Clause 15.2	Entry into commercial service-Damages for delay	Subject to the provisions of Clause 12.3, if COD does not occur prior to the 91st (ninety first) day after the Scheduled Completion Date, unless the delay is on account of reasons attributable to the Authority or due to force Majeure, the Concessionaire shall pay Damages to the Authority in a sum calculated at the rate of 0.2% of the amount of performance Security for delay of each day until COD is achieved.	The PCOD is achieved as per Schedule Competed Date.
Article 23 Clause 23.1	Bid Project cost	The parties expressly agree that the cost of construction of the project, as on the Bid Date, which is due and payable by the Authority to the Concessionaire shall be deemed to be Rs.1827 Crores. (Rupees One thousand eight hundred and twenty seven crores)	The PCOD is achieved as per Schedule Competed Date.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 23 Clause 23.3.1	Payment of Bid Project Cost	40% of the Bid Project Cost, adjusted for the Price Index Multiple, shall be due and payable to the Concessionaire is 5 equal installments of 8% during the construction Period in accordance with the provisions of Clause 23.4.	The PCOD is achieved as per Schedule Competed Date.
Article 23 Clause 23.4	Payment during construction period	For the purpose of this clause 23.4, the payment Milestone for release of payment during construction period shall be as under: (a) I (first) payment Milestone-On achievement of 10% Physical Progress. (b) II (Second) payment Milestone-On achievement of 30% Physical Progress. (c) III (Third payment Milestone-On achievement of 50% Physical Progress. (d) IV (Fourth) payment Milestone-On achievement of 75% Physical Progress. (e) V (Fifth) payment Milestone-On achievement of 90% Physical Progress.	The PCOD is achieved as per Schedule Competed Date.
Article 23 Clause 23.5	Bonus on early completion	In the event that the concessionaire shall achieve COD on or more than 30 days prior to the Scheduled Completion Date, the Authority shall pay to the Concessionaire a bonus equal to 0.5% of 60% of the Bid project cost for the first 30 days by which COD shall precede the Schedule Completion date and there after the said bonus shall be calculated on the pro-rata basis for each day preceding the said 30 days period. The Bonus shall be due and payable to the Concessionaire along with the 1st Annuity Payment.	This provision of Bonus will encourage the Concessionaire for early completion.
Article 23 Clause 23.6.2	Annuity Payments during operation period	The completion cost remaining to be paid in pursuance of the provisions Clause 23.6.1 shall be due and payable in biannual installments over a period of 15 (fifteen) years commencing from COD, (the Authority Payments) the 1st (first) installment of Annuity Payments shall be due and payable within 15 (fifteen) days of the 180th (one hundred and eighteen) day of COD and the remaining installments shall be due and payable within 15 (fifteen) days of	The Concessionaire is getting this as per Concession Agreement as non COD is achieved.

Article & Clause No.	Subject	Description in Brief	Remarks
		completion of each of the successive six months (the "Annuity Payment Date").	
Article 23 Clause 23.7	O & M Payments	The Parties acknowledge and agree that all O&M Expenses shall be borne by the Concessionaire and in lieu thereof; a lump sum financial support in the form of biannual payments shall be due and payable by the Authority, which shall be computed on Rs. 17 Crores (Rupees Seventeen Crores) the amount quoted by the selected bidder under its O&M Bid, in accordance with the provisions of this Clause 23.7 (the "**O&M Payments**"). The Parties further acknowledge and agree that any O&M Expenses in excess of the O&M Payments shall be borne solely by the Concessionaire, save and except as expressly provided in this Agreement. For avoidance of doubt it is clarified that the O&M Payments will be subject to any Change in Scope of the Project of the Concessionaire under Article 16of this Agreement.	O & M during Concession period is responsibility of Concessionaire and Authority will extend financial support as quoted in CA.
Article 23 Clause 23.8	Mobilization advance	The Authority shall, on request of the Concessionaire, make an advance payment in a sum not exceeding 10%(ten percent) of the bid project cost (the Mobilization Advance). This advance payment shall be made in two equal installments. The concessionaire may request the Authority for the first installment of the advance payment at any time after the appointed date, along with furnishing a Bank Guarantee in a form satisfactory to the Authority. The concessionaire may request the Authority for the second installment of the advance payment at any time after 60(Sixty) days from the appointed date, along with furnishing a Bank Guarantee in a form satisfactory to the Authority	The Concessionaire has received this Mobilization Advance and work is completed.
Article 26 Clause 26.1	Insurance-Insurance during Concessionaire period	The Concessionaire shall affect and maintain at its own cost, during the Construction Period and the Operation Period, such insurances for such maximum sums as may be required under the Financing Agreements and Applicable laws, and such insurances	The Concessionaire, has taken all Insurances.

Article & Clause No.	Subject	Description in Brief	Remarks
		as may be necessary or prudent in accordance with Good Industry Practice.	
Article 34 Clause 34.3.1	Substitution Agreement	The Lender's Representative, on behalf of Senior Lenders, may exercise the right to substitute the Concessionaire pursuant to the agreement for substitution of the Concessionaire (the '**Substitution Agreement**') to be entered into amongst the Concessionaire, the Authority and the Lenders' Representative, on behalf of Senior Lenders, Substantially in the form set forth in Schedule-R.	The Lender's risk is covered with provision of Substitution Agreement. This will be operated if situation needs.
Article 38 Clause 38.3.1	Arbitration	Any dispute which is not resolved amicably by conciliation as provided in clause 38.2 shall be finally decided by reference to arbitration by an arbitral tribunal constituted in accordance with clause 38.3.2such arbitration shall be held in accordance with the rules of the society for affordable Redressal of disputes **(SAROD)** new Delhi (the rules) or such other rules as may be mutually agreed by the parties and shall be subject to the provision of the arbitration and conciliation act 1996	There is provision of Arbitration in case of unresolved dispute between Authority and concessionaire.
Article 41 Clause 41.17	Miscellaneous - State Support Agreement	The Concessionaire acknowledges that it has received from the Authority a certified true copy of the agreement executed between MORTH and the State Government for providing the support and services specified therein (the **"State Support Agreement")** and the Parties hereto agree to make their best endeavors to procure the support of the State Government.	This provision will help the Concessionaire for obtaining permission, approval and land acquisition faster.

Most of the points above are brought out to see that the Agreement is generally enforceable in law without ambiguities.

Conclusions

- The Concession Agreement is comprehensive and covers most of the concerns of Lenders and all risk factors.

8 REVIEW OF O&M AGREEMENT

The Operation and Maintenance Agreement was signed between **M/s GR Gundugolanu Devarapalli Highway Private Limited (GDHPL)** and **G R Infraprojects Limited (O&M Contractor)** on 02nd November 2021 and addendum O&M Agreement has been signed on 26th July 2022 for a period of 1 year.

We have reviewed the provisions under various clauses of this O&M Contract and our specific comments are indicated below clause-wise.

Sr. No.	Clause No.	Description in Brief	Remark
1	Agreement Para (ii)	The Concessionaire now wishes to appoint M/s G R lnfraproiects Limited for Operation and Maintenance of Project Highway as 0&M Contractor in accordance with Scope of Work as mentioned in Annexure 1 hereto, under the Concession Agreement.	The Contractor M/s. G. R. Infraprojects Ltd. is appointed for O&M work as per scope in CA.
2	Clause (n) Definition	"O&M Contractor" means the person, if any, with whom the Concessionaire has entered into an O&M agreement for discharging O&M obligations for and on behalf of the Concessionaire.	The Contractor is appointed to discharge duties of O&M work on behalf of Concessionaire as per scope in O&M Agreement.
3	Clause r Definition	"O&M Period" O&M Agreement means operation and maintenance period of 1 year commencing from Commencement Date.	The Agreement of O&M is for one year and addendum is signed for another 1 year.
4	Clause 2 Availability of Documents	The O&M Contractor also acknowledges the fact that the Concession Agreement is always binding and applicable back to back on the O&M Agreement, limited to the obligations during the O&M period under the Concession Agreement and the scope of the O&M Contractor as per this Agreement. In case of any discrepancy in whatsoever matter, the clauses or' Concession Agreement shall prevail over and above this O&M Agreement.	The copy of Concession Agreement & Maintenance Manual is provided to Contractor. It is always binding to Contractor for implementation during O&M work.
5	Para 6 O&M Contractor's obligation	6.1 During Operation Period, provisions of Article 17 of the Concession Agreement shall apply. The O&M Contractor shall operate and maintain the Project Highway in accordance with Article 17 of the Concession Agreement and if required, modify, repair or otherwise make improvements to the Project Highway comply with the provisions of this Agreement, Applicable Laws and Applicable Permits, and confirm to Specifications and Standards and Good Industry Practice.	The obligation of O&M is as per Article 17 of CA. These cover periodical routine & major repair work and safety of users.

Sr. No.	Clause No.	Description in Brief	Remark
6	Clause 6 Maintenance Requirements	6.3 The O&M Contractor shall procure that at all times during the Operation Period; the Project Highway conforms to the maintenance requirements set forth in Schedule-K of the Concession Agreement (the "Maintenance Requirements").	The maintenance required to be done as per Schedule K of CA only.
7	Clause 6 Maintenance Program	6.4 Not later than 55 days prior to the beginning of each Accounting Year during the Operation Period, the O&M Contractor shall provide to the Concessionaire, its proposed annual program of preventive. urgent and other scheduled maintenance (the "Maintenance Program") to comply with the Maintenance Requirements, Maintenance Manual and Safety Requirements.	The Contractor has to submit the programme and work for O&M with maintenance requirement and safety.
8	Clause 6 Maintenance Requirements 6.5 Safety, Breakdown and accident	6.5.1 The 0&M Contractor shall ensure safe conditions for the users, and in the event of unsafe conditions, closures, diversions, breakdowns and accidents, it shall follow the relevant operating procedures including the setting up of temporary Lights and removal of obstruction and debris without delay. Such procedures shall conform to the provisions of this Agreement, Applicable Laws, Applicable Permits and Good industry Practice.	Safety of users including breakdown, accident rescue operations is covered.
9	Clause 6 Maintenance Requirements 6.10 Damages for Breach of Maintenance obligations	In the event that the O&M Contractor fails to repair or rectify any defect or deficiency set forth in the Maintenance Requirements within the period specified therein, it shall be deemed to be this Agreement and the cm Contractor shall pay to the Concessionaire Damages at such rate as the Concessionaire Is required to pay to the Authority under the Concession Agreement. Recovery of such Damages shall be without prejudice to the rights of the Concessionaire under this Agreement, including the right of Termination thereof.	The provision of Levy of Damage or Termination for breach of Agreement, defective work will keep pressure on contractor to work as per requirement.
10	Clause 6 Maintenance Requirements 6.16 Monthly Status report during Operation Period	During the Operation Period, the O&M Contractor shall, no later than 7 (seven) days after the close of each English calendar month, furnish to the Concessionaire, a monthly report stating in reasonable detail the condition of the Project including its compliance or otherwise with the Maintenance Requirements, Maintenance Manual. Maintenance Program and Safety Requirements and shall promptly give such other relevant information as may be required by the Concessionaire/ IE/ Authority.	It is binding on Contractor to submit status report on monthly basis for information of Authority, Concessionaire, IE & Lender.
11	Clause 6	For determining that the Project Highway conforms to the Maintenance Requirements, the Project Manager/IE shall require the O&M Contractor to carry	This will maintain quality of work.

Sr. No.	Clause No.	Description in Brief	Remark
	Maintenance Requirements 6.17 Tests	out, or cause to be carried out, tests specified by it in accordance with Good Industry Practice.	
12	Clause 6 Maintenance Requirements 6.19 Safety Requirements	6.19.1 The O&M Contractor shall comply with the provisions of this Agreement and [or Concession Agreement, Applicable Laws and Applicable Permits and confirm to Good Industry Practice for securing the safety of the Users. in particular, the O&M Contractor shall develop, implement and administer a surveillance and safety program for providing a safe environment on or about the Project Highway, and shall comply with the safety requirements set forth in Schedule L of the Concession Agreement (the “Safety Requirements").	The O&M Contractor has to provide requirements provision for safety of Highway users. The safety of users is given priority.
13	Clause 13 Sub-contracts	13.1 The O&M Contractor shall notify to the Project Manager in writing of its intent to subcontract the O&M works in part or full and without the written approval of the Project Manager no subcontractor shall be appointed by the O&M Contractor.	The sub-contractor cannot be appointed without approval of Project Manager. This will keep control over contractor to appoint competent contractor.
14	Clause 16 Insurance	16.1 The Concessionaire shall. procure and maintain the insurance for the Project Highway including all facilities in accordance with the Article 26 of the Concession Agreement.	The risks and security of Authority, concessionaire and lender is covered.
15	Clause 17 Defect Liability Period	17.1 The Concessionaire and/or the EPC Contractor ls responsible for all the defects and deficiencies in construction of the Project Highway or any section thereof and rectify the Same, without any cost to the O&M Contractor. during the cam period. Under this agreement the O&M Contractor is only under obligation of Operation 8r Maintenance of the Project Highway. For avoidance of doubt, any repair or restoration on account of usual wear and tear in the Project Highway shall form a part of the maintenance.	The Contractor is responsible for any defects during Defect Liability period i.e. O&M Period. This will maintain the quality to avoid any action for defective work as proposed.
16	Clause 21 Acknowledgement	The O&M Contractor acknowledges and accepts that this agreement entitles the Authority and/or Lenders Representative to step into this agreement, in its sole discretion, in Substitution-of the Concessionaire In the event of Termination or Suspension of the Concessionaire. Further, provision of clause 5.2 of the Concession Agreement relating to Project Agreement shall apply *mutatis mutandis.*	The Contractor has agreed for step in right of Authority or Lender in case of Termination of Concessionaire.

Sr. No.	Clause No.	Description in Brief	Remark
17	Clause 22 O&M Payments	The Parties acknowledge and agree that all O&M Expenses shall be borne by the O&M Contractor to carryout routine maintenance Works as detailed in Annexure-I to this 0&M Agreement and in lieu thereof; a fixed lump sum fee amounting to Rs. 6,00,00,000 exclusive of taxes for the entire year in the form of biannual payment shall be due and payable by the Concessionaire.	The O&M Contractor will be paid fixed & Lumpsum payment of Rs. 6.0 Crores. Biannual payment during year for his work as per scope. The Contractor has to manage O&M work responsibility within this payment. Over & above these expenses, Concessionaire is incurring expenses for insurance, electricity, IE & professional fees etc.,
18	Clause 27 Termination 27.1 Termination For O&M Contractor Default	In the event of any defaults specified below shall have occurred, and the 0&M Contractor falls to cure the default within the Cure Period of 60 (sixty) days, the O&M Contractor shall be deemed to be in default of this Agreement (the "08M Contractor Default"), unless the default has occurred as a result of any breach of this Agreement by the Concessionaire or due to Force Majeure.	The Contractor shall note this. This provision of termination keep pressure on contractor to work as per scope of O&M responsibility.
19	Clause 32 Liability and Indemnification	The O&M Contractor shall fully indemnify and hold harmless and defend the Concession extent that the Concessionaire has provided any indemnities to Authority in terms of Article Concession Agreement, in so far as such indemnities relate to the Services.	The Concessionaire is secured from contractor for any loss, claim.

Conclusion

i. Operation and Maintenance Contract is comprehensive and correct for major concerns of the Lender.

ii. The provision of O&M Contract Agreement is consistent with the provision of the Concession Agreement.

9 TOLL PLAZA EQUIPMENT STATUS & ATMS

An assessment of Toll Plaza in terms of no. of lanes, Toll Collection System installed and working status is carried out based on Section 10 of IRC:SP:84-2014 and the Authority's requirements of Hybrid ETC System. Advanced Traffic Management System (ATMS) is assessed based on Section 816 of MoRTH Specifications for Road and Bridge Works as required by Section 12.12 of the Manual.

9.1 Toll Plaza and Toll Collection System

One toll plaza is provided at km. 53+700 at Veeravalli. The Toll Collection System installed at the toll plazas is provided by Qualix Information Systems LLP.

The toll plazas have Entry 7+1 lanes and Exit 7+1. All lanes are functional with Hybrid ETC equipment. View of the toll plazas are shown in Figure 9-1.



Figure 9-1 View of Toll Plaza (km. 53+700)

9.1.1 Lane Equipment

Lane hardware and equipment installed at each toll plaza are the following:

1. RFID ETC Transceiver
2. Lane Controller with Industrial PC
3. AVC Sensors
4. Automatic Lane Barrier (ALB)
5. Incident Capture Camera
6. Overhead Lane Signals
7. Traffic Lights
8. Toll Booth Equipment

9.1.1.1 RFID ETC Transceiver

RFID ETC Transceiver reads tags installed on the windshield of vehicles and mounted on a pole at about 6 m height. Handheld RFID readers are provided (1 no. in each direction) in case a tag is not detected by the fixed reader.

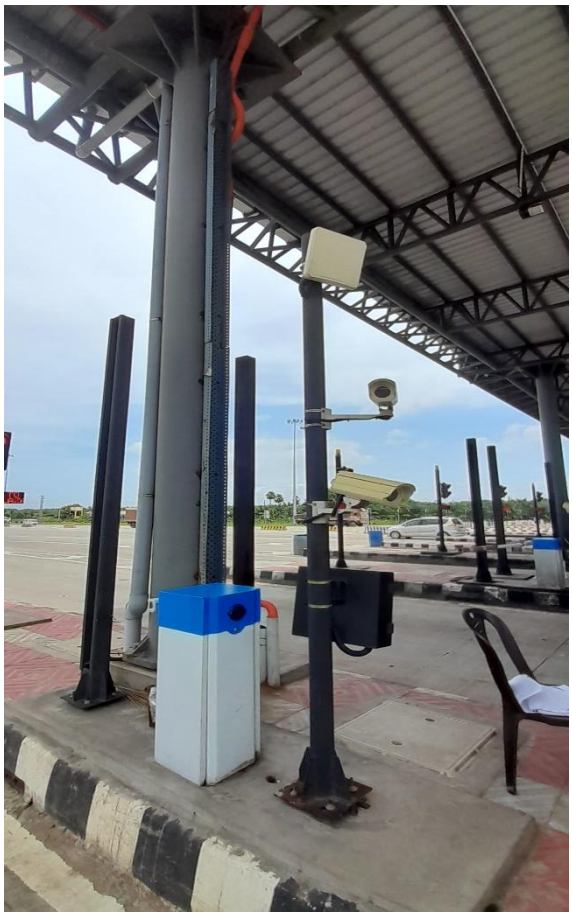


Figure 9-2 RFID ETC Transceiver installed on pole

9.1.1.2 Lane Controller with Industrial PC

Toll Lane Controller is located within the Electronic Enclosure placed inside each toll booth which are connected to the common server and are capable of independent storage of data.

9.1.1.3 Automatic Vehicle Classification (AVC) Sensors

The AVC equipment comprises of a pair of height sensor poles, axle sensors and inductive loops. The height detector has a high sensing resolution and detects height when object blocks the path. The presence of vehicle is detected by inductive loop. The loop sensors embedded on the pavement trigger the AVC height sensors located on parallel pillars.



Figure 9-3 Lane Controller and AVC installed in enclosures at Toll Booth



Figure 9-4 Height sensors

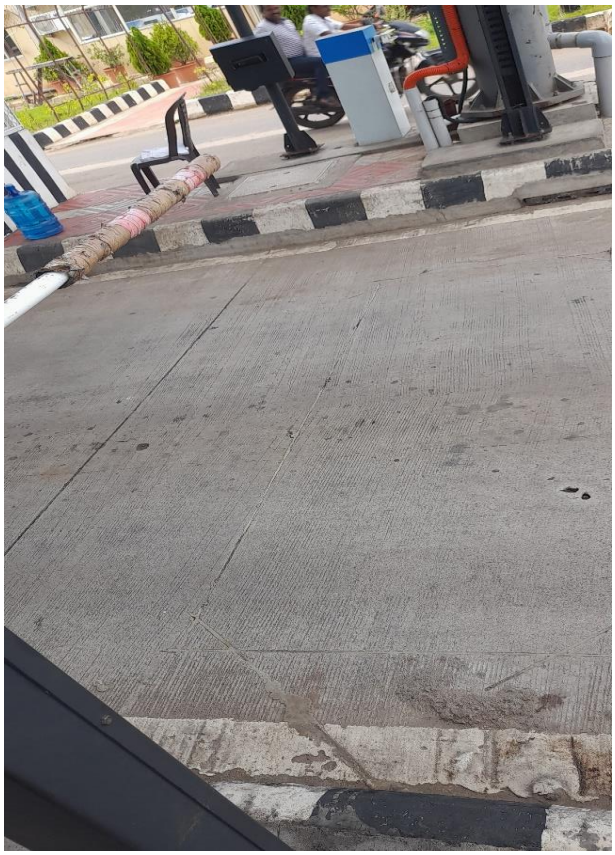


Figure 9-5 Inductive loop

9.1.1.4 Automatic Lane Barrier

Boom barriers installed on all lanes are in working condition and have a working time of 0.6 - 0.9 s. Automatic Lane Barrier is used to allow only authorized vehicles to pass through the lane. The barrier is activated only on generation of user fee receipt or other relevant vehicle processing activity. A torque motor powers the barrier for raising and lowering the boom. The motor can be blocked at any position without causing any damage. In the event of power failure, the boom is automatically raised. The boom weight is exactly balanced by built-in springs.



Figure 9-6 Automatic Lane Barrier

9.1.1.5 Lane Traffic Light (LTL) and User Fare Display (UFD)

Lane Traffic Light (LTL) is used to instruct vehicles to stop or pass through the lane. The LTL is RED when the toll collector is expecting the vehicle at the booth. After the transaction is done; the LTL turns Green to instruct the vehicle to pass through the lane. The User Fare Display is a part of electronic toll collection equipment located at the toll booth. It is a mini variable message sign (VMS) made of Light Emitting Diodes (LED). The user fare display is used to display the toll fare that is due and that must be paid by the motorist and the classification of vehicle selected by the collector.



Figure 9-7 Lane Traffic Light (LTL) and User Fare Display (UFD)

9.1.1.6 Incident Capture Camera (AVC Camera)

The incident capture camera is installed on island of the booth to capture the image of the vehicle from the back side. The AVC triggers the Image capture system.

9.1.1.7 License Plate Image Capture Camera (LPIC)

License Plate Image capture camera is installed on a 3m pole facing incoming vehicle to capture the image of the vehicle number plate.



Figure 9-8 LPIC and AVC Cameras

9.1.1.8 Over Head Lane Signal (OHLS)

The **Overhead Lane Signal (OHLS)** for lane “Open” and “Close” sign consists of a pair of “GREEN” (arrow) and “RED” (cross) lights. The OHLS is located at the vehicle approaching side of the canopy to show the drivers whether the lane is open or closed



Figure 9-9 Over Head Lane Signal (OHLS)

9.1.1.9 Toll Booth Equipment

Toll Booth Hardware / Equipment provided are:

- Toll Collector Display (Operator Monitor)
- Customized Industrial Keyboard
- Receipt Printer
- Intercom Slave unit
- Bar code reader
- Violation Light and alarm
- Manual Booth Control (MBC)
- Booth Camera

The operator monitor termed as Toll Collector Display (TCD) is located on the toll collector’s desk. It is the system’s interface to the toll collector, to display the status of transactions and status of the lane peripherals.

The keyboard on the toll terminal is a programmable keyboard for Registration of toll operations and is customized for different vehicle types and type of ticket.

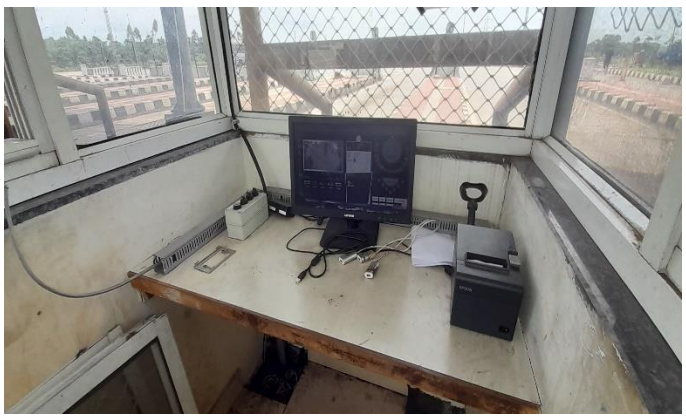


Figure 9-10 Booth Equipment

Thermal Printers are installed at the toll booths to print tickets. Intercom slave unit facilitates communication with the master unit located in the control room.

Violation system has an alarm switch which is triggered whenever there is a violation such as run-through happening on the lane. When there is an emergency, a foot switch pressed by the booth operator alerts the control room.

Booth Cameras are provided on the inside roof corner of the booth to provide surveillance through CCTV screen located in the control room. Manual Booth Controller is used to release exempt vehicles.

9.1.1.10 Medium Speed Weigh in Motion (MSWIM)

Medium Speed Weigh in Motion (MSWIM) is installed on entry lanes with a platform size of 1500 mm x 620 mm for normal lanes and 1750 mm x 620 mm for extra wide lanes and capacity of 30 ton/axle. Bending plate strain gauge technology is used with hardware and software support to calculate weight of vehicles running through it up to a speed of 50 km/hr.



Figure 9-11 Medium Speed Weigh in Motion (MSWIM)

9.1.2 Plaza Equipment

9.1.2.1 TMS Server

Plaza Server is provided in a hot standby configuration and provided with 42 U switch rack, 28 port non-POE network switch and 10 Port PoE switch. Firewall and 2 broadband internet lease line with 4 Mbps link for CCH connectivity is available.



Figure 9-12 Control Room Equipment - Server & Switch rack

9.1.2.2 55” LED screen for CCTV monitoring

55” LED screen for CCTV monitoring installed at the toll plaza admin block provides view of all the toll booths, important zones within the plaza where cash transactions take place (server room, control room, cash up).



Figure 9-13 CCTV screen at the Toll Plaza Control Room

The toll plaza manager is able to observe the activities at the toll lanes and toll booth. When the toll collector calls up on the intercom, the manager is able to comprehend the situation at the lane by a zoomed view of the particular lane.

9.1.2.3 Workstations in Control Room, PoS and Cash up room

Workstations are available in control room (lane monitoring, administration, and audit), cash room.



Figure 9-14 Work Stations at Control room

9.2 Advanced Traffic Management System (ATMS)

Advanced Traffic Management System (ATMS) installed for the project road is controlled by the ATMS centre at the toll plaza location (km 53+700). It comprises of the following:

- Emergency Call Back System (ECB)
- Mobile Radio communication system
- Meteorological Data system
- Variable Message Signboards (VMS)
- Automatic Traffic Counter cum Classifier (ATCC)
- CCTV system

9.2.1 Emergency Call Back System (ECB)

25 pairs of Emergency Call Booths are installed along the project road stretch. The users can access these ECBs and communicate to the ATMS control centre in case of emergency such as vehicle breakdown.

9.2.2 Mobile Radio communication System (MRCS)

Communication between patrol vehicles, ambulances, crane operators and the control centre is managed using MRCS installed at the two locations, Km 33+800 and Km 65+300.

9.2.3 MET system

Meteorological sensors comprise of sensors to measure the atmospheric temperature, humidity, pavement surface temperature, visibility and equipment for measuring wind speed and direction and installed at km 53+700



Figure 9-15 MET Equipment

9.2.4 Variable Message Signboards (VMS)

Variable message sign boards are installed at 8 locations. These display specific messages to the users based on the prevailing conditions on the highway. The message can be changed at any point of time from the ATMS centre. About 250 customised messages can be stored on the system.



Figure 9-16 VMS on project highway

9.2.5 Automatic Traffic Counter cum Classifier (ATCC)

Automatic Traffic Counter cum Classifiers (ATCC) is installed at km 53+700. The ATCC are infrared Traffic Logger (TIRTL) type and count at an accuracy of 95%.

9.2.6 CCTV and Surveillance Cameras

Surveillance Cameras are installed at 4 locations along the project corridor. The ATMS control room has video wall to monitor these locations through the cameras installed.



Figure 9-17 Video wall at ATMS Control room

9.2.7 Video Incident Detection System

Video Incident Detection System is located at 11 locations. 15+350, 18+40, 18+923, 20+285, 22+460, 32+200, 40+500, 64+300, 65+400, 65+050, 66+640.

9.3 Adequacy of Toll Collection System and ATMS

- Adequacy - The software and hardware as a part of Toll Collection and Management System (TMS) was commissioned on 08th September 2021. All lanes are Hybrid ETC system as stipulated by NHAI in Technical Specifications of Hybrid ETC system. NHAI has approved maintenance costs for TMS. TMS shall be upgraded every 5 years, at the cost of the Authority.

- Advanced Traffic Management System (ATMS) installed is as per specifications required by the Authority and in working condition.

10 ACCIDENT DATA ANALYSIS

Accident Data Records for the project have been studied in order to analyse the nature of accidents occurring on the stretch and identify blackspots.

10.1 Accident Trend

Accident Data for the period July 2019 to June 2022 has been made available for analysis. 293 Accidents have occurred out of which 40 no. were fatal, 101 were grievous injury and 185 were minor. More number of accidents have occurred during the day time than at night time. Monthly data analysis does not show any consistent seasonal trend. Fault of the driver has been recorded as a major cause of accident (65%) followed by over speeding (35%).

10.2 Blackspots Identification

There are no black spot found in the project stretch. Details of accidents in the project length are given in Table below:

Table 10-1 Accidents details on Project Road

Sr. No.	Month	No. of Accidents	No. of Affected Persons			Remarks
			Minor Injury	Serious Injury	Fatal	
1	July 2021	8	5	0	6	
2	August 2021	11	14	4	2	
3	September 2021	8	6	4	1	
4	October 2021	23	21	12	8	
5	November 2021	25	20	8	5	
6	December 2021	25	24	10	4	
7	January 2022	10	8	6	0	
8	February 2022	15	2	10	3	
9	March 2022	11	1	9	1	
10	April 2022	58	32	14	2	
11	May 2022	63	17	12	3	
12	June 2022	61	35	12	5	

10.3 Conclusions & Recommendations

There are no accident blackspots based on analysis of recorded data. Concessionaire need to maintain all signs, markings and road safety devices as per schedule given in CA.

Annexures

Annexure I: Operation Cost

Sr. No.	Particulars	Cost per Annum (Rs)	Cost per Annum (Cr)
1	Incidental Management Expenses		
a	*Ambulance - 2 Nos.*	3,475,762	0.35
b	*Patrolling Vehicle - 2 Nos.*	4,016,329	0.40
c	*Crane - 2 Nos.*	2,393,245	0.24
d	*Other Vehicle - 3 Nos.*	1,607,245	0.16
e	*JCB - 1 Nos.*	831,880	0.08
f	*Corridor Manager & Officer*	953,280	0.10
2	Maintenance Staff Expenses	6,600,000	0.66
3	Routine Maintenance Cost (Civil Works)	22,666,594	2.27
4	Professional & IE Fee	22,215,044	2.22
5	Insurance Expenses	14,966,100	1.50
6	Staff Welfare Expenses	224,000	0.02
7	Electricity Expenses + Maintenance of parts	18,292,723	1.83
8	ATMS Expenses	5,639,642	0.56
9	Contingency @ 5% (Excl. Civil works)	4,060,763	0.41
	Total Cost (Rs)	**107,942,608**	**10.79**
	Per km Cost (Lakh)		**15.45**

Annexure II: Routine Maintenance Cost

Routine Maintenance Cost - GGDHPL	
Ordinary Repair Cost for Rigid without GST	**22,666,594.40**
(Exclusive of GST @ 12%)	**= 3.24 lakhs per km**

CONVERSION FACTORS									
National Highways / State Highways - Flexible Pavement									
Reference cost taken for Two / four lane (7.0 or 14m or 21m) with 1.5m/2m wide shoulders									
(Refer Chapter 6.17 of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 45)									
Sr. No.	**Description for Flexible Pavement**		**Factor**	**Flexible Pavement**		**Project Length (km)**		**Per Year Project Maintenance Cost**	
				Normal	**Urban**				
				More than 4500 CVD	**More than 4500 CVD**				
				152,109	**166,951**				
						Normal	**Urban**	**Normal**	**Urban**
2	Four-lane with divided carriageway	Without paved shoulder	1.53	232726.00	255436.00	-	-	-	-
		Paved shoulder	1.70	258585.00	283817.00	-	3.23	-	916,728.91
3	Four-lane with divided carriageway and service lane on either side	Without paved shoulder	2.00	304217.00	333903.00	-	-	-	-
		Paved shoulder	2.20	334639.00	367293.00	50.84	-	17,014,385.32	-
4	Six lane with divided carriageway	without Paved shoulder	2.43	369624.00	405692.00	-	-	-	-
		with Paved shoulder	2.60	395483.00	434073.00	-	-	-	-
5	Six lane with divided carriageway and service lane on either side	without Paved shoulder	2.90	441115.00	484159.00	-	-	-	-
		with Paved shoulder	3.10	471537.00	517549.00	15.81	-	7,455,471.51	-
					TOTAL		**69.885**		**25,386,585.73**

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km.** **More than 4500 CVD** **BT Surface**
1	**2**	**3**	**4**	**5**
1	**Maintenance of Carriageway & Paved Shoulders (1.5m wide); B.T. Surface**			
	i) Pot holes repair (50 mm deep)	100 % Pot hole free	As & when required	0.50%
	Volume (cum)			2.50
	Rs/m^3			4480
	Cost in Rupees			11,200
	ii) Patch repair	100 % Patch less	As & when required	0.50%
	Area (sqm)			50
	Rs/m^2			179
	Cost in Rupees			8,960
	iii) Sealing (Crack)			
	a) Wider than 3 mm	100 % Crack Less	As & when required	3.50%
	Area (sqm)			350
	Rs/m^2			85
	Cost in Rupees			29,792
	b) Width less than 3 mm	75 % Crack Less	As & when required	2.50%
	Area (sqm)			187.5
	Rs/m^2			57
	Cost in Rupees			10,710
	iv) Repair of ruts and undulations			
	a) Greater than 20 mm	75%	As & when required	1.00%
	Area (sqm)			75
	Rs/m^2			179
	Cost in Rupees			13,440
	v) Road marking	10%	Once in 10 year & @ Repaired location	17750
	SUB TOTAL			**91,852**

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. More than 4500 CVD BT Surface**
1	**2**	**3**	**4**	**5**
2	**Maintenance of earthen Shoulders:**			
	i) Renewal of earthen shoulders	70%	Once in a Year	5177
	ii) Jungle Clearance	70%	Twice in a Year	1359
	iii) Kuccha Drain Maintenance	70%	Twice in a Year	728
	SUB TOTAL			**7,264**
3	**Maintenance of Cross Drainage works:**			
	i) Cleaning of culvert bed	70%	Once in a Year	1835
	ii) Repair of floors	70%	Once in a Year	3320
	iii) Repair of parapets	70%	As & when required	1383
	SUB TOTAL			**6,538**
4	**Maintenance of Minor & Major Bridges:**			
	i) Cleaning and removal of dirt & vegetation from pier caps, Bearings, Expansion Joints, Superstructure, Substructure and Retaining wall etc.	80%	As & when required	27,734
	ii) Spot painting & protective Coating required on Bearing and greasing of Bearings, railing, structural members, Expansion joints			
	iii) Repair of minor washouts, erosion scour and animal holes			
	iv) Sealing Cracks with Cement/ Epoxy Mortar			
	v) Replacement & Correction of safety barriers, Guard rails and damaged members			
	SUB TOTAL			**27,734**
5	**Miscellaneous Items:**			
	i) Turfing and Arboriculture		Once in a Year	2311
	ii) Maintenance of gang hut store, sheds, animal & debries removal		Once in a Year	3467
	iii) Lettering, Painting of Km stones & kerbs, sign boards, hectometer stone etc.		Once in a Year	3467

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km.**
				More than 4500 CVD
				BT Surface
1	**2**	**3**	**4**	**5**
	iv) Replacement and providing additional retro reflective signage	20%	Covering Total Network in 5 Years	6934
	v) Providing first aid kits, Umbrella, Safety Jackets, Vardi etc.		Once in a Year	1156
	vi) Traffic Census		Once in a Year	0
	vii) Provision for roughness measurement		Twice in a Year	1386
	SUB TOTAL			**18,721**
	GRAND TOTAL (Normal)			**152,109**
6	**Additional Cost required for Urban Area**			
	i) Renewal of Center Line, Edge Marking, Kerb Marking/ Zebra crossing etc. in City Portion	10%	Once in 10 years with thermoplastic paint	860
	ii)Repairs to footpath	50%	As & when required	2311
	iii) ROB/ Fly-over Railings & repair	50%	As & when required	2311
	iv) Street Lighting	0%	As & when required	0
	v) Encroachment Removal Squad	50%	As & when required	3583
	vi) Repair of divider/ Railing in City portion	50%	As & when required	4623
	vii) Provision for maintenance of pedestrian underpass	50%	As & when required	1156
	SUB TOTAL			**14,843**
	GRAND TOTAL (Urban)			**166,951**

Annexure III : Major Maintenance Cost

Major Maintenance Cost (Every 6th / 7th year) (FY2029 & FY2035)										
Sr. No.	**Description**	**Unit**	**No.**	**Length**	**Width**	**Depth**	**Quantity**	**Total Quantity**	**Rate**	**Amount**
I. Main Carriageway, Service Road / Slip Road & Miscellaneous location										
A	**Main Carriageway: Flexible Pavement**									
1	Milling	Sqm	100%	67,535.00	19.69		1,329,920.00	1,329,920.00	55.00	73,145,600
2	Tack Coat for DBM	Sqm	10%	67,535.00	19.69		132,992.00	132,992.00	10.00	1,329,920
3	DBM Overlay	Cum	10%	67,535.00	19.69	0.05	6,649.60	6,649.60	8,731.00	58,057,658
4	Tack Coat for BC	Sqm	100%	67,535.00	19.69		1,329,920.00	1,329,920.00	10.00	13,299,200
5	BC Overlay	Cum	100%	67,535.00	19.69	0.04	53,196.80	53,196.80	10,672.00	567,716,250
6	Filling of Earthen shoulder	Cum	2	52,479.00	1.50	0.04	6,297.48	6,297.48	408.00	2,569,372
C	**Rigid Pavement at Toll Plaza**									
7	Replacement of Joint Sealant	Rmt	5%	6,884.55			344.23	344.23	51.00	17,556
8	Dismantling of CC Panels @ 2% area	Cum	2.0%	13,553.95		0.27	73.19	73.19	879.00	64,335
9	Replacement of Panels - PQC @ 2% area	Cum	2.0%	13,553.95		0.27	73.19	73.19	7,486.00	547,910
10	Replacement of Panels - DLC @ 0% area	Cum	0.0%	13,553.95		0.15	-	-	3,404.00	-
11	Diamond Grinding	Sqm	3%	13,553.95			406.62	406.62	50.00	20,331
D	**Service Roads (Flexible Pavement)**									
12	Tack Coat for BC	Sqm	20%	51,089.00	13.90		142,027.42	142,027.42	10.00	1,420,274
13	BC Overlay with 30mm	Cum	20%	51,089.00	13.90	0.03	4,260.82	4,260.82	10,211.00	43,507,260
14	Micro surfacing	Sqm	80%	51,089.00	13.90		568,109.68	568,109.68	133.00	75,558,587
15	Filling of Earthen shoulder	Cum	1	51,089.00	-	0.03	-	-	408.00	-
E	**Structural Deck area**									
16	Milling	Sqm	50%	837.00	26.00		10,881.00	10,881.00	55.00	598,455
17	Tack Coat	Sqm	50%	837.00	26.00		10,881.00	10,881.00	10.00	108,810
18	Mastic Asphalt Overlay	Sqm	50%	837.00	26.00		10,881.00	10,881.00	534.00	5,810,454
F	**Miscellaneous**									
19	Replacement of Kerb	Rmt	10%	191,594.00			19,159.40	19,159.40	250.00	4,789,850
20	Painting of Kerbs	Sqm	1	191,594.00		0.32	60,352.11	60,352.11	94.00	5,673,098
21	Painting of Crash Barrier	Sqm	1	56,612.00	1.12		63,122.38	63,122.38	94.00	5,933,504
22	Thermoplastic paint									
	a) Median & Edge line	Sqm	100%				79,746.88	79,746.88	496.00	39,554,455
	Main Carriageway 6L		4	15,897.72	0.15		9,538.63			
	Main Carriageway 4L		4	55,384.98	0.15		33,230.99			
	Service Road		2	104,221.56	0.10		20,844.31			
	b) Lane line									
	Main Carriageway 6L		4	5,564.20	0.10		2,225.68			
	Main Carriageway 4L		2	19,384.74	0.10		3,876.95			
	Service Road		1	36,477.55	0.10		3,647.75			
	c) Junction crossing						6,382.57			
23	Replacement of Road Stud	No	100%				27,430.00	27,430.00	340.00	9,326,200
	Main Carriageway 6L		4	884.00			3,536.00			
	Main Carriageway 4L		4	3,078.00			12,312.00			
	Service Road		2	5,791.00			11,582.00			
24	Miscellaneous	5%								45,452,454
									Total Amount (MCW)	**954,501,531.86**
									Total Cost in Lakhs (MCW)	**9,545.02**
									Per km Cost in lakhs (MCW)	**136.58**

Annexure IV: Pavement Condition Survey

LHS - Gundugolanu to Kovvuru

Pavement Condition Survey-LHS																					
Sr. No.	Chainage		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Road Side Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From (Km)	To (Km)	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	15.320	15.500	F	BT	BC	-	100	F	-	-	-	Y	-	-	F	Soil	F	F	F	F	F	
2	15.500	16.000	F	BT	BC	-	100	F	-	-	-	Y	-	-	F	Soil	F	F	F	F	F	
2	16.000	16.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
3	16.500	17.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
4	17.000	17.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
5	17.500	18.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
6	18.000	18.500	F	BT	BC	-	100	F	-	-	-	Y	-	-	F	Soil	F	F	F	F	F	ROB
7	18.500	19.000	F	BT	BC	-	100	F	-	-	-	Y	-	-	F	Soil	F	F	F	F	F	
8	19.000	19.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
9	19.500	20.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
10	20.000	20.500	G	BT	BC		100	F	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
11	20.500	21.000	F	BT	BC		100	F	-	-	-	-	30	-	F	Soil	F	F	F	F	F	
12	21.000	21.500	F	BT	BC		100	G	-	-	-	-	35	-	F	Soil	F	F	F	F	F	
13	21.500	22.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
14	22.000	22.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
15	22.500	23.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
16	23.000	23.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
17	23.500	24.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
18	24.000	24.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
19	24.500	25.000	F	BT	BC		100	F	-	-	-	-	40	-	F	Soil	F	F	F	F	F	
20	25.000	25.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
21	25.500	26.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
22	26.000	26.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
23	26.500	27.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
24	27.000	27.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
25	27.500	28.000	G	BT	BC		100	F	15	-	-	-	-	-	F	Soil	F	F	F	F	F	
26	28.000	28.500	F	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
27	28.500	29.000	F	BT	BC		100	F	25	-	-	-	-	-	F	Soil	F	F	F	F	F	
28	29.000	29.500	F	BT	BC		100	P	-	-	-	M	12	-	F	Soil	F	F	F	F	F	
29	29.500	30.000	F	BT	BC		100	F	-	-	-	M	15	-	F	Soil	F	F	F	F	F	
30	30.000	30.500	F	BT	BC		100	F	-	-	-	M	10	-	F	Soil	F	F	F	F	F	
31	30.500	31.000	F	BT	BC		100	G	-	-	-	M	5	-	F	Soil	F	F	F	F	F	
32	31.000	31.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
33	31.500	32.000	F	BT	BC		100	G	-	-	-	-	-	-	P	Soil	F	F	F	F	F	
34	32.000	32.500	F	BT	BC		100	G	-	-	-	-	-	-	P	Soil	F	F	F	F	F	

Pavement Condition Survey-LHS																					
Sr. No.	Chainage		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Road Side Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From (Km)	To (Km)	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
35	32.500	33.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
36	33.000	33.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
37	33.500	34.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
38	34.000	34.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
39	34.500	35.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
40	35.000	35.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
41	35.500	36.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
42	36.000	36.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
43	36.500	37.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
44	37.000	37.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
45	37.500	38.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
46	38.000	38.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
47	38.500	39.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
48	39.000	39.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
49	39.500	40.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
50	40.000	40.500	F	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
51	40.500	41.000	F	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
52	41.000	41.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
53	41.500	42.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
54	42.000	42.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
55	42.500	43.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
56	43.000	43.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
57	43.500	44.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
58	44.000	44.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
59	44.500	45.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
60	45.000	45.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
61	45.500	46.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
62	46.000	46.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
63	46.500	47.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
64	47.000	47.500	F	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
65	47.500	48.000	F	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
66	48.000	48.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
67	48.500	49.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
68	49.000	49.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
69	49.500	50.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
70	50.000	50.500	F	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
71	50.500	51.000	F	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
72	51.000	51.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
73	51.500	52.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	

Pavement Condition Survey-LHS																					
Sr. No.	Chainage		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Road Side Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From (Km)	To (Km)	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
74	52.000	52.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
75	52.500	53.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
76	53.000	53.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
77	53.500	54.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	Toll PLaza
78	54.000	54.500	F	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
79	54.500	55.000	F	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
80	55.000	55.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
81	55.500	56.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
82	56.000	56.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
83	56.500	57.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
84	57.000	57.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
85	57.500	58.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
86	58.000	58.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
87	58.500	59.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
88	59.000	59.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
89	59.500	60.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
90	60.000	60.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
91	60.500	61.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
92	61.000	61.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
93	61.500	62.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
94	62.000	62.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
95	62.500	63.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
96	63.000	63.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
97	63.500	64.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
98	64.000	64.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
99	64.500	65.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
100	65.000	65.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
101	65.500	66.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
102	66.000	66.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
103	66.500	67.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
104	67.000	67.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
105	67.500	68.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
106	68.000	68.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
107	68.500	69.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
108	69.000	69.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
109	69.500	70.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
110	70.000	70.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
111	70.500	71.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
112	71.000	71.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	P	F	F	

Pavement Condition Survey-LHS																					
Sr. No.	Chainage		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Road Side Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From (Km)	To (Km)	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
113	71.500	72.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	P	F	F	
114	72.000	72.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
115	72.500	73.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
116	73.000	73.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
117	73.500	74.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
118	74.000	74.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
119	74.500	75.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
120	75.000	75.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
121	75.500	76.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
122	76.000	76.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
123	76.500	77.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
124	77.000	77.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
125	77.500	78.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
126	78.000	78.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
127	78.500	79.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
128	79.000	79.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
129	79.500	80.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
130	80.000	80.500	G	BT	BC		100	G	-	-	-	-	-	-	P	Soil	P	F	F	F	F	
131	80.500	81.000	G	BT	BC		100	G	-	-	-	-	-	-	P	Soil	P	F	F	F	F	
132	81.000	81.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
133	81.500	82.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
134	82.000	82.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
135	82.500	83.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
136	83.000	83.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
137	83.500	84.000	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
138	84.000	84.500	G	BT	BC		100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
138	84.500	85.000	G	BT	BC		100	F	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
139	85.000	85.204	F	BT	BC		100	F	-	-	-	S	-	-	F	Soil	F	F	F	F	F	

RHS - Kovvuru to Gundugolanu

Pavement Condition Survey-RHS																				
Sr. No.	Chainage		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Road Side Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From (Km)	To (Km)	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	15.320	15.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
2	15.500	16.000	F	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
2	16.000	16.500	F	BT	BC	-	100	G	-	-	-	-	**5**	-	F	Soil	F	F	F	F	F	
3	16.500	17.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
4	17.000	17.500	F	BT	BC	-	100	G	-	-	-	-	**7**	-	F	Soil	F	F	F	F	F	
5	17.500	18.000	F	BT	BC	-	100	G	-	-	-	-	**6**	-	F	Soil	F	F	F	F	F	
6	18.000	18.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	ROB
7	18.500	19.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
8	19.000	19.500	F	BT	BC	-	100	G	-	-	-	-	**7**	-	F	Soil	F	F	F	F	F	
9	19.500	20.000	F	BT	BC	-	100	G	-	-	-	-	**6**	-	F	Soil	F	F	F	F	F	
10	20.000	20.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
11	20.500	21.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
12	21.000	21.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
13	21.500	22.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
14	22.000	22.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
15	22.500	23.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
16	23.000	23.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
17	23.500	24.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
18	24.000	24.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
19	24.500	25.500	F	BT	BC	-	100	G	-	-	-	-	**2**	-	F	Soil	F	F	F	F	F	
20	25.500	26.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
21	26.000	26.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
22	26.500	27.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
23	27.000	27.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
24	27.500	28.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
25	28.000	28.500	F	BT	BC	-	100	G	-	-	-	-	**5**	-	F	Soil	F	F	F	F	F	
26	28.500	29.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
27	29.000	29.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
28	29.500	30.000	F	BT	BC	-	100	G	-	-	-	-	**4**	-	F	Soil	F	F	F	F	F	
29	30.000	30.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
30	30.500	31.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
31	31.000	31.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
32	31.500	32.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
33	32.000	32.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
34	32.500	33.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
35	33.000	33.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
36	33.500	34.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
37	34.000	34.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	

Pavement Condition Survey-RHS																					
Sr. No.	Chainage		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Road Side Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From (Km)	To (Km)	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
38	34.500	35.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
39	35.000	35.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
40	35.500	36.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
41	36.000	36.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
42	36.500	37.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
43	37.000	37.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
44	37.500	38.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
45	38.000	38.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
46	38.500	39.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
47	39.000	39.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
48	39.500	40.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
49	40.000	40.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
50	40.500	41.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
51	41.000	41.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
52	41.500	42.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
53	42.000	42.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
54	42.500	43.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
55	43.000	43.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
56	43.500	44.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
57	44.000	44.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
58	44.500	45.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
59	45.000	45.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
60	45.500	46.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
61	46.000	46.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
62	46.500	47.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
63	47.000	47.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
64	47.500	48.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
65	48.000	48.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
66	48.500	49.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
67	49.000	49.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
68	49.500	50.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
69	50.000	50.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
70	50.500	51.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
71	51.000	51.500	F	BT	BC	-	100	G	-	-	-	-	**5**	-	F	Soil	F	F	F	F	F	
72	51.500	52.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
73	52.000	52.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
74	52.500	53.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
75	53.000	53.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
76	53.500	54.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	Toll PLaza
77	54.000	54.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	

Pavement Condition Survey-RHS																					
Sr. No.	Chainage		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Road Side Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From (Km)	To (Km)	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
78	54.500	55.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
79	55.000	55.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
80	55.500	56.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
81	56.000	56.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
82	56.500	57.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
83	57.000	57.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
84	57.500	58.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
85	58.000	58.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
86	58.500	59.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
87	59.000	59.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
88	59.500	60.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
89	60.000	60.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
90	60.500	61.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
91	61.000	61.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
92	61.500	62.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
93	62.000	62.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
94	62.500	63.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
95	63.000	63.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
96	63.500	64.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
97	64.000	64.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
98	64.500	65.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
99	65.000	65.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	P	F	P	
100	65.500	66.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	P	F	P	
101	66.000	66.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
102	66.500	67.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
103	67.000	67.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
104	67.500	68.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
105	68.000	68.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
106	68.500	69.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
107	69.000	69.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
108	69.500	70.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
109	70.000	70.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
110	70.500	71.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
111	71.000	71.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
112	71.500	72.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
113	72.000	72.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
114	72.500	73.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
115	73.000	73.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
116	73.500	74.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
117	74.000	74.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	

Pavement Condition Survey-RHS																					
Sr. No.	Chainage		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Road Side Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From (Km)	To (Km)	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
118	74.500	75.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
119	75.000	75.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
120	75.500	76.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
121	76.000	76.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
122	76.500	77.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
123	77.000	77.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
124	77.500	78.000	F	BT	BC	-	100	G	-	-	-	-	7	-	F	Soil	F	F	F	F	F	
125	78.000	78.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
126	78.500	79.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
127	79.000	79.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
128	79.500	80.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
129	80.000	80.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
130	80.500	81.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
131	81.000	81.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
132	81.500	82.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
133	82.000	82.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
134	82.500	83.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
135	83.000	83.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
136	83.500	84.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
137	84.000	84.500	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
138	84.500	85.000	G	BT	BC	-	100	G	-	-	-	-	-	-	F	Soil	F	F	F	F	F	
139	85.000	85.00	F	BT	BC		100	F	-	-	-	M	-	-	F	Soil	F	F	F	F	F	

Four Laning of Akkalkot - Solapur section of NH-150E from design chainage km. 99.400 to km. 138.352 (Design Length 38.952 kms) including Akkalkot bypass in the State of Maharashtra Under HAM

Technical Due Diligence

Final Report

November 2022

Submitted by:

FP Project Management
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FOUR LANING OF AKKALKOT - SOLAPUR SECTION OF NH-150E WITH PAVED SHOULDERS FROM DESIGN CHAINAGE KM. 99.400 TO KM. 138.352 / EXISTING CHAINAGE FROM KM. 102.819 TO KM. 141.800 (DESIGN LENGTH 38.952 KMS) INCLUDING AKKALKOT BYPASS (DESIGN LENGTH 7.350 KMS) IN THE STATE OF MAHARASHTRA UNDER HYBRID ANNUITY MODE

TECHNICAL DUE DILIGENCE STUDY

FINAL REPORT

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1 INTRODUCTION

1.1 Background

The Government of India has entrusted to the National Highways Authority of India (NHAI), under Ministry of Road Transport and Highway (MORT&H), the development of highways under National Highways Development Projects (NHDP) and as part of this endeavor, the authority has approved Four Lanning of Akkalkot - Solapur section of NH-150E from km. 102.819 to km. 141.800 (Design Chainage from km. 99.400 to km. 138.352) in the state of Maharashtra on Hybrid Annuity Mode. The total length of project road is 38.952 kms including Akkalkot Bypass (design length 7.350 kms)

Based on competitive bid process completed, NHAI has signed Concession Agreement with **M/s. GR Akkalkot Solapur Highway Private Limited**, a Special Purpose Vehicle (SPV) formed for implementing this project.

The Appointed Date of the project was 14th December 2018 vide Authority letter no. NHAI/ PIU/SLP/Akkalkot-Solapur/20002/2018-19/4115 dated 15-Dec-2018. The concession period of the project highway is 17 years from the Appointed Date including construction period of 2 years. The Scheduled Completion Date of the project highway was on 13th December 2020. The NHAI has granted Extension of Time EOT-I and EOT-II for total 180 days. The project has received Provisional Completion Certificate on 31st March 2021.

During maintenance period of the project highway, **GR Highways Investment Manager Pvt. Ltd.** (in its capacity as the Investment Manager of Bharat Highways InvIT) has appointed **FP Project Management Consultancy Services Private Limited** [Formerly Frischmann Prabhu (I) Pvt. Ltd.] as Technical Consultant for carrying out techincal study and assessment of Opex and Major Maintenance requirement (MMR) for balance concession period. The scope includes review of operation and maintenance system and to prepare maintenance schedule for entire duration of concession period based on a technical analysis. In turn, FP Project Management undertook the site visits to carry out site inspection. The report is based on findings during this period.

1.2 Our Approach Philosophy

Composition of Team

Our team consists of well-qualified Engineers and other professionals, whose experience covers all the skills and specializations required for undertaking such assignments. All the team personnel proposed are our regular employees and have a long and stable working relationship with our firm.

The Team Leader coordinates the activities between all the key staff who work closely together. The key staff is assisted by various support staff, who report to the respective key staff in their field of expertise. The Team Leader is the point of contact for Client on Technical Study.

The technical study includes review of all the available documents namely:

a) Concession Agreement including Technical Schedules
b) EPC Agreement
c) Pavement design reports
d) O&M Manual prepared by the Concessionaire
e) O&M Contract, work order and their provisions
f) Recent O&M Report submitted to Authority
g) Quality of construction based on available data, design and drawings

h) Documents on historical expenditure on operation and maintenance
i) Reports on past accidents
j) O&M cost schedule for the concession period
k) Completion / Provisional Completion and status of items in punch list items
l) Correspondence regarding scope of works and during O&M
m) Toll operation manual / ATMS related documents

The review of the above documents is the first step towards accomplishment of the assignment. This gives a complete idea of the project and is used as input data for preparation of report after necessary analysis.

Site Visit and Data Collection

A team of experts from various streams has carried out the preliminary site visit to understand the assessment of project assets mainly condition of the pavement and structures.

- The site visit is undertaken for detailed reconnaissance and visual pavement condition assessment
- The condition assessment of major structures by visual inspection
- The information like material sources and the probable cost is collected for the purpose of cost estimate

The detailed design / drawings viz. Plan & L-sections, drainage design, structure design, layout drawings for project facilities like toll plaza, bus bay, truck lay-byes, highway lighting facilities etc., would be studied. Also, design / drawing and provision pertaining to road furniture are studied.

The adequacy of design is verified in accordance with the concession agreement, manual of specifications and standards as well as relevant IRC standards.

The information on availability of material in the vicinity is gathered. It has direct impact on cost of maintenance work and balance work if any.

The basic approach for preparation for cost estimates for operation and maintenance is as per the practice of State PWD / MoRT&H in respect of highways and structures.

Data Analysis

Based on the study of the available information and preliminary site visits, the consultants share their preliminary observations with the Client.

1.3 About this Report

This report has been prepared based on the information, reports and documents made available to us by the Company. We have also referred to publicly available reports, literature etc. and have made our best efforts to check the authenticity of the information available, analyse the same as per the best engineering / industry practices.

The site visit and inspection were carried out between the periods of **24th August 2022 to 27th August 2022**.

The report is organized with the following chapters for easy understanding of various issues.

- **Introduction -** This chapter gives an overview of the project background, approach and methodology of Due Diligence studies.

- **Project Description -** This chapter describes existing project features.

- **Development of Project Highway -** This chapter gives an overview of project development.

- **Balance works -** This chapter summarizes the balance works to be executed at Site.

- **Pavement and Site Investigation -** This chapter describes present condition of pavement, surveys and investigations carried out on site and proposals for maintenance as per contract requirements.

- **Review of Concession Agreement -** This chapter summarizes the observations on the executed concession agreement document.

- **Review of O&M Agreement -** This chapter summarizes the observations on the O&M Agreement executed.

- **Operation and Maintenance -** This chapter describes O&M set up as well as O&M cost over the concession period.

- **Toll Plaza Equipment and ATMS -** This chapter summarizes assessment of Toll Plaza in terms of no. of lanes, Toll Collection System installed and working status is presented under this section.

- **Accident Data Analysis -** This chapter deals with the analysis of nature of accidents occurring on the stretch and to identify blackspots.

- **Annexures**

2 PROJECT DESCRIPTION

2.1 Location

The project highway is part of National Highway No. 150E of Barshi - Gulbarga section in the state of Maharashtra and Karnataka. The total project length is 38.952 kms which starts from km. 99.400 near Akkalkot Bypass and ends at km. 138.352 in Solapur City.

The project highway passes through the built-up areas of towns and villages Karjal, Walsung, Chincholi, Rajanpur, Togarhalli, Akkalkot and Kumbhari.

The Location Map of the project highway is presented below:

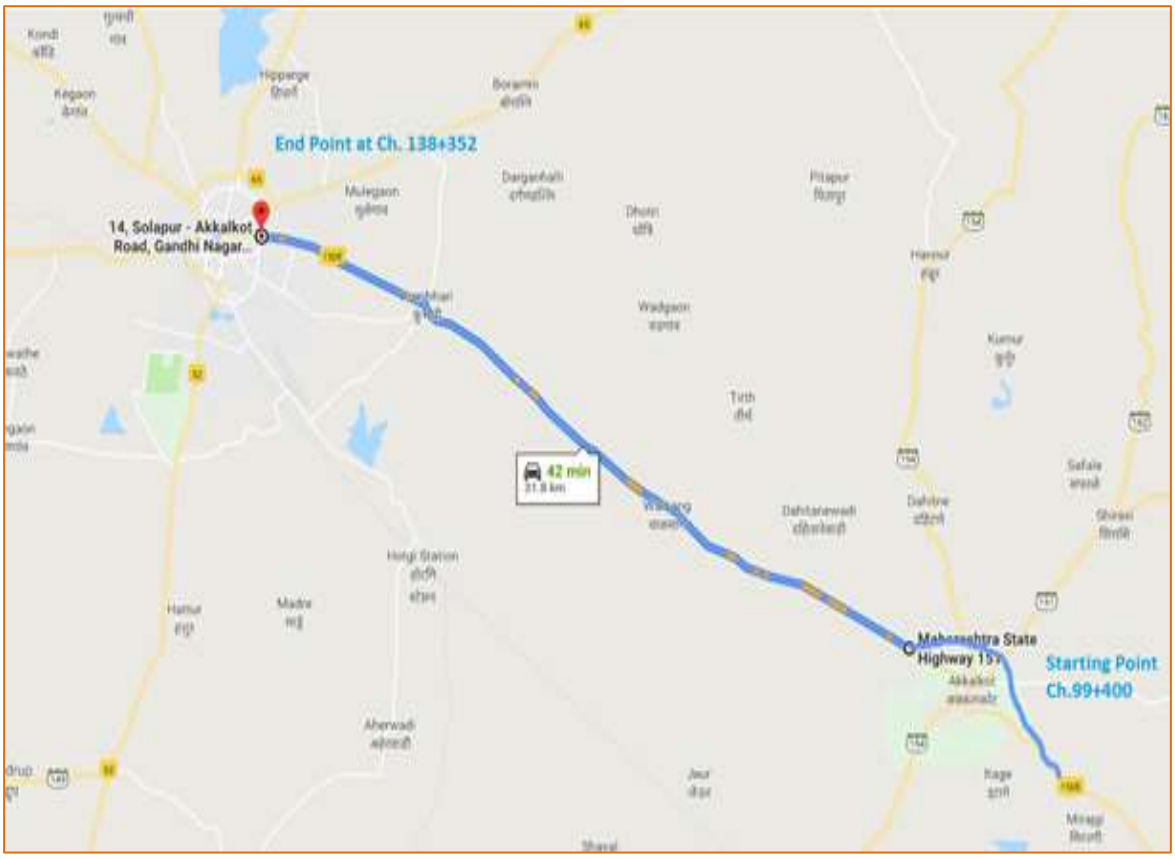


Figure 2-1 Location Map

2.2 Climate

The climate of the project area is generally dry except during the South-West monsoon season between July to September. The average annual rainfall in the area is around 540.96 mm. The driest month is February. The average annual temperature of the project area is 34.1 ^{0}C & May-June is being the warmest month. The highest relative humidity is in August @ 76.97% and the lowest relative humidity is in March @ 25.29%.

2.3 Terrain

The project Highway passes through plain terrain.

2.4 Abutting Land Use

Abutting land use on both sides is predominantly agricultural in rural section and residential and commercial in built-up section.

2.5 Right of Way

The available ROW along the project road section is 45 m except bypass where ROW is 60 meter.

2.6 Existing Utilities

During widening of the project highway, various affected utility services located along the project road were shifted to the PROW. The different types of utilities found along the road include, electrical poles, water pipeline, OFC Cables & HT lines, etc.,

3 DEVELOPMENT OF PROJECT ROAD

3.1 Project Road

The project highway is part of National Highway No. 150E of Barshi - Gulbarga section in the state of Maharashtra and Karnataka. Akkalkot is a taluka place while Solapur is a district place. Akkalkot is a religious place and known for Swami Samarth home as well as Akkalkot taluka is famous for Khwaja Daud dargah staying for peace. Solapur is famous for chadars, cotton mills and power looms. The National Research Centre on Pomegranate (NRCP) of India is located in Solapur. The present carriageway of the project highway is four lane with paved shoulder. The total project length is 38.952 kms.

The road from Akkalkot (km. 99.400) to Solapur City (km. 138.352) was proposed to be developed as four lane divided carriageway with median width 4.0 meter, service road and other arrangements. The project road passes through rural as well as built-up sections. The stretches falling in built-up areas have been provided with service road as per scope of works. The development of entire project road has been carried out in accordance with schedule-B and schedule-C as per standards set forth in schedule-D under the Concession Agreement.

M/s GR Akkalkot Solapur Highway Private Limited has completed construction of the project road for the length of 38.752 kms including Akkalkot Bypass length of 7.126 kms.

The Concessionaire i.e., M/s Akkalkot Solapur Highway Private Limited has received Provisional Completion Certificate on 31st March 2021 vide IE letter no. SAIL/IE/Akk-Sol/NH-150E/TL/2021/13924, dated: 12-04-2021.

The stretch of the project highway under the scope of study runs predominantly through plain / rolling terrain. The design standards have been adhered to with a realistic compatibility with the existing ROW, utilities and optimum land acquisition. Generally, the cross-sectional dimensions of project road are as below:

Cross sectional dimension

Table 3-1 Cross sectional dimension

Main Carriageway	Width (m)
Carriageway width	17.5 to 24.5
Paved Shoulder width - one side	1.5
Earthen Shoulder width - one side	1.5 to 2.0
Median width	1.5 - 4.00
Service Road	7.0

Figure 3-1 Start and End of the Project Highway



Start of the Project Highway at km. 99+400



End of the Project Highway at km. 138+352

3.2 Bypass and Realignment

There is one no. of bypass in the project length. Total length of bypass is 7.126 kms. The details of bypass are as under.

Sr. No.	Name of Bypass	Design Length (km)
1	Akkalkot	7.126



End of the Bypass at km. 106.526

3.3 Pavement Construction

The pavement type for the project highway on both carriageway including Toll Plaza and service road is rigid pavement.

Service Road

Service road is constructed in built-up area and adjoining underpass and overpass locations of 7.0 meter width. The scope of service road as per Concession Agreement is 25.86 kms (BHS). Out of Scope, 25.304 kms work has completed and about 0.500 km of service road is balance due to non-availability of land.

Details of Service Roads is tabulated below:

Table 3-2 Details of Service Road

Sr. No.	Proposed Chainage (km)		Length (km)	Side
	From	To		
1	99+400	100+340	0.940	BHS
2	102+155	104+195	2.040	BHS
3	105+320	106+750	1.430	BHS
4	110+800	111+500	0.700	BHS
5	113+650	114+310	0.660	BHS
6	117+540	118+260	0.720	BHS
7	121+470	122+320	0.850	BHS
8	124+500	125+400	0.900	BHS
9	129+990	131+330	1.340	BHS
10	131+550	132+400	0.850	BHS
11	134+500	135+650	1.150	BHS
12	136+100	137+450	1.350	BHS

Figure 3-2 Photographs of Service Road

LHS



km. 99.400 to km. 100.340 (Partially Balance)





km. 102.155 to km. 104.195



km. 105.320 to km. 106.750



km. 110.80 to km. 111.500



km. 113.650 to km. 114.310



km. 117.540 to km. 118.260



km. 121.470 to km. 122.320



km. 124.500 to km. 125.400



km. 129.990 to km. 130.890



km. 131.550 to km. 132.400



km. 134.500 to km. 135.650



km. 136.100 to km. 137.450

RHS



km. 136.100 to km. 137.450



km. 134.500 to km. 135.650



km. 131.550 to km. 132.400


km. 129.990 to km. 130.890


km. 124.500 to km. 125.400


km. 121.470 to km. 122.320


km. 117.540 to km. 118.260


km. 113.650 to km. 114.350


km. 110.800 to km. 111.500


km. 105.320 to km. 106.750


km. 102.155 to km. 104.195


km. 99.400 to km. 100.340

3.4 Major Intersections

There are 2 Nos. of major intersections along project highway. The details of the major intersections are presented as below.

Table 3-3 Details of Major Intersections

Sr. No.	Design Chainage (km)	Side	Type of Junction	Leading to (LHS)	Leading to (RHS)	Location	Feature
1	106+327	LHS	Y-junction	Akkalkot City	-	-	Akkalkot Bypass end
2	138+352	BHS	X-junction	Solapur Bus Stand	Sakhare Wada	Solapur City	Built up area

Figure 3-3 Photographs of Major Intersection



km. 138.352



km. 106.327

3.5 Minor Junctions

There are 22 minor junctions along project highway. The details of the minor junctions are presented as below.

Table 3-4 Details of Minor Intersections

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Side	Type of Junction	Leading to (LHS)	Leading to (RHS)	Location	Feature
1	-	100+817	BHS	X-junction	Akkalkot City	Godugow	Akkalkot City	-
2	-	101+983	BHS	X-junction	Akkalkot City	Neemgow Village	Akkalkot City	-
3	-	102+212	BHS	X-junction	Akkalkot City	Namdabad	Akkalkot City	-
4	-	102+700	BHS	X-junction	Akkalkot City	Vathri Village	Akkalkot City	-
5	-	103+474	BHS	X-junction	Akkalkot City	Kunoor Village	Akkalkot City	-
6	-	103+800	BHS	X-junction	Akkalkot City	Duljapur Village	Akkalkot City	-
7	-	104+755	BHS	X-junction	Akkalkoti City	Ashapura	Akkalkot City	-
8	112+375	109+040	BHS	Staggered Junction	Banagahati Village	Temple	-	-
9	114+525	111+230	BHS	Staggered Junction	-	Dahitanewadi	-	-
10	114+590				Konhali Village	-	-	-
11	117+405	114+080	BHS	Staggered Junction	Singjodi Village	Halhali village	Karjal Village	Built up Area
12	120+900	117+575	RHS	T-Junction	-	Tirth	-	-
13	124+795	121+470	BHS	X-Junction	Revansi Temple	Dindur Village	-	-
14	125+260	121+937	RHS	T-Junction	-	Rampur Village	-	-

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Side	Type of Junction	Leading to (LHS)	Leading to (RHS)	Location	Feature
15	128+385	125+055	BHS	X-Junction	Hungaon Village	Rampur Village	Thougapadi Village	-
16	132+740	129+416	RHS	T-Junction	-	Khaduthakhadi Village	-	-
17	133+070	129+740	LHS	X-Junction	Hanmgaon	Togarali Village		-
18	133+160	129+830	LHS	T-Junction	Hatgi Village	-	-	
19	134+180	130+830	BHS	Staggered Junction	Sidheshwar Sakhara Mill	Dhodi Village	Kumbhari Village	Built up Area
20	135+355	132+025	LHS	T-Junction	Kumbhari Village	-	-	-
21	137+775	134+437	BHS	X-Junction	Krishna Temple	Ali Mahara Ashram	-	-
22	139+450	136+120	RHS	T-Junction	-	Rebba Nagar	Wamik Square	-

Figure 3-4 Photographs of Major Intersection



km. 101.983



km. 102.212



km. 103.800



km. 109.040



km. 129.416

3.6 Condition Survey of Bridges

The inventory of structures including major bridges, minor bridges, underpasses and culverts is presented in table as below:

Table 3-5 Summary of Structures

Sr. No.	Type of Structure	Unit	Scope	Remark
1	Flyover	Nos.	07	
2	Major Bridges (New)	Nos.	01	RHS
3	Major Bridges (Re construction)	Nos.	01	LHS
4	Minor Bridges	Nos.	09	
5	Minor Bridges on Service Road	Nos.	06	BHS
6	Dismantle and Reconstruction of Minor Bridge	Nos.	05	LHS
7	Pedestrian Underpasses	Nos.	03	02 Nos under COS
8	ROB	Nos.	0	
9	Light Vehicular Underpass	Nos.	06	
10	Box Culverts (New)	Nos.	11	
11	Box Culvert (Re-construction)	Nos.	11	
12	Box Culvert (New on Slip Road)	Nos.	04	
13	Pipe Culvert Widening	Nos.	18	
14	Pipe Culvert (Re Construction)	Nos.	03	

The detailed condition survey of structures was carried out by visual inspection. The observations and findings are presented in table below:

Table 3-6 Structure Condition Survey

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
1	99.586 LHS	Minor Bridge (Reconstruction) 4 x 10 m	Age	New - 2 Lane		The structure is in sound condition. Partial BC is balance on the existing & reconstructed bridge (Some work is still pending due to land acquisition)
			Foundation	RCC Raft		
			Sub structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC Wall type piers Condition - Satisfactory		
			Super Structure	Four Cell Box Type RCC Slab Condition - Satisfactory		
			Bearing	–		
			Slope Protection	RCC Return		
			Nalla Bed	Flowing water		
			Parapet / Railing	Crash Barrier - Satisfactory		
			Expansion Joint	–		
			Wearing Coat / Surface	BC – Satisfactory		
			Approach Slope	Stable in condition		
			Drainage	Water grating not provided		
2	99.586 (Akkalkot Bypass)	Minor Bridge (New) 4 x 10 m	Age		New - 2 Lane	The structure is in sound condition. Filling work, GSB, DLC & PQC @ A1 side are pending due to local hindrances.
			Foundation		RCC Raft	
			Sub structure Abutment / Pier		Abutment - RCC Wall type Piers - RCC Wall type piers Condition - Satisfactory	
			Super Structure		Four Cell Box Type RCC Slab Condition - Satisfactory	
			Bearing		–	
			Slope Protection		RCC Return	
			Nalla Bed		Flowing water	
			Parapet / Railing		Crash Barrier - Satisfactory	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Expansion Joint		–	
			Wearing Coat / Surface		BC – Satisfactory	
			Approach Slope		Stable in condition	
			Drainage		Water grating not provided	
3	99.586 BHS	Minor Bridge (New-SR) 4 x 10 m	Age		New - 2 Lane	The structure @ LHS is pending due to land acquisition. Wearing coat is pending at MCW. Filling work, GSB, DLC & PQC @ A1 side of SR & MCW-RHS are pending due to local hindrances.
			Foundation		RCC Raft	
			Sub Structure Abutment / Pier		Abutment - RCC Wall type Piers - RCC Wall type piers Condition - Satisfactory	
			Super Structure		Four Cell Box Type RCC Slab Condition - Satisfactory	
			Bearing		–	
			Slope Protection		RCC Return	
			Nalla Bed		Flowing water	
			Parapet / Railing		Crash Barrier - Satisfactory	
			Expansion Joint		–	
			Wearing Coat / Surface		BC – Pending	
			Approach Slope		Stable in condition	
			Drainage		Water gratings not provided	
4	99.900	Flyover 1 x 15.0 + 1 x 25 + 1 x 15 m	Age	New - 3 Lane	New – 3 Lane	The structure is in sound condition.
			Foundation	Open Foundation	Open Foundation	
			Sub Structure Abutment / Pier	Abutment – RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	Abutment - RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	
			Super Structure	3 Span 10-PSC Girders, 20-RCC Girders and RCC Slab	3 Span 10-PSC Girders, 20-RCC Girders and RCC Slab	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
				Condition - Satisfactory	Condition – Satisfactory	
			Bearing	Bearing – Elastomeric	Bearing – Elastomeric	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier – Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - Satisfactory	BC – Satisfactory	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Not proper arrangement	Not proper arrangement	
5	101.260 (Akkalkoti Bypass)	Minor Bridge (New) 1 x 10 m	Age	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Condition - Satisfactory	Abutment - RCC Wall type Condition - Satisfactory	
			Super Structure	Single Cell Box Type RCC Slab Condition - Satisfactory	Single Cell Box Type RCC Slab Condition - Satisfactory	
			Bearing	–	–	
			Slope Protection	RCC Return	RCC Return	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	–	–	
			Wearing Coat / Surface	PQC – Satisfactory	PQC – Satisfactory	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Waterspout not provided	Waterspout not provided	
6	102.700	Flyover 1 x 21 + 1 x 30 + 1 x 21 m	Age	New - 3 Lane	New – 3 Lane	The structure is in sound condition.
			Foundation	Pile Foundation	Pile Foundation	
			Sub Structure Abutment / Pier	Abutment – RE Block & RCC Circular type	Abutment - RE Block & RCC Circular type	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
				Piers - RCC Circular type Condition - Satisfactory	Piers - RCC Circular type Condition – Satisfactory	
			Super Structure	3 Span 10-PSC Girders, 20-RCC Girders and RCC Slab Condition - Satisfactory	3 Span 10-PSC Girders, 20-RCC Girders and RCC Slab Condition – Satisfactory	
			Bearing	Bearing – POT-PTFE & Elastomeric	Bearing – POT-PTFE & Elastomeric	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier – Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - Satisfactory	BC –damaged	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Water gratings not provided	Water gratings not provided	
7	103.801	Flyover 1 x 21 + 1 x 30 + 1 x 21 m	Age	New - 3 Lane	New – 3 Lane	The structure is in sound condition.
			Foundation	Pile Foundation	Pile Foundation	
			Sub Structure Abutment / Pier	Abutment – RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	Abutment - RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	
			Super Structure	3 Span 10-PSC Girders, 20-RCC Girders and RCC Slab Condition - Satisfactory	3 Span 10-PSC Girders, 20-RCC Girders and RCC Slab Condition - Satisfactory	
			Bearing	Bearing – POT-PTFE & Elastomeric	Bearing – POT-PTFE & Elastomeric	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier – Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - Satisfactory	BC - damaged	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Water gratings not provided in mid span	Water gratings not provided in mid span	
8	104.348 (Akkalkoti Bypass)	Minor Bridge (New) 1 x 11 m	Age	New - 3 Lane	New – 3 Lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC Wall type pier Condition - Satisfactory	Abutment - RCC Wall type Piers - RCC Wall type pier Condition - Satisfactory	
			Super Structure	Single Cell Box Type RCC Slab Condition - Satisfactory	Single Cell Box Type RCC Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return	RCC Return	
			Nalla Bed	Standing water	Standing water	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Roughened	BC - Satisfactory	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Waterspouts not provided	Waterspouts not provided	
9	104.820	PUP under COS- 7 m x 4 m	Age	New - 3 lane	New - 3 lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	RCC wall RCC wall Box type	RCC wall RCC wall Box type	
			Super Structure	RCC solid slab	RCC solid slab	
			Bearing	-	-	
			Slope Protection	RE Block Wall	RE Block Wall	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier	Crash Barrier	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	Stable	Stable	
			Drainage	Waterspouts provided	Waterspouts provided	
10	106.240	Flyover 1 x 15 + 1 x 25 + 1 x 15 m	Age	New - 3 Lane	New – 3 Lane	The structure is in sound condition.
			Foundation	Open Foundation	Open Foundation	
			Sub Structure Abutment / Pier	Abutment – RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	Abutment - RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	
			Super Structure	3 Span 10-PSC Girders, 20-RCC Girders and RCC Slab Condition - Satisfactory	3 Span 10-PSC Girders, 20-RCC Girders and RCC Slab Condition - Satisfactory	
			Bearing	Bearing – Elastomeric	Bearing – Elastomeric	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC –damaged	BC - damaged	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Waterspouts provided	Waterspouts provided	
11	110.930 (LHS)	Minor Bridge-Chappla Wadi River (Reconstruction)	Age	New - 2 lane		The Structure is in sound condition.
			Foundation	RCC Raft		
			Sub Structure Abutment / Pier	Single Cell Box Type RCC wall Box type		

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
		1 x 10 m	Super Structure	RCC solid slab		
			Bearing	-		
			Slope Protection	RCC Return		
			Nalla Bed	Clear		
			Parapet / Railing	Crash Barrier		
			Expansion Joint	-		
			Wearing Coat / Surface	PQC - Satisfactory		
			Approach Slope	Stable		
			Drainage	Waterspouts provided		
12	110.930 (RHS)	Minor Bridge (New) 1 x 10 m	Age		New - 2 lane	The Structure is in sound condition.
			Foundation		RCC Raft	
			Sub Structure Abutment / Pier		Single Cell Box Type RCC wall Box type	
			Super Structure		RCC solid slab	
			Bearing		-	
			Slope Protection		RCC Return	
			Nalla Bed		Clear	
			Parapet / Railing		Crash Barrier	
			Expansion Joint		-	
			Wearing Coat / Surface		PQC - Satisfactory	
			Approach Slope		Stable	
			Drainage		Waterspouts provided	
13	110.930 (BHS)	Minor Bridge (New-SR) 1 x 10 m	Age	New - 2 lane	New - 2 lane	The Structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Single Cell Box Type RCC wall Box type	Single Cell Box Type RCC wall Box type	
			Super Structure	RCC solid slab	RCC solid slab	
			Bearing	-	-	
			Slope Protection	RCC Return	RCC Return	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	Crash Barrier	Crash Barrier	
			Expansion Joint	-	-	
			Wearing Coat / Surface	PQC - Satisfactory	PQC - Satisfactory	
			Approach Slope	Stable	Stable	
			Drainage	-	-	
14	111.260	LVUP- 12 m x 4 m	Age	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	RCC wall RCC wall Box type	RCC wall RCC wall Box type	
			Super Structure	RCC solid slab	RCC solid slab	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier	Crash Barrier	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	Stable	Stable	
			Drainage	Waterspouts provided	Waterspouts provided	
15	114.080	LVUP 12 m x 4 m	Age	New - 2 lane	New - 2 lane	The Structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	RCC wall RCC wall Box type	RCC wall RCC wall Box type	
			Super Structure	RCC solid slab	RCC solid slab	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier	Crash Barrier	
			Expansion Joint	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	Stable	Stable	
			Drainage	Waterspouts provided	Waterspouts provided	
16	114.405 LHS	Major Bridge- Hlullai River 4 x 20 m	Age	New - 3 lane- Reconstruction	New - 3 lane- New construction	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	4 Span RCC Girders & RCC Deck Slab Condition - Satisfactory	4 Span RCC Girders & RCC Deck Slab Condition - Satisfactory	
			Bearing	Bearing – Elastomeric	Bearing – Elastomeric	
			Slope Protection	RCC Return and Rubble Stone Pitching & RE Block Wall	RCC Return and Rubble Stone Pitching & RE Block Wall	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Water gratings blocked	Water gratings blocked	
17	117.796- BHS	Minor Bridge- (New) 2 x 20 m	Age	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	2 Span	2 Span	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
				RCC Girders & RCC Deck Slab Footpath - Both side Condition - Satisfactory	RCC Girders & RCC Deck Slab Footpath - Both side Condition – Satisfactory	
			Bearing	Bearing – Elastomeric	Bearing – Elastomeric	
			Slope Protection	RE Block Wall	RE Block Wall	
			Nalla Bed	Flowing water Height Upper level	Flowing water Height Upper level	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier – Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC surface is roughened	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Sufficient water gratings not provided	Sufficient water gratings not provided	
18	117.796-BHS	Minor Bridge-(New-SR) 2 x 20 m	Age	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	2 Span RCC Girders & RCC Deck Slab Footpath - Both side Condition - Satisfactory	2 Span RCC Girders & RCC Deck Slab Footpath - Both side Condition - Satisfactory	
			Bearing	Bearing – Elastomeric	Bearing – Elastomeric	
			Slope Protection	RCC Return	RCC Return	
			Nalla Bed	Flowing water Height lower level	Flowing water Height lower level	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Waterspouts provided	Waterspouts provided	
19	117.935	Flyover 1 x 15 + 1 x 25 + 1 x 15 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition.
			Foundation	Open Foundation	Open Foundation	
			Sub Structure Abutment / Pier	Abutment – RE Block & RCC rectangle type Piers - RCC rectangle type Condition - Satisfactory	Abutment - RE Block & RCC rectangle type Piers - RCC rectangle type Condition - Satisfactory	
			Super Structure	3 Span 8-PSC Girders, 16-RCC Girders and RCC Slab Condition - Satisfactory	3 Span 8-PSC Girders, 16-RCC Girders and RCC Slab Condition - Satisfactory	
			Bearing	Bearing – Elastomeric	Bearing – Elastomeric	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - Roughened	BC - Satisfactory	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Sufficient water gratings not provided	Sufficient water gratings not provided	
20	121.678 BHS	Minor Bridge-(New) 2 X 5.6 m	Age	New - 2 Lane (Not accessible)	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment – RCC wall Piers - RCC wall type Condition - Satisfactory	Abutment – RCC wall Piers - RCC wall type Condition - Satisfactory	
			Super Structure	Double Span RCC Slab	Double Span RCC Slab	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
				Condition - Satisfactory	Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return	RCC Return	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	PQC is in good condition	PQC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Waterspouts not provided	Waterspouts not provided	
21	121.678 BHS	Minor Bridge-New-SR 2 X 5.6 m	Age	New - 2 Lane (Not accessible)	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment – RCC wall Piers - RCC wall type Condition - Satisfactory	Abutment – RCC wall Piers - RCC wall type Condition - Satisfactory	
			Super Structure	Double Span RCC Slab Condition - Satisfactory	Double Span RCC Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	PQC is in good condition	PQC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	No need of waterspouts	No need of waterspouts	
22	121.950	LVUP 12 m x 4 m	Age	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	RCC wall RCC wall Box type	RCC wall RCC wall Box type	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Super Structure	RCC solid slab	RCC solid slab	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier	Crash Barrier	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Satisfactory	BC - Roughened	
			Approach Slope	Stable	Stable	
			Drainage	Waterspouts not provided	Waterspouts not provided	
23	124.337 LHS	Minor Bridge- (Dhubdhubi Odha River) (Reconstruction) 5 X 11 m	Age	New - 3 Lane		The structure is in sound condition.
			Foundation	Open Foundation		
			Sub Structure Abutment / Pier	Abutment – RCC wall Piers - RCC Pier type Condition - Satisfactory		
			Super Structure	Five Span RCC Slab Condition - Satisfactory		
			Bearing	-		
			Slope Protection	Rubble with concrete pitching		
			Nalla Bed	Standing water		
			Parapet / Railing	Crash Barrier - Satisfactory		
			Expansion Joint	-		
			Wearing Coat / Surface	BC is roughened & settled approach slab @ A1 kerb side		
			Approach Slope	Stable in condition		
			Drainage	Fixing of water grating is in progress		
24	124.337 RHS	Minor Bridge-	Age		New - 3 Lane	The structure is in sound condition.
			Foundation		Open Foundation	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
		(Dhubdhubi Odha River) (New) 5 X 11 m	Sub Structure Abutment / Pier		Abutment – RCC wall Piers - RCC Pier type Condition - Satisfactory	
			Super Structure		Five Span RCC Slab Condition - Satisfactory	
			Bearing		-	
			Slope Protection		Rubble with concrete pitching	
			Nalla Bed		Standing water	
			Parapet / Railing		Crash Barrier - Satisfactory	
			Expansion Joint		-	
			Wearing Coat / Surface		BC is roughened	
			Approach Slope		Rubble pitching of approach slope @ both end of A1 & A2 is pending	
			Drainage		Fixing of water grating is in progress	
25	125.055	LVUP 12 m x 4 m	Age	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	RCC wall RCC wall Box type	RCC wall RCC wall Box type	
			Super Structure	RCC solid slab	RCC solid slab	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier	Crash Barrier	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is roughened	BC - Satisfactory	
			Approach Slope	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Drainage	Waterspouts not provided	Waterspouts not provided	
26	130.149 LHS	Minor Bridge- (Reconstruction) 1 X 20 m	Age	New - 2 lane- Reconstruction		The structure is in sound condition.
			Foundation	Open Foundation		
			Sub Structure Abutment / Pier	Abutment RCC wall Type Condition - Satisfactory		
			Super Structure	RCC Solid Slab		
			Bearing	-		
			Slope Protection	RCC return		
			Nalla Bed	Not clear		
			Parapet / Railing	Crash Barrier - Satisfactory		
			Expansion Joint	Available (Require cleaning)		
			Wearing Coat / Surface	BC is pending		
			Approach Slope	Stable in condition		
			Drainage	Water gratings not provided		
27	130.149 RHS	Minor Bridge- (New) 1 X 20 m	Age		New - 2 lane- New construction	The structure is in sound condition.
			Foundation		Open Foundation	
			Sub Structure Abutment / Pier		Abutment RCC wall Type Condition - Satisfactory	
			Super Structure		RCC Solid Slab	
			Bearing		-	
			Slope Protection		RCC return	
			Nalla Bed		Not clear	
			Parapet / Railing		Crash Barrier - Satisfactory	
			Expansion Joint		Available (Require cleaning)	
			Wearing Coat / Surface		BC is pending	
			Approach Slope		Stable in condition	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Drainage		Water gratings not provided	
28	130.149 BHS	Minor Bridge-(New-SR) 1 X 20 m	Age	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	Open Foundation	Open Foundation	
			Sub Structure Abutment / Pier	Abutment RCC wall Type Condition - Satisfactory	Abutment RCC wall Type Condition - Satisfactory	
			Super Structure	RCC Solid Slab	RCC Solid Slab	
			Bearing	-	-	
			Slope Protection	RCC return	RCC return	
			Nalla Bed	Not clear	Not clear	
			Parapet / Railing	Crash Barrier with Footpath - Satisfactory	Crash Barrier with Footpath - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC is repairable	BC is damaged	
			Approach Slope	Repairable	Damaged	
			Drainage	Waterspouts not provided	Waterspouts not provided	
29	130.485	PUP under COS-5 m x 4 m	Age	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	RCC wall RCC wall Box type	RCC wall RCC wall Box type	
			Super Structure	RCC solid slab	RCC solid slab	
			Bearing	-	-	
			Slope Protection	RE Block Wall	RE Block Wall	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier	Crash Barrier	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	Stable	Stable	
			Drainage	Waterspouts provided	Waterspouts provided	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
30	130.650	Flyover- 1 x 15 + 1 x 25 + 1 x 15 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition.
			Foundation	Open Foundation	Open Foundation	
			Sub Structure Abutment / Pier	Abutment – RE Block & RCC rectangular type Piers - RCC rectangular type Condition - Satisfactory	Abutment - RE Block & RCC rectangular type Piers - RCC rectangular type Condition - Satisfactory	
			Super Structure	3 Span 8-PSC Girders, 16-RCC Girders and RCC Slab Condition - Satisfactory	3 Span 8-PSC Girders, 16-RCC Girders and RCC Slab Condition - Satisfactory	
			Bearing	Bearing – Elastomeric	Bearing – Elastomeric	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Waterspouts provided	Waterspouts provided	
31	132.025	LVUP 12 m x 4 m	Age	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment RCC wall Type Condition - Satisfactory	Abutment RCC wall Type Condition - Satisfactory	
			Super Structure	RCC Solid Slab	RCC Solid Slab	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Wearing Coat / Surface	BC is in good condition	BC is roughened	
			Approach Slope	-	-	
			Drainage	Waterspouts not provided	Waterspouts provided	
32	132.363	Minor Bridge 1 x 10 m	Age	New - 2 lane-Reconstruction	New - 2 lane-New construction	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment RCC wall Type Condition - Satisfactory	Abutment RCC wall Type Condition - Satisfactory	
			Super Structure	RCC Solid Slab	RCC Solid Slab	
			Bearing	-	-	
			Slope Protection	RCC return wall	RCC return wall	
			Nalla Bed	Standing water	Standing water	
			Parapet / Railing	Crash Barrier – Satisfactory	RCC Railing - Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	PQC is in good condition	PQC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	No need of waterspouts	No need of waterspouts	
33	132.363	Minor Bridge (Service Road) 1 x 10 m	Age	New - 2 lane- New-SR	New - 2 lane- New-SR)	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment RCC wall Type Condition - Satisfactory	Abutment RCC wall Type Condition - Satisfactory	
			Super Structure	RCC Solid Slab	RCC Solid Slab	
			Bearing	-	-	
			Slope Protection	RCC return wall	RCC return wall	
			Nalla Bed	Standing water	Standing water	
			Parapet / Railing	Crash Barrier – Satisfactory	RCC Railing - Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	PQC is in good condition	PQC is in good condition	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	No need of waterspouts	No need of waterspouts	
34	135.100	LVUP 12 m x 4 m	Age	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment RCC wall Type Condition - Satisfactory	Abutment RCC wall Type Condition - Satisfactory	
			Super Structure	RCC Solid Slab	RCC Solid Slab	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	-	-	
			Drainage	Waterspouts not provided	Waterspouts not provided	
35	136.657	PUP	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition. miscellaneous work is in progress.
			Foundation	Open Foundation	Open Foundation	
			Sub Structure Abutment / Pier	Abutment – RE Block & RCC rectangle type Condition - Satisfactory	Abutment - RE Block & RCC rectangle type Condition - Satisfactory	
			Super Structure	Single Span RCC Girders and RCC Slab Condition - Satisfactory	Single Span RCC Girders and RCC Slab Condition - Satisfactory	
			Bearing	Elastomeric	Elastomeric	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier – Work in progress	Crash Barrier – Work in progress	
			Expansion Joint	Available	Available	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Wearing Coat / Surface	BC - Pending	BC - Pending	
			Approach Slope	-	-	
			Drainage	Work is in progress	Work is in progress	
36	136.857	Flyover 1 x 15 + 1 x 25 + 1 x 15 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition. miscellaneous work is in progress.
			Foundation	Open Foundation	Open Foundation	
			Sub Structure Abutment / Pier	Abutment – RE Block & RCC rectangle type Piers - RCC rectangle type Condition - Satisfactory	Abutment - RE Block & RCC rectangle type Piers - RCC rectangle type Condition - Satisfactory	
			Super Structure	3 Span 8-PSC Girders, 16-RCC Girders and RCC Slab Condition - Satisfactory	3 Span 8-PSC Girders, 16-RCC Girders and RCC Slab Condition - Satisfactory	
			Bearing	Elastomeric	Elastomeric	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier – Work is in progress	Crash Barrier - Work is in progress	
			Expansion Joint	Pending	Pending	
			Wearing Coat / Surface	Pending	Pending	
			Approach Slope	-	-	
			Drainage	Pending	Pending	

Figure 3-5 Photographs of Major Structures



Side View of MNB at km. 99.586 (RHS)



Balance work at A2 side at km. 99.586 - MNB (RHS)



Balance work @ A1 side at km.99.586 - MNB (RHS)



View of MNB at km. 99.586 (LHS)



Side View of Flyover at km. 99.900 (LHS)



Hessian Cloth @ P2 Pier (RHS) of Flyover at km. 99.900



Side View of Flyover at km. 99.900 (RHS)



Side View of Minor Bridge at km. 101.260 (LHS)



PQC of Minor Bridge at km. 101.260 (LHS)



PQC of Minor Bridge at km. 101.260 (RHS)



Side View of Minor Bridge at km. 101.260 (RHS)



Side View of Flyover at km. 102.700 (LHS)



BC surface of Flyover at km. 102.700 (RHS)



BC surface of Flyover at km. 102.700 (LHS)



Side View of Flyover at km. 102.700 (RHS)



Side View of Flyover at km. 103.801 (LHS)



Roughened BC surface of Flyover at km. 103.801 (RHS)



Good BC surface of Flyover at km. 103.801 (LHS)



Side View of Flyover at km. 103.801 (RHS)



Side View of Minor Bridge at km. 104.348 (LHS)



Roughened BC surface of Minor Bridge at km. 104.348 (LHS)



Good BC surface of Minor Bridge at km. 104.348 (RHS)



Side View of Minor Bridge at km. 104.348 (RHS)



Side View of PUP at km. 104.820 (RHS) - Under COS



RE Block Wall @ A2 side of PUP at km. 104.820 (LHS)



RE Block Wall @ A2 side of PUP at km. 104.820 (RHS)



Side View of PUP at km. 104.820 (LHS) - Under COS



Side View of Flyover at km. 106.240 (LHS)



Flyover at km. 106.240 (RHS)



Flyover at km. 106.240 (LHS)



Side View of Flyover at km. 106.240 (RHS)



Good PQC surface of MCW at MNB at km. 110.930 (BHS)



Good PQC surface of SR at MNB at km. 110.930 (RHS)



Side View of Minor Bridge at km. 110.930 (RHS)



Side view of LVUP at km. 111.260 (RHS)



Good BC surface of LVUP at km. 111.260 (RHS)



LVUP at km. 111.260 (LHS)



Side view of LVUP at km. 111.260 (LHS)



Side view of LVUP at km. 114.080 (RHS)



LVUP at km. 114.080 (RHS)



LVUP at km. 114.080 (LHS)



Side view of LVUP at km. 114.080 (LHS)



Side View of Major Bridge at km. 114.405 (RHS)



Side View of Major Bridge at km. 114.405 (LHS)



Side View of Minor Bridge at km. 117.796 - LHS (MCW & SR)



Bottom & side view of Minor Bridge at km. 117.796 (RHS)



Side View of Minor Bridge at km. 117.796 - RHS (MCW & SR)



Bottom of Minor Bridge at km. 117.796 - BHS (MCW)



Side View of Flyover at km. 117.935 (LHS)



Hanging hessian cloth @ A2 cap of Flyover at km. 117.935 (RHS)



De-shuttering at bottom @ A1 & A2 Side of Flyover at km. 117.935 (RHS)



Side View of Flyover at km. 117.935 (RHS)



Side View of Minor Bridge at km. 121.678 (LHS)



Good condition of PQC surface of MNB at km. 121.678 - LHS (SR)



Good condition of PQC surface of MNB at km. 121.678 - BHS (MCW)



Side View of Minor Bridge at km. 121.678 (RHS)



Side View of LVUP at km. 121.950 (RHS)



LVUP at km. 121.950 (RHS)



Good condition of BC surface of LVUP at km. 121.950 (LHS)



Side View of LVUP at km. 121.950 (LHS)



Side View of Minor Bridge at km. 124.337 (LHS)



Side View of Minor Bridge at km. 124.337 (RHS)



Rubble pitching pending @ A1 side of MNB at km. 124.337 (RHS)



Rubble pitching pending @ A2 side of MNB at km. 124.337 (RHS)



Side View of LVUP at km. 125.055 (RHS)



Side View of LVUP at km. 125.055 (LHS)



Side View of Minor Bridge at km. 130.149 - RHS (Not accessible)



Side View of Minor Bridge at km. 130.149 - LHS (Not accessible)



Side View of PUP at km. 130.485 - RHS (Under COS)



Side View of PUP at km. 130.485 - LHS (Under COS)



Side View of Flyover at km. 130.650 (LHS)



Side View of Flyover at km. 130.650 (RHS)



Good condition of BC surface of Flyover at km. 130.650 (RHS)



Filled expansion joint of Flyover at km. 130.650 (RHS)



Good condition of BC surface of Flyover at km. 130.650 (LHS)



Side View of LVUP at km. 132.025 (RHS)



LVUP at km. 132.025 (RHS)



Good BC surface of LVUP at km. 132.025 (LHS)



Side View of LVUP at km. 132.025 (LHS)



Side View of LVUP at km. 135.100 (RHS)



Good BC surface of LVUP at km. 135.100 (RHS)



Good BC surface of LVUP at km. 135.100 (LHS)



Side View of LVUP at km. 135.100 (LHS)



Side View of PUP at km. 136.657 (RHS)



Wearing coat & Crash barrier of PUP pending at km. 136.657 (BHS)



Bottom View of PUP at km. 136.657 (LHS)



Side View of PUP at km. 136.657 (LHS)



Side View of Flyover at km. 136.857 (RHS)



Friction slab & crash barrier of Flyover pending at km. 136.857 @ A2 side (RHS)



RE Block wall & FSCB of Flyover pending at km. 136.857 @ A1 side (RHS)



Side View of Flyover at km. 136.857 (LHS)



Filling work of Flyover is in progress at km.136.857 @ Akkalkot side (BHS)



Expansion joint & crash barrier of Flyover is in progress at km. 136.857 (BHS)



DLC & PQC of Flyover pending at km. 136.857 @ Solapur (BHS)



DLC & PQC of Flyover is in progress at km. 136.857 @ Solapur side (BHS)



Expansion joint @ A2 side of Flyover is in progress at km. 136.857 (RHS)



Approach slab work @ A2 side of Flyover is in progress at km. 136.857 (LHS)



Filling work & RE Block erection work of Flyover is in progress at km. 136.857 @ Akkalkot side (LHS)



Filling work & RE Block erection work of Flyover is in progress at km. 136.857 @ Akkalkot side (RHS)

3.7 Condition Survey of Culverts

The cross-drainage structure includes Hume pipe culverts and box culverts at various locations. There are 21 Nos. of pipe culverts, 26 Nos. of box culverts along the project road. The height of culvert varies from 1.0 m to 3.0 m from bed level. During the condition survey of structure, these culverts were inspected on sample basis.

The project involves strengthening and widening of existing road to four lane divided carriageway. The culverts beneath existing alignment are either widened or reconstructed. The structural condition of culverts is generally found in sound condition. The quality of surface concrete of box culverts and slab culverts is satisfactory. The RCC parapet, crash barrier has been provided at culvert locations, which is maintained properly.

Vegetation growth and accumulation of debris at waterway is being removed and cleaned by the Concessionaire on regular basis.

Figure 3-6 Photographs of Culverts



Box culvert at km. 101.823 - LHS (New Construction)



Box culvert at km. 101.823 - RHS (New Construction)



Box culvert at km. 102.650 - LHS (MCW & SR- New Construction)



Box culvert at km. 102.650 - RHS (MCW & SR - New Construction)



Box culvert at km. 103.850 - LHS (MCW & SR - New Construction)



Box culvert at km. 103.850 - RHS (MCW & SR - New Construction)



Box culvert at km. 105.290 - RHS (New Construction)



Box culvert at km. 105.290 - LHS (New Construction)



Box culvert at km. 125.495 - RHS (Reconstruction)



Box culvert at km. 125.495 - LHS (Reconstruction)



Box culvert at km. 126.643 - RHS (Reconstruction)



Box culvert at km. 126.643 - LHS (Reconstruction)



Box culvert at km. 128.229 - RHS (Reconstruction)



Box culvert at km. 128.229 - LHS (Reconstruction)



Box culvert at km. 133.524 - RHS (Reconstruction)



Box culvert at km. 133.524 - LHS (Reconstruction)



Pipe Culvert at km. 109.578 - RHS (Widening)



Pipe Culvert at km. 109.578 - LHS (Widening)



Pipe Culvert at km. 113.155 - RHS (Widening)



Pipe Culvert at km. 113.155-LHS (Widening)



Pipe Culvert at km. 117.423 - RHS (Widening)



Pipe Culvert at km. 117.423 - LHS (Widening)



Pipe Culvert at km. 124.106 - RHS (Widening)



Pipe Culvert at km. 124.106-LHS (Widening)

3.8 Drainage System

There are RCC box / open / toe / chute type drains at the built-up areas and earthen drain at rural areas provided for the project stretch. Lined median longitudinal drain is provided at superelevated sections. Balance drain work is in progress. The roadside drainage along the project highway as well as lined drains at median portion needs to be maintained by cleaning debris on regular basis. Some of the photographs of the drains provided are presented as below.

Figure 3-7 Photographs of Drains provided



km. 100.340 (LHS)



km. 102.155 (LHS)



km. 113.650 (RHS)



km. 121.470 (RHS) partially completed



km. 133.300 WIP (RHS)



km. 135.900 (RHS)



km. 137.00 (LHS)



km. 137.400 (RHS)

3.9 Slope Protection Measures

Slope protection for high embankment greater than 3.0 m stone pitching has been provided. Some of the photographs of slope are presented below.

Figure 3-8 Photographs of Slope Protection Works

LHS



km. 101.00



km. 114.800



km. 102.155 SR



km. 116.150



km. 123.300



km. 128.700



km. 124.300



km. 124.400



km. 117.850



km. 111.050



km. 114.600

RHS



km. 127.650 (RHS)



km. 126.700



km. 123.900



km. 105.250



km. 101.950



km. 132.350



km. 124.300



km. 124.300



km. 114.600



km. 111.050



km. 114.500

3.10 Road Furniture

Pavement Marking

Pavement marking for the project highway is done as per the design standards indicated in section 12 of Schedule-D. As informed by Concessionaire, the painting is being done

wherever is required on regular basis as a part of routine maintenance. Some of the photographs of road marking are presented below.

Figure 3-9 Photographs of Road Markings

LHS



km. 99.400



km. 101.983



km. 105.200



km. 116.500

RHS



km. 138.00



km. 121.800



km. 105.250



km. 109.040

Road Studs

Road studs for the project highway is done as per the design standards indicated in section 12 of Schedule-D. Road studs have been fixed at junction & at zebra crossings. However, at few locations some road studs have damaged which are being rectified. Some of the photographs of road marking are presented below.


km. 102.212


km. 103.800


km. 109.040


km. 101.950

Traffic Signage / Median Kerb painting / KM Stone

Traffic signs includes roadside signs, overhead signs, kerb mounted signs and median signs along the project highway. The design for the traffic signs along the project highway is done as per the design standards indicated in section 11 of Schedule-D.

The height, lateral clearance, location and installation are as per relevant clauses of Schedule 'D'. Overhead sign has been installed ahead of major intersections, toll plazas, start / end of project highway and urban areas as per detailed design requirements.

Kilometre stones, vertical post of sign boards, chevron boards and Median kerb paint are faded at few locations. The sign boards, kilometer stones and hectometer stones are being replaced wherever damaged. Some of the photographs of sign boards are presented below.

Figure 3-10 Photographs of Road Sign Boards


km. 101.000



km. 108.000



km. 110.000



km. 123.000


km. 101.300


km. 102.155


km. 102.155


km. 101.983



km. 102.155


km. 102.155


km. 106.950


km. 107.300



km. 117.300



km. 118.400



km. 134.250


km. 105.200


km. 111.600


km. 111.600


km. 112.00


km. 113.950


km. 121.900



km. 117.300



km. 121.900


km. 133.200


km. 101.300


km. 102.212


km. 107.300


km. 111.600

Highway / Solar Lighting

Highway lighting is provided at underpasses, flyovers, toll plaza, and built-up locations. High mast lighting is provided at toll plaza and rest area locations.

At underpass and flyover locations, highway lighting is provided at the structure locations and at its approaches.

Solar blinker signals are provided at each median opening locations. These lights are properly maintained and are in good working condition. Regular maintenance work is carried out to ensure their efficient operation. Some of the photographs of highway lightings are presented below.

Figure 3-11 Photographs of Highway/Solar Lighting


km. 101.983


km. 102.155


km. 109.040


km. 110.800


km. 136.050


km. 114.300


km. 131.550


km. 129.990


km. 124.500


km. 121.470


km. 113.650


km. 110.800

Crash Barriers

Metal beam crash barriers are provided at bridge approaches, locations of high embankment, median and sharp curves. All the crash barriers provided by the Concessionaire are maintained. Some of the photographs of metal beam crash barriers are presented below.

Figure 3-12 Photographs of Crash Barriers


km. 138.352


km. 133.500


km. 131.800 (RHS)

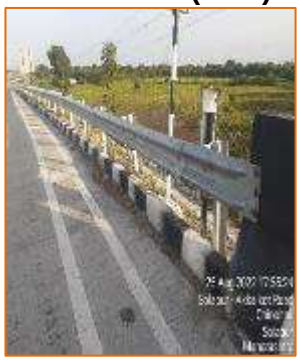

km. 124.200 (RHS)


km. 114.300 (RHS)


km. 106.300 (RHS)


km. 111.600 (LHS)


km. 116.850 (LHS)


km. 124.350 (LHS)


km. 130.140


km. 113.950 (LHS)

Delineators

The Traffic Delineators are provided by Concessionaire for road users. The same is maintained by the Concessionaire. Some of the photographs of pedestrian guard rails are presented below.

Figure 3-13 Photographs of Delineator


km. 127.650 (RHS)


km. 123.900 (RHS)


km. 116.450 (RHS)


km. 101.00 (LHS)


km. 107.300 (LHS)

Pedestrian Guard Rail

The pedestrian guard rails are provided at the bus shelters only. It is maintained by the Concessionaire. Some of the photographs of pedestrian guard rails are presented in photographs of bus shelter.

Road Land Boundary

Road land (ROW) boundary demarcation is maintained by the Concessionaire on the project highway during the concession period. During the site visit, it is found that road land boundary pillars are maintained. However, ROW pillars are being fixed in missing locations. Some of the photographs of pedestrian guard rails are presented below.

Figure 3-14 Photographs of Road Land Boundary



km. 101.000 (LHS)



km. 105.000 (LHS)



km. 108.400 (LHS)



km. 128.800 (RHS)



km. 120.000 (RHS)



km. 117.000

3.11 Avenue Plantation and Median Plantation

Median and Avenue Plantation is available along the project highway. Variety of trees and plants are planted throughout the corridor at median / avenue. Median and avenue plantation is maintained in good condition. Some of the photographs of median plantation are presented below.

Figure 3-15 Photographs of Avenue and Median Plantation



km. 101.000 to km. 102.000





km. 106.000 to km. 107.000



km. 107.000 to km. 108.000



km. 111.000 to km. 112.000



km. 116.000 to km. 117.000



km. 129.000 to km. 130.000



km. 127.000 to km. 128.000



km. 117.000 to km. 116.000

3.12 Project Facilities

Toll Plaza

The Concession Agreement required construction of one no. of Toll Plaza at km. 119.350. Subsequently, Concessionaire has taken up construction of the Toll Plaza at the same location. Presently, Toll Plaza has started for road users.

1. Toll Plaza at km. 119.350

The construction of toll plaza is completed and is in operation. 10 (5+5) Nos. of lanes has been constructed and all are under operation. Concessionaire has constructed administration, operation and maintenance facility at base camp. All required facilities are available at the toll plaza. Some of the photographs of toll plaza are presented below.

Figure 3-16 Photographs at Toll Plaza



Toll Plaza


Admin Building


DG Set

Ambulance & Crane

Highway / Medical aid post at GF

High mast


CC TV Camera

Patrolling Vehicle

Toilet

Weigh Bridge


km. 133.00 (RHS)

km. 126.100 (RHS)

km. 101.100 (LHS)

km. 129.700


km. 125.450


km. 121.400


km. 117.450


km. 113.550

Truck Lay Byes

As per Concession Agreement, there is no scope for construction of truck lay bye along the project highway.

Rest Area

There is a provision for Rest Area in the Concession Agreement which is completed at Site.


Trucker's dormitory


Public Toilet


Trauma Centre



Repair Workshop


High Mast


Dhaba

Bus Bay and Passenger Shelter

Bus bays and passenger shelters are constructed at the various locations along the project highway. 06 Nos. of bus bays with passenger shelters are provided along project highway and 06 Nos. of passenger shelters are provided on service roads along project highway. Concessionaire needs to maintain bus bays with all necessary signage as per relevant IRC guidelines mentioned in Schedule-D of Concession Agreement. The details of the bus bays and passenger shelters provided are as below.

Table 3-7 Details of Bus Bays

Sr. No.	Project Facility	Design Chainage (km)	Side
1	Bus Bay and Passenger Shelters	102.440	LHS
2	Bus Bay and Passenger Shelters	102.940	RHS
3	Bus Bay and Passenger Shelters	103.540	LHS
4	Bus Bay and Passenger Shelters	104.050	RHS
5	Bus Bay and Passenger Shelters	106.060	LHS
6	Bus Bay and Passenger Shelters	106.460	RHS

Figure 3-17 Photographs of Bus Bay



km. 102.440 (LHS)



km. 103.540 (LHS)



km. 106.060 (LHS)



km. 104.050 (RHS)



km. 102.940 (RHS)

4 BALANCE WORKS

The project has received Provisional Completion Certificate (PCOD) on 31st March 2021 with balance works to be executed at site as mentioned in punch list items. During site visit, it is found that construction of main carriageway, service road, drain and minor bridge work is hindered due to non-availability of land from km. 99.400 to km. 99.600.

As informed by the Concessionaire, an amount of Rs. 5.97 Crores of work is balance at Site.

5 PAVEMENT INVESTIGATION AND PROPOSAL

5.1 General

The project has been developed on Design, Build, Operate and Transfer (DBOT) basis.

The concession period of the project is 17 years including 2 years (710 days) of construction period. The Provisional Completion Certificate (PCOD) for the length of 27.650 kms out of 38.952 kms. has been received on 31st March 2021. The project is currently under operation and maintenance (O&M) stage. The Operation and Maintenance period of the project highway is 15 years from Provisional Completion Certificate (PCOD).

5.2 Details of As-built Pavement

The following table shows crust details based on pavement design report submitted by the Concessionaire. The details of pavement crust are as provided during the development of existing two lane to four lane divided carriageway. The pavement design report states that pavement was designed as per IRC:58-2015.

Table 5-1 Existing Pavement Crust Details

Particulars	Chainage (km)		Design Life	Pavement Thickness (mm)		
	From	To		PQC	DLC	GSB
Main Carriageway	99.400	138.352	30 years	300	150	150
Service Road	-	-	30 years	250	150	150

5.3 Surveys and Investigation

Pavement Condition Survey

Pavement condition survey was carried out from **24th August to 27th August 2022** through visual inspection for the entire project length. The details of the visual condition survey are provided in **Annexure-IV**.

The summary of pavement condition based on the visual inspection is tabulated below.

Table 5-2 Summary of Pavement Condition

Design Chainage (km)		Length	Visual Condition (As per IRC:115-2014)	
From	To		LHS Carriageway	RHS Carriageway
99.400	100.000	0.600	Good	Good
100.000	105.000	5.000	Good	Good
105.000	110.000	5.000	Good	Good
110.000	115.000	5.000	Good	Good
115.000	120.000	5.000	Good	Good
120.000	125.000	5.000	Good	Good
125.000	130.000	5.000	Good	Good
130.000	135.000	5.000	Good	Good
135.000	138.352	3.352	Good	Good

Following Photographs were taken at the time of visual pavement condition survey

Figure 5-1 Photographs of Pavement Condition Survey

LHS-MCW



km. 101.000



km. 101.000 to km. 102.000



km. 106.000 to km. 107.000



km. 107.000 to km. 108.000



km. 108.000 to km. 109.000



km. 109.000 to km. 110.000



km. 110.000 to km. 111.000



km. 111.000 to km. 112.000



km. 116.000 to km. 117.000



km. 120.000 to km. 121.000



km. 121.000 to km. 122.000



km. 123.000 to km. 124.000



km. 136.000 to km. 137.000



km. 138.000 to km. 138.352



km. 138.000 to km. 138.352

LHS-SR



km. 110.800 to km. 111.500



km. 113.650 to km. 114.310



km. 117.540 to km. 118.260



km. 121.470 to km. 122.320



km. 124.500 to km. 125.400



km. 129.990 to km. 130.890



km. 131.550 to km. 132.400



km. 134.500 to km. 135.650





km. 136.100 to km. 137.450

RHS-MCW



km. 133.000 to km. 134.000



km. 125.000 to km. 126.000



km. 120.000 to km. 121.000



km. 112.000 to km. 113.000



km. 108.000 to km. 107.000



km. 102.000 to km. 103.000



km. 99.400 to km. 99.600

RHS-SR



km. 136.100 to km. 137.450



km. 134.500 to km. 135.650



km. 131.550 to km. 132.400



km. 129.990 to km. 130.890



km. 124.500 to km. 125.400



km. 121.470 to km. 122.320



km. 117.540 to km. 118.260



km. 113.650 to km. 114.310



km. 110.800 to km. 111.500



km. 102.155 to km. 104.195



km. 105.320 to km. 106.750

Observation and Conclusion:

From the above table and photographs as well as physical review at site, it is observed that the overall pavement condition for the entire project stretch is found to be fair to good.

Roughness Index Test

Prior period report for the Roughness Index Test conducted by **Aadharshila Infratech Pvt. Ltd.** Dated **09th March 2022** has been provided by the Concessionaire. This test was done using NSV on each direction (each lane) of the carriageway on project highway.

As per IRC:SP:16-2019, condition of pavement is categorised under:

Maximum Permissible Values of Roughness (BI Value - mm / km)

Sr. No.	Roughness Range (m/km)	Severity	Inner Lane (Lane - 1) LHS Length in Km	Outer Lane (Lane - 2) LHS Length in Km	Inner Lane (Lane - 1) RHS Length in Km	Outer Lane (Lane - 2) RHS Length in Km	Remark
1	Less than 2.81	Good	38.340	34.490	38.400	36.000	Conducted on 16-10-21
2	2.81 – 3.30	Fair	-	-	-	-	
3	More than 3.30	Poor	-	-	-	-	

Sr. No.	Roughness Range (m/km)	Severity	Inner Lane (Lane - 1) LHS Length in Km	Outer Lane (Lane - 2) LHS Length in Km	Inner Lane (Lane - 1) RHS Length in Km	Outer Lane (Lane - 2) RHS Length in Km	Remark
1	Less than 2.81	Good	37.240	37.240	35.920	35.920	Conducted on 09-03-22
2	2.81 – 3.30	Fair	-	-	-	-	
3	More than 3.30	Poor	-	-	-	-	

TDD Consultant's Observations

TDD Consultants have visited the project site with Mr. Mankesh, Planning Manager from Concessionaire on 24-08-2022 to understand the status of project under O&M. During site visit, TDD Consultant has the following observations.

1. IE/NHAI had granted EOT till 11-06-2021. However, work is still in progress and the reason for delay is land acquisition. Concessionaire informed that wherever land is available after EOT expiration, work is in progress and balance work will be completed as and when land will be available.

2. Concessionaire has requested to Authority to execute the settlement agreement to release the completion certificate and the same has been asked to IE by NHAI. Matter is under review at IE end.

3. Overall condition of all structures is in sound condition. However, vegetation and waterway need to be cleaned in minor bridges, pipe culverts and box culverts.

4. At MCW & SR - RHS @ km. 99.586, BC and wearing coat is balance partially on existing & reconstructed bridge. GSB, DLC and PQC are pending A-1 approach side of MNB 99.586 RHS. LHS structure work is pending due to LA.

5. All expansion joints need to be clean as provided at structures.

6. Rubble pitching work is pending at approach slab both end of A-1 A2 side at km. 124.337 MNB.

7. At km. 130.650-FO, & km. 136.657-PUP work is in progress.

8. At Km. 136+857 flyover, main structure is completed, and misc. work is in progress.

9. MCW/SR/Drain/MNB-LHS work is pending due to LA i.e., km. 99.400 to 99.600. concessionaire informed to LIE that they will complete the work as and when land will be available during the concession period.

10. Major Junction is yet to be developed at km. 138.352.

11. MCW work is under progress partially between km. 136.00 to 137.000 and partially completed.

12. Drains, MCW, SR and structures etc can be maintain as per O&M contract.

13. Concessionaire requested RO, NHAI for delinking of balance work for Issuance of Completion Certificate.

However, the Concessionaire is repairing / rectifying the damaged portion on regular basis as a part of routine maintenance.

6 REVIEW OF CONCESSION AGREEMENT

6.1 General

The NHAI accordance with the statutory powers vested on it by the Government of India has entered into a Concession Agreement with the M/s. GR Akkalkot Solapur Highway Pvt. Ltd., a Special Purpose Vehicle (SPV) formed for implementing this project, a company incorporated under Indian Companies Act, 2013 to Design, Built, Finance, Operate and Transfer (The "DBFOT Annuity" or Hybrid Annuity") basis for the Four Ianing of Akkalkot - Solapur Section of NH-150E with paved shoulders from design chainage Km. 99.400 to Km. 141.800 (Design Length - 38.952 Km) including Akkalkot Bypass (Design Length - 7.350 Km) in the state of Maharashtra on Hybrid Annuity Mode.

6.2 Specific Comments on Articles

We have reviewed the provisions under various clauses of the Agreement concerned with post construction period. Our specific comments are indicated below clause-wise.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 3 Clause 3.1	The Concession	Subject to and in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits, the Authority hereby grants to the Concessionaire the concession set forth herein including the exclusive right, license and authority to construct, operate and maintain the Project (the "**Concession**") during the Construction Period of 730 (Seven hundred and thirty) days and Operation Period of 15 (Fifteen) years commencing from COD, and the Concessionaire hereby accepts the Concession and agrees to implement the Project subject to and in accordance with the terms and conditions set forth herein.	This construction work is completed, and PCOD is achieved on 31th March 2021. The O&M started for 15 years.
Article 4 Clause 4.1.2	Conditions Precedent	The Condition precedent required to be satisfied by the Authority shall be deemed to have been fulfilled when the Authority shall have (a) Procured for the Concessionaire the Right of Way to the site in accordance with the provisions of Clauses 10.3.1 and 10.3.2 (b) Procured all Applicable Permits relating to environmental protection, and conservation in respect land forming part of the Right of Way under Clause 10.3.1 and 10.3.2 (c) Procured forest clearance for and in respect land forming part of the Right of Way under Clause 10.3.1 and 10.3.2, save and except permission for cutting trees.	All issues complied and PCOD is achieved.
Article 4 Clause 4.2	Conditions Precedent-	In the event that (i) the Authority does not procure fulfillment of any or all the Conditions Precedent set forth in Clause 4.1.2 within the	All issues complied and

Article & Clause No.	Subject	Description in Brief	Remarks
	Damages for delay by the Authority	period specified in respect thereof, and (ii) the delay has not occurred as a result of breach of this Agreement by the Concessionaire or due to Force Majeure, the Authority shall pay to the Concessionaire Damages in an amount calculated at the rate of 0.2% (zero point two percent) of the Performance Security for each day's delay until the fulfillment of such Conditions Precedent, subject to the maximum limit equal to the amount of 1% of the Estimated Project Cost as mentioned in RFP and upon reaching such limit, the Concessionaire may, in its sole discretion terminate the Agreement.	PCOD is achieved.
Article 4 Clause 4.3	Damages for delay by the concessionaire	In the event that (i) the Concessionaire does not procure fulfillment of any or all of the Conditions Precedent set forth in Clause 4.1.3 within the period specified in respect thereof, and (ii) the delay has not occurred as a result of failure to fulfill the obligations under Clause 4.1.2 or other breach of this Agreement by the Authority, or due to Force Majeure, the Concessionaire shall pay to the Authority Damages in an amount calculated at the rate of 0.3% (zero point three per cent) of the Performance Security for each day's delay until the fulfillment of such Conditions Precedent. Provided, however, that the Damages payable hereunder shall be subject to the maximum limit equal to the amount of 1% of the Estimated Project Cost as mentioned in the RFP and upon reaching such limit, the Concessionaire may, in its sole discretion and subject to the provisions of Clause 9.2, terminate the Agreement	The PCOD is achieved.
Article 5 Clause 5.1.4 (d, e & f)	Obligation of the Concessionaire	The Concessionaire shall, at its own cost and expense, in addition to and not in derogation of its obligations elsewhere set out in this Agreement d) The Concessionaire shall make reasonable efforts to maintain harmony and good industrial relations among the personnel employed by it or its Contractors in connection with the performance of its obligations under this Agreement. e) Make reasonable efforts to facilitate the acquisition of land required for the purposes of the Agreement f) Ensure and procure that its Contractors comply with all Applicable Permits and Applicable Laws in the performance by them of any of the Concessionaire's obligations under this agreement.	The Concessionaire followed actions and PCOD is achieved.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 5 Clause 5.3.1	Obligation relating to Change in ownership	The Concessionaire shall not undertake or permit any Change in Ownership, except with the prior written approval of the Authority.	The risk of Lender is covered.
Article 8 Clause 8.1.5	Disclaimer	Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Concessionaire and the Authority shall not be liable in any manner for such risks or the consequences thereof.	The Concessionaire shall note this and perform according to Concession Agreement Provision. All risks are with Concessionaire.
Article 9 Clause 9.1.1	Performance Security	The Concessionaire shall, for the performance of its obligations hereunder during the Construction Period, provide to the Authority no later than 30 (thirty) days from the date of this Agreement, an irrevocable and unconditional guarantee from a Bank For a sum equivalent to Rs.40.35 (Rupees Forty Crores and Thirty Five Lakhs only) in the form set forth in schedule-F (the "Performance Security").	The PCOD is achieved.
Article 10 Clause 10.3.2	Procurement of the site -	Without prejudice to the provisions of Clause 10.3.1, the Parties hereto agree that on or prior to the Appointment Date, the Authority shall have granted vacant access and Right of Way such that the Appendix shall not include land which shall in any manner prevent the Concessionaire from undertaking construction of the project to the extent of at least 80% (eighty percent) of the length thereof, and in the event Financial Close is delayed on account of delay in grant of such vacant access and Right of Way, the Authority shall be liable to payable to damages solely under the provisions of Clause 4.2.	The PCOD is achieved.
Article 10 Clause 10.3.4	Procurement of the site-Right of Way	The Authority shall make best efforts to procure and grant no later than 90 (ninety) days from the Appointed date, Right of Way to the Concessionaire in respect of all land included in the Appendix, and in the event of delay for any reason other than Force Majeure or breach of this Agreement by the Concessionaire, it shall pay to the Concessionaire Damages in a sum calculated at the rate of Rs.1 per day for every 10 square meter or part thereof, commencing from the 91st day of the Appointed Date and until such Right of Way is procured or 180 days from Appointed date whichever is earlier.	The PCOD is achieved.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 11 Clause 11.4	Utilities, Associated Roads and Trees - Felling of trees	The Authority shall assist the Concessionaire in Obtaining the Applicable Permits for felling of trees to be identified by the Authority for this purpose if and only if such trees cause a material adverse effect on the construction, operation or maintenance of Project Highway. The Cost of such felling shall be borne by the Authority and in the event of any delay in felling thereof for reasons beyond the control of the Concessionaire, it shall be excused to perform any of its obligations hereunder if such failure is a direct consequence of delay in the felling of trees.	The work is completed. No obstructions of trees.
Article 12 Clause 12.3.1	Construction of the Project	On or after the Appointed Date, the Concessionaire shall undertake construction of the Project as specified in Schedule-B and Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-D. The 730th (Seven hundred and thirty)) day from the Appointed Date shall be the scheduled date for completion of the Project (the **"Scheduled Completion Date"**) and the Concessionaire agrees and undertakes that the Project shall be completed on or before the Scheduled Completion Date.	The work is now completed, and PCOD is achieved.
Article 12 Clause 12.3.2	Construction of the Project Highway and Milestone	The Concessionaire shall construct the Project Highway in accordance with the Project Completion schedule set forth in Schedule-G. In the event that the Concessionaire fails to achieve any Project Milestone within a period of 90 (ninety) days from the date set forth for such Milestone in Schedule G, unless such failure has occurred due to Force Majeure or for reasons solely attributable to the Authority, it shall pay Damages to the Authority in a sum calculated at the rate of 0.1% (zero point one percent) of the amount of performance Security for delay of each day until such Milestone is achieved.	The work is competed as per Milestone.
Article 12 Clause 12.3.3	Construction of the Project Highway and Milestone	In the event that the project is not completed, and COD does not occur within 270 (two hundred and seventy) days from the Scheduled Completion Date, unless the delay is on account of reasons solely attributable to the Authority or due to Force Majeure, the Authority shall be entitled to terminate this Agreement.	The work is completed, and PCOD is achieved.
Article 13 Clause 13.2	Inspection	During the construction period, the independent Engineer shall inspect the Project at least once a month and make a report of such inspection (the "Inspection Report") stating all reasonable	The work is completed with quality. The defect will be

Article & Clause No.	Subject	Description in Brief	Remarks
		detail the defects or deficiencies, if any, with particular reference to the Project Completion Schedule, Scope of the Project and specification and standards.	attended during Defect Liability Period.
Article 14 Clause 14.3.2	Provisional Certificate	The parties here to expressly agree that a Provisional Certificate under this Clause 14.3 may, upon requested of the Concessionaire to this effect, be issued for operating part of the Project, if the Concessionaire has completed construction of 100% of the site made available to the Concessionaire up to 146 days from the Appointed Date. Upon issue of such Provisional Certificate, the provisions of Article 15 shall apply to such completed part, and the rights and obligations of the Concessionaire for and in respect of such completed part of the Project shall be constructed accordingly.	The project is completed as per Schedule Completion Date.
Article 15 Clause 15.2	Entry into commercial service- Damages for delay	Subject to the provisions of Clause 12.3, if COD does not occur prior to the 91st (ninety first) day after the Scheduled completion Date, unless the delay is on account of reasons attributable to the Authority or due to force Majeure, the Concessionaire shall pay Damages to the Authority in a sum calculated at the rate of 0.2% of the amount of performance Security for delay of each day until COD is achieved.	The PCOD is achieved as per Schedule Competed Date.
Article 17 Clause 17.8.1	Damages for breach of maintenance obligations	In the event that the concessionaire fails to repair any defect or deficiency set forth in the Maintenance Requirements within the period specified therein, it shall be deemed to be in breach of this Agreement and the Authority shall be entitled to recover Damages, to be calculated and paid for each day of delay until the breach is cured, at the higher of (a) 2% (two per cent) of the Performance Security and (b) 0.1 (zero point one per cent) of the cost of such repair or rectification as estimated by the Independent Engineer. Recovery of such Damages shall be without prejudice to the rights of the Authority under this Agreement, including the right of Termination thereof.	The Maintenance of completed Highway is in progress after COD as per O&M Contractor executed between Concessionaire & Contractor. The scope specifications, standards as per CA is being followed.
Article 23 Clause 23.1	Bid Project cost	The parties expressly agree that the cost of construction of the project, as on the Bid Date, which is due and payable by the Authority to the Concessionaire shall deemed to be Rs. 807.00 Crores (Rupees Eight Hundred Seven Crore)	The work is completed within Project Cost.
Article 23 Clause 23.2.1	Payment of Bid Project Cost	The bid project cost specified in Clause 23.1 shall be revised from time to time in accordance with the provisions of this Clause 23.2 to reflect	This is paid during

Article & Clause No.	Subject	Description in Brief	Remarks
		the variation in Price Index occurring after the Reference Index Date immediately preceding the Bid Date.	construction work.
Article 23 Clause 23.3.1	Payment of Bid Project Cost	40% of the Bid Project Cost, adjusted for the Price Index Multiple, shall be due and payable to the Concessionaire is 5 equal installments of 8% during the construction Period in accordance with the provisions of Clause 23.4.	This is paid during construction work.
Article 23 Clause 23.4	Payment during construction period	For the purpose of this clause 23.4, the payment Milestone for release of payment during construction period shall be as under: (a) I (first) payment Milestone - On achievement of 10% Physical Progress. (b) II (Second) payment Milestone-On achievement of 30% Physical Progress. (c) III (Third) payment Milestone-On achievement of 50% Physical Progress. (d) IV (Fourth) payment Milestone - On achievement of 75% Physical Progress. (e) V (Fifth) payment Milestone-On achievement of 90% Physical Progress.	This amount is released and paid during construction activities.
Article 23 Clause 23.5	Bonus on early completion	In the event that the concessionaire shall achieve COD on or more than 30 days prior to the Scheduled Completion Date, the Authority shall pay to the Concessionaire a bonus equal to 0.5% of 60% of the Bid project cost for the first 30 days by which COD shall precede the Schedule Completion date and there after the said bonus shall be calculated on the pro-rata basis for each day preceding the said 30 days period. The Bonus shall be due and payable to the Concessionaire along with the 1st Annuity Payment.	The Concessionaire should claim this if it is eligible.
Article 23 Clause 23.6.2	Annuity Payments during operation period	The completion cost remaining to be paid in pursuance of the provisions Clause 23.6.1 shall be due and payable in biannual installments over a period of 15 (fifteen) years commencing from COD, (the Authority Payments) the 1st (first) installment of Annuity Payments shall be due and payable within 15 (fifteen) days of the 180th (one hundred and eighteen) day of COD and the remaining installments shall be due and payable within 15 (fifteen) days of completion of each of the successive six months (the "Annuity Payment Date").	The Concessionaire is getting this as per Concession Agreement as non COD is achieved.
Article 23 Clause 23.7.1	O & M Payments	The Parties acknowledge and agree that all O&M Expenses shall be borne by the Concessionaire and in lieu thereof; a lump sum financial support in the form of biannual payments shall be due and payable by the	O & M during Concession Period is responsibility of Concessionaire

Article & Clause No.	Subject	Description in Brief	Remarks
		Authority, which shall be computed on Rs.2.70 crores (Rupees Two Crores Seventy Lakhs only) (the first year O&M), in accordance with the provisions of this Clause 23.7 (the "**O&M Payments**"). The Parties further acknowledge and agree that any O&M Expenses in excess of the O&M Payments shall be borne solely by the Concessionaire, save and except as expressly provided in this Agreement. For avoidance of doubt it is clarified that the O&M Payments will be subject to any Change in Scope of the Project of the Concessionaire under Article 16 of this Agreement.	and Authority will extend financial support of Rs. 2.70 crores as bi-annual payment during O&M period. This amount is being received by O&M Contractor during O&M Period.
Article 23 Clause 23.8	Mobilization advance	The Authority shall, on request of the Concessionaire, make an advance payment in a sum not exceeding 10% (ten percent) of the bid project cost (the Mobilization Advance). This advance payment shall be made in two equal installments. The concessionaire may request the Authority for the first installment of the advance payment at any time after the appointed date, along with furnishing a Bank Guarantee in a form satisfactory to the Authority. The concessionaire may request the Authority for the second installment of the advance payment at any time after 60 (Sixty) days from the appointed date, along with furnishing a Bank Guarantee in a form satisfactory to the Authority	The Concessionaire has received this Mobilization Advance and work is completed.
Article 26 Clause 26.1	Insurance-Insurance during Concessionaire period	The Concessionaire shall affect and maintain at its own cost, during the Construction Period and the Operation Period, such insurances for such maximum sums as may be required under the Financing Agreements and Applicable laws, and such insurances as may be necessary or prudent in accordance with Good Industry Practice.	The Concessionaire has taken all Insurances.
Article 34 Clause 34.3.1	Substitution Agreement	The Lender's Representative, on behalf of Senior Lenders, may exercise the right to substitute the Concessionaire pursuant to the agreement for substitution of the Concessionaire (the '**Substitution Agreement**') to be entered into amongst the Concessionaire, the Authority and the Lenders' Representative, on behalf of Senior Lenders, Substantially, in the form set forth in Schedule-R.	The Lender's risk is covered with provision of Substitution Agreement. This will be operated if situation needs.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 38 Clause 38.3.1	Dispute Resolution	Any dispute which is not resolved amicably by conciliation as provide in Clause 38.2 shall be finally settled by arbitration as set forth below:	There is provision of Arbitration in case of unresolved dispute between Authority and concessionaire.
Article 41 Clause 41.17	State support agreement	The Concessionaire acknowledges that it has received from the authority a certified true copy of the agreement executed between MORTH and the state government for providing the support and services specified therein (the "State support agreement"), and the parties here to agree to make their best endeavors to procure the support of the state government.	This provision will help the Concessionaire for obtaining permission, approval and land acquisition faster.

Most of the points above are brought out to see that the Agreement is generally enforceable in law without ambiguities.

6.3 Conclusions

The Concession Agreement is comprehensive and covers most of the concerns of the Lenders and all risk factors.

7 REVIEW OF O&M CONTRACT

The Operation and Maintenance Agreement was signed between **M/s GR Akkalkot Solapur Highway Private Limited (GASHPL)** and **G R Infraprojects Limited (O&M Contractor)** on 13th October 2021 and addendum O&M Agreement has been signed on 26th July 2022 for a period of 1 year.

We have reviewed the provisions under various clauses of this O&M Contract and our specific comments are indicated below clause-wise.

Sr. No.	Clause No.	Description in Brief	Remark
1	Agreement Para (ii)	The Concessionaire now wishes to appoint M/s G R Infraproiects Limited for Operation and Maintenance of Project Highway as 0&M Contractor in accordance with Scope of Work as mentioned in Annexure-I hereto, under the Concession Agreement.	The Contractor M/s. G R Infraprojects Ltd. is appointed for O&M work as per scope in CA.
2	Clause 1 Definition	"O&M Contractor" means the person, if any, with whom the Concessionaire has entered into an O&M agreement for discharging O&M obligations for and on behalf of the Concessionaire.	The Contractor is appointed to discharge duties of O&M work on behalf of Concessionaire as per scope in O&M Agreement.
3	Clause 1 Definition	"O&M Period" O&M Agreement means operation and maintenance period of 1 year commencing from Commercial Operation Date.	The Agreement of O&M is for one year and addendum is signed for 1 year from the date of 01st April 2022 to 31st March 2023.
4	Clause 2 Availability of Documents	The O&M Contractor also acknowledges the fact that the Concession Agreement is always binding and applicable back to back on the O&M Agreement, limited to the obligations during the O&M period under the Concession Agreement and the scope of the O&M Contractor as per this Agreement. In case of any discrepancy in whatsoever matter, the clauses of Concession Agreement shall prevail over and above this O&M Agreement.	The copy of Concession Agreement & Maintenance Manual is provided to Contractor. It is always binding to Contractor for implementation during O&M work.
5	Clause 6.1 O&M Contractor's obligation	During Operation Period, provisions of Article 17 of the Concession Agreement shall apply. The O&M Contractor shall operate and maintain the Project Highway in accordance with Article 17 of the Concession Agreement and if required, modify, repair or otherwise make improvements to the Project Highway comply with the provisions of this Agreement, Applicable Laws and Applicable Permits, and confirm to Specifications and Standards and Good Industry Practice.	The obligations of O&M are as per Article 17 of CA.

Sr. No.	Clause No.	Description in Brief	Remark
6	Clause 6.3 Maintenance Requirements	The O&M Contractor shall procure that at all times during the Operation Period; the Project Highway conforms to the maintenance requirements set forth in Schedule-K of the Concession Agreement (the "Maintenance Requirements").	The maintenance required to be done as per Schedule-K of CA.
7	Clause 6.4 Maintenance Program	Not later than 55 days prior to the beginning of each Accounting Year during the Operation Period, the O&M Contractor shall provide to the Concessionaire, its proposed annual program of preventive, urgent and other scheduled maintenance (the "Maintenance Program") to comply with the Maintenance Requirements, Maintenance Manual and Safety Requirements.	The Contractor has to submit the programme and work for O&M with maintenance requirement and safety.
8	Clause 6.5 Safety, Breakdown and accident	The O&M Contractor shall ensure safe conditions for the users, and in the event of unsafe conditions, closures, diversions, breakdowns and accidents, it shall follow the relevant operating procedures including the setting up of temporary lights and removal of obstruction and debris without delay. Such procedures shall conform to the provisions of this Agreement, Applicable Laws, Applicable Permits and Good industry Practice.	Safety of users including breakdown, accident rescue operations is covered.
9	Clause 6.10 Damages for Breach of Maintenance obligations	In the event that the O&M Contractor fails to repair or rectify any defect or deficiency set forth in the Maintenance Requirements within the period specified therein, it shall be deemed to be in breach of this Agreement and the O&M Contractor shall pay to the Concessionaire Damages at such rate as the Concessionaire is required to pay to the Authority under the Concession Agreement. Recovery of such Damages shall be without prejudice to the rights of the Concessionaire under this Agreement, including the right of Termination thereof.	The provision of Levy of Damage for breach of Agreement, defective work will keep pressure on Contractor to work as per requirement.
10	Clause 6.17 Tests	For determining that the Project Highway conforms to the Maintenance Requirements, the Project Manager/IE shall require the O&M Contractor to carry out, or cause to be carried out, tests specified by it in accordance with Good Industry Practice.	This will maintain quality of work.

Sr. No.	Clause No.	Description in Brief	Remark
11	Clause 6.19.1 Safety Requirements	The O&M Contractor shall comply with the provisions of this Agreement and /or Concession Agreement, Applicable Laws and Applicable Permits and confirm to Good Industry Practice for securing the safety of the Users. In particular, the O&M Contractor shall develop, implement and administer a surveillance and safety program for providing a safe environment on or about the Project Highway, and shall comply with the safety requirements set forth in Schedule-L of the Concession Agreement (the "Safety Requirements").	The O&M Contractor has to provide requirements provision for safety of Highway Users. The safety of users is given priority.
12	Clause 13 Sub-contracts	The O&M Contractor shall notify to the Project Manager in writing of its intent to subcontract the O&M works in part or full and without the written approval of the Project Manager no subcontractor shall be appointed by the O&M Contractor.	The subcontractor cannot be appointed without approval of Project Manager. This will keep control over contractor to appoint competent contractor.
13	Clause 16.1 Insurance	The Concessionaire shall procure and maintain the insurance for the Project Highway including all facilities in accordance with the Article 26 of the Concession Agreement.	The risks and security of Authority, Concessionaire and Lender is covered.
14	Clause 17.1 Defect Liability Period	The Concessionaire and/or the EPC Contractor ls responsible for all the defects and deficiencies in construction of the Project Highway or any section thereof and rectify the same, without any cost to the O&M Contractor, during the O&M period. Under this agreement the O&M Contractor is only under obligation of Operation 8r Maintenance of the Project Highway. For avoidance of doubt, any repair or restoration on account of usual wear and tear in the Project Highway shall form a part of the maintenance.	The Contractor is responsible for any defects during Defect Liability period i.e., 2 years from COD. This will maintain the quality to avoid any action for defective work as proposed.
15	Clause 21 Acknowledgement	The O&M Contractor acknowledges and accepts that this agreement entitles the Authority and/or Lenders Representative to step into this agreement, in its sole discretion, in Substitution of the Concessionaire In the event of Termination or Suspension of the Concessionaire. Further, provision of clause 5.2 of the Concession Agreement relating to Project Agreement shall apply *mutatis mutandis.*	The Contractor has agreed for step in right of Authority or Lender in case of Termination of Concessionaire.

Sr. No.	Clause No.	Description in Brief	Remark
16	Clause 22 O&M Payments	The Parties acknowledge and agree that all O&M Expenses shall be borne by the O&M Contractor to carryout routine maintenance Works as detailed in Annexure-I to this 0&M Agreement and in lieu thereof; a fixed lump sum fee amounting to Rs. 2,50,00,000 exclusive of taxes for the entire year in the form of biannual payment shall be due and payable by the Concessionaire.	The O&M Contractor will be paid fixed & Lumpsum payment of Rs. 2.5 Crores. Biannual payment during year for his work as per scope. The Contractor has to manage O&M work responsibility within this payment. Over & above these expenses, Concessionaire is incurring expenses for insurance, electricity, IE & professional fees etc.,
17	Clause 27.1 Termination For O&M Contractor Default	In the event of any defaults specified below shall have occurred, and the O&M Contractor fails to cure the default within the Cure Period of 60 (sixty) days, the O&M Contractor shall be deemed to be in default of this Agreement (the "O&M Contractor Default"), unless the default has occurred as a result of any breach of this Agreement by the Concessionaire or due to Force Majeure.	The Contractor shall note this. This provision of termination keep pressure on Contractor to work as per scope of O&M responsibility.
18	Clause 32 Liability and Indemnification	The O&M Contractor shall fully indemnify and hold harmless and defend the Concession to the extent that the Concessionaire has provided any indemnities to Authority in terms of Article 36 of Concession Agreement, insofar as such indemnities relate to the Services.	The Concessionaire is secured from Contractor for any loss, claim.

7.1 Conclusion

i. Operation and Maintenance Contract is comprehensive and correct for major concerns of the Lender.

ii. The provision of O&M Contract Agreement is consistent with the provision of the Concession Agreement.

8 OPERATION AND MAINTENANCE

8.1 Introduction

Article 17 and Schedule-K of the Concession Agreement defines the Operation and Maintenance requirement during the concession period.

The Company has received Provisional Completion Certificate on 31st March 2021. The project is currently under Operation and Maintenance stage. The concession period of the project highway is 17 years form the Appointed Date including construction period of 2 years.

8.2 O & M Set Up

O & M Contract

As per Clause 17.1 of the Concession Agreement, the Concessionaire shall operate and maintain the project highway by itself, or through O&M Contractors and if required, modify, repair, improve the project highway to comply with Specifications and Standards, and other requirements set forth in the Agreement through Good Industry Practice, Applicable Laws and Applicable Permits and manufacturer's guidelines and instructions with respect to toll systems. The Operation and Maintenance activities will confirm to all the requirements laid down in MoRT&H, IRC Specifications and the Concession Agreement.

Under Routine maintenance, the road is to be maintained in good, safe and motorable condition. The specification in contracts are kept as same as per design and construction specification.

The periodical maintenance will have to be done during O&M period as per requirement of Concession Agreement and as per site requirement to maintain the design standards and level.

O&M Organization Chart

The Concessionaire has given the Organization Chart at site for Operation and maintenance. Accordingly, there is 01 Manager (O&M), 02 Maintenance Engineers (Civil), 01 Planning Engineer, 02 RPO, 01 CRO, 03 Supervisor, 01 Medical Attendant, 01 medical assistants, 01 Electrician, 06 LMV Drivers, 07 HMV Drivers, and 25 labours to carry out O&M activities. The team controls the maintenance activities. However, the maintenance work is undertaken and executed by M/s. GR Akkalkot Solapur Highway Private Limited (GASHPL).

List of Manpower (O&M):

Sr. No	Name of Employee's	Designation
1	Mani Bhushan	Project Manager
2	Rohit Tanaji Jagtap	Executive
3	Shrishail Genappa Mali	Route Patrol Officer
4	Mahesh Mahadev Khairate	Control Room Officer
5	Basavraj Mallikarjun Pare	Supervisor
6	Sagar Birajdar	Assistant
7	Shrikant Fulsing Chavhan	Office Boy
8	Vinayak Arun Hanchate	Engineer
9	Rajratan Nanaji Zade	Junior LAB Technician

Sr. No	Name of Employee's	Designation
10	Shrikant Tuljaram Rajput	Nurse
11	Rahul Sanjay Varvadkar	Nurse
12	Shivaji .	Security Guard
13	Sanjay Chavan	Senior Supervisor
14	Rahul Koli	Electrician
15	Ramesh Kumar	Tractor Driver
16	Prabhu Rajak	Tractor Driver
17	Birendra Baitha	HMV Driver
18	Pramod Singh Chouhan	HMV Driver
19	Jalam Chand Meena	HMV Driver
20	Kuldeep Mahto	HMV Driver
21	Gurlal Singh	HMV Driver
22	Khadap Govind Bharat	HMV Driver
23	Babu Vasant Shinde	HMV Driver
24	Amarish Birajadar	LMV Driver
25	Ravi Rajindra Shahiapure	LMV Driver
26	Shivalingappa Basaveshwar Trigule	LMV Driver
27	Anantpratap Singh	LMV Driver
28	Kalu Ram	LMV Driver
29	Robinpreet Singh	Helper
30	Mohan Chavan	JCB Operator

8.3 Operation Cost

Operations cost is comprised of manpower cost, power and electricity cost, office operating expenses, vehicle running expenses, administrative expenses and other miscellaneous expenses. The Concessionaire has provided the expenses occurred towards operation expenses for current / past years. Necessary assumptions have made from the expenses of similar type of projects to arrive at the operation cost. The estimates are projected based on best industry practices and are compared with the operating cost in the vicinity of the project area.

The estimated Operating Cost for the base month of August 2022 is **Rs. 4.64 Crores**. The detailed working of the same is attached in **Annexure-I**.

8.4 Routine Maintenance Cost

The Routine Maintenance cost is derived based on the Ministry of Road Transport and Highways - Report of the Committee on Norms for Maintenance of Roads in India (published by Indian Road Congress New Delhi 2001) along with actual pavement condition assessed during condition survey.

Maintenance cost constitutes the routine, day-to-day maintenance activities for project assets, including road pavement, shoulders, embankment, drainage, structures, plantations, roadside furniture, traffic signs, traffic safety devices etc. Past data has been used to assess maintenance costs due to normal usage or “wear-and-tear”. Likely costs of maintenance of structures are assessed based on their present condition and vintage, in combination with well-established guidelines and thumb rules given in Indian codes and standards.

The estimated cost of Routine Maintenance works out to be **Rs. 0.65 Crores (1.67 Lakhs per km)** for the base month of August 2022. The detailed working of the same is attached in **Annexure-II**.

8.5 Major Maintenance Cost

Unlike the old Concession Agreements where periodicity and threshold limits were clearly described for the major maintenance, the Concession Agreement of this project does not specify the periodicity or the threshold limits for carrying out the full-length major maintenance. Schedule-K of the Concession Agreement specifies the threshold limits and the timelines for carrying out repairs to the distresses during the operation period.

The maintenance thus can be carried out as and when required basis and to the compliance of Schedule-K requirement to maintain the road in serviceable condition. Only improvement to Riding Quality is expected if the roughness value exceeds 2750 mm/km. However, the average roughness value of the project highway lies within the limit as mentioned above.

Any New pavement is not expected to show any distresses at least for 6 to 7 years with the proper routine maintenance. Mere Routine Maintenance would suffice to meet the performance standard mentioned in Schedule-K. In this project, there is no specific requirement to carry out the major maintenance at the end of concession period.

Hence, major maintenance is planned every 7th year from the date of COD till end of concession period.

The summary of the major maintenance planned up to end of concession period is presented in the below table.

The total base cost of major maintenance works out to be **Rs. 12.10 Crores** for the base month of August 2022 i.e., till 31st August 2022. The detailed working for the same is shown in **Annexure-III**.

8.6 Paved Shoulders

As per design specifications, the paved Shoulder is designed as an integral part of the pavement for main carriageway. Therefore, the total pavement thickness in paved shoulders would be the same as in the carriageway.

8.7 Summary of Major Maintenance Cycle

The table below shows the major maintenance cycle throughout the concession period for the project stretch.

Table 8-1 Maintenance Cycle

Sr. No.	Year	Main Carriageway	Service Road
1	FY 2023	-	-
2	FY 2024	-	-
3	FY 2025	-	-
4	FY 2026	-	-
5	FY 2027	-	-
6	FY 2028	1st Major Maintenance	1st Major Maintenance

Sr. No.	Year	Main Carriageway	Service Road
7	FY 2029	1st Major Maintenance	1st Major Maintenance
8	FY 2030	-	-
9	FY 2031	-	-
10	FY 2032	-	-
11	FY 2033	-	-
12	FY 2034	-	-
13	FY 2035	2nd Major Maintenance	2nd Major Maintenance
14	FY 2036	2nd Major Maintenance	2nd Major Maintenance

8.8 Projected Maintenance Cost without escalation

The below table shows the total cost of operation and routine maintenance, periodic maintenance and strengthening up to end of the concession period without escalation.

Table 8-2 Summary of Operation & Maintenance Cost without escalation

Sr. No.	Item Description	Length (km)	Year of Execution	Rate (Lakhs / km)	Total Amount (Crores)
1	**Total Operation and Routine Maintenance Cost**	38.952	Every year	13.58	**5.29**
2	**Major Maintenance Cost**				
i)	1st Periodic maintenance - MCW & SR	38.952	FY 2028	15.53	**6.05**
ii)	2nd Periodic Maintenance - MCW & SR	38.952	FY 2035	15.53	**6.05**
	Total Major Maintenance Cost				**12.10**

Notes:

1. It is to be noted that, the rates considered for calculating all the above cost are inclusive of Goods and Service Tax (GST).
1. The estimated cost in table above is for base month of August 2022 i.e., till 31st August 2022.
2. The rates are based on SOR of Govt. of Maharashtra for the year 2022-2023. The current market rates are considered for Bitumen, cement and steel.
3. The labour rate adopted from Govt. of India, Ministry of Labour, and Employment Office of the Chief Labour Commissioner w.e.f. 25.07.2022.

8.9 Projected Maintenance Cost with escalation

The below table shows the total cost of operation and routine maintenance, periodic maintenance and strengthening up to end of the concession period with escalation as per WPI provided by the company.

Table 8-3 Summary of Operation & Maintenance Cost with escalation

Sr. No.	Year	WPI Inflation	Total O & M Cost (Crores)	Major Maintenance Cost (Crores)
1	FY 2023		5.29	-
2	FY 2024	2.87*%	5.45	-
3	FY 2025	5.00%	5.72	-
4	FY 2026	5.00%	6.00	-
5	FY 2027	5.00%	6.30	-
6	FY 2028	5.00%	6.62	3.78

Sr. No.	Year	WPI Inflation	Total O & M Cost (Crores)	Major Maintenance Cost (Crores)
7	FY 2029	5.00%	6.95	3.97
8	FY 2030	5.00%	7.30	-
9	FY 2031	5.00%	7.66	-
10	FY 2032	5.00%	8.04	-
11	FY 2033	5.00%	8.45	-
12	FY 2034	5.00%	8.87	-
13	FY 2035	5.00%	9.31	5.32
14	FY 2036	5.00%	9.78	5.59
	Total Cost (Cr)		**101.74**	**18.66**

* Considering the base month for calculation as August 2022.

The company may carry out necessary investigation prior to O&M and Major maintenance. This will help in proper assessment of maintenance work based on the actual pavement condition. The spending on periodic maintenance / strengthening can then be reduced if the road is adequately and timely maintained.

9 TOLL PLAZA EQUIPMENT STATUS & ATMS

An assessment of Toll Plaza in terms of no of lanes, Toll Collection System installed and working status is carried out based on Section 10 of IRC:SP:84-2014 (The Manual) and the Authority's requirements of Hybrid ETC System. Advance Traffic Management System (ATMS) is assessed based on Section 816 of MoRTH Specifications for Road and Bridge Works as required by Section 12.12 of the Manual.

9.1 Toll Plaza and Toll Collection System

Toll plazas is provided at km. 119+350 at Valsang. The Toll Collection System installed at the toll plazas is provided by Qualix Ltd.

The toll plazas have 5+5 lanes as stipulated in Concession Agreement and 1+1 additional lanes serving VIP vehicles, ambulances and Extra wide Vehicles. All Lanes are on either side is dedicated ETC lane. View of the toll plazas are shown in figure.



Figure 9-1 View of Valsang Toll Plaza

9.2 Lane Equipment

Lane hardware and equipment installed at each toll plaza are the following:

1. RFID ETC Transceiver
2. Lane Controller with Industrial PC
3. AVC Sensors
4. Automatic Lane Barrier (ALB)
5. Incident Capture Camera
6. Overhead Lane Signals
7. Traffic Lights
8. Toll Booth Equipment

9.2.1.1 RFID ETC Transceiver

RFID ETC Transceiver reads tags installed on the windshield of vehicles and mounted on a pole at about 6m height. Hand held RFID readers are provided (1 no. in each direction) in case a tag is not detected by the fixed reader.



Figure 9-2 RFID ETC Reader mounted on Pole

9.2.1.2 Lane Controller with Industrial PC

Toll Lane Controller is located within the Electronic Enclosure placed inside each toll booth which are connected to the common server and are capable of independent storage of data.



Figure 9-3Toll Lane Controller TLC

9.2.1.3 Automatic Vehicle Classification (AVC) Sensors

The AVC equipment comprises of a pair of height sensor poles, axle sensors and inductive loops. The height detector has a high sensing resolution and detects height when object blocks the path. The presence of vehicle is detected by inductive loop. The loop sensors embedded on the pavement trigger the AVC height sensors located on parallel pillars.

9.2.1.4 Automatic Lane Barrier

Boom barriers installed on all lanes are in working condition and have a working time of 0.6 - 0.9s. Automatic Lane Barrier is used to allow only authorized vehicles to pass through the lane. The barrier is activated only on generation of user fee receipt or other relevant vehicle processing activity. A torque motor powers the barrier for raising and lowering the boom. The motor can be blocked at any position without causing any damage. In the event of power failure, the boom is automatically raised. The boom weight is exactly balanced by built-in springs.



Figure 9-4 Automatic Lane Barrier

9.2.1.5 Lane Traffic Light (LTL) and User Fare Display (UFD)

Lane Traffic Light (LTL) is used to instruct vehicles to stop or pass through the lane. The LTL is RED when the toll collector is expecting the vehicle at the booth. After the transaction is done; the LTL turns Green to instruct the vehicle to pass through the lane. The User Fare Display is a part of electronic toll collection equipment located at the toll booth. It is a mini variable message sign (VMS) made of Light Emitting Diodes (LED). The user fare display is used to display the toll fare that is due and that must be paid by the motorist and the classification of vehicle selected by the collector.

9.2.1.6 Incident Capture Camera (AVC Camera)

The incident capture camera is installed on island of the booth to capture the image of the vehicle from the back side. The AVC triggers the Image capture system.

9.2.1.7 License Plate Image Capture Camera (LPIC)

License Plate Image capture camera is installed on a 3m pole facing incoming vehicle to capture the image of the vehicle number plate.

9.2.1.8 Over Head Lane Signal (OHLS)

The **Overhead Lane Signal (OHLS)** for lane "Open" and "Close" sign consists of a pair of "GREEN" (arrow) and "RED" (cross) lights. The OHLS is located at the vehicle approaching side of the canopy to show the drivers whether the lane is open or closed.



Figure 9-5 OHLS indicating green arrows for operational lanes

9.2.1.9 Toll Booth Equipment

Toll Booth Hardware / Equipment provided are:

- Toll Collector Display (Operator Monitor)
- Customized Industrial Keyboard
- Receipt Printer
- Intercom Slave unit
- Bar code reader
- Violation Light and alarm
- Manual Booth Control (MBC)
- Booth Camera



Figure 9-6 Booth Equipment

The operator monitor termed as Toll Collector Display (TCD) is located on the toll collector's desk. It is the system's interface to the toll collector, to display the status of transactions and status of the lane peripherals.

The keyboard on the toll terminal is a programmable keyboard for Registration of toll operations and is customized for different vehicle types and type of ticket.

Thermal Printers are installed at the toll booths to print tickets. Intercom slave unit facilitates communication with the master unit located in the control room.

Violation system has an alarm switch which is triggered whenever there is a violation such as run-through happening on the lane. When there is an emergency, a foot switch pressed by the booth operator alerts the control room.

Booth Cameras are provided on the inside roof corner of the booth to provide surveillance through CCTV screen located in the control room. Manual Booth Controller is used to release exempt vehicles.

9.2.1.10 Medium Speed Weigh in Motion (MSWIM)

Medium Speed Weigh in Motion (MSWIM) is installed on entry lanes with a platform size of 1500mm x 620mm for normal lanes and 1750mm x 620mm for extra wide lanes and capacity of 30 ton/axle. Bending plate strain gauge technology is used with hardware and software support to calculate weight of vehicles running through it up to a speed of 50 km/hr.



Figure 9-7 Medium Speed Weigh in Motion

9.3 Plaza Equipment

9.3.1.1 TMS Server

Plaza Server is provided in a hot standby configuration and provided with 42 U switch rack, 24 port and 16 port non POE network switches, 16 port and 8Port PoE switches. Firewall and 2 broadband internet lease line with 4 Mbps link for CCH connectivity is available.



Figure 9-8 Medium Control Room Equipment – Server & Switch rack

9.3.1.2 55” LED screen for CCTV monitoring

55” LED screen for CCTV monitoring installed at the toll plaza admin block provides view of all the toll booths, important zones within the plaza where cash transactions take place (server room, control room, cash up).



Figure 9-9 CCTV screen at the Toll Plaza Control Room

The toll plaza manager is able to observe the activities at the toll lanes and toll booth. When the toll collector calls up on the intercom, the manager is able to comprehend the situation at the lane by a zoomed view of the particular lane.

9.3.1.3 Workstations in Control Room, PoS and Cash up room

Workstations are available in control room (lane monitoring, administration and audit), cash room and PoS with 4 GB RAM and 1 TB HDD.



Figure 9-10 Incident Management Workstation at Control room

9.3.1.4 Cash up Room Equipment

As all the lane are ETC on Hybrid mode hence there are a very less transition in cash however as per CA provision, cash up room is provided which has a computer, Laser Printer and Cash counting machine. Cash collected in each shift is secured inside the strong room. Day cash locker stores small amount of cash required for float money. Cash is deposited by the Cashier at the Bank accompanied by gunmen on a daily basis.



Figure 9-11 Cash up Room



Figure 9-12 Strong Room

9.4 Adequacy of Toll Collection System and ATMS

- Adequacy-The software and hardware as a part of Toll Collection and Management System is installed in September 2021. All lanes are Hybrid ETC system as stipulated by NHAI in Technical specifications of Hybrid ETC system. TMS shall be upgraded every 5 years, at the cost of the Authority.

10 ACCIDENT DATA ANALYSIS

Accident Data, based on last one year April 2021 to March 2022 Records for the project have been studied in order to analyze the nature of accidents occurring on the stretch and identify blackspots.

10.1 Accident Trend

Accident Data for the period April 1st, 2021, to March 31st, 2022, has been made available for analysis. 40 Accidents have occurred out of which 6 no. were fatal, and 07 were Major, 27 Minor. More number of accidents have occurred during the early morning than at night-time. Monthly data analysis does not show any consistent seasonal trend. Over speeding has been recorded as a major cause of accident which alone or in combination with faulty driver behaviour.

10.2 Blackspots Identification

There is no black spot found in the project stretch however the details of accidents in the project length are given in Table below:

ACCIDENT SUMMARY BY TIME OF THE DAY

(From 1st Apr 2021 to 31st March 2022)			
Sr. No.	**Time of Day**	**No. of Accidents**	**Percentage%**
1	00-01 Hrs	3	8%
2	01-02 Hrs	3	8%
3	02-03 Hrs	5	13%
4	03-04 Hrs	2	5%
5	04-05 Hrs	0	0%
6	05-06 Hrs	10	25%
7	06-07 Hrs	1	3%
8	07-08 Hrs	1	3%
9	08-09 Hrs	2	5%
10	09-10 Hrs	1	3%
11	10-11 Hrs	0	0%
12	11-12 Hrs	1	3%
13	12-13 Hrs	1	3%
14	13-14 Hrs	1	3%
15	14-15 Hrs	2	5%
16	15-16 Hrs	0	0%
17	16-17 Hrs	2	5%
18	17-18 Hrs	0	0%
19	18-19 Hrs	0	0%
20	19-20 Hrs	0	0%
21	20-21 Hrs	1	3%
22	21-22 Hrs	0	0%
23	22-23 Hrs	4	10%
24	23-24 Hrs	0	0%
	Total Accidents	40	

Accident Summary by Causes
(From 1st Apr 2021 to 31st March 2022)

Sr. No.	Causes of Accident	No. of Accident	Percentage %
1	Vehicle out of control	6	15
2	Driver negligence	6	15
3	Over speeding	15	38
4	Animal on road	0	0
5	Falling asleep	0	0
6	Tyre burst	0	0
7	Wrong side driving	0	0
8	Drunken driving	8	20
9	Mechanical failure/Other	5	13
	Total Accidents = 40		

10.3 Conclusions & Recommendations

As there are no consistent major accidents found in the project length and company informed to LIE that all accidents occur due to over speeding and uncontrolled driving on the highway. Hence there are no Black spot detected from IE end as well as from concessionaire end however concessionaire need to maintain all road furniture as per schedule given in CA.

Annexures

Annexure I : Operation Cost

Sr. No.	Particulars	Cost per Annum (Rs.)	Cost per Annum (Cr.)
1	Incidental Management Expenses		
a	*Ambulance - 1 Nos.*	1,781,782	0.18
b	*Patrolling Vehicle - 1 Nos.*	2,092,669	0.21
c	*Crane - 1 Nos.*	1,246,375	0.12
d	*Other Vehicle - 3 Nos.*	2,094,467	0.21
e	*JCB - 1 Nos.*	653,140	0.07
f	*Corridor Manager & Officer*	953,280	0.10
2	Maintenance Staff Expenses	8,400,000	0.84
3	Routine Maintenance Cost (Civil Works)	6,509,041	0.65
4	Professional & IE Fee	10,800,000	1.08
5	Insurance Expenses	6,297,540	0.63
6	Staff Welfare Expenses	467,424	0.05
7	Electricity Expenses + Maintenance of parts	5,568,760	0.56
8	ATMS/HTMS Expenses	3,856,248	0.39
9	Contingency @ 5% (Excl. Civil works)	2,210,584	0.22
	Total Cost (Rs.)	**52,931,309**	**5.29**
	Per km Cost (Lakhs)		**13.59**

Annexure II : Routine Maintenance Cost

Routine Maintenance Cost-GASHPL	
Total Cost (Exclusive of GST @ 12%)	**6,509,041**
	= 1.67 lakhs per km

CONVERSION FACTORS									
National Highways / State Highways - Rigid Pavement									
Reference cost taken for Two / four lane (7.0 or 14m or 21m) with 1.5m/2m wide shoulders									
(Refer Chapter 6.17 of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 45)									
Sr. No.	**Description for Flexible Pavement**		**Factor**	**Rigid Pavement**		**Project Length (km)**		**Per Year Project Maintenance Cost**	
				Normal	**Urban**				
				More than 4500 CVD	More than 4500 CVD				
				95,409	**111,227**				
						Normal	**Urban**	**Normal**	**Urban**
1	Four-lane with divided carriageway	Without paved shoulder	1.53	145976.00	170177.00	-	-	-	-
		Paved shoulder	1.70	162196.00	189086.00	23.76	-	3,433,676.40	-
2	Four-lane with divided carriageway and service lane on either side	Without paved shoulder	2.00	190818.00	222454.00	-	-	-	-
		Paved shoulder	2.20	209900.00	244699.00	-	10.78	-	2,446,457.36
4	Six lane with divided carriageway and service lane on either side	without Paved shoulder	2.90	276687.00	322558.00	-	-	-	-
		with Paved shoulder	3.10	295769.00	344803.00	-	4.41	-	1,409,991.66
TOTAL						**38.95**		**7,290,125.42**	

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
1	**Maintenance of Carriageway & Paved Shoulders (1.5m wide); B.T. Surface**			
	i) Potholes repair (50 mm deep)	100 % Pot hole free	As & when required	0.00%
	Volume (cum)			0.00
	Rs/m^3			0
	Cost in Rupees			0
	ii) Patch repair	100 % Patch less	As & when required	0.00%
	Area (sqm)			0
	Rs/m^2			461
	Cost in Rupees			0
	iii) Sealing (Crack)			
	a) Wider than 3 mm	100 % Crack Less	As & when required	0.50%
	Area (sqm)			50
	Rs/m^2			88
	Cost in Rupees			4,424
	b) Width less than 3 mm	75 % Crack Less	As & when required	1.00%
	Area (sqm)			75
	Rs/m^2			63
	Cost in Rupees			4,704
	iv) Repair of ruts and undulations			
	a) Greater than 20 mm	75%	As & when required	0.00%
	Area (sqm)			0
	Rs/m^2			461
	Cost in Rupees			0

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
	v) Road marking	7%	Once in 15 year & @ Repaired location	5807
	vi) Joint Sealant Repair/Replacement	5%		20217
	vii) Slab Replacement	0.00%		0
	SUB TOTAL			**35,152**
2	**Maintenance of earthen Shoulders:**			
	i) Renewal of earthen shoulders	70%	Once in a Year	5177
	ii) Jungle Clearance	70%	Twice in a Year	1359
	iii) Kuccha Drain Maintenance	70%	Twice in a Year	728
	SUB TOTAL			**7,264**
3	**Maintenance of Cross Drainage works:**			
	i) Cleaning of culvert bed	70%	Once in a Year	1835
	ii) Repair of floors	70%	Once in a Year	3320
	iii) Repair of parapets	70%	As & when required	1383
	SUB TOTAL			**6,538**
4	**Maintenance of Minor & Major Bridges:**			
	i) Cleaning and removal of dirt & vegetation from pier caps, Bearings, Expansion Joints, Superstructure, Substructure and Retaining wall etc.	50%	As & when required	17,334
	ii) Spot painting & protective Coating required on Bearing and greasing of Bearings, railing, structural members, Expansion joints			
	iii) Repair of minor washouts, erosion scour and animal holes			
	iv) Sealing Cracks with Cement/ Epoxy Mortar			
	v) Replacement & Correction of safety barriers, Guard rails and damaged members			

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
	SUB TOTAL			**17,334**
5	**Miscellaneous Items:**			
	i) Turfing and Arboriculture		Once in a Year	2311
	ii) Maintenance of gang hut store, sheds, animal & debris removal		Once in a Year	3467
	iii) Lettering, Painting of Km stones & kerbs, sign boards, hectometer stone etc.		Once in a Year	3467
	iv) Replacement and providing additional retro reflective signage	20%	Covering Total Network in 5 Years	6934
	v) Providing first aid kits, Umbrella, Safety Jackets, Vardi etc.		Once in a Year	1156
	vi) Traffic Census		Once in a Year	0
	vii) Provision for roughness measurement		Twice in a Year	1386
	SUB TOTAL			**18,721**
	GRAND TOTAL (Normal)			**85,009**
6	**Additional Cost required for Urban Area**			
	i) Renewal of Center Line, Edge Marking, Kerb Marking/ Zebra crossing etc. in City Portion	7%	Once in 15 years with thermoplastic paint	4146
	ii)Repairs to footpath	50%	As & when required	2311
	iii) ROB/ Fly-over Railings & repair	50%	As & when required	2311
	iv) Street Lighting	0%	As & when required	0
	v) Encroachment Removal Squad	50%	As & when required	3583
	vi) Repair of divider/ Railing in City portion	50%	As & when required	4623
	vii) Provision for maintenance of pedestrian underpass	50%	As & when required	1156
	SUB TOTAL			**18,129**
	GRAND TOTAL (Urban)			**103,137**

Annexure III: Major Maintenance Cost

Periodic Maintenance Cost (Every 6th / 7th year)											
Sr. No.	**Description**	**Unit**	**No.**	**Length (m)**	**Width (m)**	**Depth (m)**	**Quantity**	**Total Quantity**	**Rate (Rs.)**	**Amount (Rs.)**
I. Main Carriageway, Service Road / Slip Road & Miscellaneous location										
A	**Main Carriageway: Rigid Pavement**									
1	Replacement of Joint Sealant	Rmt	5%	317,375.72			15,868.79	15,868.79	69.00	1,094,946
2	Dismantling of CC Panels @ 2% area	Cum	2%	38,099.60	16.40	0.30	3,749.00	3,749.00	655.00	2,455,595
3	Replacement of Panels - PQC @ 2% area	Cum	2%	38,099.60	16.40	0.30	3,749.00	3,749.00	6,172.00	23,138,832
4	Replacement of Panels - DLC @ 0% area	Cum	0%	38,099.60	16.40	0.15	-	-	3,287.00	-
5	Diamond Grinding	Sqm	3%	38,099.60	16.40		18,745.00	18,745.00	50.00	937,250
B	**Toll Plaza: Rigid Pavement**									
6	Replacement of Joint Sealant	Rmt	5%	6,884.55			344.23	344.23	69.00	23,752
7	Dismantling of CC Panels @ 2% area	Cum	2%		13,553.95	0.30	81.32	81.32	655.00	53,267
8	Replacement of Panels - PQC @ 2% area	Cum	2%		13,553.95	0.30	81.32	81.32	6,172.00	501,930
9	Replacement of Panels - DLC @ 0% area	Cum	0%		13,553.95	0.15	-	-	3,287.00	-
10	Diamond Grinding	Sqm	0%		13,553.95		-	-	50.00	-
C	**Service Road : Rigid Pavement**									
11	Replacement of Joint Sealant	Rmt	3%	90,240.00			2,707.20	2,707.20	69.00	186,797
12	Dismantling of CC Panels @ 1% area	Cum	1%		177,660.00	0.25	444.15	444.15	655.00	290,918
13	Replacement of Panels - PQC @ 1% area	Cum	1%		177,660.00	0.25	444.15	444.15	6,172.00	2,741,294
14	Replacement of Panels - DLC @ 0% area	Cum	0%		177,660.00	0.15	-	-	3,287.00	-
15	Diamond Grinding	Sqm	0%		177,660.00		-	-	50.00	-
E	**Structural Deck area**									
16	Milling	Sqm	50%	852.40	26.00		11,081.20	11,081.20	55.00	609,466
17	Tack Coat	Sqm	50%	852.40	26.00		11,081.20	11,081.20	15.00	166,218
18	Mastic Asphalt Overlay	Sqm	50%	852.40	26.00		11,081.20	11,081.20	593.00	6,571,152
F	**Miscellaneous**									
19	Replacement of Kerb	Rmt	10%	103,284.00			10,328.40	10,328.40	202.00	2,086,337
20	Painting of Kerbs	Sqm	1	103,284.00		0.32	32,534.46	32,534.46	110.00	3,578,791
21	Painting of Crash Barrier	Sqm	1	25,380.00		1.12	28,298.70	28,298.70	110.00	3,112,857
22	Thermoplastic paint									
	a) Median & Edge line	Sqm	50%				18,612.15	18,612.15	425.00	7,910,164
	Main Carriageway 4L		4	36,269.10	0.15		21,761.46			
	Main Carriageway 6L		4	4,630.50	0.15		2,778.30			
	Service Road		2	26,014.50	0.10		5,202.90			
	b) Lane line									
	Main Carriageway 4L		2	12,694.19	0.10		2,538.84			
	Main Carriageway 6L		4	1,620.68	0.10		648.27			
	Service Road		1	9,105.08	0.10		910.51			
	c) Junction crossing						3,384.03			
23	Replacement of Road Stud	No	50%				6,252.00	6,252.00	343.00	2,144,436
	Main Carriageway 4L		4	2,016.00			8,064.00			
	Main Carriageway 6L		6	258.00			1,548.00			
	Service Road		2	1,446.00			2,892.00			
24	Miscellaneous	5%								2,880,200
									Total Amount (MCW)	**60,484,201.41**
									Total Cost in Lakhs (MCW)	**604.84**
									Per km Cost in lakhs (MCW)	**15.53**

Annexure IV: Pavement Condition Survey

Summary of Pavement Condition Survey-LHS- MCW

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Road Side Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/	Patching (%)**			Type	Condition			Left	Right	
1	99.400	99.600	LA		LA																	Work not done due to LA
2	99.600	100.000	G		PQC	280		G							F							
3	100.000	101.000	G		PQC	280		G							G/F			G/F	NE			
4	101.000	102.000	F		PQC	280		G							G/F			G/F	NE			
5	102.000	103.000	G		PQC	280		G										G				Structure/SR
6	103.000	104.000	G		PQC	280		G										G				Structure/SR
7	104.000	105.000	G		PQC	280		G							G			F	NE			Structure/SR
8	105.000	106.000	G		PQC	280		G							F			F	NE			Structure/SR
9	106.000	107.000	F		PQC	280		G							G/F			G/F	NE			Structure/SR
10	107.000	108.000	F		PQC	280		G							F			F				
11	108.000	109.000	F		PQC	280		G							F			F				
12	109.000	110.000	F		PQC	280		G							F			F				
13	110.000	111.000	F		PQC	280		G							F			F				Partially Structure/SR
14	111.000	112.000	G		PQC	280		G							F			F				Partially Structure/SR
15	112.000	113.000	G		PQC	280		G							F			F				Partially Structure/SR
16	113.000	114.000	G		PQC	280		G							F			F				Partially Structure/SR
17	114.000	115.000	G		PQC	280		G							F			G/F				Partially Structure/SR
18	115.000	116.000	G		PQC	280		G							F			F				
19	116.000	117.000	F		PQC	280		G	0.1						F			F				
20	117.000	118.000	G		PQC	280		G							G/F			G/F				Partially Structure/SR
21	118.000	119.000	G		PQC	280		G							F			F				Partially Structure/SR
22	119.000	120.000	G		PQC	280		G							F			F				
23	120.000	121.000	G		PQC	280		G							G/F			G/F				
24	121.000	122.000	G		PQC	280		G	0.1						F			G/F				Partially Structure/SR
25	122.000	123.000	G		PQC	280		G							F			F				Partially Structure/SR
26	123.000	124.000	F		PQC	280		F	0.5						F			F				
27	124.000	125.000	G		PQC	280		G							F			F				Partially Structure/SR
28	125.000	126.000	F		PQC	280		G							F			F				Partially Structure/SR
29	126.000	127.000	F		PQC	280		G							F			F				
30	127.000	128.000	F		PQC	280		G							F			F				
31	128.000	129.000	F		PQC	280		G							F			F				
32	129.000	130.000	F		PQC	280		G							F			F				Partially Structure/SR
33	130.000	131.000	F		PQC	280		G							F			G/F				Partially Structure/SR
34	131.000	132.000	F		PQC	280		G							F			G/F				Partially Structure/SR
35	132.000	133.000	G		PQC	280		G							F			G/F				
36	133.000	134.000	G		PQC	280		G							NE			F	F	Y		
37	134.000	135.000	F		PQC	280		G							NE			F	F	Y		Partially Structure/SR
38	135.000	136.000	G		PQC	280		G							NE			G/F	F	Y		Structure/SR
39	136.000	137.000	WIP		PQC	280		WIP							NE			G/F	F	Y		Structure/SR
40	137.000	138.000	WIP		PQC	280		WIP							NE			F	F	Y		
41	138.000	138.352	G		PQC	280		G							NE			F	F	Y		

Summary of Pavement Condition Survey-RHS-MCW

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Road Side Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
1	99.400	99.600	LA																			Work not done due to LA
2	99.600	100.000	G		PQC	280		G							F	PQC	G	F				
3	100.000	101.000	G		PQC	280		G							F	PQC	G	G/F				
4	101.000	102.000	G		PQC	280		G							F	PQC	G	G/F				
5	102.000	103.000	G		PQC	280		G								PQC	G	G				Structure/SR
6	103.000	104.000	G		PQC	280		G								PQC	G	G				Structure/SR
7	104.000	105.000	G		PQC	280		G							G	PQC	G	F				Structure/SR
8	105.000	106.000	G		PQC	280		G							F	PQC	G	F				Structure/SR
9	106.000	107.000	F		PQC	280		G	0.1						F	PQC	G	G/F				Structure/SR
10	107.000	108.000	F		PQC	280		G	0.1						F	PQC	G	F				
11	108.000	109.000	F		PQC	280		G							F	PQC	G	F				
12	109.000	110.000	F		PQC	280		G							F	PQC	G	F				
13	110.000	111.000	F		PQC	280		G							F	PQC	G	F				Partially Structure/SR
14	111.000	112.000	F		PQC	280		G	0.15						F	PQC	G	F				Partially Structure/SR
15	112.000	113.000	F		PQC	280		G	0.15						F	PQC	G	F				Partially Structure/SR
16	113.000	114.000	G		PQC	280		G							F	PQC	G	F				Partially Structure/SR
17	114.000	115.000	G		PQC	280		G							F	PQC	G	G/F				Partially Structure/SR
18	115.000	116.000	G		PQC	280		G							F	PQC	G	F				
19	116.000	117.000	G		PQC	280		G							F/P	PQC	G	F/P				
20	117.000	118.000	G		PQC	280		G							F	PQC	G	G/F				Partially Structure/SR
21	118.000	119.000	G		PQC	280		G							F	PQC	G	F				Partially Structure/SR
22	119.000	120.000	F		PQC	280		G							F	PQC	G	F				
23	120.000	121.000	G/F		PQC	280		G							G/F	PQC	G	G/F				
24	121.000	122.000	F		PQC	280		G							F	PQC	G	G/F				Partially Structure/SR
25	122.000	123.000	G		PQC	280		G							F	PQC	G	F				Partially Structure/SR
26	123.000	124.000	F		PQC	280		G	0.1						F	PQC	G	F				
27	124.000	125.000	F		PQC	280		G							F	PQC	G	F				Partially Structure/SR
28	125.000	126.000	F		PQC	280		G							F	PQC	G	F				Partially Structure/SR
29	126.000	127.000	F/P		PQC	280		G	0.1						F	PQC	G	F				
30	127.000	128.000	F		PQC	280		G							F	PQC	G	F				
31	128.000	129.000	F		PQC	280		G							F	PQC	G	F				
32	129.000	130.000	G		PQC	280		G							F	PQC	G	F				Partially Structure/SR
33	130.000	131.000	G		PQC	280		G							F	PQC	G	G/F				Partially Structure/SR
34	131.000	132.000	G		PQC	280		G							F	PQC	G	G/F				Partially Structure/SR
35	132.000	133.000	G		PQC	280		G							F	PQC	G	G/F				
36	133.000	134.000	G		PQC	280		G							NE	PQC	G	F	F		Y	Drain WIP
37	134.000	135.000	G		PQC	280		G							NE	PQC	G	F	F		Y	Partially Structure/SR
38	135.000	136.000	G		PQC	280		G							NE	PQC	G	G/F	F		Y	Structure/SR
39	136.000	137.000	WIP		PQC	280		WIP							NE	PQC	G	G/F	F		Y	Structure/SR
40	137.000	138.000	WIP		PQC	280		WIP							NE	PQC	G	F	F		Y	
41	138.000	138.352	G		PQC	280		G							NE	PQC	G	F	F		Y	

Six Laning of Handia Varanasi Section of NH-2 from km. 713.146 to km. 785.544 in the state of Uttar Pradesh on Hybrid Annuity Mode (HAM)

Technical Due Diligence Study

Final Report

November 2022

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SIX LANING OF HANDIA VARANASI SECTION OF NH-2 FROM KM. 713+146 TO KM. 785+544 IN THE STATE OF UTTAR PRADESH UNDER NHDP PHASE-V ON HYBRID ANNUITY MODE

TECHNICAL DUE DILIGENCE STUDY

FINAL REPORT

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1 INTRODUCTION

1.1 Background

The Government of India had authorized National Highways Authority of India (NHAI) for the development of National Highways and as a part of this endeavor, the authority had decided to undertake development, maintenance and management of National Highway No. 2 including the Section from km. 713+416 to km. 785+544 (apprx. 72.398 kms). The Authority had resolved to Augment the 6-laning of Handia - Varanasi Section of NH-2 from km. 713+416 to km. 785+544 (apprx. 72.398 kms) in the State of Uttar Pradesh under NHDP-V on Design, Build, Operate and Transfer (the "DBOT Annuity" or "Hybrid Annuity") basis which shall be partly financed by the Concessionaire who shall recover its investment and costs through payments to be received from the Authority, in accordance with the terms and conditions to be set forth in a Concession Agreement executed on 15th May 2017. Total design length of the project highway is 72.398 kms.

Based on competitive bid process completed, NHAI has signed Concession Agreement with **M/s Varanasi Sangam Expressway Private Limited (VSEPL),** a Special Purpose Vehicle (SPV) formed for implementing this project.

The Appointed Date of the project was 05th December 2017. The concession period of the project is 17.5 years including construction period of 2.5 years and operation period of 15 years from the date of Commercial Operation Day (COD) of the project highway. Schedule Completion Date for the project highway was on 02nd June 2020. The NHAI had granted Extension of Time (EOT) for 162 days. The project highway has received Provisional Completion Certificate on 02nd November 2020. The Final Completion Certificate is still awaited. PD, NHAI recommended to RO, NHAI for Issuance of Completion certificate to Concessionaire.

During maintenance period of the project highway, **GR Highways Investment Manager Pvt. Ltd.** (in its capacity as the Investment Manager of Bharat Highways InvIT) has appointed **FP Project Management Consultancy Services Private Limited** [Formerly Frischmann Prabhu (I) Pvt. Ltd.] as Technical Consultant for carrying out technical study and assessment of Opex and Major Maintenance requirement (MMR) for balance concession period. The scope includes review of operation and maintenance system and to prepare maintenance schedule for entire duration of concession period based on a technical analysis. In turn, FP Project Management undertook the site visits to carry out site inspection. The report is based on findings during this period.

1.2 Our Approach Philosophy

Composition of Team

Our team consists of well-qualified Engineers and other professionals, whose experience covers all the skills and specializations required for undertaking such assignments. All the team personnel are our regular employees and have a long and stable working relationship with our firm.

The Team Leader coordinates the activities between all the key staff who work closely together. The key staff is assisted by various support staff, who report to the respective key staff in their field of expertise. The Team Leader is the point of contact for Client on Technical Study.

The technical study include review of all the available documents namely:

a) Concession Agreement including Technical Schedules
b) EPC Agreement
c) Pavement design reports
d) O&M Manual prepared by the Concessionaire
e) O&M Contract, work order and their provisions
f) Recent O&M Report submitted to Authority
g) Quality of construction based on available data, design and drawings
h) Documents on historical expenditure on operation and maintenance
i) Reports on past accidents
j) O&M cost schedule for the concession period
k) Completion / Provisional Completion and status of items in punch list items
l) Correspondence regarding scope of works and during O&M
m) Toll operation manual / ATMS related documents

The review of the above documents is the first step towards accomplishment of the assignment. This gives a complete idea of the project and is used as input data for preparation of report after necessary analysis.

Site Visit and Data Collection

A team of experts from various streams has carried out the preliminary site visit to understand the assessment of project assets mainly condition of the pavement and structures.

- The site visit is undertaken for detailed reconnaissance and visual pavement condition assessment
- The condition assessment of major structures by visual inspection
- The information like material sources and the probable cost is collected for the purpose of cost estimate

The detailed design / drawings viz. Plan & L-sections, drainage design, structure design, layout drawings for project facilities like toll plaza, bus bay, truck lay-byes, highway lighting facilities etc., would be studied. Also, design / drawing and provision pertaining to road furniture are studied.

The adequacy of design is verified in accordance with the concession agreement, manual of specifications and standards as well as relevant IRC standards.

The information on availability of material in the vicinity is gathered. It has direct impact on cost of maintenance work and balance work if any.

The basic approach for preparation for cost estimates for operation and maintenance is as per the practice of State PWD / MORT&H in respect of highways and structures.

Data Analysis

Based on the study of the available information and preliminary site visits, the consultants share their preliminary observations with the Client.

1.3 About this Report

This report has been prepared based on the information, reports and documents made available to us by the Company. We have also referred to publicly available reports, literature etc. and have made our best efforts to check the authenticity of the information available, analyse the same as per the best engineering / industry practices.

The site visit and inspection were carried out between the periods of **07th August 2022 to 09th August 2022**. Tests and other related surveys were carried out on the same days of site visit.

The report is organized with the following chapters for easy understanding of various issues.

- **Introduction -** This chapter gives an overview of the project background, approach and methodology of Due Diligence studies.
- **Project Description -** This chapter describes existing project features.
- **Development of Project Highway -** This chapter gives an overview of project development.
- **Pavement and Site Investigation -** This chapter describes present condition of pavement, surveys and investigations carried out on site and proposals for maintenance as per contract requirements.
- **Balance works -** This chapter summarizes the balance works to be executed at Site.
- **Review of Concession Agreement -** This chapter summarizes the observations on the Concession Agreement.
- **Review of O&M Agreement -** This chapter summarizes the observations on the O&M Agreement executed.
- **Operation and Maintenance -** This chapter describes O&M set up as well as O&M cost over the concession period.
- **Toll Plaza Equipment and ATMS -** This chapter summarizes assessment of Toll Plaza in terms of no. of lanes, Toll Collection System installed and working status is presented under this section.
- **Accident Data Analysis -** This chapter deals with the analysis of nature of accidents occurring on the stretch and to identify blackspots.
- **Annexures**

2 PROJECT DESCRIPTION

2.1 Location

The project stretch is linking Delhi and Kolkata, traverses through 6 States namely Delhi, Haryana, Uttar Pradesh, Bihar, Jharkhand and West Bengal and connects a number of major urban cities on its way like Delhi, Agra, Kanpur, Allahabad, Varanasi, Dhanbad, Durgapur & Howrah. The project road from Khokhraj approximately 42 kms from Allahabad towards Kanpur to Varanasi i.e., Allahabad bypass to Varanasi.

The project highway passes through the built-up areas of towns and villages enroute. Important towns along the alignment are Rajatalab, Aurai, Gopigunj and Handia.

The Location Map of the project highway is presented below:



Figure 2-1 Location Map



Figure 2-2 Start of Project Highway at km. 713+146



Figure 2-3 End of Project Highway at km. 785+544

2.2 Climate

The project highway has a humid subtropical climate with large variations between summer and winter temperatures. The dry summer starts in April and lasts until June, followed by the monsoon season from July to October. The temperature ranges between 22 °C and 46 °C in the summers. Winters in Varanasi see very large diurnal variations, with warm days and downright cold nights. Cold waves from the Himalayan region cause temperatures to dip across the city in the winter from December to February and temperatures below 5 °C (41 °F) are not uncommon. The average annual rainfall is 1,110 mm.

2.3 Terrain

This section of National Highway traverses through plain / rolling terrain.

2.4 Abutting Land Use

The land use along the highway is predominantly rural / built-up area.

2.5 Right of Way

The width of existing Right of Way (RoW) of the project stretch varies from 28.0 m to 67.0 m.

2.6 Existing Utilities

During widening of the project highway, various affected utility services located along the project road were shifted to the PROW. The different types of utilities found along the road include, electrical poles, telephone poles, OFC Cables, water pipeline etc.,

3 DEVELOPMENT OF PROJECT ROAD

3.1 Project Road

The Site of Six-lane divided project highway is situated between km. 713+146 to km. 785+544 of Handia to Varanasi section of NH-2 in the state of Uttar Pradesh. The project road passes through rural as well as built-up sections. The stretches falling in built-up areas have been provided with service road as per scope of works. The development of entire project road has been carried out in accordance with schedule-B and schedule-C as per standards set forth in schedule-D under the Concession Agreement.

M/s Varanasi Handia Expressway Private Limited has completed construction of the project road for the length of 72.644 kms.

The stretch of the project highway under the scope of study runs predominantly through plain / rolling terrain. The design standards have been adhered to with a realistic compatibility with the existing ROW, utilities and optimum land acquisition. Generally, the cross-sectional dimensions of project road are as below:

Table 3-1 Cross sectional dimension

Main Carriageway	Width (m)
Carriageway width excluding edge strip	17.0
Paved Shoulder width - one side	1.5
Earthen Shoulder width - one side	2.0
Median width	1.2 – 5.6
Service Road	3.75 to 5.5

3.2 Built up Areas / Urban Section

The locations of built up area along the project highways are indicated in table below.

Table 3-2 Details of Built Up Areas

Sr. No.	Design Chainage (km)		Length (m)	Name of Township	Carriageway Width (m)
	From	To			
1	713146	713397	250.6	Handia	22
2	713397	713485	88.4	Handia	26
3	713485	715235	1750	Handia	22
4	715235	716225	990	Handia	22
5	716225	716845	620	Handia	26
6	717445	718085	640	Handia	23
7	722135	722535	400	Baraut	22
8	722535	723655	1120	Baraut	22
9	723655	725245	1590	Baraut	22
10	725885	726085	200	Baraut	22
11	726085	726955	870	Baraut	22
12	726955	727135	180	Baraut	22
13	728435	728525	90	Bhiti	26
14	732365	733785	1420	Wahida	26
15	734645	735015	370	Jangiganj	26
16	739685	740130	445	Gopiganj	25

Sr. No.	Design Chainage (km)		Length (m)	Name of Township	Carriageway Width (m)
	From	To			
17	740130	741685	1555	Gopiganj	26
18	750880	751095	215	Madhosingh	26
19	752965	754915	1950	Aurai	26
20	755700	756215	515	Kothra	26
21	756900	758000	1100	Kothra	26
22	759400	760700	1300	Tiatrahi	26
23	761500	762025	525	Vikrampur	26
24	762675	763900	1225	Kotka	26
25	764700	766100	1400	Babusarai	26
26	770435	771245	810	Kachwa Bazar	26
27	771245	771445	200	Kachwa Bazar	25
28	773460	773685	225	Rupapur	25
29	776745	777035	290	Rupapur	22
30	783025	783805	780	Rajatalab	26

3.3 Pavement Construction

The stretch of the project highway includes rigid pavement and flexible pavement.

Rigid pavement details are as given in the below table.

Side	Design Chainage (m)		Length (m)	Side	Design Chainage (m)		Length (m)
	From	To			From	To	
Left	742850	744435	1585	Right	771242	772685	1443
	745220	745385	165		773460	773685	225
	745385	746600	1215		773685	774785	1100
	746600	747257	657		774785	775630	845
	747257	748585	1328		777865	779125	1260
	748585	749105	520		779805	779890	85
	749745	750105	360		780685	783025	2340
	750880	751095	215		783025	783805	780
	751095	752325	1230		784760	785544	784
	752965	753975	1010		**Total**		**8862**
	754915	755745	830				
	756385	756535	150				
	756535	757085	550				
	757085	757445	360				
	758085	758235	150				
	758235	759185	950				
	759185	759325	140				
	760110	761405	1295				
	762025	762320	295				
	763145	763545	400				
	763545	764555	1010				
	764555	764685	130				
	765425	766085	660				
	766085	767485	1400				
	767485	767585	100				
	768245	769580	1335				
	770435	771242	807				
	771242	772685	1443				

Side	Design Chainage (m)		Length (m)	Side	Design Chainage (m)		Length (m)
	From	To			From	To	
	773460	773685	225				
	773685	774785	1100				
	774785	775630	845				
	777865	779125	1260				
	779805	779890	85				
	780685	783025	2340				
	783025	783805	780				
	784760	785544	784				
	Total		**27709**				

Flexible Pavement details are as given in the below table.

Side	Design Chainage (m)		Length (m)	Side	Design Chainage (m)		Length (m)
	From	To			From	To	
Left	712900	713397	496.6	**Right**	712900	713397	496.6
	713397	715797	2400		713397	715797	2400
	715797	716280	483.4		715797	716280	483.4
	716280	717445	1165		716280	717445	1165
	717445	717746	300.5		717445	717746	300.5
	717746	717753	7		717746	717753	7
	717753	718085	332.5		717753	718085	332.5
	718085	718235	150		718085	718235	150
	718235	718985	750		718235	718985	750
	718985	719165	180		718985	719165	180
	719165	719472	306.5		719165	719472	306.5
	719472	719479	7		719472	719479	7
	719479	719785	306.5		719479	719785	306.5
	719785	720905	1120		719785	720905	1120
	720905	721222	316.5		720905	721222	316.5
	721222	721229	7		721222	721229	7
	721229	721525	296.5		721229	721525	296.5
	721525	721630	105		721525	721630	105
	721630	722089	459		721630	722089	459
	722089	723840	1751		722089	723840	1751
	723840	724330	490		723840	724330	490
	724330	725220	890		724330	725220	890
	725220	725648	428		725220	725648	428
	725648	727141	1493		725648	727141	1493
	727141	727570	429		727141	727570	429
	727570	728435	865		727570	728435	865
	728435	728525	90		728435	728525	90
	728525	728842	316.5		728525	728842	316.5
	7288415	728849	7		728842	728849	7
	7288485	729155	306.5		728849	729155	306.5
	729155	729270	115		729155	729270	115
	729270	729649	379		729270	729649	379
	729649	729661	12		729649	729661	12
	729661	730045	384		729661	730045	384
	730045	731100	1055		730045	731100	1055
	731100	731491	391		731100	731491	391

Side	Design Chainage (m)		Length (m)	Side	Design Chainage (m)		Length (m)
	From	To			From	To	
	731491	731503	12		731491	731503	12
	731503	731900	397		731503	731900	397
	731900	732365	465		731900	732365	465
	732365	733785	1420		732365	733785	1420
	733785	734169	384		733785	734169	384
	734169	734181	12		734169	734181	12
	734181	734585	404		734181	734585	404
	734585	734645	60		734585	734645	60
	734645	735015	370		734645	735015	370
	735015	736105	1090		735015	736105	1090
	736105	736417	311.5		736105	736417	311.5
	736417	736424	7		736417	736424	7
	736424	736725	301.5		736424	736725	301.5
	736725	737885	1160		736725	737885	1160
	737885	738269	384		737885	738269	384
	738269	738281	12		738269	738281	12
	738281	738665	384		738281	738665	384
	738665	739830	1165		738665	739830	1165
	739830	740291	461		739830	740291	461
	740291	742413	2122		740291	742413	2122
	742413	742850	437		742413	742850	437
	744435	744814	379		742850	744435	1585
	744814	744826	12		744435	744814	379
	744826	745220	394		744814	744826	12
	749105	749422	316.5		744826	745220	394
	749422	749429	7		745220	745385	165
	749429	749745	316.5		745385	746600	1215
	750105	750493	388		746600	747257	657
	750493	750505	12		747257	748585	1328
	750505	750880	375		748585	749105	520
	752325	752640	314.5		749105	749422	316.5
	752640	752647	7		749422	749429	7
	752647	752965	318.5		749429	749745	316.5
	753975	754423	448		749745	750105	360
	754423	754458	35		750105	750493	388
	754458	754915	457		750493	750505	12
	755745	756067	321.5		750505	750880	375
	756067	756074	7		750880	751095	215
	756074	756385	311.5		751095	752325	1230
	757445	757767	321.5		752325	752640	314.5
	757767	757774	7		752640	752647	7
	757774	758085	311.5		752647	752965	318.5
	759325	759722	397		752965	753975	1010
	759722	759734	12		753975	754423	448
	759734	760110	376		754423	754458	35
	761405	761702	296.5		754458	754915	457
	761702	761709	7		754915	755745	830
	761709	762025	316.5		755745	756067	321.5
	762320	762740	420		756067	756074	7
	762740	762752	12		756074	756385	311.5

Side	Design Chainage (m)		Length (m)	Side	Design Chainage (m)		Length (m)
	From	To			From	To	
	762752	763145	393		756385	756535	150
	764685	765044	359		756535	757085	550
	765044	765056	12		757085	757445	360
	765056	765425	369		757445	757767	321.5
	767585	767900	314.5		757767	757774	7
	767900	767907	7		757774	758085	311.5
	767907	768245	338.5		758085	758235	150
	769580	769950	370		758235	759185	950
	769950	769985	35		759185	759325	140
	769985	770435	450		759325	759722	397
	772685	773051	366		759722	759734	12
	773051	773063	12		759734	760110	376
	773063	773460	397		760110	761405	1295
	775630	776085	454.7		761405	761702	296.5
	776085	776750	665.3		761702	761709	7
	776750	777383	633		761709	762025	316.5
	777383	777865	482		762025	762320	295
	779125	779442	316.5		762320	762740	420
	779442	779449	7		762740	762752	12
	779449	779805	356.5		762752	763145	393
	779890	780272	382		763145	763545	400
	780272	780284	12		763545	764555	1010
	780284	780685	401		764555	764685	130
	783805	784235	430		764685	765044	359
	784235	784355	120		765044	765056	12
	784355	784760	405		765056	765425	369
	Total		**44935**		765425	766085	660
					766085	767485	1400
					767485	767585	100
					767585	767900	314.5
					767900	767907	7
					767907	768245	338.5
					768245	769580	1335
					769580	769950	370
					769950	769985	35
					769985	770435	450
					770435	771242	807
					772685	773051	366
					773051	773063	12
					773063	773460	397
					775630	776085	454.7
					776085	776750	665.3
					776750	777383	633
					777383	777865	482
					779125	779442	316.5
					779442	779449	7
					779449	779805	356.5
					779890	780272	382
					780272	780284	12
					780284	780685	401

Side	Design Chainage (m)		Length (m)	Side	Design Chainage (m)		Length (m)
	From	To			From	To	
					783805	784235	430
					784235	784355	120
					784355	784760	405
					Total		**63782**

3.4 Service Roads and Slip Road

Service Road

Service roads have been constructed at 53 locations along the project highway. The total length of service road (including LHS and RHS) is 78.534 kms and the width of service road is 5.5 to 7.0 m. Service roads are provided in both built-up sections and in open country. The details of service roads are provided in the table below.

Table 3-3 Details of Service Roads

Sr. No.	Design Chainage (km)		Length (m)	Width (m)	Remarks
	From	To			
1	716280	717445	1165	5.5	Both Side
2	718085	718235	150	5.5	Both Side
3	718235	718985	750	5.5	Both Side
4	718985	719165	180	5.5	Both Side
5	719785	720905	1120	5.5	Both Side
6	721525	721630	105	5.5	Both Side
7	724330	725220	890	7.0	Both Side
8	727570	728435	865	5.5	Both Side
9	728435	728525	90	7.0	Both Side
10	729155	729270	115	5.5	Both Side
11	730045	731100	1055	5.5	Both Side
12	731900	732365	465	5.5	Both Side
13	732365	733785	1420	7.0	Both Side
14	734585	734645	60	7.0	Both Side
15	734645	735015	370	7.0	Both Side
16	735015	736105	1090	5.5	Both Side
17	736725	737885	1160	5.5	Both Side
18	738665	739830	1165	5.5	Both Side
19	742850	744435	1585	5.5	Both Side
20	745220	745385	165	5.5	Both Side
21	745385	746600	1215	5.5	Both Side
22	747257	748585	1328	5.5	Both Side
23	748585	749105	520	5.5	Both Side
24	749745	750105	360	5.5	Both Side
25	750880	751095	215	7.0	Both Side
26	751095	752325	1230	5.5	Both Side
27	752965	753975	1010	7.0	Both Side
28	754915	755745	830	7.0	Both Side
29	756385	756535	150	7.0	Both Side
30	756535	757085	550	5.5	Both Side
31	757085	757445	360	5.5	Both Side
32	758085	758235	150	5.5	Both Side
33	758235	759185	950	5.5	Both Side

Sr. No.	Design Chainage (km)		Length (m)	Width (m)	Remarks
	From	To			
34	759185	759325	140	7.0	Both Side
35	760110	761405	1295	5.5	Both Side
36	762025	762320	295	5.5	Both Side
37	763145	763545	400	7.0	Both Side
38	763545	764555	1010	5.5	Both Side
39	764555	764685	130	7.0	Both Side
40	765425	766085	660	5.5	Both Side
41	766085	767485	1400	5.5	Both Side
42	767485	767585	100	5.5	Both Side
43	768245	769580	1335	5.5	Both Side
44	770435	771242	807	7.0	Both Side
45	771242	772685	1443	5.5	Both Side
46	773460	773685	225	5.5	Both Side
47	773685	774785	1100	5.5	Both Side
48	774785	775630	845	5.5	Both Side
49	777865	779125	1260	5.5	Both Side
50	779805	779890	85	5.5	Both Side
51	780685	783025	2340	5.5	Both Side
52	783025	783805	780	7.0	Both Side
53	784760	785544	784	5.5	Both Side
Total			**39267**		
Grand Total			**78534**		

Slip Road

The details of slip road constructed at Site is tabulated as below.

Table 3-4 Details of Slip Roads

Sr. No.	Design Chainage (Km)		Length (m)	Width (m)	Remarks
	From	To			
1	712900	713397	496.6	7	Both Side
2	713397	715797	2400	10	Both Side (Existing Carriageway Under Elevated Structure)
3	715797	716280	483.4	5.5	Both Side
4	717445	717746	300.5	5.5	Both Side
5	717746	717753	7	5.5	Both Side
6	717753	718085	332.5	5.5	Both Side
7	719165	719472	306.5	7	Both Side
8	719472	719479	7	7	Both Side
9	719479	719785	306.5	7	Both Side
10	720905	721222	316.5	7	Both Side
11	721222	721229	7	7	Both Side
12	721229	721525	296.5	7	Both Side
13	721630	722089	459	7	Both Side
14	722089	723840	1751	10	Both Side (Existing Carriageway Under Elevated Structure)
15	723840	724330	490	7	Both Side
16	725220	725648	428	5.5	Both Side
17	725648	727141	1493	10	Both Side (Existing Carriageway Under Elevated Structure)

Sr. No.	Design Chainage (Km)		Length (m)	Width (m)	Remarks
	From	To			
18	727141	727570	429	7	Both Side
19	728525	728842	316.5	7	Both Side
20	728842	728849	7	7	Both Side
21	728849	729155	306.5	7	Both Side
22	729270	729649	379	7	Both Side
23	729649	729661	12	7	Both Side
24	729661	730045	384	7	Both Side
25	731100	731491	391	7	Both Side
26	731491	731503	12	7	Both Side
27	731503	731900	397	7	Both Side
28	733785	734169	384	7	Both Side
29	734169	734181	12	7	Both Side
30	734181	734585	404	7	Both Side
31	736105	736417	311.5	7	Both Side
32	736417	736424	7	7	Both Side
33	736424	736725	301.5	5.5	Both Side
34	737885	738269	384	7	Both Side
35	738269	738281	12	7	Both Side
36	738281	738665	384	7	Both Side
37	739830	740291	461	7	Both Side
38	740291	742413	2122	10	Both Side (Existing Carriageway Under Elevated Structure)
39	742413	742850	437	7	Both Side
40	744435	744814	379	7	Both Side
41	744814	744826	12	7	Both Side
42	744826	745220	394	7	Both Side
43	749105	749422	316.5	7	Both Side
44	749422	749429	7	7	Both Side
45	749429	749745	316.5	7	Both Side
46	750105	750493	388	5.5	Both Side
47	750493	750505	12	5.5	Both Side
48	750505	750880	375	5.5	Both Side
49	752325	752640	314.5	7	Both Side
50	752640	752647	7	7	Both Side
51	752647	752965	318.5	7	Both Side
52	753975	754423	448	7	Both Side
53	754423	754458	35	7	Both Side
54	754458	754915	457	7	Both Side
55	755745	756067	321.5	7	Both Side
56	756067	756074	7	7	Both Side
57	756074	756385	311.5	7	Both Side
58	757445	757767	321.5	7	Both Side
59	757767	757774	7	7	Both Side
60	757774	758085	311.5	7	Both Side
61	759325	759722	397	7	Both Side
62	759722	759734	12	7	Both Side
63	759734	760110	376	7	Both Side
64	761405	761702	296.5	5.5	Both Side
65	761702	761709	7	5.5	Both Side
66	761709	762025	316.5	5.5	Both Side
67	762320	762740	420	5.5	Both Side

Sr. No.	Design Chainage (Km)		Length (m)	Width (m)	Remarks
	From	To			
68	762740	762752	12	5.5	Both Side
69	762752	763145	393	5.5	Both Side
70	764685	765044	359	7	Both Side
71	765044	765056	12	7	Both Side
72	765056	765425	369	7	Both Side
73	767585	767900	314.5	7	Both Side
74	767900	767907	7	7	Both Side
75	767907	768245	338.5	7	Both Side
76	769580	769950	370	7	Both Side
77	769950	769985	35	7	Both Side
78	769985	770435	450	7	Both Side
79	772685	773051	366	7	Both Side
80	773051	773063	12	7	Both Side
81	773063	773460	397	7	Both Side
82	775630	776085	454.7	7	Both Side
83	776085	776750	665.3	10	Both Side (Existing Carriageway Under Elevated Structure)
84	776750	777383	633	10	
85	777383	777865	482	7	Both Side
86	779125	779442	316.5	5.5	Both Side
87	779442	779449	7	5.5	Both Side
88	779449	779805	356.5	5.5	Both Side
89	779890	780272	382	5.5	Both Side
90	780272	780284	12	5.5	Both Side
91	780284	780685	401	5.5	Both Side
92	783805	784235	430	7	Both Side
93	784235	784355	120	7	Both Side
94	784355	784760	405	7	Both Side
Total			**32720**		
Grand Total (2 x 32720)			**65440**		

The photographs taken at the time of site visit is presented as below.

Figure 3-1 Photographs of Service / Slip Road



Slip Road at km. 784+400



Service Road at km. 781+450



Service Road at km. 780+750



Service Road at km. 765+150



Slip Road at km. 764+700



Service Road at km. 734+175

Entry / Exit Ramps

Entry / Exit and Acceleration / Deceleration lanes for entering into or exiting from the six lane carriageway provided in lengths indicated in table below.

Table 3-5 Details of Entry/ Exit Ramps

Sr. No.	Entry and Exit	
	Left	Right
1	718085	718085
2	724330	724330
3	730045	730045
4	738665	738665
5	746500	746500
6	747350	747350
7	750880	750880
8	760110	760110
9	770435	770435
10	784760	784760

The photographs taken at the time of site visit is presented as below.

Figure 3-2 Photographs of Entry / Exit Ramp



km. 738+680



km. 730+100



km. 724+350

3.5 Major Intersections

The Concessionaire has replaced at-grade intersections at 4 nos. locations. The Concessionaire has also provided proper connectivity i.e., approaches leading to and exit from these underpasses to the roads crossing the project highway. The details of the Major Intersections provided are presented as below.

Table 3-6 Details of Major Intersections

Sr. No.	Description	Chainage (km)	Location	Remarks
1	SH-87 Mirzapur - Gyanpur	741+010	Gopaiganj	
2	Mirzapur – Bhadohi	754+441	Aurai Village	Flyovers
3	Katkama – Kaptitai	769+967	Katchhwa Village	
4	Jakhani – Jansa	784+297	Rajatalab Village	

Figure 3-3 Photographs of Major Intersection



km. 741+010



km. 754+441



km. 769+967



km. 784+297

3.6 Minor Intersections

The existing minor intersections were improved as at-grade intersections in accordance with standard mentioned in the Schedule-D. The details of the Minor Intersections provided are presented as below.

Table 3-7 Details of Minor Intersections

Sr. No.	Description	Chainage (km)	
		Left	Right
1	Hirihiri Village	712+810	
2	Saripur	713+355	
3	Magha	713442	
4	Lalak bazzar	713+735	
5	Hirihiri Village	714+009	
6	Sikisaripur Village	714+273	
7	Sikisaripur Village		714+273
8	Lachhai		714+448
9	Janghai Village	714+835	
10	Bhatropur		715+197
11	Miyalganj Village	715+253	
12	Bhatropur		715+421
13	Handia Ploytechnic	715+855	
14	Lalbahdur Shastri		715+855
15	Handia Ploytechnic		716+005
16	Jagha		716+530
17	Basupur Village	716+530	
18	Dighari	717+945	
19	Tilakpur	721+523	
20	Baraut Village		722+800
21	Tela		722+962
22	Gudohate	723+245	
23	Tivarepur Village	723+639	
24	Navacharha Village	724+331	
25	Rashara Village	724+900	
26	Rashara	725+252	
27	Navacharha	725+556	
28	Sitamarahi		725+561
29	Mugraha		728+810
30	Kurmaicha	729+170	
31	Nawdhan	729+540	
32	Sitamarhi		729+655
33	Nawdhan	730+038	
34	Bashi		730+040
35	Navaganj	730+738	
36	Suryawan	731 +497	
37	Darwashin		731+818
38	Godhna	732+395	
39	Railway Station		732+408
40	Darwansi		732+655
41	Baragano	732+842	
42	PG College		733+200
43	Jangiganj		733+562

Sr. No.	Description	Chainage (km)	
		Left	Right
44	Sitamarhi		734+175
45	Mangalapur	734+570	
46	Dhainpur		734+788
47	Suryanwan	734+870	
48	Dhainpur		734 +950
49	Baragano	735+475	
50	Kisindavpur		735+900
51	Visundevpur		736+168
52	Damanpur	736+270	
53	Firorpur		736+685
54	Amanabad		737+390
55	Allpur	737+520	
56	Chhatmi		737+580
57	Madanpur	738+24 0	
58	Danpitty		738+275
59	Tulsipur		738+580
60	Gaharpur	738+690	
61	Koulapur		739+598
62	Kathouta	740+045	
63	Jugan ka	740+447	
64	Railway Station		740+442
65	Juganka	740+447	
66	Gyan pur	741 +000	
67	Mirzapur		741 +01 0
68	Mirzapur		741 +415
69	Bikapur	741 +565	
70	Baresu		742+050
71	Carpet Company		742+737
72	Gopepur		743+235
73	Obeetee Pvt. Ltd	743+500	
74	Amwan		743+965
75	Lohra	744+257	
76	Mowan		744+320
77	Parwathpur	744+472	
78	Saripur	744+820	
79	Amwan		745+013
80	Madhopur	745+705	
81	Aimauhot		745+830
82	Madhopur	745+975	
83	Axanpur	746+320	
84	Koilara		746-r717
85	Koilara		746+953
86	Gyanpur	746+992	
87	Kamaria		747+400
88	Kaidara		748+030
89	Aourangabad	748+638	
90	Natwa		749+015
91	Natwa		749+425
92	Cimli	749+666	
93	Factory		750+320
94	Khamharia		750+499

Sr. No.	Description	Chainage (km)	
		Left	Right
95	Makuwa	751+408	
96	Laxmanadihwa Airport		751 +530
97	Airport	751+785	
98	Bhawanipur	752+070	
99	Ghosia	752+300	
100	Bhawanipur		752 +643
101	Maduosingh	753+685	
102	Bhadohi	754+441	
103	Mirzapur		754+441
104	Railway Station	755+875	
105	Kayarmau		756+041
106	Sarau	756+070	
107	Meduipur		757+130
108	Bansdevpir	757+275	
109	Matkipur		757+770
110	Tiwvi		758+155
111	Tiwvi		758+295
112	Banavli		758+847
113	Chakopur	759+370	
114	Bhogamn		759+728
115	Chouri	759+735	
116	Umrata	759+895	
117	Bakholi		760+543
118	I twan		761+245
119	Lilapur	761+482	
120	Vikrampur		761+720
121	Katka	762+015	
122	P atkhovli		762+275
123	Kach hwa		762+757
124	Girlbara	762+935	
125	Katka		764+670
126	Saripur	764+918	
127	Shivrampur	765+050	
128	Bihra	765+628	
129	Gudiya		766+030
130	Gudiya		766+632
131	Buhra	766+875	
132	Land	767+152	
133	Land		767 +152
134	Land	767 +172	
135	Jhawwa		767+900
136	Thathra	769+205	
137	Thathra	769+536	
138	Kaptitai	769+967	
139	Kaptitai		769 +967
140	Chitrasinpur	770+183	
141	Purey		770 +625
142	Banpur	771+342	
143	Cochana		771 +760
144	Bahanavar		772 +345
145	Rupapur		773+057

Sr. No.	Description	Chainage (km)	
		Left	Right
146	Khochwan	773+057	
147	Haliya		773+353
148	Danghariya		773+975
149	Mugalari		775+000
150	Rane		776+400
151	Rane	776+400	
152	Mirzapur		776+417
153	Pa rtappur		777+800
154	Karuthapur		778+727
155	Chanja	779+445	
156	Narayaanpur		779+582
157	Khajuri		780+278
158	Khajuri	780+278	
159	Saidapur	781+400	
160	Rakhauna		781 +943
161	Mediganj	782+630	
162	Bhikha rip ur		783+347
163	Rajatalab Village	783+810	
164	Jakhani		784+440
165	Kachnar		784+850
166	Vebhanpur	784+850	
167	Gangapur	784+215	

Figure 3-4 Photographs of Minor Intersection



km. 730+411



km. 749+015



km. 766+632



km. 783+347

3.7 Condition Survey of Bridges

The inventory of structures including major bridges, minor bridges, underpasses and culverts is presented in table as below:

Table 3-8 Summary of Structures

Type of Structure	Total Number of Structures
Major Structures:	
Road Over Bridge (ROB)	Nil
Elevated Structure	5
Flyover	03
Vehicular Underpass (VUP)	11
Pedestrian Underpass (PUP)	12
Foot Over Bridge	02
Major Bridges (MJB)	Nil
Minor Bridges (MNB)	03
Culverts:	
Pipe Culverts	15
Box Culverts	33
Slab culvert	1
Total	**85**

The detailed condition survey of structures was carried out by visual inspection. The observations and findings are presented in table below:

Table 3-9 Structure Condition Survey - Flyover

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	LHS	RHS	
1	754+441	Flyover 1 x 35	Age	New	New	The structure is in sound condition.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Single span (2x3 walls)	RCC Single span (2x3 walls)	
			Super Structure	04 Nos RCC Girder, RCC Slab	04 Nos RCC Girder, RCC Slab	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Mirzapur-Bhadoi Junction	Mirzapur-Bhadoi Junction	
			Parapet / Railing	RCC	RCC	
			Expansion Joint	Good	Good	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
2	769+967	Flyover 1 x 35	Age	New	New	The structure is in sound condition.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Single span (2x3 walls)	RCC Single span (2x3 walls)	
			Super Structure	04 Nos RCC Girder, RCC Slab	04 Nos RCC Girder, RCC Slab	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Mirzapur Road Junction	Mirzapur Road Junction	
			Parapet / Railing	RCC	RCC	
			Expansion Joint	Good	Good	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
3	784+297	Flyover 4 x 30	Age	New	New	The structure is in sound condition.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC, 3 Piers (3x3 walls), 2 Abutments (2x3 walls)	RCC, 3 Piers (3x3 walls), 2 Abutments (2x3 walls)	

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	LHS	RHS	
			Super Structure	04 Nos RCC Girder in each span, RCC Slab	04 Nos RCC Girder in each span, RCC Slab	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Raja Talab Village	Raja Talab Village	
			Parapet / Railing	RCC	RCC	
			Expansion Joint	Good	Good	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	

Figure 3-5 Photographs of Flyover



km. 754+441



km. 754+441



km. 754+441



km. 769+967



km. 769+967



km. 769+967



km. 784+297



km. 784+297



km. 784+297

Table 3-10 Structure Condition Survey - Elevated Structure

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	LHS	RHS	
1	713+397 to 715+797, Total Length 2400m.	Elevated Structure-01 60 x 40	Age	New		The structure is in sound condition.
			Foundation	RCC		
			Sub structure Abutment / Pier	RCC, 59 Piers, 2 Abutments		
			Super Structure	Precast Segment + Wings		
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Handia Town		
			Parapet / Railing	RCC	RCC	
			Expansion Joint	Good	Good	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
2	722+085 to 723+845, Total Length 1760m.	Elevated Structure-02 44 x 40	Age	New		The structure is in sound condition.
			Foundation	RCC		
			Sub structure Abutment / Pier	RCC, 43 Piers, 2 Abutments		
			Super Structure	Precast Segment + Wings		
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Baraut Town		
			Parapet / Railing	RCC	RCC	
			Expansion Joint	Good	Good	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
3	725+650 to 727+140, Total Length 1490m.	Elevated Structure-03 03 x 30 + 35 x 40	Age	New		The structure is in sound condition.
			Foundation	RCC		
			Sub structure Abutment / Pier	RCC, 37 Piers, 2 Abutments		
			Super Structure	Precast Segment + Wings		
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Bhitti Town		
			Parapet / Railing	RCC	RCC	
			Expansion Joint	Good	Good	

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	LHS	RHS	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
4	740+303 to 742+423, Total Length 2120m	Elevated Structure-04 53 x 40	Age	New		The structure is in sound condition.
			Foundation	RCC		
			Sub structure Abutment / Pier	RCC, 52 Piers, 2 Abutments		
			Super Structure	Precast Segment + Wings		
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Gopigunj Town		
			Parapet / Railing	RCC	RCC	
			Expansion Joint	Good	Good	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
5	776+086 to 777+386, Total Length 1300m.	Elevated Structure-05 02 x 30 + 31 x 40	Age	New		The structure is in sound condition.
			Foundation	RCC		
			Sub structure Abutment / Pier	RCC, 32 Piers, 2 Abutments		
			Super Structure	Precast Segment + Wings		
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Mirzamurad Town		
			Parapet / Railing	RCC	RCC	
			Expansion Joint	Good	Good	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	

Figure 3-6 Photographs of Elevated Structure


km. 713+397 to km. 715+797


km. 713+397 to km. 715+797



km. 713+397 to km. 715+797


km. 713+397 to km. 715+797


km. 713+397 to km. 715+797


km. 713+397 to km. 715+797



km. 713+397 to km. 715+797



km. 713+397 to km. 715+797



km. 713+397 to km. 715+797



km. 713+397 to km. 715+797



km. 713+397 to km. 715+797



km. 713+397 to km. 715+797


km. 722+085 to km. 723+845


km. 722+085 to km. 723+845


km. 722+085 to km. 723+845


km. 722+085 to km. 723+845


km. 722+085 to km. 723+845


km. 722+085 to km. 723+845



km. 722+085 to km. 723+845



km. 722+085 to km. 723+845



km. 722+085 to km. 723+845



km. 722+085 to km. 723+845



km. 722+085 to km. 723+845



km. 722+085 to km. 723+845


km. 725+650 to km. 727+140


km. 725+650 to km. 727+140


km. 725+650 to km. 727+140


km. 725+650 to km. 727+140


km. 725+650 to km. 727+140


km. 725+650 to km. 727+140



km. 725+650 to km. 727+140



km. 725+650 to km. 727+140



km. 725+650 to km. 727+140



km. 725+650 to km. 727+140



km. 725+650 to km. 727+140



km. 725+650 to km. 727+140


km. 740+303 to km. 742+423


km. 740+303 to km. 742+423


km. 740+303 to km. 742+423


km. 740+303 to km. 742+423



km. 740+303 to km. 742+423



km. 740+303 to km. 742+423



km. 740+303 to km. 742+423



km. 740+303 to km. 742+423



km. 740+303 to km. 742+423



km. 740+303 to km. 742+423



km. 740+303 to km. 742+423



km. 740+303 to km. 742+423


km. 776+086 to km. 777+386


km. 776+086 to km. 777+386


km. 776+086 to km. 777+386


km. 776+086 to km. 777+386


km. 776+086 to km. 777+386


km. 776+086 to km. 777+386


km. 776+086 to km. 777+386


km. 776+086 to km. 777+386


km. 776+086 to km. 777+386


km. 776+086 to km. 777+386



km. 776+086 to km. 777+386


km. 776+086 to km. 777+386

Table 3-11 Structure Condition Survey - Minor Bridge

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	LHS	RHS	
1	722+035	Minor Bridge 3 x 3.5	Age	New	New	The structure is in sound condition.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	Stone Pitching	Stone Pitching	
			Nalla Bed	Riverbed	Riverbed	
			Parapet / Railing	RCC	RCC	
			Expansion Joint	NA	NA	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
2	730+411	Minor Bridge 3 x 8.5	Age	New	New	The structure is in sound condition.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	Stone Pitching	Stone Pitching	
			Nalla Bed	Riverbed	Riverbed	
			Parapet / Railing	RCC	RCC	
			Expansion Joint	NA	NA	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
3	767+162	Minor Bridge 3 x 3.0	Age	New	New	The structure is in sound condition.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	Stone Pitching	Stone Pitching	
			Nalla Bed	Riverbed	Riverbed	
			Parapet / Railing	RCC	RCC	
			Expansion Joint	NA	NA	

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	LHS	RHS	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	

Figure 3-7 Photographs of Minor Bridge



km. 722+035



km. 730+411



km. 767+162

Table 3-12 Structure Condition Survey - Vehicular underpass

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	LHS	RHS	
1	729+655	Vehicular Underpass 1 x 12	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
2	731+497	Vehicular Underpass 1 x 12	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
3	734+175	Vehicular Underpass 1 x 12	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	LHS	RHS	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
4	738+275	Vehicular Underpass 1 x 12	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
5	744+820	Vehicular Underpass 1 x 12	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
6	750+499	Vehicular Underpass 1 x 12	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	LHS	RHS	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
7	759+728	Vehicular Underpass 1 x 12	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
8	762+746	Vehicular Underpass 1 x 12	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
9	765+050	Vehicular Underpass 1 x 12	Age	New	New	The condition of the
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Super Structure	RCC Box	RCC Box	structure is good.
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
10	773+057	Vehicular Underpass 1 x 12	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
11	780+278	Vehicular Underpass 1 x 12				De-scoped.

Figure 3-8 Photographs of Vehicular Underpass



km. 729+655



km. 729+655



km. 729+655



km. 731+497



km. 731+497



km. 731+497



km. 734+175



km. 734+175



km. 734+175



km. 738+275



km. 738+275



km. 738+275



km. 744+820



km. 744+820



km. 744+820



km. 750+499



km. 750+499



km. 750+499



km. 759+700



km. 759+700



km. 759+700



km. 762+746



km. 762+746



km. 762+746


km. 765+050


km. 765+050



km. 765+050


km. 773+057


km. 773+057


km. 773+057

Table 3-13 Structure Condition Survey - Pedestrian underpass

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	LHS	RHS	
1	717+749	Pedestrian Underpass 1 x 7	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
2	719+474	Pedestrian Underpass 1 x 7	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
3	721+225	Pedestrian Underpass 1 x 7	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	LHS	RHS	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
4	728+845	Pedestrian Underpass 1 x 7	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
5	736+420	Pedestrian Underpass 1 x 7	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
6	749+425	Pedestrian Underpass 1 x 7	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	LHS	RHS	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
7	752+643	Pedestrian Underpass 1 x 7	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
8	756+070	Pedestrian Underpass 1 x 7	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
9	757+770	Pedestrian Underpass 1 x 7	Age	New	New	The condition of
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	LHS	RHS	
			Super Structure	RCC Box	RCC Box	the structure is good.
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
10	761+720	Pedestrian Underpass 1 x 7	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
11	767+903	Pedestrian Underpass 1 x 7	Age	New	New	The condition of the structure is good.
			Foundation	RCC	RCC	
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	
12	779+445		Age	New	New	

Sr. No.	Chainage (km)	Type of Bridge / Spans (m)	Features and Observation			General Comments
			Component	LHS	RHS	
		Pedestrian Underpass 1 x 7	Foundation	RCC	RCC	The condition of the structure is good.
			Sub structure Abutment / Pier	RCC Box	RCC Box	
			Super Structure	RCC Box	RCC Box	
			Slope Protection	RE Walls	RE Walls	
			Nalla Bed	Village Road, Minor Junctions	Village Road, Minor Junctions	
			Parapet / Railing	RCC	RCC	
			Wearing Coat / Surface	BC, fair condition	BC, fair condition	
			Approach Slope	Stable	Stable	
			Drainage	Good	Good	

Figure 3-9 Photographs of Pedestrian Underpass



km. 717+749



km. 717+749



km. 717+749



km. 719+474



km. 719+474



km. 721+225



km. 721+225



km. 728+845



km. 736+420



km. 749+425



km. 749+425



km. 752+643



km. 752+643



km. 756+070



km. 757+770



km. 757+770



km. 761+720



km. 761+720



km. 761+720



km. 767+903



km. 767+903



km. 779+445



km. 779+445



km. 779+445

3.8 Condition Survey of Culverts

The cross-drainage structure includes hume pipe culverts and box culverts at various locations. There are 15 Nos. of pipe culverts, 34 Nos. of box culverts along the project road. The height of culvert varies from 1.0 m to 3.0 m from bed level. During the condition survey of structure, these culverts were inspected on sample basis.

The project involves strengthening and widening of existing road to six lane divided carriageway. The culverts beneath existing alignment are either widened or reconstructed. The structural condition of culverts is generally found to be in sound condition. The quality of surface concrete of box culverts is satisfactory. The RCC parapet, metal beam crash barrier or RCC railing has been provided at culvert locations, which is maintained properly.

Vegetation growth and accumulation of debris at waterway is being removed and cleaned by the Concessionaire on regular basis.

Table 3-14 Condition Survey - Box Culvert

Sr. No.	Chainage (km)	Type of Structure	Span Arrangement	Length (m)		Clear vent way		Invert Level	Remarks
				LHS	RHS	Width (m)	Height (m)		
1	716+397	RCC Box	1 x 3.0	12.400	12.600	3.070	2.550	97.9	The culverts are in sound condition. As informed, vegetation is being cleaned on regular basis.
2	724+843	RCC Box	1 x 2.0	14.300	14.500	2.150	1.930	97.09	
3	727+013	RCC Box	1 x 5.0	2.000	2.000	5.000	3.400	95.640	
4	731+244	RCC Box	1 x 1.9	23.400	23.400	2.000	2.500	95.854	
5	734+729	Slab Culvert	1 x 5.5	6.500	12.000	3.750	2.820	92.81	
6	734+871	RCC Box	1 x 2.0	15.030	12.000	1.950	2.800	93.26	
7	739+137	RCC Box	1 x 3.0	11.850	12.500	2.000	2.150	93.4	
8	743+339	RCC Box	1 x 1.0	12.600	11.800	1.000	1.150	94.02	
9	748+851	RCC Box	1 x 3.75	12.900	11.500	4.230	2.280	93.9	
10	751+756	RCC Box	1 x 1.0	13.000	12.135	1.300	1.130	94.090	
11	753+647	RCC Box	1 x 2.0	6.680	6.770	2.000	1.690	94.24	
12	760+900	RCC Box	1 x 2.0	12.810	13.120	2.000	1.800	92.57	
13	765+726	RCC Box	1 x 4.5	12.370	12.435	4.500	3.700	91.85	
14	775+078	RCC Box	1 x 3.0	7.900	7.730	3.000	2.400	90.63	
15	782+674	RCC Box	1 x 2.0	12.850	13.000	2.450	1.740	88.84	
16	783+455	RCC Box	1 x 3.0	13.450	13.850	3.000	2.100	89.242	
17	720+995	RCC Box	1 x 3.0	23.340	23.340	3.000	2.600	95.320	
18	729+112	RCC Box	1 x 2.0	23.340	23.340	2.000	2.300	95.701	
19	736+420	RCC Box	1 x 5.0	22.090	22.090	5.000	3.500	91.313	
20	742+647	RCC Box	1 x 4.0	21.775	21.775	4.000	2.600	92.011	
21	750+619	RCC Box	1 x 3.85	20.900	20.900	3.850	2.900	92.33	
22	759+473	RCC Box	1 x 3.0	23.340	23.340	3.000	3.800	88.690	
23	761+850	RCC Box	1 x 2.0	21.840	21.840	2.000	1.500	90.67	
24	764+911	RCC Box	1 x 1.0	23.340	23.340	1.000	2.250	90.198	
25	770+138	RCC Box	1 x 2.0	23.340	23.340	2.000	2.300	89.48	
26	777+476	RCC Box	1 x 4.0	21.775	21.775	4.000	3.480	87.94	
27	778+164	RCC Box	1 x 1.0	24.500	24.500	1.000	1.480	89.18	
28	784+312	RCC Box	1 x 1.25	23.340	23.340	1.250	2.280	87.92	
29	713+049	RCC Box	1 x 5.0	21.775	21.775	5.000	2.480	96.189	
30	724+275	RCC Box	2 x 2.0	21.715	21.715	2.000	1.500	96.872	

Sr. No.	Chainage (km)	Type of Structure	Span Arrangement	Length (m)		Clear vent way		Invert Level	Remarks
				LHS	RHS	Width (m)	Height (m)		
31	717+146	RCC Box	2 x 2.0	24.250	24.250	2.000	1.500	98.628	
32	764+485	RCC Box	2 x 2.0	24.250	24.250	2.000	1.500	97.528	
33	714+849	RCC Box	1 x 1.85						
34	722+428	RCC Box	1 x 2.0						

Table 3-15 Condition Survey - Pipe Culvert

Sr. No.	Chainage	Dia of pipe in mm	No. of ROW	Length in Mts.	Invert Level		Remarks
					LHS	RHS	
1	716+590	1200	1	23.800	98.553	98.441	The culverts are in sound condition. As informed, vegetation is being cleaned on regular basis.
2	718+733	1200	1	20.000	96.558	96.589	
3	719+364	1200	1	20.000	96.601	96.523	
4	728+100	1200	1	28.000	96.053	96.156	
5	733+378	1200	2	25.000	95.379	95.329	
6	733+727	1200	2	25.000	94.439	94.369	
7	745+018	1200	1	20.000	94.288	94.342	
8	749+247	1200	1	35.000	89.825	89.849	
9	751+142	1200	1	24.000	92.321	91.930	
10	761+343	1200	1	22.400	90.952	90.804	
11	768+294	1200	3	21.440	89.825	89.849	
12	713+892	1000	2				
13	723+733	1000	1				
14	726+020	1000	2				
15	740+608	1000	1				

Figure 3-10 Photographs of Culverts



km. 783+455



km. 775+100



km. 765+700



km. 764 +900



km. 764 + 485



km. 759 + 473



km. 748 +851



km. 736 + 400



km. 718+737(pipe)



km. 739 + 600

Table 3-16 Condition Survey - Foot Over Bridge (FOB)

Sr. No.	Chainage (km)	Type of Structure	Length (m)	Clear vent way		Remarks
				Width (m)	Vertical clearance (m)	
1	771+765	FOB	60.0	3.000	5.50	Structure is in sound condition
2	781+937	FOB	60.0	3.000	5.50	Structure is in sound condition

Figure 3-11 Photographs of Foot Over Bridge



FOB at km. 771+765



FOB at km. 781+937



FOB at km. 781+937

3.9 Drainage System

There are RCC box drains at the built-up areas and RCC open drain at rural areas provided for the project highway. Lined median longitudinal drain is provided at super-elevated sections. The roadside drainage along the project highway including median portion needs to be maintained by cleaning debris on regular basis. Some of the photographs of the drains provided are presented as below.

Figure 3-12 Photographs of Drain



RCC Open Drain at km. 762+000



Drain at Service Road at km. 757+200

3.10 Road Furniture

Pavement Marking

Pavement marking for the project highway is done as per the design standards indicated in section 12 of Schedule-D. The painting is being done wherever is required on regular basis including the pavement marking where recently overlaid at the time of routine maintenance. Some of the photographs of road marking are presented below.

Figure 3-13 Photographs of Road Markings



Road Marking to be done at km. 779+850



Road Marking at km. 761+200.

Traffic Signage

Traffic signs includes roadside signs, overhead signs, kerb mounted signs and median signs along the project highway. The design for the traffic signs along the project highway is done as per the design standards indicated in section 11 of Schedule-D.

The height, lateral clearance, location and installation are as per relevant clauses of Schedule 'D'. Overhead sign has been installed ahead of major intersections, toll plazas, start / end of project highway and urban areas as per detailed design requirements.

The sign boards, kilometer stones and hectometer stones are being replaced wherever damaged.

Some of the photographs of sign boards are presented below.

Figure 3-14 Photographs of Road Sign Boards



Overhead Gantry Sign at km. 785+040



Cantilever Gantry Sign at km. 782+500



Sign Board at km. 767+100.



Cantilever Gantry Sign at km. 713+000.



Km Stone at km. 776+000



Km Stone at km. 751+000

Highway Lighting

Highway lighting is provided at underpasses, flyovers, truck lay-byes, toll plaza and built-up locations. High mast lighting is provided at toll plaza location.

At underpass and flyover locations, highway lighting is provided at the structure locations and at its approaches.

Solar amber blinker signals are provided at each at-grade intersections and at median opening locations. These lights are properly maintained and are in good working condition. Regular maintenance work is carried out to ensure their efficient operation. Some of the photographs of highway lightings are presented below.

Figure 3-15 Photographs of Highway Lighting



Highway Lighting at km. 773+100



Highway Lighting at km. 740+300



LED Blinker at km. 741+010



LED Blinker at km. 754+441

Crash Barriers

Metal beam crash barriers are provided at bridge approaches, in between main road and service road locations. All the crash barriers provided by the Concessionaire are well maintained at site. Some of the photographs of metal beam crash barriers are presented below.

Figure 3-16 Photographs of Crash Barriers



Crash Barrier at km. 785+240



Crash Barrier at km. 782+000

Pedestrian Guard Rail

The pedestrian guard rails are provided between main road and truck lay bye locations. Some of the photographs of pedestrian guard rails are presented below.

Figure 3-17 Photographs of Pedestrian Guard Rail



Pedestrian Guard Rail at km. 727+900



Pedestrian Guard Rail at km.766+600

3.11 Median Plantation

Median Plantation is available intermittently along the project highway. Variety of trees and plants are planted throughout the corridor at median side. Median plantation is maintained along the project highway. The plantation is being done wherever required on regular basis. Some of the photographs of avenue plantation and median plantation are presented below.

Figure 3-18 Photographs of Median Plantation



Median Plantation at km. 752+000



Median Plantation at km. 732+000

3.12 Project Facilities

Toll Plaza

The Concession Agreement requires construction of Toll Plaza in a staggered manner. Accordingly, Concessionaire has constructed Toll Plaza at following locations.

1. Toll Plaza-1 at km. 747+581 (LHS) and at km. 747+822 (RHS)

The construction of toll plaza is completed and is in operational. Each direction of toll plaza has 7 No. of toll lane and all are under operation. Concessionaire has constructed administration, operation and maintenance facility at toll plaza. All required facilities are available at the toll plaza. Some of the photographs of toll plaza are presented below.

Figure 3-19 Photographs at Toll Plaza



Toll Plaza including Admin Building at km. 747+581



Toll Plaza including Admin Building at km. 747+822



Weigh-in-Motion



Ambulance at Toll Plaza



Toll Signal light



Toilet Block at Toll Plaza

Truck Lay Byes

Concession Agreement has proposed construction of truck lay-byes at 4 Nos. of locations. The work is completed as per requirement of Concession Agreement. Truck lay byes are provided at the following locations.

Figure 3-20 Photographs at Truck Lay Bye



Truck Lay Bye at km. 727+900



Truck Lay Bye at km. 767+330

Table 3-17 Details of Truck Lay-Byes

Sr. No.	Location (km)	Side
1	727+900	RHS
2	728+200	LHS
3	766+600	RHS
4	767+330	LHS

Bus Bay and Passenger Shelter

Bus Bays and passenger shelters are constructed at the various locations along the project highway. 15 Nos. of bus bays with passenger shelters are provided with project highway and 21 Nos. of passenger shelters are provided along project highway. Bus bays are equipped with all necessary signage as per relevant IRC guidelines mentioned in Schedule-D of Concession Agreement. The details of the bus bays and passenger shelters provided are as tabulated below.

Table 3-18 Details of Bus Bays along Project Highway

Sr. No.	Chainage (km)	Side	Remarks
1	713+200	LHS	Bus bay with Bus shelter
2	713+200	RHS	Bus bay with Bus shelter
3	716+120	LHS	Bus shelter
4	716+120	RHS	Bus shelter
5	721+880	LHS	Bus bay with Bus shelter
6	721+880	RHS	Bus bay with Bus shelter
7	724+460	LHS	Bus bay with Bus shelter
8	724+460	RHS	Bus bay with Bus shelter
9	728+605	LHS	Bus bay with Bus shelter
10	728+655	RHS	Bus bay with Bus shelter

Sr. No.	Chainage (km)	Side	Remarks
11	732+480	LHS	Bus bay with Bus shelter
12	732+497	RHS	Bus bay with Bus shelter
13	733+815	RHS	Bus bay with Bus shelter
14	733+900	LHS	Bus bay with Bus shelter
15	736+100	LHS	Bus bay with Bus shelter
16	736+100	RHS	Bus bay with Bus shelter
17	739+395	LHS	Bus shelter
18	739+420	RHS	Bus shelter
19	742+700	RHS	Bus shelter
20	743+100	LHS	Bus shelter
21	749+575	LHS	Bus shelter
22	750+225	RHS	Bus bay with Bus shelter
23	753+885	LHS	Bus shelter
24	753+885	RHS	Bus shelter
25	760+030	LHS	Bus shelter
26	760+030	RHS	Bus shelter
27	764+770	LHS	Bus shelter
28	764+770	RHS	Bus shelter
29	766+420	LHS	Bus shelter
30	768+420	RHS	Bus shelter
31	770+550	LHS	Bus shelter
32	770+700	RHS	Bus shelter
33	775+900	RHS	Bus shelter
34	775+900	LHS	Bus shelter
35	784+880	LHS	Bus shelter
36	785+020	RHS	Bus shelter

Figure 3-21 Photographs of Bus Bay



Bus Shelter at km. 775 + 900



Bus Shelter at km. 767+915



Bus Shelter



Bus Bay and Bus Shelter

Toilet Block

Toilet block are provided at following locations.

Sr. No.	Chainage (km)	Location	Side	Location
1	713+260	Handia	RHS	Toilet Block, Bus Shelter
2	713+270	Handia	LHS	Toilet Block, Bus Shelter
3	715+930	Handia	LHS	Toilet Block, Bus Shelter
4	716+120	Handia	RHS	Toilet Block, Bus Shelter
5	721+910	Baraut	LHS	Toilet Block, Bus Shelter
6	721+880	Baraut	RHS	Toilet Block, Bus Shelter
7	728+660	Unj Thana	RHS	Toilet Block, Bus Shelter
8	732+500	Vahida	RHS	Toilet Block, Bus Shelter
9	732+500	Vahida	LHS	Toilet Block, Bus Shelter
10	733+900	Jangiganj	RHS	Toilet Block, Bus Shelter
11	742+810	Gopiganj	RHS	Toilet Block, Bus Shelter
12	747+900	Toll Plaza	RHS	Toilet Block, Bus Shelter
13	747+900	Toll Plaza	LHS	Toilet Block,
14	750+200	Madhosingh	RHS	Toilet Block, Bus Shelter
15	753+885	Auarai	LHS	Toilet Block, Bus Shelter
16	754+130	Auarai	RHS	Toilet Block, Bus Shelter
17	760+080	Maharajganj	LHS	Toilet Block, Bus Shelter
18	764+770	Babusaray	RHS	Toilet Block,
19	768+420	Thathara	RHS	Toilet Block, Bus Shelter
20	770+750	Kachhwa	RHS	Toilet Block, Bus Shelter
21	775+900	Mirzamurad	RHS	Toilet Block, Bus Shelter
22	775+910	Mirzamurad	LHS	Toilet Block, Bus Shelter

Figure 3-22 Photographs of Toilet Block



Toilet Block at km. 764+770



Toilet Block at km. 768+420



Toilet Block at km. 754+130



Toilet Block at km. 775+910

Rest Area

Rest Areas are provided at following locations.

Sr. No	Chainage (km)	Location	Side	Location
1	727+800	Bheetee	RHS	Rest Area
2	766+320	Bihada	LHS	Rest Area
3	767+500	Bihada	RHS	Rest Area

Figure 3-23 Photographs of Rest Area



Rest Area at km. 727+800



Rest Area at km. 767+500

4 PAVEMENT AND SITE INVESTIGATION

4.1 General

The project has been developed through Public Private Partnership (PPP) on Hybrid (Annuity) mode basis. The concession period of the project is 17.5 years including 2.5 years (910 days) of construction period.

The Provisional Completion Certificate (PCOD) for the length of 72.644 kms has been received on 2nd November 2020. The project is currently under O&M stage. The Operation and Maintenance period of the project highway is 15 years from Provisional Completion Certificate (PCOD).

4.2 Details of As-built Pavement

The project highway comprises of rigid pavement (42.842 kms out of 72.644 kms) and flexible pavement (9.456 kms out of 72.644 kms) and combined pavement (one side flexible pavement and another side rigid pavement) (20.346 kms out of 72.644 kms) on main carriageway. The details of the as-built pavement crust from pavement design report as submitted by the Company has been tabulated as below:

The rigid pavement is designed for the design life of 30 years and 8% CBR with specifications as per IRC:58-2015.

Table 4-1 Rigid Pavement Details

Sr. No.	Location	Panel Size (m)	Crust	Dowel bar	Tie bar
1	Main Carriageway (3rd lane in Widening on either side	4.5 x 4	PQC - 310 mm DLC - 150 mm GSB - 150 mm	36 mm dia. Spacing - 300 mm, Length - 450 mm	12 mm dia. Spacing - 500 mm, Length - 640 mm
2		4.5 x 4.5			12 mm dia. Spacing - 450 mm, Length - 640 mm
3	Slip Road along Elevated Structure	4.5 x 2.5	PQC - 270 mm DLC - 150 mm GSB - 150 mm	32 mm dia. Spacing -300 mm, Length -450 mm	12 mm dia. Spacing - 720 mm, Length - 640 mm

The flexible pavement is designed for the design life of 15 years, design traffic of 95 MSA and 8% CBR as per specifications of IRC:37-2012.

The flexible pavement is designed as stage construction. The 1st stage is designed for a period from year 2021 to year 2026 and 2nd stage will be designed for a period from year 2027 to year 2035 using FWD method of deflection measurement or any other suitable technique prevailing at that time.

The details of as built flexible pavement as per Stage-I is given below:

Table 4-2 Flexible Pavement Details

Location	Crust Composition	Thickness at widening section (mm)
Main Carriageway 3rd lane in Widening on either side)	BC (VG-40)	50 mm
	DBM (VG-40)	100 mm
	WMM	250 mm
	GSB	200 mm
Main Carriageway at the Approach of the Structure	BC (VG-40)	50 mm
	DBM (VG-40)	65 mm
	WMM	250 mm
	GSB	200 mm

The service / slip road pavement is designed for the design life of 15 years for design traffic of 10 MSA and 8% CBR as per specifications of IRC:37-2012.

Table 4-3 Service / Slip Road Pavement Details

Location	Crust Composition	Thickness (mm)
Service Roads and Slip Road (excluding Elevated structure and Flyovers)	BC (VG-30)	40 mm
	DBM (VG-30)	60 mm
	WMM	200 mm
	GSB	200 mm

4.3 Surveys and Investigation

4.3.1 Pavement Condition Survey

Pavement condition survey was carried out from **7th August to 9th August 2022** through visual inspection for the entire project length. The details of the visual condition survey are provided in **Annexure-IV.**

The summary of pavement condition based on the visual inspection is tabulated below.

Table 4-4 Summary of Pavement Condition

Design Chainage (km)		Length (km)	Visual Condition (As per IRC:115-2014)	
From	To		LHS Carriageway	RHS Carriageway
712.900	715.000	2.100	Good	Good
715.000	720.000	5.000	Good/fair	Good
720.000	725.000	5.000	Good/fair	Good
725.000	730.000	5.000	Good/fair	Good
730.000	735.000	5.000	Good/fair	Good
735.000	740.000	5.000	Good/fair	Good
740.000	745.000	5.000	Good/fair	Good
745.000	750.000	5.000	Good/fair	Good
750.000	755.000	5.000	Good/fair	Good
755.000	760.000	5.000	Good/fair	Good
760.000	765.000	5.000	Good/fair	Good
765.000	770.000	5.000	Good/fair	Good
770.000	775.000	5.000	Good/fair	Good/fair
775.000	780.000	5.000	Good/fair	Good
780.000	785.544	5.544	Good/fair	Good/fair

Observation and Conclusion:

From the above table, it is observed that the overall pavement condition for the entire project stretch is found to be Good / Fair.

Following Photographs were taken at the time of visual pavement condition survey.

Figure 4-1 Photographs of Pavement Condition Survey



Pavement Condition at km. 785+200 (RHS)



Pavement Condition at km. 785+650 (RHS)



Pavement Condition at km. 782+500 (RHS)



Pavement Condition at km. 779+600 (RHS)



Pavement Condition at km. 765+100 (RHS)



Pavement Condition at km. 722+100 (RHS)

4.3.2 Roughness Index test

Prior period report for the Roughness Index Test conducted by **Aadharshila Infratech Pvt. Ltd.** Dated **21st and 22nd January 2022** has been provided by the Concessionaire. This test was done using Car Mounted Bump Integrator to assess the riding quality on each direction (each lane) of the carriageway of project highway.

As per IRC:SP:16-2019, condition of pavement is categorised under:

Table 4-5 Maximum Permissible Values of Roughness (BI Value - mm / km)

Sr. No.	Roughness Range (m/km)	Severity	Inner Lane (Lane-1) LHS Length (km)	Divided Lane 1 (Lane-2) LHS (Length in Km)	Outer Lane (Lane-3) LHS Length (km)	Inner Lane (Lane-1) RHS Length (km)	Divided Lane 1 (Lane-2) RHS (Length in Km)	Outer Lane (Lane-3) RHS Length (km)
1	Less than 2.81	Good	50.100	48.200	71.944	63.944	63.844	72.444
2	2.81-3.30	Fair	22.544	24.444	0.700	8.700	8.800	0.200
3	More Than	Poor	-		-	-		-

TDD Consultant's Observations:

TDD Consultants have visited the project site to understand the status of project under O&M stage. Observations during site visit are as presented below:

1. At few locations hair cracks have developed in main carriageway.
2. Service road & main carriageway has been maintained as per O&M Agreement. At few locations BC overlay has done at distressed locations.
3. The PQC cracks have been filled with the suitable materials.
4. Thermoplastic paint on main carriageway and service road has faded at some locations.
5. At several places, unauthorized access has made by the locals which is being closed by the Concessionaire.
6. At many locations, MBCB has broken. The Concessionaire is maintaining the rectification on daily basis.

7. At few locations, cover of drain has cracks which needs to be rectified.
8. It has been observed visually that overall condition of all structures is good. However, vegetation, bushes and waterway need to be cleaned in minor bridges, pipe & box culverts as well as chute drain need to be cleaned from debris / vegetation.

However, the Concessionaire is repairing / rectifying the damaged portion on regular basis as a part of routine maintenance.

5 BALANCE WORKS

The project has received Provisional Completion Certificate (PCOD) on 02nd November 2020 with minor balance works to be executed. As informed by the Concessionaire, 125 m of service road and 385 m of RCC drain, 6 Nos. of bus bays, 16 Nos. toilet blocks, 1 No. of rest area at truck lay-bye location is pending. The balance work is pending due to non availability of required land.

As informed by the Concessionaire, an amount of Rs. 4.88 Crores of work is balance at Site.

6 REVIEW OF CONCESSION AGREEMENT

6.1 General

The National Highways Authority of India (NHAI) in accordance with the statutory powers vested on it by the Government of India has entered into a Concession Agreement with the M/s. Varanasi Sangam Expressway Private Limited, a Special Purpose Vehicle (SPV) formed for implementing this project, a company incorporated under Indian Companies Act, 2013 for Design, Engineering, Construction, Development, Operation and Maintenance of the 6-Laning of Handia Varanasi Section of NH-2 from km. 713+416 to km. 785+544 in the State of Uttar Pradesh. The project is to be developed on Design, Build, Operate and Transfer on DBOT Annuity basis.

6.2 Specific Comments on Articles

We have reviewed the provisions under various clauses of the Agreement concerned with post construction period. Our specific comments are indicated below clause-wise.

Sr. No.	Article and Clause No.	Description in brief	Remark
1	Definitions O&M	O&M means the operation and maintenance With provision of this Agreement.	The Operation and Maintenance is defined.
2	Definitions O&M	"O&M Expenses" means expenses incurred by the concessionaire, O&M Contractor or on behalf of the Concessionaire or by the Authority, as the case may be, for all 0&M including (a) cost of salaries and other compensation to employees, [b] cost of materials, supplies, utilities and other services, (c) premier for insurance, (d) all taxes, duties, cess and fees due and payable for O&M, (e) all repair, replacement, reconstruction, reinstatement, improvement and maintenance costs, if payments required to be made under the O&M Agreement or any other contract in connection with or incidental to 0&M, and is) all other expenditure required to be incurred under Applicable Laws, Applicable Permits or this Agreement.	The items which include the expenses is explained.
3	Article 2 Scope of Project	2.1 Scope of Project The scope oi the Project [the "Scope of the Project") shall mean and include during Concession Period: (b) operation and maintenance of-the Project in accordance with the provisions of this Agreement	The O&M of road after COD is in scope of Concessionaire as per specifications & standards of Agreement.
4	Article 3 Grant of Concession	3.1 The Concession 3.1.1 Subject to and in accordance with the provisions of this Agreement, Applicable laws and Applicable Permits, the Authority hereby grants to the Concessionaire the forth herein including the exclusive right, license and	The construction period is 910 days and the O&M period is 15 years from COD.

Sr. No.	Article and Clause No.	Description in brief	Remark
		authority to construct, operate and maintain the Project (the "Concession" during the Construction Period of 910 (nine hundred and tenth day) days and Operation Period of 15 [Fifteen] years commencing from COD, and the Concessionaire hereby accepts the Concession and agrees to implement the Project subject to and in accordance with the terms and conditions set forth herein.	
5	Article 5 Clause 5.3 Obligations relating to Change in owner	5.3.1 The Concessionaire shall not undertake or permit any Change in Ownership, except with the prior written approval of the Authority.	The risk and safety of Authority and Lender is covered.
6	Article 8 Disclaimer	Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Concessionaire and the Authority shall not be liable in any manner for such risks or the consequences thereof.	All risk in project is of Concessionaire and its consequences.
7	Article 9 Performance Security	9.1.1 The Concessionaire shall for the performance of its obligations hereunder, provide to the Authority no later than 30 (thirty) days from the date of this Agreement, an irrevocable and unconditional guarantee from a Bank for Sum equivalent to Rs 122.35 crore (Rupees one hundred twenty-two crore and thirty-five lakh only) in the form set forth in Schedule-F (the "Performance Security").	The Concessionaire has to work and perform as per Agreement to protect the Performance Security.
8	Article 17 Clause 17.1 O&M Obligations of the Concessionaire	17.1.1 During the Operation Period, the Concessionaire shall operate and maintain the Project in accordance with this Agreement either by Itself, or through the O&M Contractor and if required, modify, repair or otherwise make improvements to the Project to comply with the previsions of this Agreement, Applicable Laws and Applicable Permits, and conform to Specifications and Standards and Good Industry Practice. The obligations of the Concessionaire hereunder shall include: (a) Procuring and ensuring safe. smooth and uninterrupted use of the Project, including prevention of loss or damage thereto, during normal operating conditions; (b) Minimizing disruption in the event of accidents or other incidents affecting the safety and use of the Project by providing a rapid and effective response and maintaining liaison with emergency services of the State; (c) Carrying out periodic preventive maintenance of the Project;	The responsibility of O&M is of Concessionaire as per provision of Agreement, standards and specifications. The Concessionaire has to take care of safety. Routine periodically major maintenance is in scope.

Sr. No.	Article and Clause No.	Description in brief	Remark
		(d) undertaking routine maintenance including prompt repairs of potholes, cracks, joints, drains, embankments, structures, markings, lighting, signage and other control devices (e) Undertaking major maintenance such as resurfacing, repairs to structures, and repairs and refurbishment of system and equipment;	
9	Article 17 Clause 17.4 Maintenance Program	17.4.1 On or before COD and no later than 45 (forty live) days prior to the beginning of each Accounting Year during the Operation Period, as the case may be, the Concessionaire shall provide to the Authority and the independent Engineer, its. proposed annual program of preventive, urgent and other scheduled maintenance [the “Maintenance Program") to comply with the Maintenance Requirements, Maintenance Manual and Safety Requirements.	The Concessionaire has to work as per approved maintenance program for O&M works in operation period.
10	Article 17 Clause 17.5 Safety, breakdowns and accidents	The Concessionaire shall ensure sale conditions for the Users, and in the event of unsafe conditions, closures. diversions, breakdowns and accidents. it shall follow the relevant operating procedures including the setting up of temporary Lights and removal of obstruction and debris without delay. Such procedures shall conform to the provisions of this Agreement, Applicable Laws, Applicable Permits and Good Industry Practice.	The safety of users of Highway is given priority.
11	Article 17 Clause 17.8	17.8.1 In the Event that the Concessionaire fails to repair or rectify any defect or deficiency set forth in the Maintenance Requirements within the period specified therein, it shall be deemed to be in breach of this Agreement and the Authority shall be entitled to recover Damages, to be calculated and paid for each day of delay until the breach is cured, at the higher of (a) 2% [two per cent] of the Performance Security, and (b) 0.1% [zero point one per cent of the cost of such repair or rectification as estimated by the Independent Engineer. Recovery of such Damages shall be without prejudice to the rights of the Authority under this Agreement, including the right of the Termination thereof.	The Concessionaire has to do the work as per requirement and scope of O&M to avoid action of damages and Termination.
12	Article 19 Monitoring of Operation and Maintenance	19.2 Inspection The Independent Engineer shall inspect the Project at least once a month. it shall make a report of such inspection {the “O&M Inspection Report") stating in reasonable detail the defects or deficiencies, if any. With particular reference to the Maintenance Requirements, Maintenance Manual, the Maintenance Program and Safety Requirements, and send a copy thereof to the	The regular inspection of maintenance work by IE will control the quality, progress & safety or work.

Sr. No.	Article and Clause No.	Description in brief	Remark
		Authority and the Concessionaire within 7 (seven) days of such inspection.	
13	Article 20 Clause 20.1 Traffic regulation by the Concessionaire	The Concession shall regulate traffic on the Project in accordance with Applicable Laws, and subject to the supervision and control of the State authorities or a substitute thereof empowered in this behalf under Applicable laws.	The Concessionaire has to do the management of Traffic, medical aid to users of Highway with help of Police Medical Dept of Govt.
14	Article 23 Payment of Bid Project Cost	23.7.1 The Parties acknowledge and agree that all O&M Expenses shall be borne by the Concessionaire and in lieu thereof; a lump sum financial support in the form of biannual payments shall be due and payable by the Authority, which shall be computed on Rs. 19.87 crore (Rupees nineteen crore and eighty-seven lakh only) (the "First Year O&M Cost in accordance with the provisions of this Clause 23.7 [the ”0&M Payments"). The Parties further acknowledge and agree that any O&M Expenses In excess of the O&M Payments shall be borne solely by the Concessionaire. save and except as expressly provided in this Agreement. For avoidance of doubt it is clarified that the M Payments will be subject to any Change in Scope of the Project of the Concessionaire under Article 16 of this Agreement.	The Concessionaire will be paid lumpsum Rs. 19.87 crores adjusted for Price Index Multiple in form of Biannual payment during O&M period.
15	Article 26 Insurance during Concession Period	26.1 The Concessionaire shall effect and maintain at its own cost. during the Construction Period and the Operation Period. such insurances for such maximum sums as may be required under the Financing Agreements and Applicable Laws, and Such insurances as may be necessary or prudent in accordance with Good industry Practice.	The safety, risk of Authority, Concessionaire, Lender is covered.
16	Article 31 Termination Clause 31.1 Termination for Concessionaire Default	31.1.2 Without prejudice to any other rights or remedies which the Authority may have under this Agreement, upon occurrence of a Concessionaire Default, the Authority shall be entitled to terminate this Agreement by issuing a Termination Notice to the Concessionaire; provided that before issuing the Termination Notice, the Authority shall by a notice inform the Concessionaire of its intention to issue such Termination Notice and grant 15 (fifteen) days to the Concessionaire to make a representation, and may after the expiry of such 15 (fifteen) days, whether or not it is in receipt of such representation. issue the Termination Notice, subject to the provisions of Clause 31.1.3.	The Authority can terminate the CA on occurrence of default by Concessionaire. The default may be in maintenance Requirements as per clause 31.1.1 (d). Hence concessionaire needs to take care not doing any default during O&M period.

Sr. No.	Article and Clause No.	Description in brief	Remark
17	Article 38 Dispute Resolution Clause 38.1 Arbitration	38.3.1 Any Dispute which is not resolved amicably by conciliation, as provided in Clause 38.2, shall be finally decided by reference to arbitration by an arbitral tribunal constituted in accordance with Clause 38.3.2. Such arbitration shall be held in accordance with the Rules of Society tor Affordable Redressal of Disputes ("SAROD"]. New Delhi (the "Rules"), or such other rules as may be mutually agreed by the Parties, and shall be subject to the previsions of the Arbitration and Conciliation Act, 1996.	There is provision of Arbitration for in case of unresolved issues or dispute between Authority and Concessionaire

7 REVIEW OF O&M CONTRACT

The Operation and Maintenance Agreement was signed between **M/s Varanasi Sangam Expressway Limited (VSEL)** and **G R Infraprojects Limited (O&M Contractor)** on 02nd November 2021 and addendum O&M Agreement has been signed on 26th July 2022 for a period of 1 year.

We have reviewed the provisions under various clauses of this O&M Contract and our specific comments are indicated below clause-wise.

Sr. No.	Clause No.	Description in Brief	Remark
1	Agreement Para (ii)	The Concessionaire now wishes to appoint M/s G R lnfraproiects Limited for Operation and Maintenance of Project Highway as 0&M Contractor in accordance with Scope of Work as mentioned in Annexure 1 hereto, under the Concession Agreement.	The Contractor M/s. G R Infraprojects Ltd. is appointed for O&M work as per scope in CA.
2	Clause n Definition	"O&M Contractor" means the person, if any, with whom the Concessionaire has entered into an O&M agreement for discharging O&M obligations for and on behalf of the Concessionaire.	The Contractor is appointed to discharge duties of O&M work on behalf of Concessionaire as per scope in O&M Agreement.
3	Clause r Definition	"O&M Period" O&M Agreement means operation and maintenance period of 1 year commencing from Commencement Date.	The Agreement of O&M is for one year and addendum is signed for 1 year from the date of 01st April 2022 to 31st March 2023.
4	Clause 2 Availability of Documents	The O&M Contractor also acknowledges the fact that the Concession Agreement is always binding and applicable back to back on the 0&M Agreement, limited to the obligations during the O&M period under the Concession Agreement and the scope of the O&M Contractor as per this Agreement. In case of any discrepancy in whatsoever matter, the clauses or' Concession Agreement shall prevail over and above this 0&M Agreement.	The copy of Concession Agreement & Maintenance Manual is provided to Contractor. It is always binding to Contractor for implementation during O&M work.
5	Para 6 O&M Contractor's obligation	6.1 During Operation Period, provisions of Article 17 of the Concession Agreement shall apply. The O&M Contractor shall operate and maintain the Project Highway in accordance with Article 17 of the Concession Agreement and if required, modify, repair or otherwise make improvements to the Project Highway comply with the provisions of this Agreement, Applicable Laws and Applicable Permits, and confirm to Specifications and Standards and Good Industry Practice.	The obligation of O&M are as per Article 17 of CA.

Sr. No.	Clause No.	Description in Brief	Remark
6	Clause 6.3 Maintenance Requirements	The O&M Contractor shall procure that at all times during the Operation Period; the Project Highway conforms to the maintenance requirements set forth in Schedule-K of the Concession Agreement (the "Maintenance Requirements").	The maintenance required to be done as per Schedule K of CA only.
7	Clause 6.4 Maintenance Program	Not later than 55 days prior to the beginning of each Accounting Year during the Operation Period, the O&M Contractor shall provide to the Concessionaire, its proposed annual program of preventive. urgent and other scheduled maintenance (the "Maintenance Program") to comply with the Maintenance Requirements, Maintenance Manual and Safety Requirements.	The Contractor has to submit the programme and work for O&M with maintenance requirement and safety.
8	Clause 6 Maintenance Requirements 6.5 Safety, Breakdown and accident	6.5.1 The 0&M Contractor shall ensure safe conditions for the users, and in the event of unsafe conditions, closures, diversions, breakdowns and accidents, it shall follow the relevant operating procedures including the setting up of temporary Lights and removal of obstruction and debris without delay. Such procedures shall conform to the provisions of this Agreement, Applicable Laws, Applicable Permits and Good industry Practice.	Safety of users including breakdown, accident rescue operations is covered.
9	Clause 6 Maintenance Requirements 6.10 Damages for Breach of Maintenance obligations	In the event that the O&M Contractor fails to repair or rectify any defect or deficiency set forth in the Maintenance Requirements within the period specified therein, it shall be deemed to be this Agreement and the cm Contractor shall pay to the Concessionaire Damages at such rate as the Concessionaire Is required to pay to the Authority under the Concession Agreement. Recovery of such Damages shall be without prejudice to the rights of the Concessionaire under this Agreement, including the right of Termination thereof.	The provision of Levy of Damage for breach of Agreement, defective work will keep pressure on contractor to work as per requirement.
10	Clause 6 Maintenance Requirements 6.17 Tests	For determining that the Project Highway conforms to the Maintenance Requirements, the Project Manager/IE shall require the O&M Contractor to carry out, or cause to be carried out, tests specified by it in accordance with Good Industry Practice.	This will maintain quality of work.
11	Clause 6 Maintenance Requirements 6.19 Safety Requirements	6.19.1 The 0&M Contractor shall comply with the provisions of this Agreement and [or Concession Agreement, Applicable Laws and Applicable Permits and confirm to Good Industry Practice for securing the safety of the Users. in particular, the O&M Contractor shall develop, implement and administer a surveillance and safety program for	The O&M Contractor has to provide requirements provision for safety of Highway users. The safety of users is given priority.

Sr. No.	Clause No.	Description in Brief	Remark
		providing a safe environment on or about the Project Highway, and shall comply with the safety requirements set forth in Schedule L of the Concession Agreement (the “Safety Requirements").	
12	Clause 13 Sub-contracts	13.1 The O&M Contractor shall notify to the Project Manager in writing of its intent to subcontract the O&M works in part or full and without the written approval of the Project Manager no subcontractor shall be appointed by the O&M Contractor.	The sub contractor cannot be appointed without approval of Project Manager. This will keep control over contractor to appoint competent contractor.
13	Clause 16 Insurance	16.1 The Concessionaire shall. procure and maintain the insurance for the Project Highway including all facilities in accordance with the Article 26 of the Concession Agreement.	The risks and security of Authority, concessionaire and lender is covered.
14	Clause 17 Defect Liability Period	17.1 The Concessionaire and/or the EPC Contractor ls responsible for all the defects and deficiencies in construction of the Project Highway or any section thereof and rectify the Same, without any cost to the O&M Contractor. during the cam period. Under this agreement the O&M Contractor is only under obligation of Operation 8r Maintenance of the Project Highway. For avoidance of doubt, any repair or restoration on account of usual wear and tear in the Project Highway shall form a part of the maintenance.	The Contractor is responsible for any defects during Defect Liability period i.e. O&M Period. This will maintain the quality to avoid any action for defective work as proposed.
15	Clause 21 Acknowledgement	The O&M Contractor acknowledges and accepts that this agreement entitles the Authority and/or Lenders Representative to step into this agreement, in its sole discretion, in Substitution-of the Concessionaire In the event of Termination or Suspension of the Concessionaire. Further, provision of clause 5.2 of the Concession Agreement relating to Project Agreement shall apply mutatis mutandis.	The Contractor has agreed for step in right of Authority or Lender in case of Termination of Concessionaire.
16	Clause 22 O&M Payments	The Parties acknowledge and agree that all O&M Expenses shall be borne by the 0&M Contractor to carryout routine maintenance Works as detailed in Annexure-I to this 0&M Agreement and in lieu thereof; a fixed lump sum fee amounting to Rs. 7.00 crore exclusive of taxes for the entire year in the form of biannual payment shall be due and payable by the Concessionaire.	The O&M Contractor will be paid fixed & Lumpsum payment of Rs. 7.00 crores plus GST. Biannual payment during year for his work as per scope. The contractor has to manage O&M work responsibility within this payment. Over & above these

Sr. No.	Clause No.	Description in Brief	Remark
			expenses, Concessionaire is incurring expenses for insurance, electricity, IE & professional fees etc.,
17	Clause 27 Termination 27.1 Termination For O&M Contractor Default	In the event of any defaults specified below shall have occurred, and the 0&M Contractor falls to cure the default within the Cure Period of 60 (sixty) days, the O&M Contractor shall be deemed to be in default of this Agreement (the "0&M Contractor Default"), unless the default has occurred as a result of any breach of this Agreement by the Concessionaire or due to Force Majeure.	The Contractor shall note this. This provision of termination keep pressure on contractor to work as per scope of O&M responsibility.
18	Clause 32 Liability and Indemnification	The O&M Contractor shall fully indemnify and hold harmless and defend the Concession extent that the Concessionaire has provided any indemnities to Authority in terms of Article Concession Agreement, Insofar as such indemnities relate to the Services.	The Concessionaire is secured from contractor for any loss, claim.

7.1 Conclusion

i. Operation and Maintenance Contract is comprehensive and correct for Major Concerned with Lender.

ii. The provision of O&M Contract Agreement is consistent with the provision of the Concession Agreement

8 OPERATION AND MAINTENANCE

8.1 Introduction

Article 17 and Schedule-K of the Concession Agreement defines the Operation and Maintenance requirement during concession period.

The Provisional Completion Certificate (PCOD) for the length of 72.398 kms has been received on 02nd November 2020. The project is currently under O&M stage. The Operation and Maintenance period of the project highway is 15 years from the date of PCOD.

8.2 O & M Set Up

O & M Contract

As per Clause 17.1 of the Concession Agreement, the Concessionaire shall operate and maintain the project highway by itself, or through O&M Contractors and if required, modify, repair, improve the project highway to comply with Specifications and Standards, and other requirements set forth in the Agreement through Good Industry Practice, Applicable Laws and Applicable Permits and manufacturer's guidelines and instructions with respect to toll systems. The Operation and Maintenance activities will confirm to all the requirements laid down in MoRT&H, IRC Specifications and the Concession Agreement.

Under Routine maintenance, the road is to be maintained in good, safe and motorable condition. The specification in contracts are kept as same as per design and construction specification.

The periodical maintenance will have to be done during O&M period as per requirement of Concession Agreement and as per site requirement to maintain the design standards and level.

List of Manpower (SPV):

Sr. No.	Employee Name	Designation	Remarks
1	Virendra Kumar Kushwaha	Project Manager	
2	Chhagan Singh	Manager	
3	Sureshwar Dayal Singh	Senior Engineer	
4	Nawneet Kumar Singh	Senior Officer	
5	Kuldeep	Officer	
6	Dayaram Mishra	Control Room Officer	
7	Adarsh Kumar	Senior Computer Operator	
8	Shubham Singh	Computer Operator	
9	Avanish Kumar Sharma	Junior Computer Operator	
10	Bahadur Singh Gurjar	Foreman	
11	Amrendra Pratap Singh	Senior Supervisor	
12	Rajendra Prasad	Senior Supervisor	
13	Gaurishankar .	Supervisor	
14	Vishal Tiwari	Supervisor	
15	Satendra Ray	Senior Route Patrol Officer	
16	Vinit Kumar	Auto – Electrician	
17	Bhoop Singh Rathore	Junior Electrician	
18	Sandeep Mishra	Junior Electrician	
19	Anand Kumar	Plumber	

Sr. No.	Employee Name	Designation	Remarks
20	Gaya Prasad Vishwakarma	Welder	
21	Munna .	Junior Welder	
22	Satyendra Mahto	Junior Plumber	
23	Surya Pratap Singh	Junior Electrician	
24	Ram Naresh Yadav	Attendant	
25	Kuldeep Singh	Paver Operator (Concrete Scale 3)	
26	Ram Mani Shukla	Senior Excavator Operator	
27	Md Jainulhaque	Mechanic	
28	Vakil Ram	Junior Mechanic	
29	Pawan Kumar	Electrician	
30	Vibhor Goel	Electrician	
31	Atulesh Tiwari	Plant Operator (HOTMIX Scale 1)	
32	Jay Prakash Kumar	Senior Paver Operator	
33	Vinod Kumar	Trailor Driver	
34	Mahesh Kumar	Grader Operator	
35	Arvind Kumar	JCB Operator	
36	Tarkeshwar Gupta	JCB Operator	
37	Mohammad Pappu	JCB Operator	
38	Subhash Kumar Yadav	HMV Driver	
39	Jilajeet Saroj	Roller Operator Tandem	
40	Jagyanarayan Patel	Excavator Operator	
41	Basarat Ali	Senior HMV Driver	
42	Pradeep Kumar Prajapati	HMV Driver	
43	Rajesh Kumar	HMV Driver	
44	Pawan Yadav	HMV Driver	
45	Ashok Kumar Dubey	HMV Driver	
46	Sanjay Yadav	HMV Driver	
47	Manoj Kushwaha	HMV Driver	
48	Pankaj Kumar Shukla	HMV Driver	
49	Ram Bali	HMV Driver	
50	Gyandeep Mishra	HMV Driver	
51	Pramod Kumar Yadav	HMV Driver	
52	Santosh Kumar	Hydra Operator	
53	Sanjay Sahani	Hydra Operator	
54	Banaras Kumar	Hydra Operator	
55	Prashant Kumar	LMV Driver	
56	Dharmendra Kumar Mishra	LMV Driver	
57	Vansh Bahadur Chaurasiya	LMV Driver	
58	Akhileshwar Singh	LMV Driver	
59	Ramesh Kumar Yadav	Tractor Driver	
60	Bittu Kumar Singh	Junior Plant Operator (HOTMIX)	
61	Pradeep Kumar Yadav	Nurse	
62	Sandeep Kumar	Cook	
63	Ashok Laoodhar	Sweeper	
64	Dheeraj Kumar	Helper	
65	Jitendra Kumar	Helper	
66	Anand Kumar	Helper	
67	Akash Kumar Bind	Helper	
68	Ashok Kumar Bind	Helper	
69	Shivshankar	Helper	
70	Mohan	Helper	

8.3 Operation Cost

Operations cost is comprised of manpower cost, power and electricity cost, office operating expenses, vehicle running expenses, administrative expenses and other miscellaneous expenses. The Concessionaire has provided the expenses occurred towards operation expenses for current / past years. Necessary assumptions have made from the expenses of similar type of projects to arrive at the operation cost. The estimates are projected based on best industry practices and are compared with the operating cost in the vicinity of the project area.

The Estimated Operating Cost for the base month of August 2022 is **Rs. 9.97 Crores**. The detailed working of the same is attached in **Annexure-I**.

8.4 Routine Maintenance Cost

The Routine Maintenance cost is derived based on the Ministry of Road Transport and Highways - Report of the Committee on Norms for Maintenance of Roads in India (published by Indian Road Congress New Delhi 2001) along with actual pavement condition assessed during condition survey.

Maintenance cost constitutes the routine, day-to-day maintenance activities for project assets, including road pavement, shoulders, embankment, drainage, structures, plantations, roadside furniture, traffic signs, traffic safety devices etc. Past data has been used to assess maintenance costs due to normal usage or “wear-and-tear”. Likely costs of maintenance of structures are assessed based on their present condition and vintage, in combination with well-established guidelines and thumb rules given in Indian codes and standards.

The Estimated Cost of Routine Maintenance works out to be **Rs. 3.22 Crores (4.43 Lakhs per km)** base month of August 2022. The detailed working of the same is attached in **Annexure-II**.

8.5 Major Maintenance Cost

Unlike the old Concession Agreements where periodicity and threshold limits were clearly described for the major maintenance, the Concession Agreement of this project does not specify the periodicity or the threshold limits for carrying out the full-length major maintenance. Schedule-K of the Concession Agreement specifies the threshold limits and the timelines for carrying out repairs to the distresses during the operation period.

The maintenance thus can be carried out as and when required basis and to the compliance of Schedule-K requirement to maintain the road in serviceable condition. Only improvement to Riding Quality is expected if the roughness value exceeds 2750 mm/km. However, the average roughness value of the project highway lies within the limit as mentioned above.

Any New pavement is not expected to show any distresses at least for 6 to 7 years with the proper routine maintenance. Mere Routine Maintenance would suffice to meet the performance standard mentioned in Schedule-K. In this project, there is no specific requirement to carry out the major maintenance at the end of concession period.

Hence, major maintenance is planned every 7th year from the date of COD till end of concession period.

The summary of the major maintenance planned up to end of concession period is presented in the below table.

The total base cost of major maintenance works out to be **Rs. 210.26 Crores** for base month of August 2022 i.e., till 31st August 2022. The detailed working for the same is shown in **Annexure-III**.

8.6 Paved Shoulders

As per design specifications, the paved shoulder is designed as an integral part of the pavement for main carriageway. Therefore, the total pavement thickness in paved shoulder would be the same as in the carriageway

8.7 Summary of Major Maintenance Cycle

The table below shows the major maintenance cycle throughout the concession period for the project stretch.

Table 8-1 Maintenance Cycle

Sr. No.	Year	Main Carriageway	Service Road
1	FY 2023	-	-
2	FY 2024	-	
3	FY 2025	-	-
4	FY 2026	-	-
5	FY 2027	1st Major Maintenance (100% BC + 100% DBM)	1st Major Maintenance (10% BC + 90% Micro-surfacing)
6	FY 2028		
7	FY 2029	-	-
8	FY 2030	-	-
9	FY 2031	-	-
10	FY 2032	-	-
11	FY 2033	-	-
12	FY 2034	2nd Major Maintenance (100% BC + 5% DBM)	2nd Major Maintenance (10% BC + 90% Micro-surfacing)
13	FY 2035		
14	FY 2036	-	-

8.8 Projected Maintenance Cost without escalation

The below table shows the total cost of operation and routine maintenance, periodic maintenance and strengthening up to end of the concession period without escalation.

Table 8-2 Summary of Operation & Maintenance Cost without escalation

Sr. No.	Item Description	Length (km)	Year of Execution	Rate (Lakhs / km)	Total Amount (Crores)
1	**Total Operation and Routine Maintenance Cost**	72.644	Every year	18.16	**13.19**
2	**Major Maintenance Cost**				
i)	1st major maintenance	72.644	FY 2027	177.95	**129.27**
ii)	2nd major maintenance	72.644	FY 2034	111.49	**80.99**
	Total Major Maintenance Cost				**210.26**

Notes:

1. It is to be noted that, the rates considered for calculating all the above cost are exclusive of Goods and Service Tax (GST).
2. The estimated cost in table above is for base month of August 2022 i.e., till 31st August 2022.
3. The material rates are based on SOR of Govt. of Gorakhpur and Prayagraj, Uttar Pradesh for the year 2020-21. The plant & machinery rates are adopted from the revised standard data book 2019. The current market rates are considered for bitumen, cement, and steel those rates not available in SOR.

8.9 Projected Maintenance Cost with escalation

The below table shows the total cost of operation and routine maintenance and major maintenance cost up to end of the concession period with assumed escalation of 5% every year.

Table 8-3 Summary of Operation & Maintenance Cost with escalation

Sr. No.	Year	WPI Inflation	Total O & M Cost	Major Maintenance Cost
1	FY 2023		13.19	-
2	FY 2024	2.87*%	13.57	-
3	FY 2025	5.00%	14.25	-
4	FY 2026	5.00%	14.96	-
5	FY 2027	5.00%	15.71	76.97
6	FY 2028	5.00%	16.49	80.82
7	FY 2029	5.00%	17.32	-
8	FY 2030	5.00%	18.18	-
9	FY 2031	5.00%	19.09	-
10	FY 2032	5.00%	20.04	-
11	FY 2033	5.00%	21.05	-
12	FY 2034	5.00%	22.10	67.85
13	FY 2035	5.00%	23.20	71.25
14	FY 2036	5.00%	14.21	-
	Total Cost (Cr)		**243.35**	**296.89**

* Considering the base month for calculation as August 2022.

The company may carry out necessary investigation prior to O&M and Major Maintenance. This will help in proper assessment of maintenance work based on the actual pavement condition. The spending on major maintenance can then be reduced if the road is adequately and timely maintained.

9 TOLL PLAZA EQUIPMENT STATUS & ATMS

An assessment of Toll Plaza in terms of no of lanes, Toll Collection System installed and working status is carried out based on Section 10 of IRC:SP:87-2014 (The Manual) and the Authority's requirements of Hybrid ETC System. Advanced Traffic Management System (ATMS) is assessed based on Section 816 of MoRTH Specifications for Road and Bridge Works as required by Section 12.12 of the Manual.

9.1 Toll Plaza and Toll Collection System

Toll plaza is provided at km. 747+581 (LHS) and km. 747+822 (RHS). The Toll Collection System installed at the toll plaza is provided by Green Tech ITS Ltd.

The toll plazas have 6+6 lanes as stipulated in Concession Agreement and 1+1 additional lanes serving VIP vehicles, ambulances and extra wide vehicles. All lanes are equipped with Hybrid ETC equipment. View of the toll plazas are shown in Figure 9-1. Toll Lane Controller (TLC) at each toll booth controls the toll collection function, transmitting information and data on all lane activities to a central server (TMS) and receiving other control information and data from the TMS.

Figure 9-1 View of Toll Plaza



Toll Plaza including Admin Building at km. 747+581



Toll Plaza including Admin Building at km. 747+822



Weigh-in-Motion



Ambulance at Toll Plaza



Toll Signal light



Toilet Block at Toll Plaza

9.2 Lane Equipment

Lane hardware and equipment installed at each toll plaza are the following:

1. RFID ETC Transceiver
2. Lane Controller with Industrial PC
3. AVC Sensors
4. Automatic Lane Barrier (ALB)
5. Incident Capture Camera
6. Overhead Lane Signals
7. Traffic Lights
8. Toll Booth Equipment

9.2.1.1 RFID ETC Transceiver

RFID ETC Transceiver reads tags installed on the windshield of vehicles and mounted on the canopy. Hand held RFID readers are provided (1 no. in each direction) in case a tag is not detected by the fixed reader.



Figure 9-2 RFID Transceiver

9.2.1.2 Lane Controller with Industrial PC

Toll Lane Controller is located within the Electronic Enclosure placed inside each toll booth which are connected to the common server and are capable of independent storage of data. The industrial PC has i3 processor with 500 GB HDD storage and 4GB RAM.

9.2.1.3 Automatic Vehicle Classification (AVC) Sensors

The AVC equipment comprises of a pair of height sensor poles, axle sensors and inductive loops. The height detector has a high sensing resolution and detects height when object blocks the path. The presence of vehicle is detected by inductive loop. The loop sensors embedded on the pavement trigger the AVC height sensors located on parallel pillars.

9.2.1.4 Automatic Lane Barrier (ALB)

Boom barriers installed on all lanes are in working condition and have a working time of 0.6 – 0.9s. Automatic Lane Barrier is used to allow only authorized vehicles to pass through the lane. The barrier is activated only on generation of user fee receipt or other relevant vehicle processing activity. A torque motor powers the barrier for raising and lowering the boom. The motor can be blocked at any position without causing any damage. In the event of power failure, the boom is automatically raised. The boom weight is exactly balanced by built-in springs.

9.2.1.5 Lane Traffic Light (LTL) and User Fare Display (UFD)

Lane Traffic Light (LTL) is used to instruct vehicles to stop or pass through the lane. The LTL is RED when the toll collector is expecting the vehicle at the booth. After the transaction is done; the LTL turns Green to instruct the vehicle to pass through the lane.
The User Fare Display is a part of electronic toll collection equipment located at the toll booth. It is a mini variable message sign (VMS) made of Light Emitting Diodes (LED). The user fare display is used to display the toll fare that is due and that must be paid by the motorist and the classification of vehicle selected by the collector.

9.2.1.6 Incident Capture Camera (AVC Camera)

The incident capture camera is installed on island of the booth to capture the image of the vehicle from the back side. The AVC triggers the Image capture system.

9.2.1.7 License Plate Image Capture Camera (LPIC)

License Plate Image capture camera is installed on a 3m pole facing incoming vehicle to capture the image of the vehicle number plate.

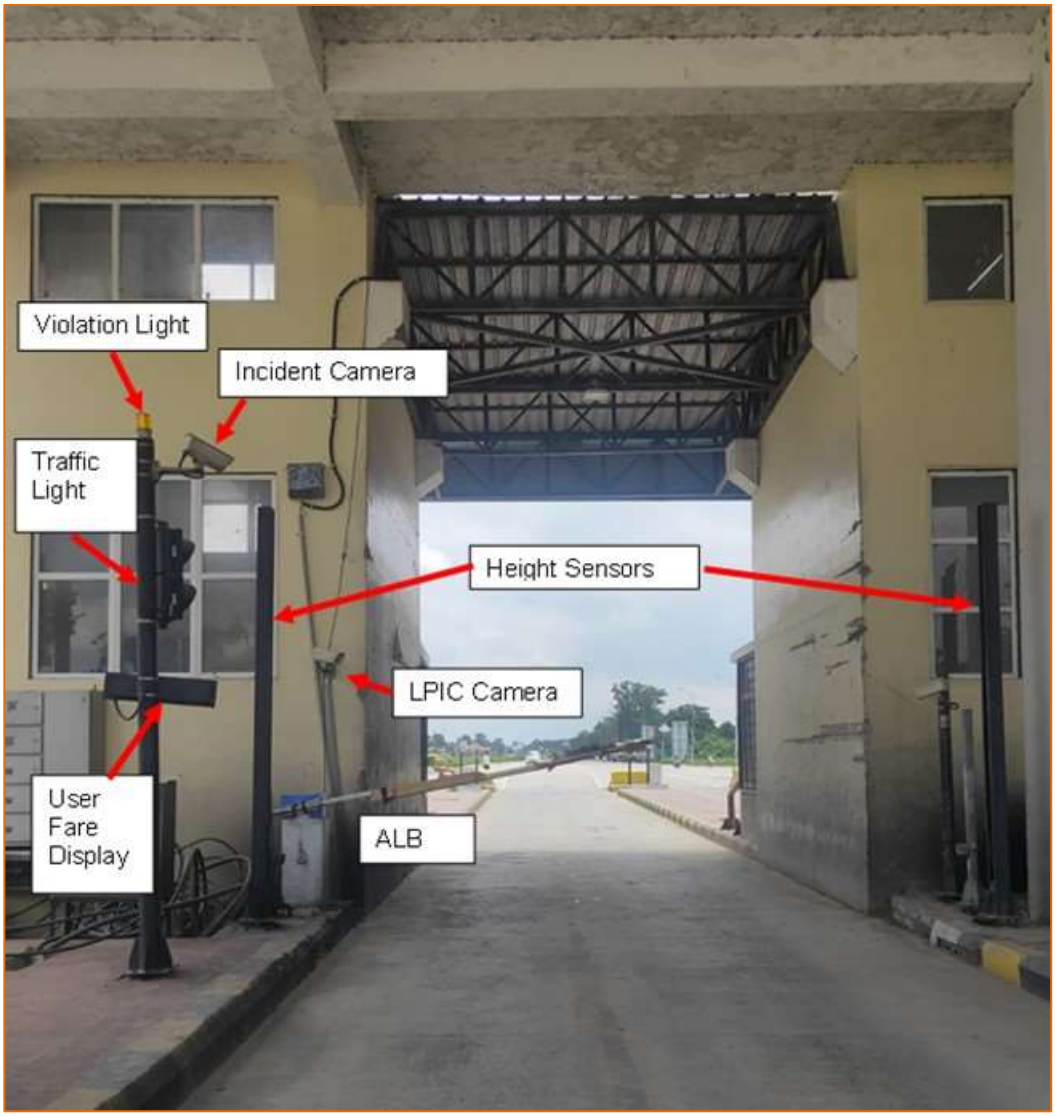


Figure 9-3 Lane Equipment

9.2.1.8 Over Head Lane Signal (OHLS)

The **Overhead Lane Signal (OHLS)** for lane "Open" and "Close" sign consists of a pair of "GREEN" (arrow) and "RED" (cross) lights. The OHLS is located at the vehicle approaching side of the canopy to show the drivers whether the lane is open or closed.

9.2.1.9 Toll Booth Equipment

Toll Booth Hardware / Equipment provided are:

- Toll Collector Display (Operator Monitor)
- Customized Industrial Keyboard
- Receipt Printer
- Intercom Slave unit
- Bar code reader
- Violation Light and alarm
- Manual Booth Control (MBC)
- Booth Camera

The operator monitor termed as Toll Collector Display (TCD) is located on the toll collector's desk. It is the system's interface to the toll collector, to display the status of transactions and status of the lane peripherals.

The keyboard on the toll terminal is a programmable keyboard for Registration of toll operations and is customized for different vehicle types and type of ticket.



Figure 9-4 Booth Equipment

Thermal Printers are installed at the toll booths to print tickets. Intercom slave unit facilitates communication with the master unit located in the control room.

Violation system has an alarm switch which is triggered whenever there is a violation such as run-through happening on the lane. When there is an emergency, a foot switch pressed by the booth operator alerts the control room.

Booth Cameras are provided on the inside roof corner of the booth to provide surveillance through CCTV screen located in the control room. Manual Booth Controller is used to release exempt vehicles.

9.2.1.10 Medium Speed Weigh in Motion (MSWIM)

Medium Speed Weigh in Motion (MSWIM) is installed on entry lanes with a platform size of 1500 mm x 620 mm for normal lanes and 1750 mm x 620 mm for extra wide lanes and capacity of 30 ton/axle. Bending plate strain gauge technology is used with hardware and software support to calculate weight of vehicles running through it up to a speed of 50 km/hr.

9.2.2 Plaza Equipment

9.2.2.1 Plaza Server

Plaza Server is provided in a hot standby configuration (Intel i5 CPU with 4 GB RAM, 1 TB Hard disk) and provided with 42 U switch rack and 24port non POE network switch . The server manages the TMS application and integration of lane level data with CCH.

9.2.2.2 55" LED screen for CCTV monitoring

55" LED screen for CCTV monitoring installed at the toll plaza admin block provides view of all the toll booths , important zones within the plaza where cash transactions take place (server room, control room, cash up).



Figure 9-5 55" LED screen for CCTV monitoring

The toll plaza manager is able to observe the activities at the toll lanes and toll booth. When the toll collector calls up on the intercom, the manager is able to comprehend the situation at the lane by a zoomed view of the particular lane.

9.2.2.3 Workstations in Control Room, PoS and Cash up room

Workstations are available in control room (lane monitoring, administration and audit), cash room and PoS with 4 GB RAM and 1 TB HDD.

9.3 Advance Traffic Management System (ATMS)

Advanced Traffic Management System (ATMS) installed for the project road is controlled by the ATMS centre. It comprises of the following:

- Emergency Call Back System (ECB)
- Mobile Radio communication system
- Meteorological Data system
- Variable Message Signboards (VMS)
- Automatic Traffic Counter cum Classifier (ATCC)
- CCTV system

ATMS control room has a central server, network computers for each subsystem with Graphic User Interface.

9.3.1 Emergency Call Back System (ECB)

13 pairs of Emergency Call Booths are installed along the project road stretch. The users can access these ECBs and communicate to the ATMS control centre in case of emergency such as vehicle breakdown.



Figure 9-6 ECB at km. 751.200

9.3.2 Mobile Radio communication System (MRCS)

Communication between patrol vehicles, ambulances, crane operators and the control centre are managed using MRCS installed at the two locations, km. 731.000 and km. 775.100.

9.3.3 MET system

Meteorological sensors comprise of sensors to measure the atmospheric temperature, humidity, pavement surface temperature, visibility and equipment for measuring wind speed and direction and installed at km. 746.750.



Figure 9-7 MET Equipment

9.3.4 Variable Message Signboards (VMS)

Variable message sign boards are installed at 5 locations. These display specific messages to the users based on the prevailing conditions on the highway. The message can be changed at any point of time from the ATMS centre. About 250 customised messages can be stored on the system.

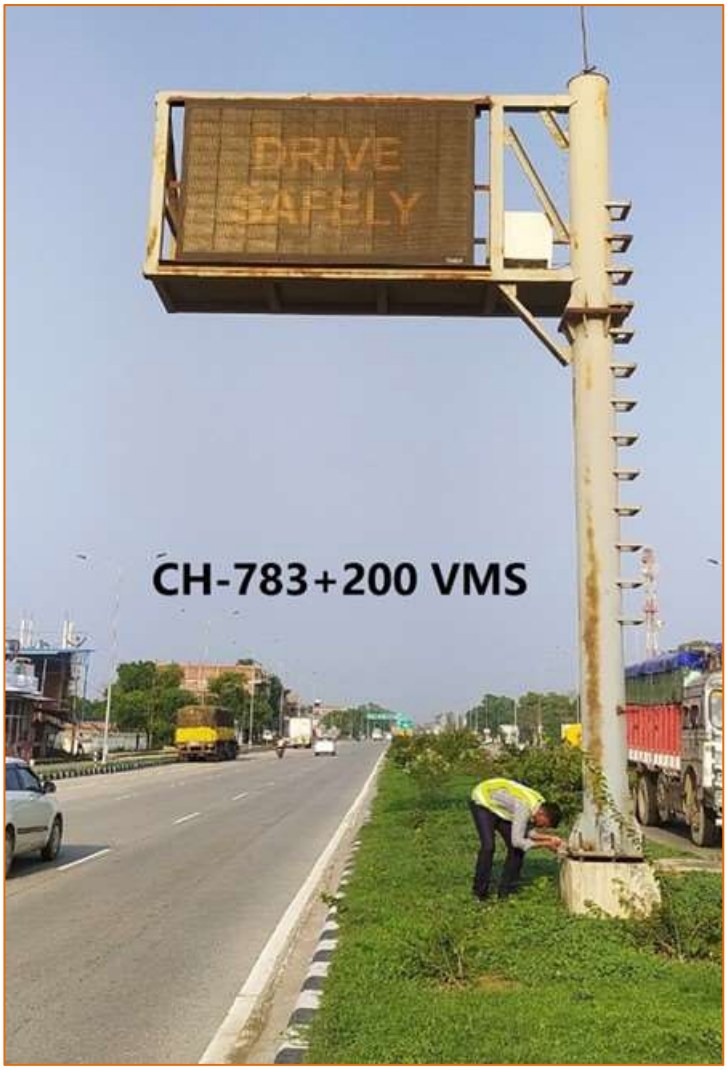


Figure 9-8 Variable Message Signboard

9.3.5 Surveillance Cameras / Video Incident Detection System

Surveillance Cameras and Video Incident Detection System are installed at 11 locations along the project corridor. The ATMS control room has video wall to monitor these locations through the cameras installed. VIDS detects and gives alarm for incidents such as queue, stop, movement in wrong direction, speed drop, fog/smoke, no video signal and error.



Figure 9-9 PTZ camera at km. 778.000



Figure 9-10 Video wall in ATMS control centre

9.4 Adequacy of Toll Collection System and ATMS

- Adequacy - The software and hardware as a part of Toll Collection and Management System (TMS) are as per Hybrid ETC system stipulated by NHAI in Technical specifications of Hybrid ETC system. TMS shall be upgraded every 5 years, at the cost of the Authority

- Advanced Traffic Management System (ATMS) installed is as per specifications required by the Authority and in working condition.

10 ACCIDENT DATA ANALYSIS

Accident Data Records for the project have been studied in order to analyse the nature of accidents occurring on the stretch and identify blackspots.

10.1 Accident Trend

Accident Data for the period 1st Jan 2015 to 30th June 2022 has been made available for analysis. 697 Accidents have occurred out of which 58 were fatal, 425 major and 238 were minor. More number of accidents have occurred during the daytime than at night-time. Over speeding has been recorded as a major cause of accident which alone or in combination with faulty driver behaviour.

10.2 Blackspots Identification

Details of accidents in the project length are given in Table below:

Sr. No.	Month	Total Accident	Details of Accident Victims		
			Fatal	Major Injury	Minor Injury
1	Jan-15	7	0	4	3
2	Feb-15	4	2	5	0
3	Mar-15	7	1	14	0
4	Apr-15	10	2	6	2
5	May-15	8	0	25	0
6	Jun-15	7	1	3	3
7	Jul-15	6	1	3	2
8	Aug-15	17	3	13	1
9	Sep-15	5	1	2	2
10	Oct-15	4	2	1	1
11	Nov-15	7	0	3	2
12	Dec-15	7	2	0	5
13	Jan-16	9	0	13	0
14	Feb-16	4	0	3	1
15	Mar-16	5	0	5	0
16	Apr-16	9	2	2	3
17	May-16	7	2	10	1
18	Jun-16	6	0	5	1
19	Jul-16	26	3	37	0
20	Aug-16	38	1	46	0
21	Sep-16	7	1	8	0
22	Oct-16	10	1	11	2
23	Nov-16	7	2	11	1
24	Dec-16	8	1	13	1
25	Jan-17	5	0	0	5
26	Feb-17	1	1	5	0
27	Mar-17	2	1	1	0
28	Apr-17	4	1	2	1
29	May-17 to Nov 17	NA	NA	NA	NA
30	Dec-17	7	0	0	11
31	Jan-18	3	0	0	6
32	Feb-18	7	0	0	10
33	Mar-18	5	3	8	8
34	Apr-18	4	0	5	4

Sr. No.	Month	Total Accident	Details of Accident Victims		
			Fatal	Major Injury	Minor Injury
35	May-18	3	2	5	3
36	Jun-18	1	1	1	15
37	Jul-18	5	1	2	9
38	Aug-18	3	0	1	5
39	Sep-18	3	0	1	3
40	Oct-18	1	0	0	3
41	Nov-18	4	0	4	7
42	Dec-18	3	0	0	4
43	Jan-19	5	0	2	11
44	Feb-19	3	0	0	6
45	Mar-19	4	1	2	1
46	Apr-19	1	0	0	1
47	May-19	4	0	2	2
48	Jun-19	2	0	0	4
49	Jul-19	6	0	5	2
50	Aug-19	3	0	2	1
51	Sep-19	2	0	1	1
52	Oct-19	1	0	1	0
53	Nov-19	4	0	3	1
54	Dec-19	4	0	1	4
55	Jan-20	2	0	1	1
56	Feb-20	4	1	3	2
57	Mar-20	2	1	1	0
58	Apr-20	0	0	0	0
59	May-20	5	0	5	2
60	Jun-20	3	0	1	2
61	Jul-20	3	0	1	2
62	Aug-20	5	0	0	5
63	Sep-20	NA	NA	NA	NA
64	Oct-20	NA	NA	NA	NA
65	Nov-20	21	1	7	10
66	Dec-20	21	1	8	10
67	Jan-21	28	0	6	2
68	Feb-21	15	1	4	2
69	Mar-21	14	1	4	3
70	Apr-21	15	0	13	2
71	May-21	15	0	2	8
72	Jun-21	10	0	1	8
73	Jul-21	5	0	2	3
74	Aug-21	10	0	6	1
75	Sep-21	15	0	10	2
76	Oct-21	8	0	5	3
77	Nov-21	15	2	1	5
78	Dec-21	7	1	6	0
79	Jan-22	20	1	5	1
80	Feb-22	12	2	4	1
81	Mar-22	22	1	6	3
82	Apr-22	29	1	10	0
83	May-22	35	4	13	1
84	Jun-22	31	1	3	0
Total		**697**	**58**	**425**	**238**

Use of Mobile Phones while driving: This has become a great menace. Most of the people are on call while driving thus they drive recklessly and accidents happen as most of the peoples now have mobile phones, this is the most potential reason. Distractions could be outside or inside the vehicle. The major distraction now a day is talking on mobile phone while driving. Act of talking on phone occupies major portion of brain and the smaller part handles the driving skills. This division of brain hamper's reaction time and ability of judgement. This becomes one of the reason of crashes.

Over Speeding: Most of the fatal accidents occur due to over speeding. It is natural psyche of humans to excel. Increase in speed multiplies the risk of accident and severity at injury thing.

10.3 Conclusions & Recommendations

Concessionaire need to maintain all signs, markings and road safety devices as per schedule given in CA.

Annexures

Annexure I : Operation Cost

Sr. No.	Particulars	Cost per Annum (Rs.)	Cost per Annum (Cr.)
1	Incidental Management Expenses		
a	Ambulance - 1 Nos.	1,898,591	0.19
b	Patrolling Vehicle - 1 Nos.	4,064,156	0.41
c	Crane - 1 Nos.	1,538,398	0.15
d	Other Vehicle - 3 Nos.	2,039,758	0.20
e	JCB - 2 Nos.	1,275,887	0.13
f	Corridor Manager & Officer	953,280	0.10
2	Maintenance Staff Expenses	6,000,000	0.60
3	Routine Maintenance Cost (Civil Works)	32,152,477	3.22
4	Professional & IE Fee	5,100,000	0.51
5	Insurance Expenses	22,037,986	2.20
6	Staff Welfare Expenses	600,000	0.06
7	Electricity Expenses + Maintenance of parts	42,720,737	4.27
8	ATMS Expenses	6,755,892	0.68
9	Contingency @ 5% (Excl. Civil works)	4,749,234	0.47
	Total Cost (Rs)	**131,886,396**	**13.19**
	Per km Cost (Lakh)	**1,815,516.716**	**18.16**

Annexure II: Routine Maintenance Cost

Routine Maintenance Cost - VSEPL	
Ordinary Repair Cost for Flexible	**30,057,210.38**
(Exclusive of GST @ 12%)	**= 5 lakhs per km**
Ordinary Repair Cost for Rigid	**5,953,564.13**
(Exclusive of GST @ 12%)	**= 2.9 lakhs per km**
Total Cost (Exclusive of GST @ 12%)	**32,152,477.24**
	= 4.43 lakhs per km

CONVERSION FACTORS									
National Highways / State Highways - Rigid Pavement									
Reference cost taken for Two / four lane (7.0 or 14m or 21m) with 1.5m/2m wide shoulders									
(Refer Chapter 6.17 of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 45)									
Sr. No.	**Description for Flexible Pavement**		**Factor**	**Rigid Pavement**		**Project Length (km)**		**Per Year Project Maintenance Cost**	
				Normal	**Urban**				
				More than 4500 CVD	More than 4500 CVD				
				73,257	**104,814**				
						Normal	**Urban**	**Normal**	**Urban**
1	Six lane with divided carriageway and service lane on either side	without Paved shoulder	2.90	212445.00	303960.00	-	-	-	-
		with Paved shoulder	3.10	227096.00	324923.00	-	18.32	-	5,953,564.13
					TOTAL		**18.32**		**5,953,564.13**

CONVERSION FACTORS									
National Highways / State Highways - Flexible Pavement									
Reference cost taken for Two / four lane (7.0 or 14m or 21m) with 1.5m/2m wide shoulders									
(Refer Chapter 6.17 of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 45)									
Sr. No.	**Description for Flexible Pavement**		**Factor**	**Flexible Pavement**		**Project Length (km)**		**Per Year Project Maintenance Cost**	
				Normal	**Urban**				
				More than 4500 CVD	More than 4500 CVD				
				152,461	**184,018**				
						Normal	**Urban**	**Normal**	**Urban**
1	Six lane with divided carriageway and service lane on either side	without Paved shoulder	2.90	442137.00	533652.00	-	15.10	-	8,058,145.20
		with Paved shoulder	3.10	472629.00	570456.00	-	38.56	-	21,999,065.18
TOTAL							**53.664**		**30,057,210.38**

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity**
				More than 4500 CVD
				CC Surface
1	**2**	**3**	**4**	**5**
1	**Maintenance of Carriageway & Paved Shoulders (1.5m wide); B.T. Surface**			
	i) Pot holes repair (50 mm deep)	100 % Pot hole free	As & when required	0.00%
	Volume (cum)			0.00
	Rs/m^3			0
	Cost in Rupees			0
	ii) Patch repair	100 % Patch less	As & when required	0.00%
	Area (sqm)			0
	Rs/m^2			426
	Cost in Rupees			0
	iii) Sealing (Crack)			
	a) Wider than 3 mm	100 % Crack Less	As & when required	0.50%
	Area (sqm)			50
	Rs/m^2			83
	Cost in Rupees			4,144
	b) Width less than 3 mm	75 % Crack Less	As & when required	1.00%
	Area (sqm)			75
	Rs/m^2			55
	Cost in Rupees			4,116
	iv) Repair of ruts and undulations			
	a) Greater than 20 mm	75%	As & when required	0.00%
	Area (sqm)			0
	Rs/m^2			426
	Cost in Rupees			0
	v) Road marking	10%	Once in 10 year & @ Repaired location	0
	vi) Joint Sealant Repair/Replacement	5%		29007

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
	SUB TOTAL			**37,267**
2	**Maintenance of earthen Shoulders:**			
	i) Renewal of earthen shoulders	70%	Once in a Year	5177
	ii) Jungle Clearance	70%	Twice in a Year	1359
	iii) Kuccha Drain Maintenance	70%	Twice in a Year	728
	SUB TOTAL			**7,264**
3	**Maintenance of Cross Drainage works:**			
	i) Cleaning of culvert bed	70%	Once in a Year	1835
	ii) Repair of floors	70%	Once in a Year	3320
	iii) Repair of parapets	70%	As & when required	1383
	SUB TOTAL			**6,538**
4	**Maintenance of Minor & Major Bridges:**			
	i) Cleaning and removal of dirt & vegetation from pier caps, Bearings, Expansion Joints, Superstructure, Substructure and Retaining wall etc.	10%	As & when required	3,467
	ii) Spot painting & protective Coating required on Bearing and greasing of Bearings, railing, structural members, Expansion joints			
	iii) Repair of minor washouts, erosion scour and animal holes			
	iv) Sealing Cracks with Cement/ Epoxy Mortar			
	v) Replacement & Correction of safety barriers, Guard rails and damaged members			
	SUB TOTAL			**3,467**
5	**Miscellaneous Items:**			
	i) Turfing and Arboriculture		Once in a Year	2311
	ii) Maintenance of gang hut store, sheds, animal & debris removal		Once in a Year	3467

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
	iii) Lettering, Painting of Km stones & kerbs, sign boards, hectometer stone etc.		Once in a Year	3467
	iv) Replacement and providing additional retro reflective signage	20%	Covering Total Network in 5 Years	6934
	v) Providing first aid kits, Umbrella, Safety Jackets, Vardi etc.		Once in a Year	1156
	vi) Traffic Census		Once in a Year	0
	vii) Provision for roughness measurement		Twice in a Year	1386
	SUB TOTAL			**18,721**
	GRAND TOTAL (Normal)			**73,257**
6	**Additional Cost required for Urban Area**			
	i) Renewal of Center Line, Edge Marking, Kerb Marking/ Zebra crossing etc. in City Portion	10%	Once in 10 year & @ Repaired location	19886
	ii)Repairs to footpath	0%	As & when required	0
	iii) ROB/ Fly-over Railings & repair	50%	As & when required	2311
	iv) Street Lighting	0%	As & when required	0
	v) Encroachment Removal Squad	50%	As & when required	3583
	vi) Repair of divider/ Railing in City portion	50%	As & when required	4623
	vii) Provision for maintenance of pedestrian underpass	50%	As & when required	1156
	SUB TOTAL			**31,557**
	GRAND TOTAL (Urban)			**104,814**

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. More than 4500 CVD BT Surface**
1	**2**	**3**	**4**	**5**
1	**Maintenance of Carriageway & Paved Shoulders (1.5m wide); B.T. Surface**			
	i) Pot holes repair (50 mm deep)	100 % Pot hole free	As & when required	0.50%
	Volume (cum)			2.50
	Rs/m^3			10640
	Cost in Rupees			26,600
	ii) Patch repair	100 % Patch less	As & when required	0.50%
	Area (sqm)			50
	Rs/m^2			426
	Cost in Rupees			21,280
	iii) Sealing (Crack)			
	a) Wider than 3 mm	100 % Crack Less	As & when required	1.00%
	Area (sqm)			100
	Rs/m^2			83
	Cost in Rupees			8,288
	b) Width less than 3 mm	75 % Crack Less	As & when required	1.00%
	Area (sqm)			75
	Rs/m^2			55
	Cost in Rupees			4,116
	iv) Repair of ruts and undulations			
	a) Greater than 20 mm	75%	As & when required	1.00%
	Area (sqm)			75
	Rs/m^2			426
	Cost in Rupees			31,920
	v) Road marking	10%	Once in 10 year & @ Repaired location	0
	SUB TOTAL			**92,204**

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. More than 4500 CVD BT Surface**
1	**2**	**3**	**4**	**5**
2	**Maintenance of earthen Shoulders:**			
	i) Renewal of earthen shoulders	70%	Once in a Year	5177
	ii) Jungle Clearance	70%	Twice in a Year	1359
	iii) Kuccha Drain Maintenance	70%	Twice in a Year	728
	SUB TOTAL			**7,264**
3	**Maintenance of Cross Drainage works:**			
	i) Cleaning of culvert bed	70%	Once in a Year	1835
	ii) Repair of floors	70%	Once in a Year	3320
	iii) Repair of parapets	70%	As & when required	1383
	SUB TOTAL			**6,538**
4	**Maintenance of Minor & Major Bridges:**			
	i) Cleaning and removal of dirt & vegetation from pier caps, Bearings, Expansion Joints, Superstructure, Substructure and Retaining wall etc.	80%	As & when required	27,734
	ii) Spot painting & protective Coating required on Bearing and greasing of Bearings, railing, structural members, Expansion joints			
	iii) Repair of minor washouts, erosion scour and animal holes			
	iv) Sealing Cracks with Cement/ Epoxy Mortar			
	v) Replacement & Correction of safety barriers, Guard rails and damaged members			
	SUB TOTAL			**27,734**
5	**Miscellaneous Items:**			
	i) Turfing and Arboriculture		Once in a Year	2311
	ii) Maintenance of gang hut store, sheds, animal & debries removal		Once in a Year	3467
	iii) Lettering, Painting of Km stones & kerbs, sign boards, Hectometer stone etc.		Once in a Year	3467
	iv) Replacement and providing additional retro reflective signage	20%	Covering Total Network in 5 Years	6934

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. More than 4500 CVD BT Surface**
1	**2**	**3**	**4**	**5**
	v) Providing first aid kits, Umbrella, Safety Jackets, Vardi etc.		Once in a Year	1156
	vi) Traffic Census		Once in a Year	0
	vii) Provision for roughness measurement		Twice in a Year	1386
	SUB TOTAL			**18,721**
	GRAND TOTAL (Normal)			**152,461**
6	**Additional Cost required for Urban Area**			
	i) Renewal of Center Line, Edge Marking, Kerb Marking/ Zebra crossing etc. in City Portion	10%	Once in 10 years with thermoplastic paint	19886
	ii)Repairs to footpath	0%	As & when required	0
	iii) ROB/ Fly-over Railings & repair	50%	As & when required	2311
	iv) Street Lighting	0%	As & when required	0
	v) Encroachment Removal Squad	50%	As & when required	3583
	vi) Repair of divider/ Railing in City portion	50%	As & when required	4623
	vii) Provision for maintenance of pedestrian underpass	50%	As & when required	1156
	SUB TOTAL			**31,557**
	GRAND TOTAL (Urban)			**184,018**

Annexure III: Major Maintenance Cost

Periodic Maintenance Cost - FY 2027										
Sr. No.	**Description**	**Unit**	**No.**	**Length**	**Width**	**Depth**	**Quantity**	**Total Quantity**	**Rate**	**Amount**
I. Main Carriageway, Service Road / Slip Road & Miscellaneous location										
A	**Main Carriageway: Flexible Pavement**									
1	Milling	Sqm	100%	44,095.50	22.00		970,101.00	970,101.00	55.00	53,355,555
2	Tack Coat for DBM	Sqm	100%	44,095.50	22.00		970,101.00	970,101.00	10.00	9,701,010
3	DBM Overlay	Cum	100%	44,095.50	22.00	0.05	48,505.05	48,505.05	9,198.00	446,149,450
4	Tack Coat for BC	Sqm	1	44,095.50	24.66		1,087,247.69	1,087,247.69	10.00	10,872,477
5	BC Overlay	Cum	1	44,095.50	24.66	0.04	43,489.91	43,489.91	10,654.00	463,341,477
6	Filling of Earthen shoulder	Cum	1	24,357.00	4.00	0.04	3,897.12	3,897.12	281.00	1,095,091
B	**Main Carriageway: Rigid Pavement**									
7	Replacement of Joint Sealant	Rmt	5%	204,752.25			10,237.61	10,237.61	99.00	1,013,524
8	Dismantling of CC Panels @ 1.5% area	Cum	1.5%	18,323.00	22.00	0.30	1,813.98	1,813.98	756.00	1,371,367
9	Replacement of Panels - PQC @ 1.5% area	Cum	1.5%	18,323.00	22.00	0.30	1,813.98	1,813.98	8,330.00	15,110,428
10	Diamond Grinding	Sqm	3%	18,323.00	22.00		12,093.18	12,093.18	50.00	604,659
C	**Rigid Pavement at Toll Plaza**									
11	Replacement of Joint Sealant	Rmt	5%	16,668.20			833.41	833.41	99.00	82,508
12	Dismantling of CC Panels @ 1.5% area	Cum	2%	32,815.51		0.30	147.67	147.67	756.00	111,638
13	Replacement of Panels - PQC @ 1.5% area	Cum	2%	32,815.51		0.30	147.67	147.67	8,330.00	1,230,089
D	**Service Roads (Flexible Pavement)**									
14	Tack Coat for BC	Sqm	10%	70,689.00	13.06		92,312.10	92,312.10	10.00	923,121
15	BC Overlay with 30mm	Cum	10%	70,689.00	13.06	0.03	2,769.36	2,769.36	10,654.00	29,504,793
16	Micro surfacing	Sqm	90%	70,689.00	13.06		830,808.90	830,808.90	133.00	110,497,584
17	Filling of Earthen shoulder	Cum							281.00	-
E	**Service Roads (Rigid Pavement)**									
18	Replacement of Joint Sealant	Rmt	5%	13,186.03			659.30	659.30	99.00	65,271
19	Dismantling of CC Panels @ 1% area	Cum	1.0%	1,298.00	20.00	0.30	77.88	77.88	756.00	58,877
20	Replacement of Panels - PQC @ 1% area	Cum	1.0%	1,298.00	20.00	0.30	77.88	77.88	8,330.00	648,740
F	**Structural Deck area**									
21	Milling	Sqm	50%	9,568.50	21.65		103,593.90	103,593.90	55.00	5,697,665
22	Tack Coat	Sqm	50%	9,568.50	21.65		103,593.90	103,593.90	10.00	1,035,939
23	Mastic Asphalt Overlay	Sqm	50%	9,568.50	21.65		103,593.90	103,593.90	517.00	53,558,048
G	**Miscellaneous**									
24	Raising of Kerb	Rmt	10%	141,378.00			14,137.80	14,137.80	268.00	3,788,930
25	Painting of Kerbs	Sqm	1	141,378.00		0.32	44,534.07	44,534.07	73.00	3,250,987
26	Painting of Crash Barrier	Sqm	1	63,850.00		1.12	71,192.75	71,192.75	73.00	5,197,071
27	Thermoplastic paint									
	a) Median & Edge line	Sqm	100%				60,503.88	60,503.88	530.00	32,067,058
	Main Carriageway 6L		4	53,664.00	0.15		32,198.40			
	Service Road		2	70,689.00	0.10		14,137.80			
	b) Lane line									
	Main Carriageway 6L		4	18,782.40	0.10		7,512.96			
	Service Road		1	11,543.70	0.10		1,154.37			
	c) Junction crossing / Miscellaneous						5,500.35			
28	Replacement of Road Stud	No	100%				19,784.00	19,784.00	239.00	4,728,376
	Main Carriageway 6L/4L		4	2,982.00			11,928.00			
	Service Road		2	3,928.00			7,856.00			
29	Miscellaneous	3%								37,651,852
									Total Amount (MCW)	**1,292,713,585**
									Total Cost in Lakhs (MCW)	**12,927.14**
									Per km Cost in lakhs (MCW)	**177.95**

Periodic Maintenance Cost - FY 2034										
Sr. No.	**Description**	**Unit**	**No.**	**Length**	**Width**	**Depth**	**Quantity**	**Total Quantity**	**Rate**	**Amount**
I. Main Carriageway, Service Road / Slip Road & Miscellaneous location										
A	**Main Carriageway: Flexible Pavement**									
1	Milling	Sqm	5%	44,095.50	22.00		48,505.05	48,505.05	55.00	2,667,778
2	Tack Coat for DBM	Sqm	5%	44,095.50	22.00		48,505.05	48,505.05	10.00	485,051
3	DBM Overlay	Cum	5%	44,095.50	22.00	0.05	2,425.25	2,425.25	9,198.00	22,307,472
4	Tack Coat for BC	Sqm	1	44,095.50	24.66		1,087,247.69	1,087,247.69	10.00	10,872,477
5	BC Overlay	Cum	1	44,095.50	24.66	0.04	43,489.91	43,489.91	10,654.00	463,341,477
6	Filling of Earthen shoulder	Cum	1	24,357.00	4.00	0.04	3,897.12	3,897.12	281.00	1,095,091
B	**Main Carriageway: Rigid Pavement**									
7	Replacement of Joint Sealant	Rmt	5%	204,752.25			10,237.61	10,237.61	99.00	1,013,524
8	Dismantling of CC Panels @ 1.5% area	Cum	1.5%	18,323.00	22.00	0.30	1,813.98	1,813.98	756.00	1,371,367
9	Replacement of Panels - PQC @ 1.5% area	Cum	1.5%	18,323.00	22.00	0.30	1,813.98	1,813.98	8,330.00	15,110,428
10	Diamond Grinding	Sqm	3%	18,323.00	22.00		12,093.18	12,093.18	50.00	604,659
C	**Rigid Pavement at Toll Plaza**									
11	Replacement of Joint Sealant	Rmt	5%	16,668.20			833.41	833.41	99.00	82,508
12	Dismantling of CC Panels @ 1.5% area	Cum	2%		32,815.51	0.30	147.67	147.67	756.00	111,638
13	Replacement of Panels - PQC @ 1.5% area	Cum	2%		32,815.51	0.30	147.67	147.67	8,330.00	1,230,089
D	**Service Roads (Flexible Pavement)**									
14	Tack Coat for BC	Sqm	10%	70,689.00	13.06		92,312.10	92,312.10	10.00	923,121
15	BC Overlay with 30mm	Cum	10%	70,689.00	13.06	0.03	2,769.36	2,769.36	10,654.00	29,504,793
16	Micro surfacing	Sqm	90%	70,689.00	13.06		830,808.90	830,808.90	133.00	110,497,584
17	Filling of Earthen shoulder	Cum							281.00	-
E	**Service Roads (Rigid Pavement)**									
18	Replacement of Joint Sealant	Rmt	5%	13,186.03			659.30	659.30	99.00	65,271
19	Dismantling of CC Panels @ 1% area	Cum	1.0%	1,298.00	20.00	0.30	77.88	77.88	756.00	58,877
20	Replacement of Panels - PQC @ 1% area	Cum	1.0%	1,298.00	20.00	0.30	77.88	77.88	8,330.00	648,740
F	**Structural Deck area**									
21	Milling	Sqm	50%	9,568.50	21.65		103,593.90	103,593.90	55.00	5,697,665
22	Tack Coat	Sqm	50%	9,568.50	21.65		103,593.90	103,593.90	10.00	1,035,939
23	Mastic Asphalt Overlay	Sqm	50%	9,568.50	21.65		103,593.90	103,593.90	517.00	53,558,048
G	**Miscellaneous**									
24	Raising of Kerb	Rmt	10%	141,378.00			14,137.80	14,137.80	268.00	3,788,930
25	Painting of Kerbs	Sqm	1	141,378.00		0.32	44,534.07	44,534.07	73.00	3,250,987
26	Painting of Crash Barrier	Sqm	1	63,850.00		1.12	71,192.75	71,192.75	73.00	5,197,071
27	Thermoplastic paint									
	a) Median & Edge line	Sqm	100%				60,503.88	60,503.88	530.00	32,067,058
	Main Carriageway 6L		4	53,664.00	0.15		32,198.40			
	Service Road		2	70,689.00	0.10		14,137.80			
	b) Lane line									
	Main Carriageway 6L		4	18,782.40	0.10		7,512.96			
	Service Road		1	11,543.70	0.10		1,154.37			
	c) Junction crossing / Miscellaneous						5,500.35			
28	Replacement of Road Stud	No	100%				19,784.00	19,784.00	239.00	4,728,376
	Main Carriageway 6L/4L		4	2,982.00			11,928.00			
	Service Road		2	3,928.00			7,856.00			
29	Miscellaneous	5%								38,565,801
									Total Amount (MCW)	**809,881,820**
									Total Cost in Lakhs (MCW)	**8,098.82**
									Per km Cost in lakhs (MCW)	**111.49**

Annexure IV: Pavement Condition Survey

LHS - Varanasi to Handia

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
1	712.900	713.000	G	BT	Flexible					1.5		Moderate							G	F		
2	713.000	713.100	G	BT	Flexible					1.5		Moderate							G	F		
3	713.100	713.200	G	BT	Flexible					1.5		Moderate							G	F		
4	713.200	713.300	G	BT	Flexible					1.5		Moderate							G	F		
5	713.300	713.400	G	BT	Flexible					1.5		Moderate							G	F		
6	713.400	713.500	G	BT	Flexible					1.5		Moderate							G	F		
7	713.500	713.600	G	BT	Flexible					1.5		Moderate							G	F		
8	713.600	713.700	G	BT	Flexible					1.5		Moderate							G	F		
9	713.700	713.800	G	BT	Flexible					1.5		Moderate							G	F		
10	713.800	713.900	G	BT	Flexible					1.5		Moderate							G	F		
11	713.900	714.000	G	BT	Flexible					1.5		Moderate							G	F		
12	714.000	714.100	G	BT	Flexible					1.5		Moderate							G	F		
13	714.100	714.200	G	BT	Flexible					1.5		Moderate							G	F		
14	714.200	714.300	G	BT	Flexible					1.5		Moderate							G	F		
15	714.300	714.400	G	BT	Flexible					1.5		Moderate							G	F		
16	714.400	714.500	G	BT	Flexible					1.5		Moderate							G	F		
17	714.500	714.600	G	BT	Flexible					1.5		Moderate							G	F		
18	714.600	714.700	G	BT	Flexible					1.5		Moderate							G	F		
19	714.700	714.800	G	BT	Flexible					1.5		Moderate							G	F		
20	714.800	714.900	G	BT	Flexible					1.5		Moderate							G	F		
21	714.900	715.000	G	BT	Flexible					1.5		Moderate							G	F		
22	715.000	715.100	G	BT	Flexible					1.5		Moderate							G	F		
23	715.100	715.200	G	BT	Flexible					1.5		Moderate							G	F		
24	715.200	715.300	G	BT	Flexible					1.5		Moderate							G	F		
25	715.300	715.400	G	BT	Flexible					1.5		Moderate							G	F		
26	715.400	715.500	G	BT	Flexible					1.5		Moderate							G	F		
27	715.500	715.600	G	BT	Flexible					1.5		Moderate							G	F		
28	715.600	715.700	G	BT	Flexible					1.5		Moderate							G	F		
29	715.700	715.800	G	BT	Flexible					1.5		Moderate							G	F		
30	715.800	715.900	G	BT	Flexible					1.5		Moderate							G	F		
31	715.900	716.000	G	BT	Flexible					1.5		Moderate							G	F		
32	716.000	716.100	G	BT	Flexible					1.5		Moderate							G	F		
33	716.100	716.200	G	BT	Flexible					1.5		Moderate							G	F		
34	716.200	716.300	G	BT	Flexible					1.5		Moderate							G	F		
35	716.300	716.400	G	BT	Flexible					1.5		Moderate							G	F		
36	716.400	716.500	G	BT	Flexible					1.5		Moderate							G	F		
37	716.500	716.600	G	BT	Flexible					1.5		Moderate							G	F		
38	716.600	716.700	G	BT	Flexible					1.5		Moderate							G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
39	716.700	716.800	G	BT	Flexible					1.5		Moderate							G	F		
40	716.800	716.900	G	BT	Flexible					1.5		Moderate							G	F		
41	716.900	717.000	G	BT	Flexible					1.5		Moderate							G	F		
42	717.000	717.100	F	BT	Flexible					2		Moderate							G	F		
43	717.100	717.200	F	BT	Flexible					2.5		Moderate							G	F		
44	717.200	717.300	F	BT	Flexible					2		Moderate							G	F		
45	717.300	717.400	F	BT	Flexible					2		Moderate							G	F		
46	717.400	717.500	F	BT	Flexible					2		Moderate							G	F		
47	717.500	717.600	F	BT	Flexible					2		Moderate							G	F		
48	717.600	717.700	F	BT	Flexible					2		Moderate							G	F		
49	717.700	717.800	F	BT	Flexible					2.5		Moderate							G	F		
50	717.800	717.900	G	BT	Flexible					1.5		Moderate							G	F		
51	717.900	718.000	F	BT	Flexible					2		Moderate							G	F		
52	718.000	718.100	F	BT	Flexible					2		Moderate							G	F		
53	718.100	718.200	F	BT	Flexible					2		Moderate							G	F		
54	718.200	718.300	F	BT	Flexible					2		Moderate							G	F		
55	718.300	718.400	G	BT	Flexible					1.5		Moderate							G	F		
56	718.400	718.500	F	BT	Flexible					2		Moderate							G	F		
57	718.500	718.600	F	BT	Flexible					2		Moderate							G	F		
58	718.600	718.700	F	BT	Flexible					2		Moderate							G	F		
59	718.700	718.800	G	BT	Flexible					1.5		Moderate							G	F		
60	718.800	718.900	F	BT	Flexible					2		Moderate							G	F		
61	718.900	719.000	F	BT	Flexible					2		Moderate							G	F		
62	719.000	719.100	G	BT	Flexible					1.5		Moderate							G	F		
63	719.100	719.200	F	BT	Flexible					2		Moderate							G	F		
64	719.200	719.300	F	BT	Flexible					2		Moderate							G	F		
65	719.300	719.400	F	BT	Flexible					2		Moderate							G	F		
66	719.400	719.500	F	BT	Flexible					2		Moderate							G	F		
67	719.500	719.600	G	BT	Flexible					1.5		Moderate							G	F		
68	719.600	719.700	F	BT	Flexible					2		Moderate							G	F		
69	719.700	719.800	G	BT	Flexible					1.5		Moderate							G	F		
70	719.800	719.900	F	BT	Flexible					2		Moderate							G	F		
71	719.900	720.000	G	BT	Flexible					1.5		Moderate							G	F		
72	720.000	720.100	G	BT	Flexible					1.5		Moderate							G	F		
73	720.100	720.200	G	BT	Flexible					1.5		Moderate							G	F		
74	720.200	720.300	G	BT	Flexible					1.5		Moderate							G	F		
75	720.300	720.400	G	BT	Flexible					1.5		Moderate							G	F		
76	720.400	720.500	G	BT	Flexible					1.5		Moderate							G	F		
77	720.500	720.600	G	BT	Flexible					1.5		Moderate							G	F		
78	720.600	720.700	G	BT	Flexible					1.5		Moderate							G	F		
79	720.700	720.800	G	BT	Flexible					1.5		Moderate							G	F		
80	720.800	720.900	F	BT	Flexible					2		Moderate							G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
81	720.900	721.000	F	BT	Flexible					2		Moderate							G	F		
82	721.000	721.100	F	BT	Flexible					2		Moderate							G	F		
83	721.100	721.200	G	BT	Flexible					1.5		Moderate							G	F		
84	721.200	721.300	G	BT	Flexible					1.5		Moderate							G	F		
85	721.300	721.400	F	BT	Flexible					2		Moderate							G	F		
86	721.400	721.500	F	BT	Flexible					2		Moderate							G	F		
87	721.500	721.600	G	BT	Flexible					1.5		Moderate							G	F		
88	721.600	721.700	G	BT	Flexible					1.5		Moderate							G	F		
89	721.700	721.800	G	BT	Flexible					1.5		Moderate							G	F		
90	721.800	721.900	G	BT	Flexible					1.5		Moderate							G	F		
91	721.900	722.000	F	BT	Flexible					2		Moderate							G	F		
92	722.000	722.100	F	BT	Flexible					2		Moderate							G	F		
93	722.100	722.200	G	BT	Flexible					1.5		Moderate							G	F		
94	722.200	722.300	G	BT	Flexible					1.5		Moderate							G	F		
95	722.300	722.400	F	BT	Flexible					2		Moderate							G	F		
96	722.400	722.500	G	BT	Flexible					1.5		Moderate							G	F		
97	722.500	722.600	F	BT	Flexible					2		Moderate							G	F		
98	722.600	722.700	F	BT	Flexible					2		Moderate							G	F		
99	722.700	722.800	F	BT	Flexible					2		Moderate							G	F		
100	722.800	722.900	F	BT	Flexible					2		Moderate							G	F		
101	722.900	723.000	F	BT	Flexible					2		Moderate							G	F		
102	723.000	723.100	F	BT	Flexible					2		Moderate							G	F		
103	723.100	723.200	F	BT	Flexible					2		Moderate							G	F		
104	723.200	723.300	F	BT	Flexible					2		Moderate							G	F		
105	723.300	723.400	F	BT	Flexible					2		Moderate							G	F		
106	723.400	723.500	G	BT	Flexible					1.5		Moderate							G	F		
107	723.500	723.600	F	BT	Flexible					2		Moderate							G	F		
108	723.600	723.700	F	BT	Flexible					2		Moderate							G	F		
109	723.700	723.800	G	BT	Flexible					1.5		Moderate							G	F		
110	723.800	723.900	G	BT	Flexible					1.5		Moderate							G	F		
111	723.900	724.000	G	BT	Flexible					1.5		Moderate							G	F		
112	724.000	724.100	G	BT	Flexible					1.5		Moderate							G	F		
113	724.100	724.200	G	BT	Flexible					1.5		Moderate							G	F		
114	724.200	724.300	G	BT	Flexible					1.5		Moderate							G	F		
115	724.300	724.400	G	BT	Flexible					1.5		Moderate							G	F		
116	724.400	724.500	G	BT	Flexible					1.5		Moderate							G	F		
117	724.500	724.600	G	BT	Flexible					1.5		Moderate							G	F		
118	724.600	724.700	G	BT	Flexible					1.5		Moderate							G	F		
119	724.700	724.800	G	BT	Flexible					1.5		Moderate							G	F		
120	724.800	724.900	G	BT	Flexible					1.5		Moderate							G	F		
121	724.900	725.000	G	BT	Flexible					1.5		Moderate							G	F		
122	725.000	725.100	G	BT	Flexible					1.5		Moderate							G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
123	725.100	725.200	G	BT	Flexible					1.5		Moderate							G	F		
124	725.200	725.300	F	BT	Flexible					2		Moderate							G	F		
125	725.300	725.400	F	BT	Flexible					2		Moderate							G	F		
126	725.400	725.500	F	BT	Flexible					2		Moderate							G	F		
127	725.500	725.600	F	BT	Flexible					2		Moderate							G	F		
128	725.600	725.700	F	BT	Flexible					2		Moderate							G	F		
129	725.700	725.800	G	BT	Flexible					1.5		Moderate							G	F		
130	725.800	725.900	G	BT	Flexible					1.5		Moderate							G	F		
131	725.900	726.000	G	BT	Flexible					1.5		Moderate							G	F		
132	726.000	726.100	G	BT	Flexible					1.5		Moderate							G	F		
133	726.100	726.200	F	BT	Flexible					2		Moderate							G	F		
134	726.200	726.300	F	BT	Flexible					2		Moderate							G	F		
135	726.300	726.400	F	BT	Flexible					2		Moderate							G	F		
136	726.400	726.500	F	BT	Flexible					2		Moderate							G	F		
137	726.500	726.600	F	BT	Flexible					2		Moderate							G	F		
138	726.600	726.700	F	BT	Flexible					2		Moderate							G	F		
139	726.700	726.800	G	BT	Flexible					1.5		Moderate							G	F		
140	726.800	726.900	G	BT	Flexible					1.5		Moderate							G	F		
141	726.900	727.000	G	BT	Flexible					1.5		Moderate							G	F		
142	727.000	727.100	G	BT	Flexible					1.5		Moderate							G	F		
143	727.100	727.200	G	BT	Flexible					1.5		Moderate							G	F		
144	727.200	727.300	G	BT	Flexible					1.5		Moderate							G	F		
145	727.300	727.400	G	BT	Flexible					1.5		Moderate							G	F		
146	727.400	727.500	G	BT	Flexible					1.5		Moderate							G	F		
147	727.500	727.600	G	BT	Flexible					1.5		Moderate							G	F		
148	727.600	727.700	G	BT	Flexible					1.5		Moderate							G	F		
149	727.700	727.800	G	BT	Flexible					1.5		Moderate							G	F		
150	727.800	727.900	G	BT	Flexible					1.5		Moderate							G	F		
151	727.900	728.000	G	BT	Flexible					1.5		Moderate							G	F		
152	728.000	728.100	G	BT	Flexible					1.5		Moderate							G	F		
153	728.100	728.200	G	BT	Flexible					1.5		Moderate							G	F		
154	728.200	728.300	G	BT	Flexible					1.5		Moderate							G	F		
155	728.300	728.400	G	BT	Flexible					1.5		Moderate							G	F		
156	728.400	728.500	G	BT	Flexible					1.5		Moderate							G	F		
157	728.500	728.600	G	BT	Flexible					1.5		Moderate							G	F		
158	728.600	728.700	G	BT	Flexible					1.5		Moderate							G	F		
159	728.700	728.800	G	BT	Flexible					1.5		Moderate							G	F		
160	728.800	728.900	G	BT	Flexible					1.5		Moderate							G	F		
161	728.900	729.000	G	BT	Flexible					1.5		Moderate							G	F		
162	729.000	729.100	G	BT	Flexible					1.5		Moderate							G	F		
163	729.100	729.200	G	BT	Flexible					1.5		Moderate							G	F		
164	729.200	729.300	G	BT	Flexible					1.5		Moderate							G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
165	729.300	729.400	G	BT	Flexible					1.5		Moderate							G	F		
166	729.400	729.500	G	BT	Flexible					1.5		Moderate							G	F		
167	729.500	729.600	G	BT	Flexible					1.5		Moderate							G	F		
168	729.600	729.700	G	BT	Flexible					1.5		Moderate							G	F		
169	729.700	729.800	G	BT	Flexible					1.5		Moderate							G	F		
170	729.800	729.900	G	BT	Flexible					1.5		Moderate							G	F		
171	729.900	730.000	G	BT	Flexible					1.5		Moderate							G	F		
172	730.000	730.100	G	BT	Flexible					1.5		Moderate							G	F		
173	730.100	730.200	G	BT	Flexible					1.5		Moderate							G	F		
174	730.200	730.300	G	BT	Flexible					1.5		Moderate							G	F		
175	730.300	730.400	G	BT	Flexible					1.5		Moderate							G	F		
176	730.400	730.500	G	BT	Flexible					1.5		Moderate							G	F		
177	730.500	730.600	G	BT	Flexible					1.5		Moderate							G	F		
178	730.600	730.700	G	BT	Flexible					1.5		Moderate							G	F		
179	730.700	730.800	G	BT	Flexible					1.5		Moderate							G	F		
180	730.800	730.900	G	BT	Flexible					1.5		Moderate							G	F		
181	730.900	731.000	G	BT	Flexible					1.5		Moderate							G	F		
182	731.000	731.100	G	BT	Flexible					1.5		Moderate							G	F		
183	731.100	731.200	G	BT	Flexible					1.5		Moderate							G	F		
184	731.200	731.300	G	BT	Flexible					1.5		Moderate							G	F		
185	731.300	731.400	G	BT	Flexible					1.5		Moderate							G	F		
186	731.400	731.500	G	BT	Flexible					1.5		Moderate							G	F		
187	731.500	731.600	F	BT	Flexible					2		Moderate							G	F		
188	731.600	731.700	F	BT	Flexible					2		Moderate							G	F		
189	731.700	731.800	F	BT	Flexible					2		Moderate							G	F		
190	731.800	731.900	F	BT	Flexible					2		Moderate							G	F		
191	731.900	732.000	G	BT	Flexible					1.5		Moderate							G	F		
192	732.000	732.100	G	BT	Flexible					1.5		Moderate							G	F		
193	732.100	732.200	F	BT	Flexible					2		Moderate							G	F		
194	732.200	732.300	G	BT	Flexible					1.5		Moderate							G	F		
195	732.300	732.400	F	BT	Flexible					2		Moderate							G	F		
196	732.400	732.500	F	BT	Flexible					2		Moderate							G	F		
197	732.500	732.600	G	BT	Flexible					1.5		Moderate							G	F		
198	732.600	732.700	G	BT	Flexible					1.5		Moderate							G	F		
199	732.700	732.800	F	BT	Flexible					2		Moderate							G	F		
200	732.800	732.900	G	BT	Flexible					1.5		Moderate							G	F		
201	732.900	733.000	F	BT	Flexible					2		Moderate							G	F		
202	733.000	733.100	G	BT	Flexible					1.5		Moderate							G	F		
203	733.100	733.200	G	BT	Flexible					1.5		Moderate							G	F		
204	733.200	733.300	F	BT	Flexible					2		Moderate							G	F		
205	733.300	733.400	G	BT	Flexible					1.5		Moderate							G	F		
206	733.400	733.500	G	BT	Flexible					1.5		Moderate							G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
207	733.500	733.600	F	BT	Flexible					2		Moderate							G	F		
208	733.600	733.700	G	BT	Flexible					1.5		Moderate							G	F		
209	733.700	733.800	F	BT	Flexible					2		Moderate							G	F		
210	733.800	733.900	G	BT	Flexible					1.5		Moderate							G	F		
211	733.900	734.000	G	BT	Flexible					1.5		Moderate							G	F		
212	734.000	734.100	F	BT	Flexible					2		Moderate							G	F		
213	734.100	734.200	G	BT	Flexible					1.5		Moderate							G	F		
214	734.200	734.300	G	BT	Flexible					1.5		Moderate							G	F		
215	734.300	734.400	F	BT	Flexible					2		Moderate							G	F		
216	734.400	734.500	G	BT	Flexible					1.5		Moderate							G	F		
217	734.500	734.600	F	BT	Flexible					2		Moderate							G	F		
218	734.600	734.700	G	BT	Flexible					1.5		Moderate							G	F		
219	734.700	734.800	F	BT	Flexible					2		Moderate							G	F		
220	734.800	734.900	G	BT	Flexible					1.5		Moderate							G	F		
221	734.900	735.000	G	BT	Flexible					1.5		Moderate							G	F		
222	735.000	735.100	F	BT	Flexible					2		Moderate							G	F		
223	735.100	735.200	G	BT	Flexible					1.5		Moderate							G	F		
224	735.200	735.300	G	BT	Flexible					1.5		Moderate							G	F		
225	735.300	735.400	F	BT	Flexible					2		Moderate							G	F		
226	735.400	735.500	G	BT	Flexible					1.5		Moderate							G	F		
227	735.500	735.600	F	BT	Flexible					2		Moderate							G	F		
228	735.600	735.700	G	BT	Flexible					1.5		Moderate							G	F		
229	735.700	735.800	G	BT	Flexible					1.5		Moderate							G	F		
230	735.800	735.900	F	BT	Flexible					2		Moderate							G	F		
231	735.900	736.000	G	BT	Flexible					1.5		Moderate							G	F		
232	736.000	736.100	F	BT	Flexible					2		Moderate							G	F		
233	736.100	736.200	F	BT	Flexible					2		Moderate							G	F		
234	736.200	736.300	G	BT	Flexible					1.5		Moderate							G	F		
235	736.300	736.400	F	BT	Flexible					2		Moderate							G	F		
236	736.400	736.500	G	BT	Flexible					1.5		Moderate							G	F		
237	736.500	736.600	F	BT	Flexible					2		Moderate							G	F		
238	736.600	736.700	G	BT	Flexible					1.5		Moderate							G	F		
239	736.700	736.800	F	BT	Flexible					2		Moderate							G	F		
240	736.800	736.900	G	BT	Flexible					1.5		Moderate							G	F		
241	736.900	737.000	F	BT	Flexible					2		Moderate							G	F		
242	737.000	737.100	G	BT	Flexible					1.5		Moderate							G	F		
243	737.100	737.200	F	BT	Flexible					2		Moderate							G	F		
244	737.200	737.300	G	BT	Flexible					1.5		Moderate							G	F		
245	737.300	737.400	F	BT	Flexible					2		Moderate							G	F		
246	737.400	737.500	G	BT	Flexible					1.5		Moderate							G	F		
247	737.500	737.600	F	BT	Flexible					2		Moderate							G	F		
248	737.600	737.700	F	BT	Flexible					2		Moderate							G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
249	737.700	737.800	G	BT	Flexible					1.5		Moderate							G	F		
250	737.800	737.900	F	BT	Flexible					2		Moderate							G	F		
251	737.900	738.000	G	BT	Flexible					1.5		Moderate							G	F		
252	738.000	738.100	F	BT	Flexible					2		Moderate							G	F		
253	738.100	738.200	G	BT	Flexible					1.5		Moderate							G	F		
254	738.200	738.300	F	BT	Flexible					2		Moderate							G	F		
255	738.300	738.400	G	BT	Flexible					1.5		Moderate							G	F		
256	738.400	738.500	F	BT	Flexible					2.5		Moderate							G	F		
257	738.500	738.600	G	BT	Flexible					1.5		Moderate							G	F		
258	738.600	738.700	G	BT	Flexible					1.5		Moderate							G	F		
259	738.700	738.800	G	BT	Flexible					1.5		Moderate							G	F		
260	738.800	738.900	F	BT	Flexible					2		Moderate							G	F		
261	738.900	739.000	G	BT	Flexible					1.5		Moderate							G	F		
262	739.000	739.100	F	BT	Flexible					2		Moderate							G	F		
263	739.100	739.200	G	BT	Flexible					1.5		Moderate							G	F		
264	739.200	739.300	F	BT	Flexible					2		Moderate							G	F		
265	739.300	739.400	G	BT	Flexible					1.5		Moderate							G	F		
266	739.400	739.500	F	BT	Flexible					2		Moderate							G	F		
267	739.500	739.600	G	BT	Flexible					1.5		Moderate							G	F		
268	739.600	739.700	F	BT	Flexible					2		Moderate							G	F		
269	739.700	739.800	G	BT	Flexible					1.5		Moderate							G	F		
270	739.800	739.900	F	BT	Flexible					2		Moderate							G	F		
271	739.900	740.000	G	BT	Flexible					1.5		Moderate							G	F		
272	740.000	740.100	F	BT	Flexible					2		Moderate							G	F		
273	740.100	740.200	G	BT	Flexible					1.5		Moderate							G	F		
274	740.200	740.300	F	BT	Flexible					2		Moderate							G	F		
275	740.300	740.400	G	BT	Flexible					1.5		Moderate							G	F		
276	740.400	740.500	F	BT	Flexible					2		Moderate							G	F		
277	740.500	740.600	G	BT	Flexible					1.5		Moderate							G	F		
278	740.600	740.700	F	BT	Flexible					2		Moderate							G	F		
279	740.700	740.800	G	BT	Flexible					1.5		Moderate							G	F		
280	740.800	740.900	F	BT	Flexible					2		Moderate							G	F		
281	740.900	741.000	G	BT	Flexible					1.5		Moderate							G	F		
282	741.000	741.100	F	BT	Flexible					2.5		Moderate							G	F		
283	741.100	741.200	F	BT	Flexible					2		Moderate							G	F		
284	741.200	741.300	G	BT	Flexible					1.5		Moderate							G	F		
285	741.300	741.400	F	BT	Flexible					2		Moderate							G	F		
286	741.400	741.500	G	BT	Flexible					1.5		Moderate							G	F		
287	741.500	741.600	F	BT	Flexible					2		Moderate							G	F		
288	741.600	741.700	G	BT	Flexible					1.5		Moderate							G	F		
289	741.700	741.800	F	BT	Flexible					2		Moderate							G	F		
290	741.800	741.900	G	BT	Flexible					1.5		Moderate							G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
291	741.900	742.000	F	BT	Flexible					2.5		Moderate							G	F		
292	742.000	742.100	G	BT	Flexible					1.5		Moderate							G	F		
293	742.100	742.200	F	BT	Flexible					2		Moderate							G	F		
294	742.200	742.300	G	BT	Flexible					1.5		Moderate							G	F		
295	742.300	742.400	F	BT	Flexible					2		Moderate							G	F		
296	742.400	742.500	G	BT	Flexible					1.5		Moderate							G	F		
297	742.500	742.600	G	BT	Flexible					1.5		Moderate							G	F		
298	742.600	742.700	G	BT	Flexible					1.5		Moderate							G	F		
299	742.700	742.800	G	BT	Flexible					1.5		Moderate							G	F		
300	742.800	742.870	G	BT	Flexible					1.5		Moderate							G	F		
301	742.870	743.000	F	Cemented	Rigid				3										G	F		
302	743.000	743.100	F	Cemented	Rigid				2										G	F		
303	743.100	743.200	F	Cemented	Rigid				2										G	F		
304	743.200	743.300	F	Cemented	Rigid				2										G	F		
305	743.300	743.400	F	Cemented	Rigid				2										G	F		
306	743.400	743.500	F	Cemented	Rigid				2										G	F		
307	743.500	743.600	F	Cemented	Rigid				2										G	F		
308	743.600	743.700	F	Cemented	Rigid				2.5										G	F		
309	743.700	743.850	G	Cemented	Rigid				0										G	F		
310	743.850	743.950	G	Cemented	Rigid				0										G	F		
311	743.950	744.050	G	Cemented	Rigid				1.5										G	F		
312	744.050	744.150	G	Cemented	Rigid				0										G	F		
313	744.150	744.250	G	Cemented	Rigid				0										G	F		
314	744.250	744.350	G	Cemented	Rigid				0										G	F		
315	744.350	744.450	G	Cemented	Rigid				0										G	F		
316	744.450	744.550	G	Cemented	Rigid				0										G	F		
317	744.550	744.700	G	BT	Flexible					1.5		Moderate							G	F		
318	744.700	744.800	G	BT	Flexible					1.5		Moderate							G	F		
319	744.800	744.900	G	BT	Flexible					1.5		Moderate							G	F		
320	744.900	745.000	F	BT	Flexible					2		Moderate							G	F		
321	745.000	745.100	G	BT	Flexible					1.5		Moderate							G	F		
322	745.100	745.190	F	BT	Flexible					2		Moderate							G	F		
323	745.190	745.290	G	Cemented	Rigid					1.5		Moderate							G	F		
324	745.290	745.390	F	Cemented	Rigid				2										G	F		
325	745.390	745.490	G	Cemented	Rigid				0										G	F		
326	745.490	745.590	G	Cemented	Rigid				0										G	F		
327	745.590	745.690	G	Cemented	Rigid				0										G	F		
328	745.690	745.790	G	Cemented	Rigid				0										G	F		
329	745.790	745.890	G	Cemented	Rigid				0										G	F		
330	745.890	745.990	G	Cemented	Rigid				0										G	F		
331	745.990	746.090	G	Cemented	Rigid				0										G	F		
332	746.090	746.190	G	Cemented	Rigid				0										G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
333	746.190	746.290	G	Cemented	Rigid				0										G	F		
334	746.290	746.390	G	Cemented	Rigid				0										G	F		
335	746.390	746.490	G	Cemented	Rigid				0										G	F		
336	746.490	746.590	G	Cemented	Rigid				0										G	F		
337	746.590	746.690	G	Cemented	Rigid				0										G	F		
338	746.690	746.790	G	Cemented	Rigid				0										G	F		
339	746.790	746.890	G	Cemented	Rigid				0										G	F		
340	746.890	746.990	G	Cemented	Rigid				0										G	F		
341	746.990	747.090	G	Cemented	Rigid				0										G	F		
342	747.090	747.190	G	Cemented	Rigid				1.5										G	F		
343	747.190	747.290	G	Cemented	Rigid				1.5										G	F		
344	747.290	747.390	G	Cemented	Rigid				0										G	F		
345	747.390	747.490	G	Cemented	Rigid				0										G	F		
346	747.490	747.590	G	Cemented	Rigid				0										G	F		
347	747.590	747.690	G	Cemented	Rigid				0										G	F		
348	747.690	747.790	G	Cemented	Rigid				0										G	F		
349	747.790	747.890	G	Cemented	Rigid				0										G	F		
350	747.890	747.990	G	Cemented	Rigid				0										G	F		
351	747.990	748.090	G	Cemented	Rigid				0										G	F		
352	748.090	748.190	G	Cemented	Rigid				0										G	F		
353	748.190	748.290	G	Cemented	Rigid				0										G	F		
354	748.290	748.390	G	Cemented	Rigid				1.5										G	F		
355	748.390	748.490	G	Cemented	Rigid				0										G	F		
356	748.490	748.590	G	Cemented	Rigid				0										G	F		
357	748.590	748.690	G	Cemented	Rigid				0										G	F		
358	748.690	748.790	G	Cemented	Rigid				0										G	F		
359	748.790	748.890	G	Cemented	Rigid				0										G	F		
360	748.890	748.990	G	Cemented	Rigid				0										G	F		
361	748.990	749.105	G	Cemented	Rigid				0										G	F		
362	749.105	749.200	G	BT	Flexible					1.5		Moderate							G	F		
363	749.200	749.300	F	BT	Flexible					2		Moderate							G	F		
364	749.300	749.400	G	BT	Flexible					1.5		Moderate							G	F		
365	749.400	749.500	F	BT	Flexible					2		Moderate							G	F		
366	749.500	749.600	G	BT	Flexible					1.5		Moderate							G	F		
367	749.600	749.740	F	BT	Flexible					2		Moderate							G	F		
368	749.740	749.800	G	Cemented	Rigid				1.5										G	F		
369	749.800	749.900	G	Cemented	Rigid				1.5										G	F		
370	749.900	750.000	G	Cemented	Rigid				1.5										G	F		
371	750.000	750.110	G	Cemented	Rigid				1.5										G	F		
372	750.110	750.200	G	BT	Rigid				1.5										G	F		
373	750.200	750.300	G	BT	Flexible					1.5		Moderate							G	F		
374	750.300	750.400	F	BT	Flexible					2		Moderate							G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
375	750.400	750.500	G	BT	Flexible					1.5		Moderate							G	F		
376	750.500	750.600	G	BT	Flexible					1.5		Moderate							G	F		
377	750.600	750.700	F	BT	Flexible					2.5		Moderate							G	F		
378	750.700	750.800	G	BT	Flexible					1.5		Moderate							G	F		
379	750.800	750.885	F	BT	Flexible					2		Moderate							G	F		
380	750.885	751.000	G	Cemented	Rigid				1.5										G	F		
381	751.000	751.100	G	Cemented	Rigid				1.5										G	F		
382	751.100	751.200	G	Cemented	Rigid				1.5										G	F		
383	751.200	751.300	G	Cemented	Rigid				1.5										G	F		
384	751.300	751.400	G	Cemented	Rigid				1.5										G	F		
385	751.400	751.500	G	Cemented	Rigid				0										G	F		
386	751.500	751.600	G	Cemented	Rigid				0										G	F		
387	751.600	751.700	G	Cemented	Rigid				0										G	F		
388	751.700	751.800	G	Cemented	Rigid				0										G	F		
389	751.800	751.900	G	Cemented	Rigid				0										G	F		
390	751.900	752.000	G	Cemented	Rigid				0										G	F		
391	752.000	752.100	G	Cemented	Rigid				0										G	F		
392	752.100	752.200	G	Cemented	Rigid				0										G	F		
393	752.200	752.325	G	Cemented	Rigid				0										G	F		
394	752.325	752.400	G	BT	Flexible					1.5		Moderate							G	F		
395	752.400	752.500	G	BT	Flexible					1.5		Moderate							G	F		
396	752.500	752.600	F	BT	Flexible					2.5		Moderate							G	F		
397	752.600	752.700	G	BT	Flexible					1.5		Moderate							G	F		
398	752.700	752.800	F	BT	Flexible					2		Moderate							G	F		
399	752.800	752.900	G	BT	Flexible					1.5		Moderate							G	F		
400	752.900	752.985	G	BT	Flexible					1.5		Moderate							G	F		
401	752.985	753.085	G	Cemented	Rigid				1.5										G	F		
402	753.085	753.185	G	Cemented	Rigid				0										G	F		
403	753.185	753.285	G	Cemented	Rigid				0										G	F		
404	753.285	753.385	G	Cemented	Rigid				0										G	F		
405	753.385	753.485	G	Cemented	Rigid				0										G	F		
406	753.485	753.585	G	Cemented	Rigid				0										G	F		
407	753.585	753.685	G	Cemented	Rigid				0										G	F		
408	753.685	753.785	G	Cemented	Rigid				0										G	F		
409	753.785	753.885	G	Cemented	Rigid				0										G	F		
410	753.885	753.985	G	Cemented	Rigid				0										G	F		
411	753.985	754.020	G	Cemented	Rigid				1.5										G	F		
412	754.020	754.120	G	BT	Flexible					1.5		Moderate							G	F		
413	754.120	754.220	G	BT	Flexible					1.5		Moderate							G	F		
414	754.220	754.320	G	BT	Flexible					1.5		Moderate							G	F		
415	754.320	754.420	F	BT	Flexible					2		Moderate							G	F		
416	754.420	754.520	G	BT	Flexible					1.5		Moderate							G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
417	754.520	754.620	G	BT	Flexible					1.5		Moderate							G	F		
418	754.620	754.720	F	BT	Flexible					2		Moderate							G	F		
419	754.720	754.820	G	BT	Flexible					1.5		Moderate							G	F		
420	754.820	754.910	G	BT	Flexible					1.5		Moderate							G	F		
421	754.910	755.010	G	Cemented	Rigid				1.5										G	F		
422	755.010	755.110	G	Cemented	Rigid				1.5										G	F		
423	755.110	755.210	G	Cemented	Rigid				1.5										G	F		
424	755.210	755.310	G	Cemented	Rigid				1.5										G	F		
425	755.310	755.410	G	Cemented	Rigid				1.5										G	F		
426	755.410	755.510	G	Cemented	Rigid				1.5										G	F		
427	755.510	755.610	G	Cemented	Rigid				1.5										G	F		
428	755.610	755.750	G	Cemented	Rigid				1.5										G	F		
429	755.750	755.850	F	BT	Flexible					2		Moderate							G	F		
430	755.850	755.950	G	BT	Flexible					1.5		Moderate							G	F		
431	755.950	756.050	G	BT	Flexible					1.5		Moderate							G	F		
432	756.050	756.150	G	BT	Flexible					1.5		Moderate							G	F		
433	756.150	756.250	F	BT	Flexible					2		Moderate							G	F		
434	756.250	756.350	G	BT	Flexible					1.5		Moderate							G	F		
435	756.350	756.390	G	BT	Flexible					1.5		Moderate							G	F		
436	756.390	756.490	G	Cemented	Rigid				1.5										G	F		
437	756.490	756.590	G	Cemented	Rigid				0										G	F		
438	756.590	756.690	G	Cemented	Rigid				0										G	F		
439	756.690	756.790	G	Cemented	Rigid				0										G	F		
440	756.790	756.890	G	Cemented	Rigid				0										G	F		
441	756.890	756.990	G	Cemented	Rigid				0										G	F		
442	756.990	757.090	G	Cemented	Rigid				0										G	F		
443	757.090	757.190	G	Cemented	Rigid				0										G	F		
444	757.190	757.290	G	Cemented	Rigid				1.5										G	F		
445	757.290	757.420	G	Cemented	Rigid				0										G	F		
446	757.420	757.520	F	BT	Flexible					2		Moderate							G	F		
447	757.520	757.620	G	BT	Flexible					1.5		Moderate							G	F		
448	757.620	757.720	G	BT	Flexible					1.5		Moderate							G	F		
449	757.720	757.820	G	BT	Flexible					1.5		Moderate							G	F		
450	757.820	757.920	F	BT	Flexible					2		Moderate							G	F		
451	757.920	758.020	G	BT	Flexible					1.5		Moderate							G	F		
452	758.020	758.085	G	BT	Flexible					1.5		Moderate							G	F		
453	758.085	758.185	G	Cemented	Rigid				0										G	F		
454	758.185	758.285	F	Cemented	Rigid				2										G	F		
455	758.285	758.385	F	Cemented	Rigid				2.5										G	F		
456	758.385	758.485	G	Cemented	Rigid				1.5										G	F		
457	758.485	758.585	G	Cemented	Rigid				1.5										G	F		
458	758.585	758.685	F	Cemented	Rigid				2										G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
459	758.685	758.785	G	Cemented	Rigid				1.5										G	F		
460	758.785	758.885	G	Cemented	Rigid				1.5										G	F		
461	758.885	758.985	G	Cemented	Rigid				1.5										G	F		
462	758.985	759.085	G	Cemented	Rigid				1.5										G	F		
463	759.085	759.185	G	Cemented	Rigid				1.5										G	F		
464	759.185	759.285	G	Cemented	Rigid				1.5										G	F		
465	759.285	759.325	F	Cemented	Rigid				2										G	F		
466	759.325	759.425	G	BT	Flexible					1.5		Moderate							G	F		
467	759.425	759.525	G	BT	Flexible					1.5		Moderate							G	F		
468	759.525	759.625	F	BT	Flexible					2		Moderate							G	F		
469	759.625	759.725	G	BT	Flexible					1.5		Moderate							G	F		
470	759.725	759.825	G	BT	Flexible					1.5		Moderate							G	F		
471	759.825	759.925	F	BT	Flexible					2		Moderate							G	F		
472	759.925	760.025	G	BT	Flexible					1.5		Moderate							G	F		
473	760.025	760.120	G	Cemented	Rigid				1.5										G	F		
474	760.120	760.220	G	Cemented	Rigid				1.5										G	F		
475	760.220	760.320	G	Cemented	Rigid				1.5										G	F		
476	760.320	760.420	G	Cemented	Rigid				1.5										G	F		
477	760.420	760.520	G	Cemented	Rigid				0										G	F		
478	760.520	760.620	G	Cemented	Rigid				0										G	F		
479	760.620	760.720	G	Cemented	Rigid				0										G	F		
480	760.720	760.820	G	Cemented	Rigid				0										G	F		
481	760.820	760.920	G	Cemented	Rigid				0										G	F		
482	760.920	761.020	G	Cemented	Rigid				0										G	F		
483	761.020	761.120	G	Cemented	Rigid				0										G	F		
484	761.120	761.220	G	Cemented	Rigid				0										G	F		
485	761.220	761.320	G	Cemented	Rigid				0										G	F		
486	761.320	761.405	G	Cemented	Rigid				1.5	1.5									G	F		
487	761.405	761.505	F	BT	Flexible					2		Moderate							G	F		
488	761.505	761.605	G	BT	Flexible					1.5		Moderate							G	F		
489	761.605	761.705	G	BT	Flexible					1.5		Moderate							G	F		
490	761.705	761.805	F	BT	Flexible					2		Moderate							G	F		
491	761.805	761.905	G	BT	Flexible					1.5		Moderate							G	F		
492	761.905	762.020	G	BT	Flexible					2		Moderate							G	F		
493	762.020	762.120	G	Cemented	Rigid				0										G	F		
494	762.120	762.220	F	Cemented	Rigid				2										G	F		
495	762.220	762.315	G	Cemented	Rigid				1.5										G	F		
496	762.315	762.415	G	BT	Flexible					1.5		Moderate							G	F		
497	762.415	762.515	F	BT	Flexible					2		Moderate							G	F		
498	762.515	762.615	G	BT	Flexible					1.5		Moderate							G	F		
499	762.615	762.715	G	BT	Flexible					1.5		Moderate							G	F		
500	762.715	762.815	F	BT	Flexible					2		Moderate							G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
501	762.815	762.915	G	BT	Flexible					1.5		Moderate							G	F		
502	762.915	763.015	G	BT	Flexible					1.5		Moderate							G	F		
503	763.015	763.120	G	BT	Flexible					1.5		Moderate							G	F		
504	763.120	763.220	G	Cemented	Rigid				0										G	F		
505	763.220	763.320	G	Cemented	Rigid				0										G	F		
506	763.320	763.420	G	Cemented	Rigid				0										G	F		
507	763.420	763.520	F	Cemented	Rigid				2										G	F		
508	763.520	763.620	G	Cemented	Rigid				1.5										G	F		
509	763.620	763.720	F	Cemented	Rigid				2										G	F		
510	763.720	763.820	G	Cemented	Rigid				1.5										G	F		
511	763.820	763.920	F	Cemented	Rigid				2										G	F		
512	763.920	764.020	G	Cemented	Rigid				1.5										G	F		
513	764.020	764.120	G	Cemented	Rigid				1.5										G	F		
514	764.120	764.220	F	Cemented	Rigid				2										G	F		
515	764.220	764.320	G	Cemented	Rigid				1.5										G	F		
516	764.320	764.420	F	Cemented	Rigid				2										G	F		
517	764.420	764.520	G	Cemented	Rigid				1.5										G	F		
518	764.520	764.620	F	Cemented	Rigid				3										G	F		
519	764.620	764.680	F	Cemented	Rigid				2										G	F		
520	764.680	764.780	F	BT	Flexible					2.5		Moderate							G	F		
521	764.780	764.880	G	BT	Flexible					1.5		Moderate							G	F		
522	764.880	764.980	F	BT	Flexible					2		Moderate							G	F		
523	764.980	765.080	G	BT	Flexible					1.5		Moderate							G	F		
524	765.080	765.180	F	BT	Flexible					2.5		Moderate							G	F		
525	765.180	765.280	F	BT	Flexible					2		Moderate							G	F		
526	765.280	765.380	G	BT	Flexible					2		Moderate							G	F		
527	765.380	765.430	G	BT	Flexible					2		Moderate							G	F		
528	765.430	765.530	G	Cemented	Rigid				1.5										G	F		
529	765.530	765.630	G	Cemented	Rigid				1.5										G	F		
530	765.630	765.730	G	Cemented	Rigid				1.5										G	F		
531	765.730	765.830	G	Cemented	Rigid				1.5										G	F		
532	765.830	765.930	G	Cemented	Rigid				2										G	F		
533	765.930	766.030	G	Cemented	Rigid				1.5										G	F		
534	766.030	766.130	G	Cemented	Rigid				1.5										G	F		
535	766.130	766.230	G	Cemented	Rigid				2										G	F		
536	766.230	766.330	G	Cemented	Rigid				1.5										G	F		
537	766.330	766.430	G	Cemented	Rigid				2										G	F		
538	766.430	766.530	G	Cemented	Rigid				1.5										G	F		
539	766.530	766.630	G	Cemented	Rigid				2										G	F		
540	766.630	766.730	F	Cemented	Rigid				1.5										G	F		
541	766.730	766.830	G	Cemented	Rigid				2										G	F		
542	766.830	766.930	G	Cemented	Rigid				1.5										G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
543	766.930	767.030	F	Cemented	Rigid				2										G	F		
544	767.030	767.130	G	Cemented	Rigid				1.5										G	F		
545	767.130	767.230	F	Cemented	Rigid				1.5										G	F		
546	767.230	767.330	G	Cemented	Rigid				1.5										G	F		
547	767.330	767.430	F	Cemented	Rigid				2										G	F		
548	767.430	767.530	G	Cemented	Rigid				1.5										G	F		
549	767.530	767.585	F	Cemented	Rigid				1.5										G	F		
550	767.585	767.685	G	BT	Flexible					1.5		Moderate							G	F		
551	767.685	767.785	F	BT	Flexible					2		Moderate							G	F		
552	767.785	767.885	G	BT	Flexible					1.5		Moderate							G	F		
553	767.885	767.985	F	BT	Flexible					2		Moderate							G	F		
554	767.985	768.085	G	BT	Flexible					2		Moderate							G	F		
555	768.085	768.185	G	BT	Flexible					2		Moderate							G	F		
556	768.185	768.250	G	BT	Flexible					2		Moderate							G	F		
557	768.250	768.350	G	Cemented	Rigid				2										G	F		
558	768.350	768.450	F	Cemented	Rigid				1.5										G	F		
559	768.450	768.540	G	Cemented	Rigid				2										G	F		
560	768.540	768.640	F	BT	Flexible					2		Moderate							G	F		
561	768.640	768.740	G	BT	Flexible					1.5		Moderate							G	F		
562	768.740	768.840	F	BT	Flexible					2.5		Moderate							G	F		
563	768.840	768.940	G	BT	Flexible					1.5		Moderate							G	F		
564	768.940	769.040	G	BT	Flexible					1.5		Moderate							G	F		
565	769.040	769.140	G	BT	Flexible					1.5		Moderate							G	F		
566	769.140	769.240	G	BT	Flexible					1.5		Moderate							G	F		
567	769.240	769.340	G	BT	Flexible					1.5		Moderate							G	F		
568	769.340	769.440	G	BT	Flexible					1.5		Moderate							G	F		
569	769.440	769.540	F	BT	Flexible					2		Moderate							G	F		
570	769.540	769.640	G	BT	Flexible					1.5		Moderate							G	F		
571	769.640	769.740	G	BT	Flexible					1.5		Moderate							G	F		
572	769.740	769.840	F	BT	Flexible					2.5		Moderate							G	F		
573	769.840	769.940	G	BT	Flexible					1.5		Moderate							G	F		
574	769.940	770.040	G	BT	Flexible					1.5		Moderate							G	F		
575	770.040	770.140	G	BT	Flexible					1.5		Moderate							G	F		
576	770.140	770.240	G	BT	Flexible					1.5		Moderate							G	F		
577	770.240	770.370	G	BT	Flexible					1.5		Moderate							G	F		
578	770.370	770.470	G	Cemented	Rigid				1.5										G	F		
579	770.470	770.570	G	Cemented	Rigid				1.5										G	F		
580	770.570	770.670	G	Cemented	Rigid				1.5										G	F		
581	770.670	770.770	G	Cemented	Rigid				1.5										G	F		
582	770.770	770.870	G	Cemented	Rigid				1.5										G	F		
583	770.870	770.970	G	Cemented	Rigid				0										G	F		
584	770.970	771.070	G	Cemented	Rigid				0										G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
585	771.070	771.170	G	Cemented	Rigid				0										G	F		
586	771.170	771.270	G	Cemented	Rigid				0										G	F		
587	771.270	771.370	G	Cemented	Rigid				0										G	F		
588	771.370	771.470	G	Cemented	Rigid				0										G	F		
589	771.470	771.570	G	Cemented	Rigid				0										G	F		
590	771.570	771.670	G	Cemented	Rigid				0										G	F		
591	771.670	771.770	G	Cemented	Rigid				0										G	F		
592	771.770	771.870	G	Cemented	Rigid				1.5										G	F		
593	771.870	771.970	F	Cemented	Rigid				3										G	F		
594	771.970	772.070	F	Cemented	Rigid				2										G	F		
595	772.070	772.170	F	Cemented	Rigid				2.5										G	F		
596	772.170	772.270	G	Cemented	Rigid				1.5										G	F		
597	772.270	772.370	G	Cemented	Rigid				1.5										G	F		
598	772.370	772.470	G	Cemented	Rigid				0										G	F		
599	772.470	772.570	G	Cemented	Rigid				1.5										G	F		
600	772.570	772.680	G	Cemented	Rigid				1.5										G	F		
601	772.680	772.780	G	BT	Flexible					1.5		Moderate							G	F		
602	772.780	772.880	G	BT	Flexible					1.5		Moderate							G	F		
603	772.880	772.980	G	BT	Flexible					1.5		Moderate							G	F		
604	772.980	773.080	G	BT	Flexible					1.5		Moderate							G	F		
605	773.080	773.180	F	BT	Flexible					2.5		Moderate							G	F		
606	773.180	773.280	G	BT	Flexible					1.5		Moderate							G	F		
607	773.280	773.380	G	BT	Flexible					1.5		Moderate							G	F		
608	773.380	773.450	G	BT	Flexible					1.5		Moderate							G	F		
609	773.450	773.550	G	Cemented	Rigid				1.5										G	F		
610	773.550	773.650	G	Cemented	Rigid				1.5										G	F		
611	773.650	773.750	G	Cemented	Rigid				1.5										G	F		
612	773.750	773.850	G	Cemented	Rigid				1.5										G	F		
613	773.850	773.950	F	Cemented	Rigid				2										G	F		
614	773.950	774.050	G	Cemented	Rigid				1.5										G	F		
615	774.050	774.150	G	Cemented	Rigid				1.5										G	F		
616	774.150	774.250	G	Cemented	Rigid				1.5										G	F		
617	774.250	774.350	G	Cemented	Rigid				1.5										G	F		
618	774.350	774.450	F	Cemented	Rigid				2.5										G	F		
619	774.450	774.550	G	Cemented	Rigid				1.5										G	F		
620	774.550	774.650	G	Cemented	Rigid				1.5										G	F		
621	774.650	774.750	G	Cemented	Rigid				1.5										G	F		
622	774.750	774.850	G	Cemented	Rigid				1.5										G	F		
623	774.850	774.950	G	Cemented	Rigid				1.5										G	F		
624	774.950	775.050	G	Cemented	Rigid				1.5										G	F		
625	775.050	775.150	G	Cemented	Rigid				1.5										G	F		
626	775.150	775.250	G	Cemented	Rigid				1.5										G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
627	775.250	775.350	F	Cemented	Rigid				2.5										G	F		
628	775.350	775.450	G	Cemented	Rigid				2										G	F		
629	775.450	775.545	G	Cemented	Rigid				2										G	F		
630	775.545	775.645	G	Cemented	Rigid				2.5										G	F		
631	775.645	775.745	G	Cemented	Rigid				2										G	F		
632	775.745	775.845	G	Cemented	Rigid				2										G	F		
633	775.845	775.945	G	Cemented	Rigid				1.5										G	F		
634	775.945	776.045	G	Cemented	Rigid				1.5										G	F		
635	776.045	776.145	G	Cemented	Rigid				1.5										G	F		
636	776.145	776.245	G	Cemented	Rigid				1.5										G	F		
637	776.245	776.345	G	Cemented	Rigid				2										G	F		
638	776.345	776.410	G	Cemented	Rigid				1.5										G	F		
639	776.410	776.510	G	BT	Flexible					1.5		Moderate							G	F		
640	776.510	776.610	G	BT	Flexible					1.5		Moderate							G	F		
641	776.610	776.710	G	BT	Flexible					1.5		Moderate							G	F		
642	776.710	776.810	G	BT	Flexible					1.5		Moderate							G	F		
643	776.810	776.910	G	BT	Flexible					1.5		Moderate							G	F		
644	776.910	777.010	F	BT	Flexible					2.5		Moderate							G	F		
645	777.010	777.110	G	BT	Flexible					1.5		Moderate							G	F		
646	777.110	777.210	G	BT	Flexible					1.5		Moderate							G	F		
647	777.210	777.310	G	BT	Flexible					1.5		Moderate							G	F		
648	777.310	777.410	G	BT	Flexible					1.5		Moderate							G	F		
649	777.410	777.510	G	BT	Flexible					1.5		Moderate							G	F		
650	777.510	777.610	F	BT	Flexible					2.5		Moderate							G	F		
651	777.610	777.710	G	BT	Flexible					2		Moderate							G	F		
652	777.710	777.840	G	BT	Flexible					2		Moderate							G	F		
653	777.840	777.940	G	Cemented	Rigid				1.5										G	F		
654	777.940	778.040	G	Cemented	Rigid				2										G	F		
655	778.040	778.140	G	Cemented	Rigid				1.5										G	F		
656	778.140	778.240	G	Cemented	Rigid				1.5										G	F		
657	778.240	778.340	G	Cemented	Rigid				2										G	F		
658	778.340	778.440	G	Cemented	Rigid				2.5										G	F		
659	778.440	778.540	G	Cemented	Rigid				2										G	F		
660	778.540	778.640	G	Cemented	Rigid				1.5										G	F		
661	778.640	778.740	F	Cemented	Rigid				2										G	F		
662	778.740	778.840	F	Cemented	Rigid				2										G	F		
663	778.840	778.940	G	Cemented	Rigid				1.5										G	F		
664	778.940	779.100	G	Cemented	Rigid				1.5										G	F		
665	779.100	779.200	G	BT	Flexible					1.5		Moderate							G	F		
666	779.200	779.300	G	BT	Flexible					1.5		Moderate							G	F		
667	779.300	779.400	G	BT	Flexible					1.5		Moderate							G	F		
668	779.400	779.500	G	BT	Flexible					1.5		Moderate							G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
669	779.500	779.600	G	BT	Flexible					1.5		Moderate							G	F		
670	779.600	779.700	F	BT	Flexible					2		Moderate							G	F		
671	779.700	779.780	F	BT	Flexible					2		Moderate							G	F		
672	779.780	779.880	F	Cemented	Rigid				2										G	F		
673	779.880	779.980	F	Cemented	Rigid				2										G	F		
674	779.980	780.080	F	Cemented	Rigid				2										G	F		
675	780.080	780.180	F	Cemented	Rigid				2										G	F		
676	780.180	780.280	F	Cemented	Rigid				2										G	F		
677	780.280	780.380	F	Cemented	Rigid				2										G	F		
678	780.380	780.480	F	Cemented	Rigid				2										G	F		
679	780.480	780.580	F	Cemented	Rigid				2										G	F		
680	780.580	780.680	F	Cemented	Rigid				2										G	F		
681	780.680	780.780	F	Cemented	Rigid				2										G	F		
682	780.780	780.880	F	Cemented	Rigid				2										G	F		
683	780.880	780.980	F	Cemented	Rigid				2										G	F		
684	780.980	781.080	G	Cemented	Rigid				1.5										G	F		
685	781.080	781.180	G	Cemented	Rigid				1.5										G	F		
686	781.180	781.280	G	Cemented	Rigid				1.5										G	F		
687	781.280	781.380	F	Cemented	Rigid				2										G	F		
688	781.380	781.480	F	Cemented	Rigid				2										G	F		
689	781.480	781.580	F	Cemented	Rigid				2										G	F		
690	781.580	781.680	F	Cemented	Rigid				2										G	F		
691	781.680	781.780	F	Cemented	Rigid				2										G	F		
692	781.780	781.880	F	Cemented	Rigid				2										G	F		
693	781.880	781.980	F	Cemented	Rigid				2										G	F		
694	781.980	782.080	F	Cemented	Rigid				2										G	F		
695	782.080	782.180	G	Cemented	Rigid				1.5										G	F		
696	782.180	782.280	F	Cemented	Rigid				2										G	F		
697	782.280	782.380	F	Cemented	Rigid				2										G	F		
698	782.380	782.480	F	Cemented	Rigid				2										G	F		
699	782.480	782.580	F	Cemented	Rigid				2										G	F		
700	782.580	782.680	F	Cemented	Rigid				2										G	F		
701	782.680	782.780	F	Cemented	Rigid				2										G	F		
702	782.780	782.880	F	Cemented	Rigid				2										G	F		
703	782.880	782.980	G	Cemented	Rigid				0										G	F		
704	782.980	783.080	G	Cemented	Rigid				1.5										G	F		
705	783.080	783.180	F	Cemented	Rigid				2										G	F		
706	783.180	783.280	G	Cemented	Rigid				1.5										G	F		
707	783.280	783.380	F	Cemented	Rigid				2										G	F		
708	783.380	783.480	G	Cemented	Rigid				0										G	F		
709	783.480	783.580	G	Cemented	Rigid				0										G	F		
710	783.580	783.680	G	Cemented	Rigid				1.5										G	F		

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
711	783.680	783.780	G	Cemented	Rigid				1.5										G	F		
712	783.780	783.880	G	BT	Flexible					1.5		Moderate							G	F		
713	783.880	783.980	G	BT	Flexible					1.5		Moderate							G	F		
714	783.980	784.080	G	BT	Flexible					1.5		Moderate							G	F		
715	784.080	784.180	G	BT	Flexible					1.5		Moderate							G	F		
716	784.180	784.280	G	BT	Flexible					1.5		Moderate							G	F		
717	784.280	784.380	G	BT	Flexible					1.5		Moderate							G	F		
718	784.380	784.480	G	BT	Flexible					1.5		Moderate							G	F		
719	784.480	784.580	G	BT	Flexible					2		Moderate							G	F		
720	784.580	784.720	G	BT	Flexible					2		Moderate							G	F		
721	784.720	784.820	G	Cemented	Rigid				0										G	F		
722	784.820	784.920	G	Cemented	Rigid				0										G	F		
723	784.920	785.020	F	Cemented	Rigid				2										G	F		
724	785.020	785.120	G	Cemented	Rigid				0										G	F		
725	785.120	785.220	G	Cemented	Rigid				0										G	F		
726	785.220	785.320	G	Cemented	Rigid				0										G	F		
727	785.320	785.420	G	Cemented	Rigid				0										G	F		
728	785.420	785.544	G	Cemented	Rigid				1.5										G	F		

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Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
1	712.900	713.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
2	713.000	713.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
3	713.100	713.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
4	713.200	713.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
5	713.300	713.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
6	713.400	713.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
7	713.500	713.600	G	BT	Flexible		40	G		2		Moderate						G			F	
8	713.600	713.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
9	713.700	713.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
10	713.800	713.900	G	BT	Flexible		40	G		2		Moderate						G			F	
11	713.900	714.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
12	714.000	714.100	G	BT	Flexible		40	G		2		Moderate						G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
13	714.100	714.200	G	BT	Flexible		40	G		2		Moderate						G			F	
14	714.200	714.300	G	BT	Flexible		40	G		2		Moderate						G			F	
15	714.300	714.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
16	714.400	714.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
17	714.500	714.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
18	714.600	714.700	G	BT	Flexible		40	G		2		Moderate						G			F	
19	714.700	714.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
20	714.800	714.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
21	714.900	715.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
22	715.000	715.100	G	BT	Flexible		40	G		2		Moderate						G			F	
23	715.100	715.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
24	715.200	715.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
25	715.300	715.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
26	715.400	715.500	G	BT	Flexible		40	G		2		Moderate						G			F	
27	715.500	715.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
28	715.600	715.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
29	715.700	715.800	G	BT	Flexible		40	G		1.5		Moderate	5					G			F	
30	715.800	715.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
31	715.900	716.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
32	716.000	716.100	G	BT	Flexible		40	G		3		Moderate						G			F	
33	716.100	716.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
34	716.200	716.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
35	716.300	716.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
36	716.400	716.500	G	BT	Flexible		40	G		3		Moderate						G			F	
37	716.500	716.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
38	716.600	716.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
39	716.700	716.800	G	BT	Flexible		40	G		2		Moderate						G			F	
40	716.800	716.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
41	716.900	717.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
42	717.000	717.100	G	BT	Flexible		40	G		3		Moderate						G			F	
43	717.100	717.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
44	717.200	717.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
45	717.300	717.400	G	BT	Flexible		40	G		2		Moderate						G			F	
46	717.400	717.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
47	717.500	717.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
48	717.600	717.700	G	BT	Flexible		40	G		3		Moderate						G			F	
49	717.700	717.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
50	717.800	717.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
51	717.900	718.000	G	BT	Flexible		40	G		2		Moderate						G			F	
52	718.000	718.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
53	718.100	718.200	G	BT	Flexible		40	G		3		Moderate						G			F	
54	718.200	718.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
55	718.300	718.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
56	718.400	718.500	G	BT	Flexible		40	G		2		Moderate						G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
57	718.500	718.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
58	718.600	718.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
59	718.700	718.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
60	718.800	718.900	G	BT	Flexible		40	G		3		Moderate						G			F	
61	718.900	719.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
62	719.000	719.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
63	719.100	719.200	G	BT	Flexible		40	G		2		Moderate						G			F	
64	719.200	719.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
65	719.300	719.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
66	719.400	719.500	G	BT	Flexible		40	G		3		Moderate						G			F	
67	719.500	719.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
68	719.600	719.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
69	719.700	719.800	G	BT	Flexible		40	G		2		Moderate						G			F	
70	719.800	719.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
71	719.900	720.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
72	720.000	720.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
73	720.100	720.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
74	720.200	720.300	G	BT	Flexible		40	G		3		Moderate						G			F	
75	720.300	720.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
76	720.400	720.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
77	720.500	720.600	G	BT	Flexible		40	G		2		Moderate						G			F	
78	720.600	720.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
79	720.700	720.800	G	BT	Flexible		40	G		2		Moderate						G			F	
80	720.800	720.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
81	720.900	721.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
82	721.000	721.100	G	BT	Flexible		40	G		2		Moderate						G			F	
83	721.100	721.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
84	721.200	721.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
85	721.300	721.400	G	BT	Flexible		40	G		2		Moderate						G			F	
86	721.400	721.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
87	721.500	721.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
88	721.600	721.700	G	BT	Flexible		40	G		2		Moderate						G			F	
89	721.700	721.800	G	BT	Flexible		40	G		2		Moderate						G			F	
90	721.800	721.900	G	BT	Flexible		40	G		2		Moderate						G			F	
91	721.900	722.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
92	722.000	722.100	G	BT	Flexible		40	G		3		Moderate						G			F	
93	722.100	722.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
94	722.200	722.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
95	722.300	722.400	G	BT	Flexible		40	G		3		Moderate						G			F	
96	722.400	722.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
97	722.500	722.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
98	722.600	722.700	G	BT	Flexible		40	G		2		Moderate						G			F	
99	722.700	722.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
100	722.800	722.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
101	722.900	723.000	G	BT	Flexible		40	G		3		Moderate						G			F	
102	723.000	723.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
103	723.100	723.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
104	723.200	723.300	G	BT	Flexible		40	G		2		Moderate						G			F	
105	723.300	723.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
106	723.400	723.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
107	723.500	723.600	G	BT	Flexible		40	G		3		Moderate						G			F	
108	723.600	723.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
109	723.700	723.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
110	723.800	723.900	G	BT	Flexible		40	G		2		Moderate						G			F	
111	723.900	724.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
112	724.000	724.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
113	724.100	724.200	G	BT	Flexible		40	G		3		Moderate						G			F	
114	724.200	724.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
115	724.300	724.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
116	724.400	724.500	G	BT	Flexible		40	G		2		Moderate						G			F	
117	724.500	724.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
118	724.600	724.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
119	724.700	724.800	G	BT	Flexible		40	G		3		Moderate						G			F	
120	724.800	724.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
121	724.900	725.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
122	725.000	725.100	G	BT	Flexible		40	G		2		Moderate						G			F	
123	725.100	725.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
124	725.200	725.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
125	725.300	725.400	G	BT	Flexible		40	G		3		Moderate						G			F	
126	725.400	725.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
127	725.500	725.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
128	725.600	725.700	G	BT	Flexible		40	G		2		Moderate						G			F	
129	725.700	725.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
130	725.800	725.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
131	725.900	726.000	G	BT	Flexible		40	G		2		Moderate						G			F	
132	726.000	726.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
133	726.100	726.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
134	726.200	726.300	G	BT	Flexible		40	G		2		Moderate						G			F	
135	726.300	726.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
136	726.400	726.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
137	726.500	726.600	G	BT	Flexible		40	G		3		Moderate						G			F	
138	726.600	726.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
139	726.700	726.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
140	726.800	726.900	G	BT	Flexible		40	G		2.5		Moderate						G			F	
141	726.900	727.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
142	727.000	727.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
143	727.100	727.200	G	BT	Flexible		40	G		2.5		Moderate						G			F	
144	727.200	727.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
145	727.300	727.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
146	727.400	727.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
147	727.500	727.600	G	BT	Flexible		40	G		2		Moderate						G			F	
148	727.600	727.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
149	727.700	727.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
150	727.800	727.900	G	BT	Flexible		40	G		2		Moderate						G			F	
151	727.900	728.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
152	728.000	728.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
153	728.100	728.200	G	BT	Flexible		40	G		2		Moderate						G			F	
154	728.200	728.300	G	BT	Flexible		40	G		2		Moderate						G			F	
155	728.300	728.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
156	728.400	728.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
157	728.500	728.600	G	BT	Flexible		40	G		2		Moderate						G			F	
158	728.600	728.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
159	728.700	728.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
160	728.800	728.900	G	BT	Flexible		40	G		2		Moderate						G			F	
161	728.900	729.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
162	729.000	729.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
163	729.100	729.200	G	BT	Flexible		40	G		2		Moderate						G			F	
164	729.200	729.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
165	729.300	729.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
166	729.400	729.500	G	BT	Flexible		40	G		2		Moderate						G			F	
167	729.500	729.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
168	729.600	729.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
169	729.700	729.800	G	BT	Flexible		40	G		2		Moderate						G			F	
170	729.800	729.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
171	729.900	730.000	G	BT	Flexible		40	G		2		Moderate						G			F	
172	730.000	730.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
173	730.100	730.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
174	730.200	730.300	G	BT	Flexible		40	G		2		Moderate						G			F	
175	730.300	730.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
176	730.400	730.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
177	730.500	730.600	G	BT	Flexible		40	G		2		Moderate						G			F	
178	730.600	730.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
179	730.700	730.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
180	730.800	730.900	G	BT	Flexible		40	G		2		Moderate						G			F	
181	730.900	731.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
182	731.000	731.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
183	731.100	731.200	G	BT	Flexible		40	G		2		Moderate						G			F	
184	731.200	731.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
185	731.300	731.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
186	731.400	731.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
187	731.500	731.600	G	BT	Flexible		40	G		2		Moderate						G			F	
188	731.600	731.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
189	731.700	731.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
190	731.800	731.900	G	BT	Flexible		40	G		2		Moderate						G			F	
191	731.900	732.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
192	732.000	732.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
193	732.100	732.200	G	BT	Flexible		40	G		2		Moderate						G			F	
194	732.200	732.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
195	732.300	732.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
196	732.400	732.500	G	BT	Flexible		40	G		2		Moderate						G			F	
197	732.500	732.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
198	732.600	732.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
199	732.700	732.800	G	BT	Flexible		40	G		2		Moderate						G			F	
200	732.800	732.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
201	732.900	733.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
202	733.000	733.100	G	BT	Flexible		40	G		2		Moderate						G			F	
203	733.100	733.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
204	733.200	733.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
205	733.300	733.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
206	733.400	733.500	G	BT	Flexible		40	G		2		Moderate						G			F	
207	733.500	733.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
208	733.600	733.700	G	BT	Flexible		40	G		2		Moderate						G			F	
209	733.700	733.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
210	733.800	733.900	G	BT	Flexible		40	G		2		Moderate						G			F	
211	733.900	734.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
212	734.000	734.100	G	BT	Flexible		40	G		2		Moderate						G			F	
213	734.100	734.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
214	734.200	734.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
215	734.300	734.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
216	734.400	734.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
217	734.500	734.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
218	734.600	734.700	G	BT	Flexible		40	G		2		Moderate						G			F	
219	734.700	734.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
220	734.800	734.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
221	734.900	735.000	G	BT	Flexible		40	G		2		Moderate						G			F	
222	735.000	735.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
223	735.100	735.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
224	735.200	735.300	G	BT	Flexible		40	G		2		Moderate						G			F	
225	735.300	735.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
226	735.400	735.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
227	735.500	735.600	G	BT	Flexible		40	G		2		Moderate						G			F	
228	735.600	735.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
229	735.700	735.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
230	735.800	735.900	G	BT	Flexible		40	G		2		Moderate						G			F	
231	735.900	736.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
232	736.000	736.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
233	736.100	736.200	G	BT	Flexible		40	G		2		Moderate						G			F	
234	736.200	736.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
235	736.300	736.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
236	736.400	736.500	G	BT	Flexible		40	G		2		Moderate						G			F	
237	736.500	736.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
238	736.600	736.700	G	BT	Flexible		40	G		3		Moderate						G			F	
239	736.700	736.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
240	736.800	736.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
241	736.900	737.000	G	BT	Flexible		40	G		2		Moderate						G			F	
242	737.000	737.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
243	737.100	737.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
244	737.200	737.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
245	737.300	737.400	G	BT	Flexible		40	G		2		Moderate						G			F	
246	737.400	737.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
247	737.500	737.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
248	737.600	737.700	G	BT	Flexible		40	G		2		Moderate						G			F	
249	737.700	737.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
250	737.800	737.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
251	737.900	738.000	G	BT	Flexible		40	G		3		Moderate						G			F	
252	738.000	738.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
253	738.100	738.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
254	738.200	738.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
255	738.300	738.400	G	BT	Flexible		40	G		2		Moderate						G			F	
256	738.400	738.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
257	738.500	738.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
258	738.600	738.700	G	BT	Flexible		40	G		3		Moderate						G			F	
259	738.700	738.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
260	738.800	738.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
261	738.900	739.000	G	BT	Flexible		40	G		2		Moderate						G			F	
262	739.000	739.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
263	739.100	739.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
264	739.200	739.300	G	BT	Flexible		40	G		3		Moderate						G			F	
265	739.300	739.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
266	739.400	739.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
267	739.500	739.600	G	BT	Flexible		40	G		2		Moderate						G			F	
268	739.600	739.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
269	739.700	739.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
270	739.800	739.900	G	BT	Flexible		40	G		3		Moderate						G			F	
271	739.900	740.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
272	740.000	740.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
273	740.100	740.200	G	BT	Flexible		40	G		2		Moderate						G			F	
274	740.200	740.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
275	740.300	740.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
276	740.400	740.500	G	BT	Flexible		40	G		3		Moderate						G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
277	740.500	740.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
278	740.600	740.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
279	740.700	740.800	G	BT	Flexible		40	G		2		Moderate						G			F	
280	740.800	740.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
281	740.900	741.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
282	741.000	741.100	G	BT	Flexible		40	G		3		Moderate						G			F	
283	741.100	741.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
284	741.200	741.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
285	741.300	741.400	G	BT	Flexible		40	G		2		Moderate						G			F	
286	741.400	741.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
287	741.500	741.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
288	741.600	741.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
289	741.700	741.800	G	BT	Flexible		40	G		3		Moderate						G			F	
290	741.800	741.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
291	741.900	742.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
292	742.000	742.100	G	BT	Flexible		40	G		2		Moderate						G			F	
293	742.100	742.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
294	742.200	742.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
295	742.300	742.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
296	742.400	742.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
297	742.500	742.600	G	BT	Flexible		40	G		2		Moderate						G			F	
298	742.600	742.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
299	742.700	742.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
300	742.800	742.900	G	BT	Flexible		40	G		3		Moderate						G			F	
301	742.900	743.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
302	743.000	743.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
303	743.100	743.200	G	BT	Flexible		40	G		2		Moderate						G			F	
304	743.200	743.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
305	743.300	743.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
306	743.400	743.500	G	BT	Flexible		40	G		3		Moderate						G			F	
307	743.500	743.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
308	743.600	743.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
309	743.700	743.800	G	BT	Flexible		40	G		2		Moderate						G			F	
310	743.800	743.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
311	743.900	744.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
312	744.000	744.100	G	BT	Flexible		40	G		3		Moderate						G			F	
313	744.100	744.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
314	744.200	744.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
315	744.300	744.400	G	BT	Flexible		40	G		2		Moderate						G			F	
316	744.400	744.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
317	744.500	744.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
318	744.600	744.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
319	744.700	744.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
320	744.800	744.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
321	744.900	745.000	G	BT	Flexible		40	G		3		Moderate						G			F	
322	745.000	745.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
323	745.100	745.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
324	745.200	745.300	G	BT	Flexible		40	G		2		Moderate						G			F	
325	745.300	745.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
326	745.400	745.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
327	745.500	745.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
328	745.600	745.700	G	BT	Flexible		40	G		3		Moderate						G			F	
329	745.700	745.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
330	745.800	745.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
331	745.900	746.000	G	BT	Flexible		40	G		2		Moderate						G			F	
332	746.000	746.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
333	746.100	746.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
334	746.200	746.300	G	BT	Flexible		40	G		3		Moderate						G			F	
335	746.300	746.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
336	746.400	746.500	G	BT	Flexible		40	G		2		Moderate						G			F	
337	746.500	746.600	G	Cemented	Rigid		40	G	2									G			F	
338	746.600	746.700	F	Cemented	Rigid		40	F	3									G			F	
339	746.700	746.800	G	Cemented	Rigid		40	G	1.5									G			F	
340	746.800	746.900	G	Cemented	Rigid		40	G	1.5									G			F	
341	746.900	747.000	G	Cemented	Rigid		40	G	1.5									G			F	
342	747.000	747.100	G	Cemented	Rigid		40	G	1.5									G			F	
343	747.100	747.200	G	Cemented	Rigid		40	G	2									G			F	
344	747.200	747.300	G	Cemented	Rigid		40	G	2.5									G			F	
345	747.300	747.400	G	Cemented	Rigid		40	G	1.5									G			F	
346	747.400	747.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
347	747.500	747.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
348	747.600	747.700	G	BT	Flexible		40	G		3		Moderate						G			F	
349	747.700	747.800	G	Cemented	Rigid		40	G	2									G			F	
350	747.800	747.900	G	Cemented	Rigid		40	G	2									G			F	
351	747.900	748.000	G	Cemented	Rigid		40	G	2									G			F	
352	748.000	748.100	G	Cemented	Rigid		40	G	2									G			F	
353	748.100	748.200	G	Cemented	Rigid		40	G	2									G			F	
354	748.200	748.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
355	748.300	748.400	G	BT	Flexible		40	G		2		Moderate						G			F	
356	748.400	748.500	G	BT	Flexible		40	G		3		Moderate						G			F	
357	748.500	748.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
358	748.600	748.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
359	748.700	748.800	G	BT	Flexible		40	G		2		Moderate						G			F	
360	748.800	748.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
361	748.900	749.000	G	BT	Flexible		40	G		3		Moderate						G			F	
362	749.000	749.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
363	749.100	749.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
364	749.200	749.300	G	BT	Flexible		40	G		2		Moderate						G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
365	749.300	749.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
366	749.400	749.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
367	749.500	749.600	G	BT	Flexible		40	G		3		Moderate						G			F	
368	749.600	749.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
369	749.700	749.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
370	749.800	749.900	G	BT	Flexible		40	G		2		Moderate						G			F	
371	749.900	750.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
372	750.000	750.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
373	750.100	750.200	G	BT	Flexible		40	G		3		Moderate						G			F	
374	750.200	750.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
375	750.300	750.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
376	750.400	750.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
377	750.500	750.600	G	BT	Flexible		40	G		2		Moderate						G			F	
378	750.600	750.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
379	750.700	750.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
380	750.800	750.900	G	BT	Flexible		40	G		2		Moderate						G			F	
381	750.900	751.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
382	751.000	751.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
383	751.100	751.200	G	BT	Flexible		40	G		2		Moderate						G			F	
384	751.200	751.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
385	751.300	751.400	G	BT	Flexible		40	G		2		Moderate						G			F	
386	751.400	751.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
387	751.500	751.600	G	BT	Flexible		40	G		2		Moderate						G			F	
388	751.600	751.700	G	BT	Flexible		40	G		2		Moderate						G			F	
389	751.700	751.800	G	BT	Flexible		40	G		2		Moderate						G			F	
390	751.800	751.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
391	751.900	752.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
392	752.000	752.100	G	BT	Flexible		40	G		2		Moderate						G			F	
393	752.100	752.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
394	752.200	752.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
395	752.300	752.400	G	BT	Flexible		40	G		2		Moderate						G			F	
396	752.400	752.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
397	752.500	752.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
398	752.600	752.700	G	BT	Flexible		40	G		2		Moderate						G			F	
399	752.700	752.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
400	752.800	752.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
401	752.900	753.000	G	BT	Flexible		40	G		2		Moderate						G			F	
402	753.000	753.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
403	753.100	753.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
404	753.200	753.300	G	BT	Flexible		40	G		2		Moderate						G			F	
405	753.300	753.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
406	753.400	753.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
407	753.500	753.600	G	BT	Flexible		40	G		2		Moderate						G			F	
408	753.600	753.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
409	753.700	753.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
410	753.800	753.900	G	BT	Flexible		40	G		2		Moderate						G			F	
411	753.900	754.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
412	754.000	754.100	G	BT	Flexible		40	G		2		Moderate						G			F	
413	754.100	754.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
414	754.200	754.300	G	BT	Flexible		40	G		2		Moderate						G			F	
415	754.300	754.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
416	754.400	754.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
417	754.500	754.600	G	BT	Flexible		40	G		2		Moderate						G			F	
418	754.600	754.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
419	754.700	754.800	G	BT	Flexible		40	G		2		Moderate						G			F	
420	754.800	754.900	G	BT	Flexible		40	G		2		Moderate						G			F	
421	754.900	755.000	G	BT	Flexible		40	G		2		Moderate						G			F	
422	755.000	755.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
423	755.100	755.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
424	755.200	755.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
425	755.300	755.400	G	BT	Flexible		40	G		2		Moderate						G			F	
426	755.400	755.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
427	755.500	755.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
428	755.600	755.700	G	BT	Flexible		40	G		2		Moderate						G			F	
429	755.700	755.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
430	755.800	755.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
431	755.900	756.000	G	BT	Flexible		40	G		2		Moderate						G			F	
432	756.000	756.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
433	756.100	756.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
434	756.200	756.300	G	BT	Flexible		40	G		2		Moderate						G			F	
435	756.300	756.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
436	756.400	756.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
437	756.500	756.600	G	BT	Flexible		40	G		2		Moderate						G			F	
438	756.600	756.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
439	756.700	756.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
440	756.800	756.900	G	BT	Flexible		40	G		2		Moderate						G			F	
441	756.900	757.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
442	757.000	757.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
443	757.100	757.200	G	BT	Flexible		40	G		2		Moderate						G			F	
444	757.200	757.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
445	757.300	757.400	G	BT	Flexible		40	G		2		Moderate						G			F	
446	757.400	757.500	G	BT	Flexible		40	G		2		Moderate						G			F	
447	757.500	757.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
448	757.600	757.700	G	BT	Flexible		40	G		2		Moderate						G			F	
449	757.700	757.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
450	757.800	757.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
451	757.900	758.000	G	BT	Flexible		40	G		2		Moderate						G			F	
452	758.000	758.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
453	758.100	758.200	G	BT	Flexible		40	G		2		Moderate						G			F	
454	758.200	758.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
455	758.300	758.400	G	BT	Flexible		40	G		2		Moderate						G			F	
456	758.400	758.500	G	BT	Flexible		40	G		2		Moderate						G			F	
457	758.500	758.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
458	758.600	758.700	G	BT	Flexible		40	G		2		Moderate						G			F	
459	758.700	758.800	G	BT	Flexible		40	G		2		Moderate						G			F	
460	758.800	758.900	G	BT	Flexible		40	G		2		Moderate						G			F	
461	758.900	759.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
462	759.000	759.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
463	759.100	759.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
464	759.200	759.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
465	759.300	759.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
466	759.400	759.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
467	759.500	759.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
468	759.600	759.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
469	759.700	759.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
470	759.800	759.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
471	759.900	760.000	G	BT	Flexible		40	G		2		Moderate						G			F	
472	760.000	760.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
473	760.100	760.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
474	760.200	760.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
475	760.300	760.400	G	BT	Flexible		40	G		2		Moderate						G			F	
476	760.400	760.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
477	760.500	760.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
478	760.600	760.700	G	BT	Flexible		40	G		2		Moderate						G			F	
479	760.700	760.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
480	760.800	760.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
481	760.900	761.000	G	BT	Flexible		40	G		2		Moderate						G			F	
482	761.000	761.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
483	761.100	761.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
484	761.200	761.300	G	BT	Flexible		40	G		2		Moderate						G			F	
485	761.300	761.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
486	761.400	761.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
487	761.500	761.600	G	BT	Flexible		40	G		2		Moderate						G			F	
488	761.600	761.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
489	761.700	761.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
490	761.800	761.900	G	BT	Flexible		40	G		2		Moderate						G			F	
491	761.900	762.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
492	762.000	762.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
493	762.100	762.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
494	762.200	762.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
495	762.300	762.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
496	762.400	762.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
497	762.500	762.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
498	762.600	762.700	G	BT	Flexible		40	G		2		Moderate						G			F	
499	762.700	762.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
500	762.800	762.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
501	762.900	763.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
502	763.000	763.100	G	BT	Flexible		40	G		2		Moderate						G			F	
503	763.100	763.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
504	763.200	763.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
505	763.300	763.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
506	763.400	763.500	G	BT	Flexible		40	G		2		Moderate						G			F	
507	763.500	763.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
508	763.600	763.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
509	763.700	763.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
510	763.800	763.900	G	BT	Flexible		40	G		2		Moderate						G			F	
511	763.900	764.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
512	764.000	764.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
513	764.100	764.200	G	BT	Flexible		40	G		2		Moderate						G			F	
514	764.200	764.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
515	764.300	764.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
516	764.400	764.500	G	BT	Flexible		40	G		2		Moderate						G			F	
517	764.500	764.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
518	764.600	764.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
519	764.700	764.800	G	BT	Flexible		40	G		2		Moderate						G			F	
520	764.800	764.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
521	764.900	765.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
522	765.000	765.100	G	BT	Flexible		40	G		2		Moderate						G			F	
523	765.100	765.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
524	765.200	765.300	G	BT	Flexible		40	G		2		Moderate						G			F	
525	765.300	765.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
526	765.400	765.500	G	BT	Flexible		40	G		2		Moderate						G			F	
527	765.500	765.600	G	BT	Flexible		40	G		2		Moderate						G			F	
528	765.600	765.700	G	BT	Flexible		40	G		2		Moderate						G			F	
529	765.700	765.800	G	BT	Flexible		40	G		2		Moderate						G			F	
530	765.800	765.900	G	BT	Flexible		40	G		2		Moderate						G			F	
531	765.900	766.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
532	766.000	766.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
533	766.100	766.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
534	766.200	766.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
535	766.300	766.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
536	766.400	766.500	G	BT	Flexible		40	G		2		Moderate						G			F	
537	766.500	766.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
538	766.600	766.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
539	766.700	766.800	G	BT	Flexible		40	G		2		Moderate						G			F	
540	766.800	766.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
541	766.900	767.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
542	767.000	767.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
543	767.100	767.200	G	BT	Flexible		40	G		2		Moderate						G			F	
544	767.200	767.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
545	767.300	767.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
546	767.400	767.500	G	BT	Flexible		40	G		2		Moderate						G			F	
547	767.500	767.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
548	767.600	767.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
549	767.700	767.800	G	BT	Flexible		40	G		2		Moderate						G			F	
550	767.800	767.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
551	767.900	768.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
552	768.000	768.100	G	BT	Flexible		40	G		2		Moderate						G			F	
553	768.100	768.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
554	768.200	768.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
555	768.300	768.400	G	BT	Flexible		40	G		2		Moderate						G			F	
556	768.400	768.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
557	768.500	768.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
558	768.600	768.700	G	BT	Flexible		40	G		2		Moderate						G			F	
559	768.700	768.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
560	768.800	768.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
561	768.900	769.000	G	BT	Flexible		40	G		2		Moderate						G			F	
562	769.000	769.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
563	769.100	769.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
564	769.200	769.300	G	BT	Flexible		40	G		2		Moderate						G			F	
565	769.300	769.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
566	769.400	769.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
567	769.500	769.600	G	BT	Flexible		40	G		2		Moderate						G			F	
568	769.600	769.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
569	769.700	769.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
570	769.800	769.900	G	BT	Flexible		40	G		2		Moderate						G			F	
571	769.900	770.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
572	770.000	770.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
573	770.100	770.200	G	BT	Flexible		40	G		2		Moderate						G			F	
574	770.200	770.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
575	770.300	770.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
576	770.400	770.500	G	BT	Flexible		40	G		2		Moderate						G			F	
577	770.500	770.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
578	770.600	770.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
579	770.700	770.800	G	BT	Flexible		40	G		2		Moderate						G			F	
580	770.800	770.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
581	770.900	771.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
582	771.000	771.100	G	BT	Flexible		40	G		2		Moderate						G			F	
583	771.100	771.200	G	BT	Flexible		40	G		2		Moderate						G			F	
584	771.200	771.300	G	Cemented	Rigid		40	G	2									G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
585	771.300	771.400	G	Cemented	Rigid		40	G	2									G			F	
586	771.400	771.500	G	Cemented	Rigid		40	G	2									G			F	
587	771.500	771.600	G	Cemented	Rigid		40	G	2									G			F	
588	771.600	771.700	G	Cemented	Rigid		40	G	2									G			F	
589	771.700	771.800	G	Cemented	Rigid		40	G	2									G			F	
590	771.800	771.900	F	Cemented	Rigid		40	F	3									G			F	
591	771.900	772.000	F	Cemented	Rigid		40	F	3									G			F	
592	772.000	772.100	F	Cemented	Rigid		40	F	3									G			F	
593	772.100	772.200	F	Cemented	Rigid		40	F	3									G			F	
594	772.200	772.300	G	Cemented	Rigid		40	G	2.5									G			F	
595	772.300	772.400	G	Cemented	Rigid		40	G	2.5									G			F	
596	772.400	772.500	G	Cemented	Rigid		40	G	2									G			F	
597	772.500	772.600	F	Cemented	Rigid		40	F	3									G			F	
598	772.600	772.680	G	Cemented	Rigid		40	G	2									G			F	
599	772.680	772.800	G	BT	Flexible		40	G		1.5		Moderate						G			F	
600	772.800	772.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
601	772.900	773.000	G	BT	Flexible		40	G		2		Moderate						G			F	
602	773.000	773.100	G	BT	Flexible		40	G		1.5		Moderate						G			F	
603	773.100	773.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
604	773.200	773.300	G	BT	Flexible		40	G		2		Moderate						G			F	
605	773.300	773.400	G	BT	Flexible		40	G		1.5		Moderate						G			F	
606	773.400	773.450	F	BT	Flexible		40	F		3		Moderate						G			F	
607	773.450	773.550	F	Cemented	Rigid		40	F	3									G			F	
608	773.550	773.650	F	Cemented	Rigid		40	F	3									G			F	
609	773.650	773.750	G	Cemented	Rigid		40	G	2									G			F	
610	773.750	773.850	G	Cemented	Rigid		40	G	2									G			F	
611	773.850	773.950	G	Cemented	Rigid		40	G	2									G			F	
612	773.950	774.050	G	Cemented	Rigid		40	G	2									G			F	
613	774.050	774.150	G	Cemented	Rigid		40	G	2									G			F	
614	774.150	774.250	G	Cemented	Rigid		40	G	2.5									G			F	
615	774.250	774.350	G	Cemented	Rigid		40	G	2									G			F	
616	774.350	774.450	G	Cemented	Rigid		40	G	2									G			F	
617	774.450	774.550	G	Cemented	Rigid		40	G	2									G			F	
618	774.550	774.650	G	Cemented	Rigid		40	G	2									G			F	
619	774.650	774.750	G	Cemented	Rigid		40	G	2.5									G			F	
620	774.750	774.850	G	Cemented	Rigid		40	G	2									G			F	
621	774.850	774.950	G	Cemented	Rigid		40	G	2									G			F	
622	774.950	775.050	G	Cemented	Rigid		40	G	2									G			F	
623	775.050	775.150	G	Cemented	Rigid		40	G	2									G			F	
624	775.150	775.250	F	Cemented	Rigid		40	F	3									G			F	
625	775.250	775.350	G	Cemented	Rigid		40	G	2									G			F	
626	775.350	775.450	G	Cemented	Rigid		40	G	2									G			F	
627	775.450	775.575	G	Cemented	Rigid		40	G	2									G			F	
628	775.575	775.700	G	Cemented	Rigid		40	G	1.5									G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
629	775.700	775.800	G	Cemented	Rigid		40	G	2									G			F	
630	775.800	775.900	G	Cemented	Rigid		40	G	1.5									G			F	
631	775.900	776.000	G	Cemented	Rigid		40	G	1.5									G			F	
632	776.000	776.100	G	Cemented	Rigid		40	G	2									G			F	
633	776.100	776.200	G	Cemented	Rigid		40	G	1.5									G			F	
634	776.200	776.300	G	Cemented	Rigid		40	G	1.5									G			F	
635	776.300	776.440	G	Cemented	Rigid		40	G	2									G			F	
636	776.440	776.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
637	776.600	776.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
638	776.700	776.800	G	BT	Flexible		40	G		2		Moderate						G			F	
639	776.800	776.900	G	BT	Flexible		40	G		1.5		Moderate						G			F	
640	776.900	777.000	G	BT	Flexible		40	G		1.5		Moderate						G			F	
641	777.000	777.100	G	BT	Flexible		40	G		2		Moderate						G			F	
642	777.100	777.200	G	BT	Flexible		40	G		1.5		Moderate						G			F	
643	777.200	777.300	G	BT	Flexible		40	G		1.5		Moderate						G			F	
644	777.300	777.400	G	BT	Flexible		40	G		2		Moderate						G			F	
645	777.400	777.500	G	BT	Flexible		40	G		1.5		Moderate						G			F	
646	777.500	777.600	G	BT	Flexible		40	G		1.5		Moderate						G			F	
647	777.600	777.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
648	777.700	777.870	G	BT	Flexible		40	G		3		Moderate						G			F	
649	777.870	777.970	G	Cemented	Rigid		40	G		1.5								G			F	
650	777.970	778.100	G	Cemented	Rigid		40	G		1.5								G			F	
651	778.100	778.200	G	Cemented	Rigid		40	G		2.5								G			F	
652	778.200	778.300	G	Cemented	Rigid		40	G		2								G			F	
653	778.300	778.400	G	Cemented	Rigid		40	G		2								G			F	
654	778.400	778.500	G	Cemented	Rigid		40	G		2								G			F	
655	778.500	778.600	G	Cemented	Rigid		40	G		2								G			F	
656	778.600	778.700	G	Cemented	Rigid		40	G		2								G			F	
657	778.700	778.800	G	Cemented	Rigid		40	G		2.5								G			F	
658	778.800	778.900	G	Cemented	Rigid		40	G		2								G			F	
659	778.900	779.000	G	Cemented	Rigid		40	G		2								G			F	
660	779.000	779.130	G	Cemented	Rigid		40	G		2								G			F	
661	779.130	779.300	G	Cemented	Rigid		40	G		2.5								G			F	
662	779.300	779.440	G	Cemented	Rigid		40	G		1.5								G			F	
663	779.440	779.600	G	BT	Flexible		40	G		2		Moderate						G			F	
664	779.600	779.700	G	BT	Flexible		40	G		1.5		Moderate						G			F	
665	779.700	779.810	G	BT	Flexible		40	G		1.5		Moderate						G			F	
666	779.810	779.910	G	Cemented	Rigid		40	G		1.5								G			F	
667	779.910	780.010	G	Cemented	Rigid		40	G		2								G			F	
668	780.010	780.110	G	Cemented	Rigid		40	G		1.5								G			F	
669	780.110	780.210	G	Cemented	Rigid		40	G		1.5								G			F	
670	780.210	780.310	G	Cemented	Rigid		40	G		2								G			F	
671	780.310	780.410	G	Cemented	Rigid		40	G		2								G			F	
672	780.410	780.510	G	Cemented	Rigid		40	G		2.5								G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
673	780.510	780.610	G	Cemented	Rigid		40	G		2								G			F	
674	780.610	780.710	G	Cemented	Rigid		40	G		2								G			F	
675	780.710	780.810	G	Cemented	Rigid		40	G		2								G			F	
676	780.810	780.910	G	Cemented	Rigid		40	G		2								G			F	
677	780.910	781.010	G	Cemented	Rigid		40	G		2								G			F	
678	781.010	781.110	G	Cemented	Rigid		40	G		2.5								G			F	
679	781.110	781.210	F	Cemented	Rigid		40	F		3								G			F	
680	781.210	781.310	G	Cemented	Rigid		40	G		2								G			F	
681	781.310	781.410	G	Cemented	Rigid		40	G		2								G			F	
682	781.410	781.510	G	Cemented	Rigid		40	G		2								G			F	
683	781.510	781.610	G	Cemented	Rigid		40	G		2								G			F	
684	781.610	781.710	F	Cemented	Rigid		40	F		3								G			F	
685	781.710	781.810	G	Cemented	Rigid		40	G		2.5								G			F	
686	781.810	781.910	G	Cemented	Rigid		40	G		2								G			F	
687	781.910	782.010	G	Cemented	Rigid		40	G		2.5								G			F	
688	782.010	782.110	F	Cemented	Rigid		40	F		3								G			F	
689	782.110	782.210	G	Cemented	Rigid		40	G		2								G			F	
690	782.210	782.310	G	Cemented	Rigid		40	G		2.5								G			F	
691	782.310	782.410	G	Cemented	Rigid		40	G		2								G			F	
692	782.410	782.510	G	Cemented	Rigid		40	G		2								G			F	
693	782.510	782.610	G	Cemented	Rigid		40	G		2								G			F	
694	782.610	782.710	G	Cemented	Rigid		40	G		2								G			F	
695	782.710	782.810	G	Cemented	Rigid		40	G		2								G			F	
696	782.810	782.910	F	Cemented	Rigid		40	F		3								G			F	
697	782.910	783.010	G	Cemented	Rigid		40	G		2								G			F	
698	783.010	783.110	F	Cemented	Rigid		40	F		3								G			F	
699	783.110	783.210	G	Cemented	Rigid		40	G		2								G			F	
700	783.210	783.310	G	Cemented	Rigid		40	G		2								G			F	
701	783.310	783.410	G	Cemented	Rigid		40	G		2								G			F	
702	783.410	783.510	G	Cemented	Rigid		40	G		2								G			F	
703	783.510	783.610	G	Cemented	Rigid		40	G		2								G			F	
704	783.610	783.710	G	Cemented	Rigid		40	G		2								G			F	
705	783.710	783.810	G	Cemented	Rigid		40	G		2.5								G			F	
706	783.810	783.900	G	BT	Flexible		40	G		2		Moderate						G			F	
707	783.900	784.000	G	BT	Flexible		40	G		2		Moderate						G			F	
708	784.000	784.100	G	BT	Flexible		40	G		2		Moderate						G			F	
709	784.100	784.200	G	BT	Flexible		40	G		2		Moderate						G			F	
710	784.200	784.300	G	BT	Flexible		40	G		2		Moderate						G			F	
711	784.300	784.400	G	BT	Flexible		40	G		2		Moderate						G			F	
712	784.400	784.500	G	BT	Flexible		40	G		2		Moderate						G			F	
713	784.500	784.600	G	BT	Flexible		40	F		2		Moderate						G			F	
714	784.600	784.750	G	BT	Flexible		40	G		2		Moderate						G			F	
715	784.750	784.850	G	Cemented	Rigid		40	G		2								G			F	
716	784.850	784.950	G	Cemented	Rigid		40	G		2								G			F	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm)	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
717	784.950	785.050	G	Cemented	Rigid		40	G		2								G			F	
718	785.050	785.150	G	Cemented	Rigid		40	G		2								G			F	
719	785.150	785.250	G	Cemented	Rigid		40	G		2								G			F	
720	785.250	785.350	G	Cemented	Rigid		40	G		2								G			F	
721	785.350	785.450	G	Cemented	Rigid		40	G		2								G			F	
722	785.450	785.544	F	Cemented	Rigid		40	F		5								G			F	

Four laning of Sangli - Solapur (Package-III of length 45.600 kms) section of NH-166 from Design km. 276.000 to km. 321.600 in the state of Maharashtra on HAM

Technical Due Diligence Study

Final Report

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REVISION RECORD					
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Rev	**Description**	**Date**	**Originator**	**Checked**	**Approved**
R0	Final Report	08-Nov-2022	RW / STP	CSB	SMA

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FOUR LANING OF SANGLI - SOLAPUR (PACKAGE-III: WATAMBARE TO MANGALWEDHA OF LENGTH 45.600 KMS) SECTION OF NH-166 FROM EXISTING KM. 272.394 TO KM. 314.969 (DESIGN CHAINAGE KM. 276.000 TO KM. 321.600) OF LENGTH 45.600 KMS IN THE STATE OF MAHARASHTRA ON HYBRID ANNUITY MODE

TECHNICAL DUE DILIGENCE STUDY

FINAL REPORT

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1 INTRODUCTION

1.1 Background

The Government of India had entrusted to Authority the development, maintenance and management of National Highway No. 166 including the section from km. 276.000 to km. 321.600 (approx. 45.600 kms). The Authority had resolved to augment the existing road from km. 272.394 to km. 314.969 (approx. 42.575 kms) on the Watambare - Mangalwedha section of National Highway No. 166 in the state of Maharashtra by four laning on design, build, operate and transfer (the "DBOT Annuity" or "Hybrid Annuity") basis.

Based on competitive bid process completed, NHAI has signed Concession Agreement with **M/s. GR Sangli Solapur Highway Private Limited (GSSHPL)**, a Special Purpose Vehicle (SPV) formed for implementing this project.

The Appointed Date of the project was 31st December 2018. The concession period of the project highway is 17 years from the Appointed Date including construction period of 2 years. The Scheduled Completion Date of the project highway was on 30th December 2020. The NHAI had granted Extension of Time (EOT) for 180 days. The project highway has received Provisional Completion Certificate on 28th June 2021.

During maintenance of the project highway, **M/s. GR Highways Investment Manager Pvt. Ltd.** (in its capacity as the Investment Manager of Bharat Highways InvIT) has appointed **FP Project Management Consultancy Services Private Limited** [Formerly Frischmann Prabhu (I) Pvt. Ltd.] Technical Consultant for carrying out technical study, and assessment of Opex and major maintenance requirement (MMR) for balance concession period. The scope includes review of operation and maintenance system and to prepare maintenance schedule for entire duration of concession period based on a technical analysis. In turn, FP Project Management undertook the site visits to carry out site inspection. The report is based on findings during this period.

1.2 Our Approach Philosophy

Composition of Team

Our team consists of well-qualified Engineers and other professionals, whose experience covers all the skills and specializations required for undertaking such assignments. All the team personnel proposed are our regular employees and have a long and stable working relationship with our firm.

The Team Leader coordinates the activities between all the key staff who work closely together. The key staff is assisted by various support staff, who report to the respective key staff in their field of expertise. The Team Leader is the point of contact for Client on Technical Study.

The technical study includes review of all the available documents namely:

a) Concession Agreement including Technical Schedules
b) EPC Agreement
c) Pavement design reports
d) O&M Manual prepared by the Concessionaire
e) O&M Contract, work order and their provisions
f) Recent O&M Report submitted to Authority
g) Quality of construction based on available data, design and drawings
h) Documents on historical expenditure on operation and maintenance

i) Reports on past accidents
j) O&M cost schedule for the concession period
k) Completion / Provisional Completion and status of items in punch list items
l) Correspondence regarding scope of works and during O&M

The review of above documents is the first step towards accomplishment of the assignment. This gives the complete idea of the project and is used as input data for preparation of report after necessary analysis.

Site Visit and Data Collection

A team of experts from various streams has carried out the preliminary site visit to understand the assessment of project assets mainly condition of the pavement and structures.

- The site visit is undertaken for detailed reconnaissance and visual pavement condition assessment
- The condition assessment of major structures by visual inspection
- The information like material sources and the probable cost to be collected for the purpose of cost estimate

The detailed design / drawings viz. Plan & L-sections, drainage design, structure design, layout drawings for project facilities like toll plaza, bus bay, truck lay-byes, highway lighting facilities etc. would be studied. Also, design / drawing and provision pertaining to road furniture are studied.

The adequacy of design is verified in accordance with the concession agreement, manual of specifications and standards as well as relevant IRC standards.

The information on availability of material in the vicinity is gathered. It has direct impact on cost of maintenance work and balance work if any.

The basic approach for preparation for cost estimates for operation and maintenance is as per the practice of State PWD / MoRT&H in respect of highways and structures.

Data Analysis

Based on the study of the available information and preliminary site visits, the consultants share their preliminary observations with the Client.

1.3 About this Report

This report has been prepared based on the information, reports and documents made available to us by the Company. We have also referred to publicly available reports, literature etc., and have made our best efforts to check the authenticity of the information available, analyse the same as per the best engineering / industry practices.

The site visit and inspection were carried out between the periods of **16th August 2022 to 18th August 2022**.

The report is organized with the following chapters for easy understanding of various issues.

- **Introduction -** This chapter gives an overview of the project background, approach and methodology of Due Diligence studies.

- **Project Description -** This chapter describes existing project features.
- **Development of Project Highway -** This chapter gives an overview of project development.
- **Balance works -** This chapter summarizes the balance works to be executed at Site.
- **Pavement and Site Investigation -** This chapter describes present condition of pavement, surveys and investigations carried out on site and proposals for maintenance as per contract requirements.
- **Operation and Maintenance -** This chapter describes O&M set up as well as O&M cost over the concession period.
- **Review of Concession Agreement -** This chapter summarizes the observations on the Concession Agreement.
- **Review of O&M Agreement -** This chapter summarizes the observations on the O&M Agreement executed.
- **Toll Plaza Equipment and ATMS -** This chapter summarizes assessment of Toll Plaza in terms of no. of lanes, Toll Collection System installed and working status is presented under this section.
- **Accident Data Analysis -** This chapter deals with the analysis of nature of accidents occurring on the stretch and to identify blackspots.
- **Annexures**

2 PROJECT DESCRIPTION

2.1 Location

The project highway (Package-III) starts at Watambare at km. 276.000 and ends at Mangalwedha at km. 321.600. This entire package lies in Solapur District. The project highway passes through the built-up sections of Watambare, Yalgarmangewadi, Kamlapur, Godsewadi, Vasud, Sangola, Wadegaon, Rajapur, Landevenchinchole, Lakshmidahiwadi, Andhalgaon, Ganeshwadi and Mangalwedha.

The design length of the project highway is 45.600 kms. The project involved development of existing 2-lane carriageway to 4-lane divided carriageway with 1.5 m wide paved shoulder and 2.0 m earthen shoulder on either side.

The Location Map of the project highway is presented below:

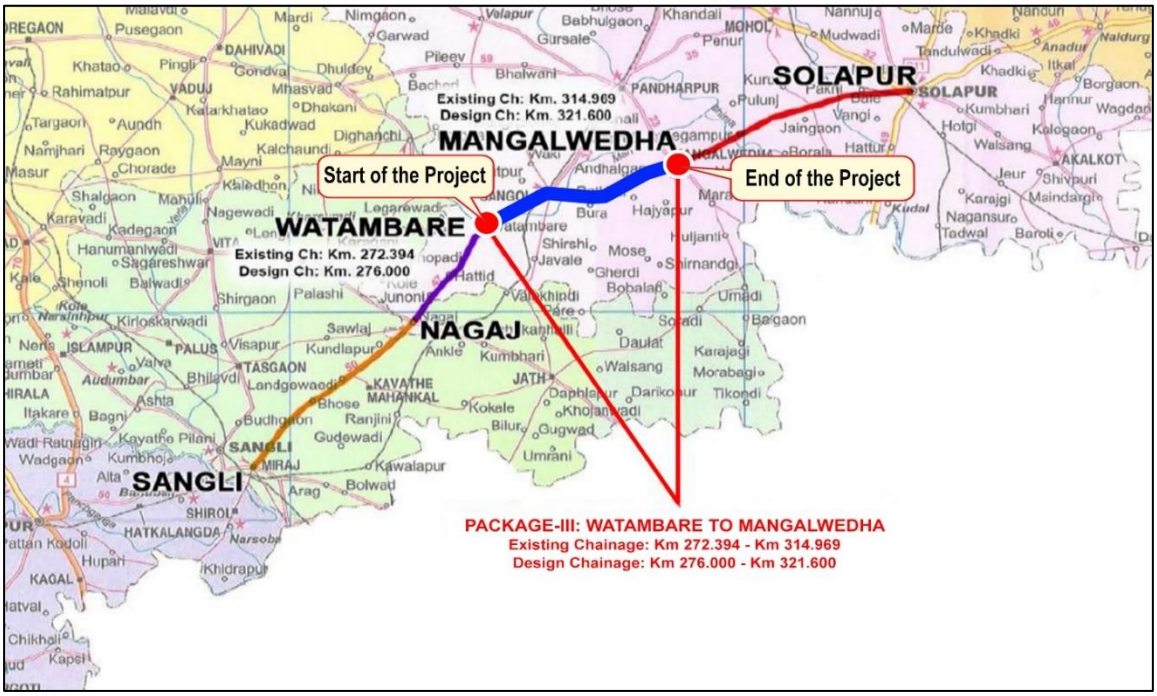


Figure 2-1 Location Map

2.2 Climate

The climate of the project area is generally dry except during the South-West monsoon season between July and August are being the peak rainy months. The average annual rainfall in the area is around 751.5 mm to 1087.7 mm. The average annual temperature of the project area is 15 ^{0}C Minimum & 42 ^{0}C Maximum. The relative humidity of the area varies between 19% to 85%.

2.3 Terrain

This section of National Highway traverses through plain / rolling terrain.

2.4 Abutting Land Use

The land use along the highway is predominantly agriculture, built up and barren.

2.5 Right of Way

The width of existing Right of Way (RoW) throughout the project stretch is 60.0 m.

2.6 Existing Utilities

During widening of the project highway, various affected utility services located along the project road were shifted to the PROW. The different types of utilities found along the road include, electrical poles, telephone poles, OFC Cables, etc.

3 DEVELOPMENT OF PROJECT ROAD

3.1 Project Road

The existing two-lane road with earthen shoulder from km. 276.000 to km. 321.600 has been developed as four lane divided carriageway during the construction stage for the length of 45.600 kms. The project road passes through rural as well as built-up sections. The stretches falling in built-up areas have been provided with service road as per scope of works. The development of entire project road has been carried out in accordance with schedule-B and schedule-C as per standards set forth in schedule-D under the Concession Agreement.

M/s GR Sangli Solapur highway Private Limited has completed construction of the project road for the length of 45.390 kms as on 18th August 2022.

The stretch of the project highway under the scope of study runs predominantly through plain / rolling terrain. The design standards have been adhered to with a realistic compatibility with the existing ROW, utilities and optimum land acquisition. Generally, the cross-sectional dimensions of project road are as below:

Table 3-1 Cross sectional dimension

Main Carriageway	Width (m)
Carriageway width excluding edge strip	17.0
Paved Shoulder width - one side	1.5
Earthen Shoulder width - one side	2.0
Median width	2.0 - 4.5
Service Road	7.5

3.2 Width of Carriageway

The paved carriageway is 18.0 m [(2 x 7.5 m) + (2 x 1.5 m)] wide including paved shoulders, shyness and excluding the median for 4 - lane divided carriageway except at the following locations.

Sr. No.	Name of Township	Design Chainage (km)		Width (m)
		From	To	
1	Watambare	276.380	276.600	19
		276.600	277.200	26
		277.200	278.270	19
		278.270	279.110	26
		279.110	279.180	19
2	Kamlapur	282.720	284.000	26
3	Godasewadi	284.000	285.100	19
4	Sangola	285.100	288.466	26
		289.440	293.160	
		293.780	294.866	
5	Wadegaon	298.311	299.700	26
6	Rajaptir	304.600	304.8 0	26
7	Landevechinchole	304.850	305.200	26
8	Andhalgaon	306.450	307.050	26
		310.590	311.790	

Sr. No.	Name of Township	Design Chainage (km)		Width (m)
		From	To	
9	Ganeshwadi	314.435	315.035	26
10	Mangalwedha	320.600	321.200	26

3.3 Bypass and Realignment

A) Realignment

There are 09 locations where realignment is done. The same is as listed below.

Table 3-2 Details of Realignment

Sr. No.	Chainage (km)		Design Length (m)
	From	To	
1	279.780	280.990	1210
2	282.040	282.810	770
3	303.380	303.520	140
4	304.970	305.160	190
5	309.110	309.840	730
6	310.610	310.790	180
7	310.940	311.850	910
8	319.940	320.200	260
9	321.500	321.600	100

B) Bypasses

There is one bypass on the project highway. The same is as listed below,

Table 3-3 Details of Bypasses

Name of Bypass	Existing Chainage (km)		Design Chainage		Length (km)
	From	To	From	To	
Sangola Bypass	283.310	292.310	287.050	299.120	12.070

Figure 3-1 Photographs of Bypass



Start point of Sangola Bypass at km. 287+050



End point of Sangola Bypass at km. 299+150

3.4 Typical Cross Sections

A) Cross Section Type along the Project Corridor

The Typical Cross Section is as listed below,

Table 3-4 Details of Typical Cross Sections

Sr. No.	Design Chainage (km)		Length (m)	TCS Type	Remarks
	From	To			
1	276.00000	276.38000	380	TCS - 04	Fig 2.4 (C)
2	276.38000	276.60000	220	TCS - 02	Fig 2.6 (A)
3	276.60000	276.89400	294	TCS - 06 B	Fig 2.8 (B)
4	276.89400	276.90600	12	LVUP at Km. 276.900	Fig 2.8
5	276.90600	277.20000	294	TCS - 06 B	Fig 2.8 (B)
6	277.20000	278.27000	1070	TCS - 02	Fig 2.6 (A)
7	278.27000	278.69400	424	TCS - 06 B	Fig 2.8 (B)
8	278.69400	278.70600	12	LVUP at km. 278.700	Fig 2.8
9	278.70600	279.11000	404	TCS - 06 B	Fig 2.8 (B)
10	279.11000	279.18000	70	TCS - 02	Fig 2.6 (A)
11	279.18000	279.78000	600	TCS - 03	Fig 2.4 (A)
12	279.78000	280.32600	546	TCS - 05	Fig 2.4
13	280.32600	280.50600	180	MJB at km 280.416	Fig 2.8
14	280.50600	280.99000	484	TCS - 05	Fig 2.4
15	280.99000	281.26350	273.5	TCS - 03	Fig 2.4 (B)
16	281.26350	281.29050	27	MIB at km 281.277	
17	281.29050	282.04000	749.5	TCS - 03	Fig 2.4 (B)
18	282.04000	282.53480	494.8	TCS - 05	Fig 2.4
19	282.53480	282.56120	26.4	MIB at km. 282.548	
20	282.56120	282.72000	158.8	TCS - 05	Fig 2.4
21	282.72000	282.81000	90	TCS - 06 D	Fig 2.8 (D)
22	282.81000	283.15900	349	TCS - 06 B	Fig 2.8 (B)
23	283.15900	283.17100	12	LVUP at km 283.165	Fig 2.8
24	283.17100	283.64400	473	TCS - 06 B	Fig 2.8 (B)
25	283.64400	283.65600	12	LVUP at km. 283.650	Fig 2.8
26	283.65600	284.00000	344	TCS - 06 B	Fig 2.8 (B)
27	284.00000	284.82980	829.8	TCS - 02	Fig 2.6 (A)
28	284.82980	284.84020	10.4	MIB at km 284.835	
29	284.84020	285.10000	259.8	TCS - 02	Fig 2.6 (A)
30	285.10000	285.42600	326	TCS - 06 B	Fig 2.8 (B)
31	285.42600	285.43800	12	LVUP at km. 285.432	Fig 2.8
32	285.43800	287.05000	1612	TCS - 06 B	Fig 2.8 (B)
33	287.05000	287.29250	242.5	TCS - 06 D	Fig 2.8 (D)
34	287.29250	287.30750	15	VUP at km. 287.300	Fig 2.8
35	287.30750	288.02000	712.5	TCS - 06 D	Fig 2.8 (D)
36	288.02000	288.05000	30	MIB at km 288.035	
37	288.05000	288.11000	60	TCS - 06 D	Fig 2.8 (D)
38	288.11000	288.12200	12	LVUP at km. 288.116	Fig 2.8
39	288.12200	288.46600	344	TCS - 06 D	Fig 2.8 (D)
40	288.46600	289.25300	787	TCS - 05	Fig 2.4
41	289.25300	289.27300	20	MIB at km 289.263	
42	289.27300	289.44000	167	TCS - 05	Fig 2.4
43	289.44000	290.69000	1250	TCS - 06 D	Fig 2.8 (D)

Sr. No.	Design Chainage (km)		Length (m)	TCS Type	Remarks
	From	To			
44	290.69000	290.71000	20	VUP at km. 290.700	Fig 2.8
45	290.71000	292.14100	1431	TCS - 06 D	Fig 2.8 (D)
46	292.14100	292.15500	14	MIB at km 292.148	
47	292.15500	292.22000	65	TCS - 06 D	Fig 2.8 (D)
48	292.22000	292.24000	20	VUP at km. 292.230	Fig 2.8
49	292.24000	292.75050	510.5	TCS - 06 D	Fig 2.8 (D)
50	292.75050	292.76550	15	VUP at km. 292.758	Fig 2.8
51	292.76550	293.16000	394.5	TCS - 06 D	Fig 2.8 (D)
52	293.16000	293.78000	620	TCS - 05	Fig 2.4
53	293.78000	294.09040	310.4	TCS - 06 C	Fig 2.8 (C)
54	294.09040	294.15960	69.2	ROB at km 294.125	
55	294.15960	294.44600	286.4	TCS - 06 C	Fig 2.8 (C)
56	294.44600	294.46600	20	VUP at km. 294.456	Fig 2.8
57	294.46600	294.86000	394	TCS - 06 C	Fig 2.8 (C)
58	294.86000	295.61200	752	TCS - 05	Fig 2.4
59	295.61200	295.63200	20	MIB at km. 295.622	
60	295.63200	296.57300	941	TCS - 05	Fig 2.4
61	296.57300	296.58700	14	MIB at km. 296.580	
62	296.58700	298.07100	1484	TCS - 05	Fig 2.4
63	298.07100	298.31100	240	MJB at km. 298.191	
64	298.31100	298.60700	296	TCS - 06 D	Fig 2.8 (D)
65	298.60700	298.61900	12	LVUP at km. 298.613	Fig 2.8
66	298.61900	299.12000	501	TCS - 06 D	Fig 2.8 (D)
67	299.12000	299.33050	210.5	TCS - 06 B	Fig 2.8 (B)
68	299.33050	299.34550	15	VUP at km. 299.338	Fig 2.8
69	299.34550	299.70000	354.5	TCS - 06 B	Fig 2.8 (B)
70	299.70000	303.38000	3680	TCS - 04	Fig 2.8 (C)
71	303.38000	303.52000	140	TCS - 05	Fig 2.4
72	303.52000	304.60000	1080	TCS - 04	Fig 2.4 (C)
73	304.60000	304.89400	294	TCS - 06 A	Fig 2.8 (A)
74	304.89400	304.90600	12	LVUP at km. 304.900	Fig 2.8
75	304.90600	304.97000	64	TCS - 06 A	Fig 2.8 (A)
76	304.97000	305.16000	190	TCS - 06 C	Fig 2.8 (C)
77	305.16000	305.20000	40	TCS - 06 A	Fig 2.8 (A)
78	305.20000	306.45000	1250	TCS - 04	Fig 2.8 (C)
79	306.45000	306.74400	294	TCS - 06 A	Fig 2.8 (A)
80	306.74400	306.75600	12	LVUP at km. 306.750	Fig 2.8
81	306.75600	307.05000	294	TCS - 06 A	Fig 2.8 (A)
82	307.05000	309.11000	2060	TCS - 04	Fig 2.4 (C)
83	309.11000	309.41700	307	TCS - 05	Fig 2.4
84	309.41700	309.42700	10	MIB at km. 309.422	
85	309.42700	309.84000	413	TCS - 05	Fig 2.4
86	309.84000	310.22000	380	TCS - 04	Fig 2.4 (C)
87	310.22000	310.36000	140	TCS - 03	Fig 2.4 (B)
88	310.36000	310.59000	230	TCS - 04	Fig 2.4 (C)
89	310.59000	310.61000	20	TCS - 06 A	Fig 2.4 (A)
90	310.61000	310.79000	180	TCS - 06 C	Fig 2.4 (C)
91	310.79000	310.88400	94	TCS - 06 A	Fig 2.4 (A)
92	310.88400	310.89600	12	LVUP at km. 310.890	Fig 2.8
93	310.89600	310.94000	44	TCS - 06 A	Fig 2.8 (A)
94	310.94000	311.48400	544	TCS - 06 C	Fig 2.8 (C)

Sr. No.	Design Chainage (km)		Length (m)	TCS Type	Remarks
	From	To			
95	311.48400	311.49600	12	LVUP at km. 311.490	Fig 2.8
96	311.49600	311.79000	294	TCS - 06 C	Fig 2.8 (C)
97	311.79000	311.85000	60	TCS - 05	Fig 2.4
98	311.85000	314.27150	2421.5	TCS - 03	Fig 2.4 (B)
99	314.27150	314.28650	15	MIB at km. 314.279	
100	314.28650	314.43500	148.5	TCS - 03	Fig 2.4 (B)
101	314.43500	314.72900	294	TCS - 06 B	Fig 2.8 (B)
102	314.72900	314.74100	12	LVUP at km. 314.735	Fig 2.8
103	314.74100	315.03500	294	TCS - 06 B	Fig 2.8 (B)
104	315.03500	319.84440	4809.4	TCS - 03	Fig 2.4 (B)
105	319.84440	319.85360	9.2	MIB at km. 319.849	
106	319.85360	319.94000	86.4	TCS - 03	Fig 2.4 (B)
107	319.94000	320.20000	260	TCS - 05	Fig 2.4
108	320.20000	320.60000	400	TCS - 03	Fig 2.4 (B)
109	320.60000	320.89400	294	TCS - 06 C	Fig 2.8 (C)
110	320.89400	320.90600	12	LVUP at km. 320.900	Fig 2.8
111	320.90600	321.20000	294	TCS - 06 C	Fig 2.8 (C)
112	321.20000	321.50000	300	TCS - 03	Fig 2.4 (B)
113	321.50000	321.60000	100	TCS - 05	Fig 2.4

B) Applicable TCS for strengthening of existing 2/4-lane road

Existing road is rehabilitated & strengthened as per Schedule-D, where bypasses / realignments are proposed for built-up locations. The locations are given below.

Sr. No.	Existing Chainage (km)		Existing Length (km)	Existing Chainage (km)		Existing Length (km)	Type of TCS	Place	Existing lane configuration
	From	To		From	To				
1	283.310	287.200	3.890	287.050	299.120	12.070	TCS-08 (B)	Sangola	4-Lane
	287.200	283.310	5.110				TCS-08 (A)		2-Lane
2	304.373	305.2633	0.890	310.940	311.850	0.910	TCS-08 (A)	Andhalgaon	2-Lane

Note:

1) Repair and Rehabilitation measures have been carried out for existing bridges and culverts in above specified locations.
2) The strengthening of these sections is one time improvement, and these stretches are handed over to State Government on COD.

Figure 3-2 Start of Project Road



Start of Project Road at km. 276.000



Start of Project Road at km. 276.000

Figure 3-3 End of Project Road



End of Project Road at km. 321.600



End of Project Road km. 321.600

3.5 Pavement Construction

The entire stretch of the project highway including service road and slip road are rigid pavement.

3.6 Service Road

Service roads have been constructed at 6 locations along the project highway. The total length of service road (including LHS and RHS) is 28.510 kms and the width of service road varies from 7.0 m to 5.5 m. Service roads are provided in both built-up sections and in open country. Built-up sections are provided with RCC built-up drains on outer side of service roads. The details of service roads provided are as tabulated below.

Sr. No.	Design Chainage (km)		Design Length (m)
	From	To	
1	276.380	279.180	2800
2	282.720	288.466	5746
3	289.440	293.160	3720

Sr. No.	Design Chainage (km)		Design Length (m)
	From	To	
4	298.311	299.700	1389
6	314.435	315.035	600

3.7 Slip Roads

Slip roads have been constructed at 6 locations along the project highway. The total length of Slip Road (including LHS and RHS) is 8.021 kms and the width of Slip Road varies from 7.0 m to 5.5 m. Slip Roads are provided in both built-up sections and in open country. Built-up sections are provided with RCC built-up drains on outer side of Slip Roads. The details of Slip Roads provided are as tabulated below.

Sr. No.	Design Chainage (km)		Design Length (m)
	From	To	
1	293.780	294.090	310.4
2	294.159	294.860	700.4
3	304.600	305.200	600
4	306.450	307.050	600
5	310.590	311.790	1200
6	320.600	321.200	600

Figure 3-4 Photographs of Service Road



km. 295+150 (LHS)



km. 320+900 to km. 321+000 (LHS)



km. 314+735 (RHS)



km. 311+054 to km. 311+180 (RHS)



km. 298+613 (LHS)



km. 284+500 (RHS)

3.8 Built up Area

The Project Highway passes through the following built up areas.

Sr. No.	Name of Township	Design Chainage (km)		Length (m)
		From	To	
1	Watambare	276.380	279.180	2800
2	Kamlapur	282.720	284.000	1280
3	Godaewadi	284.000	285.100	1100
4	Sangola	285.100	288.466	3366
5	-	288.466	293.160	4694
6	Wadegoan	298.311	299.700	1389
7	Ganeshwadi	314.435	315.035	600

3.9 At grade intersections

At grade intersections have been constructed with the intersecting roads at the following locations.

(A) Major Intersections:

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type of Junction	Cross Road Category	Side	Leads to
1	-	299.120	Y-junction	Bypass End	RHS	Sangola

(B) Minor Intersections:

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type of Junction	Side	Leads to	Type of Road
1	272.545	276.150	X-Junction	LHS	To Chinke	Metal Road
				RHS		Metal Road
2	273.154	276.757	+-Junction	LHS	To Chinke	Metal Road
				RHS		Metal Road
3	274.262	277.867	Y-Junction	LHS		Cart Track Road
4	275.333	278.915	+-Junction	LHS	To Solapur	BT Road
				RHS	To Watambare	
5	276.124	279.690	T-Junction	RHS	To Vasud	BT Road
6	277.446	281.030	Y-Junction	LHS	To Yelmar Mangewadi	BT Road
7	277.898	281.500	T-Junction	LHS	To Miraj Pandharpur	Metal Road
8	278.632	282.200	X-Junction	LHS	To Kamlapur	Metal Road
				RHS		Metal Road
9	279.385	282.985	X-Junction	LHS	To Kamlapur	BT Road
				RHS	To Vasud	Metal Road
10	280.345	284.040	T-Junction	LHS	To Godasewadi	BT Road
11	280.677	284.380	Y-Junction	RHS	To Godasewadi	Metal Road
12	280.980	284.690	Y-Junction	LHS	To Godasewadi	Metal Road
13	281.140	284.850	Y-Junction	RHS		Cart Track Road
14	282.105	285.800	T-Junction	LHS	To Industries	BT Road
15	282.505	286.130	Y-Junction	RHS		Cart Track Road
16	283..160	286.750	T-Junction	LHS	To Industries	BT Road
17	Bypass	287.990	Y-Junction	LHS		BT Road
18	Bypass	288.330	T-Junction	LHS		Metal Road

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type of Junction	Side	Leads to	Type of Road
19	Bypass	290.022	+-Junction	LHS	To Ekhatpur	BT Road
				RHS	To Sangole	
20	Bypass	295.165	X-Junction	LHS		BT Road
				RHS	To Sangole	
21	Bypass	297.700	T-Junction	RHS	To Sangole	
22	292.538	299.200	Y-Junction	RHS	To Wadegaon	BT Road
23	294.369	301.175	T-Junction	RHS		Cart Track Road
24	294.716	301.520	Y-Junction	LHS		Cart Track Road
28	295.160	301.925	Y-Junction	RHS		Cart Track Road
26	296.153	302.725	T-Junction	RHS	To Raut Vast--Lazmi Dahiwadi Road	BT Road
27	296.696	303.270	X-Junction	LHS		BT Road
				RHS		Cart Track Road
28	299.465	306.025	Y-Junction	LHS	To Rajapur	BT Road
29	301.610	308.180	T-Junction	LHS		Cart Track Road
				RHS		Cart Track Road
30		311.742	X-Junction	LHS	To Andhalgaon	BT Road
				RHS	To Pathkal	
31	305.253	311.840	Staggered	LHS		Cart Track Road
	305.275	311.865		RHS		BT Road
32	306.813	313.400	T-Junction	LHS	To Shelewadi	BT Road
33	307.663	314.250	T-Junction	RHS	To Pathkal	BT Road
34	309.901	316.500	T-Junction	LHS		Cart Track Road
35	310.615	317.220	X-Junction	LHS	To Akole	Metal Road
				RHS	To Kacharewadi	Metal Road
36	312.130	318.740	T-Junction	LHS		Cart Track Road
37	319.420	319.420	Y-Junction	RHS		Cart Track Road
38	313.903	320.520	X-Junction	LHS		Cart Track Road
				RHS	To Kacharewadi	
39	314.281	320.900	Y-Junction	RHS	To Kacharewadi	BT Road

Figure 3-5 Photographs of Minor Intersection



km. 311+900



km. 314+250



km. 303+250



km. 281+000



km. 303+290



km. 279+750

3.10 Underpasses

The underpasses constructed at Site are as tabulated below.

Sr. No.	Design Chainage (km)	Span / Opening (m)	Road to be carried over / under the structures
1	276.900	1 x 12.00 x 4.00	Light Vehicular Underpass
2	278.700	1 x 12.00 x 4.50	Light Vehicular Underpass
3	283.165	1 x 12.00 x 4.00	Light Vehicular Underpass
4	253.650	1 x 12.00 x 4.50	Light Vehicular Underpass
5	285.432	1 x 12.00 x 4.50	Light Vehicular Underpass
6	287.300	1 x 15.00 x 5.50	Vehicular Underpass
7	288.116	1 x 12.00 x 4.00	Light Vehicular Underpass
8	290.700	1 x 20.00 x 5.50	Vehicular Underpass
9	292.230	1 x 20.00 x 5.50	Vehicular Underpass
10	292.758	1 x 15.00 x 5.50	Vehicular Underpass
11	294.456	1 x 20.00 x 5.50	Vehicular Underpass
12	298.613	1 x 12.00 x 4.00	Light Vehicular Underpass
13	299.338	1 x 15.00 x 5.50	Vehicular Underpass
14	304.900	1 x 12.00 x 4.00	Light Vehicular Underpass
15	306.750	1 x 12.00 x 4.00	Light Vehicular Underpass
16	310.890	1 x 12.00 x 4.00	Light Vehicular Underpass
17	311.490	1 x 12.00 x 4.00	Light Vehicular Underpass
18	314.735	1 x 12.00 x 4.00	Light Vehicular Underpass
19	320.900	1 x 12.00 x 4.00	Light Vehicular Underpass

3.11 Culverts

The culverts reconstructed / widened / constructed as new are as given below:

A. Widening of Culverts:

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type of Structure		Span Arrangement	
			Existing	Proposed	Existing	Proposed
1	272.578	276.186	HPC	HPC	4 x 1.00	4 x 1.00
2	280.675	284.231	HPC	HPC	2 x 1.20	2 x 1.20
3	281.840	285.390	HPC	HPC	3 x 1.20	3 x 1.20
4	282.474	286.025	HPC	HPC	2 x 0.90	2 x 0.90

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type of Structure		Span Arrangement	
			Existing	Proposed	Existing	Proposed
5	283.440	286.979	HPC	HPC	2 x 1.20	2 x 1.20
6	305.964	312.567	HPC	HPC	2 x 0.90	2 x 0.90
7	311.371	317.979	HPC	HPC	4 x 0.90	4 x 0.90
8	312.049	318.657	HPC	HPC	1 x 0.90	1 x 0.90
9	312.882	319.491	HPC	HPC	1 x 0.90	1 x 0.90
10	313.651	320.266	HPC	HPC	4 x 0.90	4 x 0.90

B. Dismantling & Reconstruction of Culverts:

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Type of Structure		Span Arrangement	
			Existing	Proposed	Existing	Proposed
1	273.370	276.979	HPC	HPC	1 x 0.70	1 x 1.20
2	275.316	278.921	HPC	HPC	1 x 0.30	1 x 1.20
3	278.393	281.959	HPC	HPC	1 x 0.60	1 x 1.20
4	280.556	284.112	RCC Slab	BC	1 x 2.50	1 x 4.00 x 4.00
5	281.720	285.275	RCC Slab	BC	1 x 2.00	1 x 2.00 x 1.50
6	293.364	300.021	HPC	HPC	1 x 0.90	1 x 1.20
7	294.749	301.408	HPC	HPC	1 x 0.50	1 x 1.20
8	298.375	304.930	HPC	HPC	1 x 0.75	1 x 1.20
9	299.272	305.821	HPC	HPC	2 x 0.75	2 x 1.20
10	299.450	305.995	HPC	HPC	2 x 0.70	2 x 1.20
11	300.139	306.714	HPC	HPC	1 x 0.70	1 x 1.20
12	301.118	307.692	HPC	HPC	2 x 0.80	2 x 1.20
13	301.393	307.971	HPC	HPC	1 x 0.70	1 x 1.20
14	301.894	308.468	HPC	HPC	2 x 0.75	2 x 1.20
15	303.528	310.084	HPC	HPC	1 x 0.70	1 x 1.20
16	303.652	310.207	HPC	HPC	1 x 0.75	1 x 1.20
17	304.355	310.903	HPC	HPC	1 x 0.50	1 x 1.20
18	306.381	312.947	HPC	HPC	1 x 0.80	1 x 1.20
19	307.175	313.758	HPC	HPC	1 x 0.80	1 x 1.20
20	308.547	315.136	HPC	HPC	1 x 1.00	1 x 1.20
21	308.779	315.369	HPC	HPC	1 x 0.80	1 x 1.20
22	309.548	316.136	HPC	HPC	1 x 0.80	1 x 1.20
23	310.602	317.203	HPC	HPC	1 x 0.80	1 x 1.20
24	311.670	318.279	HPC	HPC	1 x 0.80	4 x 1.20
25	312.843	319.451	HPC	HPC	2 x 0.80	2 x 1.20
26	313.049	319.667	HPC	HPC	2 x 0.80	2 x 1.20
27	314.015	320.629	HPC	HPC	1 x 0.70	1 x 1.20
28	314.410	321.024	HPC	HPC	2 x 0.80	2 x 1.20

C. New Culverts

Sr. No.	Design Chainage (km)	Proposed Structure	Proposed Span arrangement (m)
1	276.141	BC	1 x 4.00 x 1.50
2	277.879	HPC	1 x 1.20
3	281.836	HPC	1 x 1.20
4	283.256	HPC	1 x 1.20
5	283.856	HPC	I x 1.20
6	287.060	HPC	2 x 1.20
7	289.820	HPC	1 x 1.20
8	290.25	HPC	1 x 1.20

Sr. No.	Design Chainage (km)	Proposed Structure	Proposed Span arrangement (m)
9	290.634	BC	1 x 5.00 x 6.00
10	291.800	BC	1 x 3.00 x 2.00
11	292.515	HPC	1 x 1.20
12	297.130	HPC	1 x 1.20
13	297.510	HPC	I x 1.20
14	299.507	HPC	I x 1.20
15	301.057	HPC	I x 1.20
16	301.443	HPC	1 x 1.20
17	302.159	HPC	I x 1.20
18	302.459	HPC	1 x 1.20
19	303.220	HPC	1 x 1.20
20	304.369	HPC	I x 1.20
21	306.554	HPC	1 x 1.20
22	307.175	HPC	1 x 1.20
23	310.423	HPC	1 x 1.20
24	311.054	HPC	3 x 1.20
25	311.128	HPC	1 x 1.20
26	311.515	HPC	I x 1.20
27	311.734	BC	1 x 5.00 x 2.00
28	311.801	HPC	I x 1.20
29	314.589	HPC	1 x 1.20
30	314.840	HPC	1 x 1.20
31	316.550	HPC	1 x 1.20
32	317.808	HPC	1 x 1.20

3.12 Bridges

Details of Major Bridges and Minor Bridges reconstructed / widened / constructed as new are as given below:

A. Construction of New Major Bridges:

Sr. No.	Name of the River	Existing Chainage (Km)	Design Chainage (km)	Type of Structure	Proposed Span Arrangement (m)	Total Width (m)
1	Manganga	276.860	280.420	PSC Girder type	6 x 30.0	16.0 + varies + 16.0
2	Manganga	251.600	298.190	PSC Girder pipe	8 x 30.0	16.0 + varies + 16.0

B. Construction of New Minor Bridges:

Sr. No.	Design Chainage (km)	Type of Structure	Proposed Span Arrangement (m)	Remarks	Total Width (m)
1	282.548	RCC Box type	4 x 6.60		16.0 + 3.0 + 16.0
	258.035	RCC Girder Type	2 x 15.0	New Bridges on Service/ Slip road also to be constructed	14.5 + 3.0 + 14.5
3	289.26	RCC Box type	2 x 10.0	-	16.0 + 3.0 + 16.0

Sr. No.	Design Chainage (km)	Type of Structure	Proposed Span Arrangement (m)	Remarks	Total Width (m)
4	292.148	RCC Girder Type	1 x 14.0	New Bridges on Service/ Slip road also to be constructed	14.5 + 3.0 + 14.5
5	295.622	RCC Box type	2 x 10.0	-	16.0 + 3.0 + 16.0
6	296.58	RCC Girder Type	1 x 14.0	-	16.0 + 3.0 + 16.0

C. Dismantling and Reconstruction of Existing Minor Bridges:

The following Minor Bridges are dismantled and reconstructed.

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Total Width (m)	Span Arrangement (m)	Remarks
1	281.300	284.835	14.5 + 3.0 + 14.5	2 x 5.20	New Bridges on Service / Slip road also to be constructed
2	-	309.422	16.0 + 3.0 + 16.0	1x 10.0	-
3	307.700	314.279	16.0 + 3.0 + 16.0	1 x 15.0	-

D. Widening, Repairs and Rehabilitation of Existing Minor Bridges:

The following existing minor bridges are retained and utilized as a bridge for main carriageway on one side and repaired / strengthened as per the details given below and new 3-Lane bridge are constructed on the other side.

Sr. No.	Existing Chainage (km)	Design Chainage (km)	Total Width of the Bridge (m)	Span Arrangement (m)
1	277.722	281.277	16.0 + 3.0 + 16.0	3 x 9.00
2	313.228	319.849	16.0 + 3.0 + 16.0	l x 9.20

3.13 ROBs:

A. The details of New ROBs constructed are given below:

Sr. No.	Location	ROB / RUB	Design Chainage (km)	Type of Structure	Proposed Span Arrangement (m)	Total width of the Structure (m)
1	Sangola	ROB	294.125	RCC Girder	1 x 16.0 + 1 x 37.2 + 1 x 16.0	16.0 + 3.0 + 16.0

3.14 Right of Way

Right of Way is 60 m for the entire length except for Wayside Amenities whereas additional land is proposed and is under land acquisition process.

3.15 Condition Survey of Bridges

The inventory of structures including major bridges, minor bridges, ROB, underpasses and culverts is presented in table as below:

Table 3-5 Summary of Structures

Type of Structure	Total Number of Structures
Major Structures:	
Road Over Bridge (ROB)	1
Overpasses	Nil
Flyover	Nil
Vehicular Underpass (VUP)	6
Light Vehicular Underpass (LVUP)	13
Pedestrian Underpass (PUP)	1
Cattle Underpass (CUP)	Nil
Major Bridges (MJB)	2
Minor Bridges (MNB)	11
Culverts:	
Pipe Culvert	65
Box Culvert	6
Total	**105**

The detailed condition survey of structures was carried out by visual inspection. The observations and findings are presented in table below:

Table 3-6 Structure Condition Survey

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
1	276.900	1 x 12.00 x 4.00	Light Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
2	278.700	l x 12.00 x 4.50	Light Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed, Electrification work is completed in the Underpass.
3	280.420	6 x 30.0	New Major Bridge (Manganga river)	16.0 + varies + 16.0	**LHS**	RCC Pier	RCC Slab	A1 & P1 Pile Foundation and others are Open Foundation,	Precast Concrete Girders, 5 nos. per span, Structure is Newly constructed. It is sound and satisfactory. RCC Railing is constructed, Expansion Joints are satisfactory. PTFE Type bearings

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
								RCC footing	are used. For slope protection Quarter cone pitching is done. Drainage spouts are cleaned.
					RHS	RCC Pier	RCC Slab	A1 & P1 Pile Foundation and others are Open Foundation, RCC footing	Precast Concrete Girders, 5 nos. per span, Structure is Newly constructed. it is sound and satisfactory. RCC Railing is constructed. Expansion Joints are satisfactory. PTFE Type bearings are used. For slope protection Quarter cone pitching is done. Drainage spouts are cleaned
4	281.277	3 x 9.00	R & R Minor Bridge	16.0 + 3.0 + 16.0	**LHS**	RCC Pier	RCC Slab	Open Foundation, RCC footing	The Structure is Newly constructed. it is sound and satisfactory. RCC Parapet is constructed. For slope protection Quarter cone pitching is done.
					RHS	RCC / Stone Masonry Pier	RCC Slab	Open Foundation, New RCC Footings and Existing Stone Masonry footing	Existing Structure Pier Stone Masonry and Widening Portion RCC pier, Existing Structure Repair and Rehabilitation Completed. The structure is Sound and Satisfactory. RCC Parapet is constructed, for slope protection Quarter cone pitching is done.
5	282.548	4 x 6.60	New Minor Bridge	16.0 + 3.0 + 16.0	**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type Minor Bridge, Structure is Newly constructed. It is sound and satisfactory. RCC Railing is constructed. For Slope protection Wing walls are

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									constructed on both sides. Apron soling done.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type Minor Bridge, Structure is Newly constructed. It is sound and satisfactory. RCC Railing is constructed. For Slope protection Wing walls are constructed on both sides. Apron soling done.
6	283.165	1 x 12.00 x 4.00	Light Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory, RCC Parapet is constructed. Electrification work is completed in the Underpass.
7	283.650	1 x 10.00	Light Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass, but lights are stolen by locals.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed.

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									Electrification work is completed in the Underpass, but lights are stolen by locals.
8	284.500	1 x 7.00	Pedestrian Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass, but lights are stolen by locals.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory, RCC Parapet is constructed. Electrification work is completed in the Underpass, but lights are stolen by locals.
9	284.835	2 x 5.20	Reconstruction on Minor Bridge New Bridges on Service / Slip Road also to be constructed	14.5 + 3.0 + 14.5	**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	Box Type Minor Bridge, Newly Constructed on MCW As well as Service Road, on Road Bridge Foot path with RCC Railing. The structure is sound and satisfactory
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	Box Type Minor Bridge, Newly Constructed on MCW As well as Service Road, on Road Bridge Foot path with RCC Railing. The structure is sound and satisfactory
10	285.432	l x 12.00 x 4.50	Light Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed, Electrification work is completed in

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									the Underpass, but lights are stolen by locals.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass, but lights are stolen by locals.
11	287.300	1 x 15.00 x 5.50	Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass.
12	288.035	2 x 10.00	Minor Bridge		**LHS**	RCC Pier	RCC Slab	Open Foundation, RCC footing	Precast Girders 5 nos each span is used for Main Carriageway and deck slab with supporting Beam for Service Road. RCC Parapet are constructed for Main Carriageway and RCC Railing on outer side and inner side RCC Parapet is constructed for Service Road. Structure is Newly constructed. It is sound and

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									satisfactory. Elastomeric Type bearings are used
					RHS	RCC Pier	RCC Slab	Open Foundation, RCC footing	Precast Girders 5 nos each span is used for Main Carriageway and deck slab with supporting Beam for Service Road. RCC Parapet are constructed for Main Carriageway and RCC Railing on outer side and inner side RCC Parapet is constructed for Service Road. Structure is Newly constructed. It is sound and satisfactory. Elastomeric Type bearings are used.
12	288.116	1 x 12.00 x 4.00	Light Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass.
13	289.260	2 x 10.0	New Minor Bridge	16.0 + 3.0 + 16.0	**LHS**	RCC Pier	RCC Slab	Open Foundation, RCC footing	RCC slab is constructed. The structure is newly constructed. It is sound and Satisfactory. RCC Parapet are constructed for Main Carriageway and RCC Railing is on outer side and inner side. RCC

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									Parapet is constructed for Service Road.
					RHS	RCC Pier	RCC Slab	Open Foundation, RCC footing	RCC slab is constructed. The structure is newly constructed. It is sound and Satisfactory. RCC Parapet are constructed for Main Carriageway and RCC Railing is on outer side and inner side RCC Parapet is constructed for Service Road.
14	290.700	1 x 20.0 x 5.50	Vehicular Underpass		**LHS**	RCC Pier	RCC Slab	Open Foundation, RCC footing	Precast Concrete Girders, 5 nos. per span, Structure is Newly constructed. it is sound and satisfactory. RCC Parapet is constructed, Elastomeric Type bearings are used. Electrification work completed.
					RHS	RCC Pier	RCC Slab	Open Foundation, RCC footing	Precast Concrete Girders, 5 nos. per span, Structure is Newly constructed. it is sound and satisfactory. RCC Parapet is constructed, Elastomeric Type bearings are used. Electrification work completed.
15	292.148	1 x 14.0	New Minor Bridge New Bridges on Service/ Slip road also to be constructed	14.5 + 3.0 + 14.5	**LHS**	4 no. of RCC Pier	RCC Slab	Open Foundation, RCC footing	Precast Concrete Girders 5 nos. per span. The structure is newly constructed. It is sound and Satisfactory. RCC Parapet are constructed for Main Carriageway and RCC Railing is on outer side and inner side RCC Parapet is constructed for Service Road.

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									Elastomeric Type bearings are used It is on Canal Crossing.
					RHS	5 no. of RCC Pier	RCC Slab	Open Foundation, RCC footing	Precast Concrete Girders 5 nos. per span. The structure is newly constructed. It is sound and Satisfactory. RCC Parapet are constructed for Main Carriageway and RCC Railing is on outer side and inner side RCC Parapet is constructed for Service Road. Elastomeric Type bearings are used It is on Canal Crossing.
16	292.230	l x 20.00 x 5.50	Vehicular Underpass		**LHS**	RCC Pier	RCC Slab	Open Foundation, RCC footing	Precast Concrete Girders 5 nos. per span. The structure is newly constructed. It is sound and Satisfactory. RCC Parapet are constructed. Elastomeric Type bearings are used.
					RHS	RCC Pier	RCC Slab	Open Foundation, RCC footing	Precast Concrete Girders 5 nos. per span. The structure is newly constructed. It is sound and Satisfactory. RCC Parapet are constructed. Elastomeric Type bearings are used.
17	292.758	1 x 15.00 x 5.50	Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. it is sound and satisfactory, RCC Parapet is constructed, Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation,	RCC Box type underpass, Structure is Newly constructed. It

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
								RCC footing	is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass.
18	294.125	1 x 16.0 + 1 x 37.2 + 1 x 16.0	ROB	16.0 + 3.0 + 16.0	**LHS**	RCC Pier	RCC Slab	Open Foundation, RCC footing	Precast Concrete Girders 5 nos. per span Except Railway main Span and 6 no. of Composite Girders per span are used for main span of Railway. The structure is newly constructed. It is sound and Satisfactory. RCC Parapet are constructed for Main span of Railway. RCC Railing is constructed for non-Railway span. PTFE Type bearings are used. Drainage spouts are cleaned.
					RHS	RCC Pier	RCC Slab	Open Foundation, RCC footing	Precast Concrete Girders 5 nos. per span Except Railway main Span and 6 no. of Composite Girders per span are used for main span of Railway. The structure is newly constructed. It is sound and Satisfactory. RCC Parapet are constructed for Main span of Railway. RCC Railing is constructed for non-Railway span. PTFE Type bearings are used. Drainage spouts are cleaned
19	294.456	1 x 20.00 x 5.50	Vehicular Underpass		**LHS**	RCC Pier	RCC Slab	Open Foundation, RCC footing	Precast Concrete Girders 5 nos. per span. The structure is newly constructed. It is sound and Satisfactory. RCC Parapet are

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									constructed. Elastomeric Type bearings are used. Electrification work is completed in the Underpass.
					RHS	RCC Pier	RCC Slab	Open Foundation, RCC footing	Precast Concrete Girders 5 nos. per span. The structure is newly constructed. It is sound and Satisfactory. RCC Parapet are constructed. Elastomeric Type bearings are used. Electrification work is completed in the Underpass.
20	295.622	2 x 10.0	New Minor Bridge	16.0 + 3.0 + 16.0	**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	Box Type Minor Bridge, the structure is newly constructed. It is sound and Satisfactory. RCC Railing is constructed, For Slope Protection both side Wing Walls are constructed. BC Wearing Coat is Raveling.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	Box Type Minor Bridge, the structure is newly constructed. It is sound and Satisfactory. RCC Railing is constructed, For Slope Protection both side Wing Walls are constructed. BC Wearing Coat is Raveling.
21	296.580	1 x 7.00	New Minor Bridge	16.0 + 3.0 + 16.0	**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	Box Type Minor Bridge, It is in Skew, The structure is newly constructed. It is sound and Satisfactory. RCC Parapet is constructed, For Slope Protection

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									both side Wing Walls are constructed.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	Box Type Minor Bridge, It is in Skew, The structure is newly constructed. It is sound and Satisfactory. RCC Parapet is constructed. For Slope Protection both side Wing Walls are constructed.
22	298.190	8 x 30.0	New Major Bridge (Manganga river)	16.0 + varies + 16.0	**LHS**	RCC Pier	RCC Slab	Open Foundation, RCC footing	Precast Concrete Girders, 5 nos. per span, Structure is Newly constructed. it is sound and satisfactory. RCC Railing with footpath is constructed, Expansion Joints are satisfactory. PTFE Type bearings are used. For slope protection wing wall are constructed. Drainage spouts are cleaned
					RHS	RCC Pier	RCC Slab	Open Foundation, RCC footing	Precast Concrete Girders, 5 nos. per span, Structure is Newly constructed. It is sound and satisfactory. RCC Railing with footpath is constructed. Expansion Joints are satisfactory. PTFE Type bearings are used. For slope protection Quarter cone pitching is done. Drainage spouts are cleaned.
23	298.613	1 x 12.00 x 4.00	Light Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation,	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
								RCC footing	Parapet is constructed. Electrification work is completed in the Underpass, but lights are stolen by locals.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass, but lights are stolen by locals.
24	299.338	1 x 15.00 x 5.50	Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass.
25	304.900	1 x 12.00 x 4.00	Light Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation,	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
								RCC footing	Parapet is constructed. Electrification work is completed in the Underpass.
26	306.750	1 x 12.00 x 4.00	Light Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass, but lights are stolen by locals.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass, but lights are stolen by locals.
27	309.422	2x 5.00	Reconstruction Minor Bridge	16.0 + 3.0 + 16.0	**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	Box Type Minor Bridge, It is in Skew, The structure is newly constructed. It is sound and Satisfactory. RCC Parapet is constructed, For Slope Protection, both side quarter coning not done
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	Box Type Minor Bridge, It is in Skew, The structure is newly constructed. It is sound and Satisfactory. RCC Parapet is constructed, For Slope Protection quarter coning done on A1 Sangli side and A2 Solapur side is balance.

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
28	310.890	1 x 12.00 x 4.00	Light Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass, but lights are stolen by locals.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass, but lights are stolen by locals.
29	311.490	1 x 12.00 x 4.00	Light Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass, but lights are stolen by locals.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass, but lights are stolen by locals.
30	314.279	3 x 5.00	Reconstruction Minor Bridge	16.0 + 3.0 + 16.0	**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	Box Type Minor Bridge, the structure is newly constructed. It is sound and Satisfactory. For Slope Protection wing walls are

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
									constructed is done. Waterway cleaning is required
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	Box Type Minor Bridge, the structure is newly constructed. It is sound and Satisfactory. For Slope Protection wing walls are constructed is done. Waterway cleaning is required.
31	314.735	1 x 12.00 x 4.00	Light Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass.
32	319.849	l x 9.20	R & R Minor Bridge	16.0 + 3.0 + 16.0	**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type Minor Bridge, it is constructed on Canal Structure is Newly constructed. It is sound and satisfactory. Footpath with RCC Railing is constructed,
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type Widening of Existing Minor Bridge. It is constructed on Canal. Existing Bridge Repair and Rehabilitation completed. It is sound and satisfactory. Footpath with RCC Railing is constructed,

Sr. No.	Chainage (km)	Span Arrangement (m)	Type	Width (m)	Side	Type of Sub structure	Type of Super structure	Type of foundation	Remarks
33	320.900	1 x 12.00 x 4.00	Light Vehicular Underpass		**LHS**	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass.
					RHS	RCC Box Type	RCC Slab	Open Foundation, RCC footing	RCC Box type underpass, Structure is Newly constructed. It is sound and satisfactory. RCC Parapet is constructed. Electrification work is completed in the Underpass.

Figure 3-6 Photographs of Major Structures



Light Vehicular Underpass at km. 276.900



Light Vehicular Underpass at km. 278.700



New Major Bridge at km. 280.420



New Major Bridge Bottom View of Girder and Pier at km. 280.420



Widening of Existing Minor Bridge at km. 281.277



New Minor Bridge at km. 282.548



Light Vehicular Underpass at km. 283.165



Light Vehicular Underpass at km. 283.650



Pedestrian Underpass at km. 284.500



Reconstruction of Minor Bridge at km. 284.835



Light Vehicular Underpass at km. 285.432



Vehicular Underpass at km. 287.300



New Minor Bridge at km. 288.035



Light Vehicular Underpass
at km. 288.116



New Minor Bridge at km. 289.260



Vehicular Underpass
at km. 290.700



New Minor Bridge at km. 292.148



Vehicular Underpass
at km. 292.230



Vehicular Underpass
at km. 292.758



Rail Over Bridge at km. 294.125



Rail Over Bridge at km. 294.125



Rail Over Bridge at km. 294.125



Vehicular Underpass
at km. 294.456



New Minor Bridge at km. 295.622



New Minor Bridge at km. 296.580



New Major Bridge
at km. 298.190



New Major Bridge
at km. 298.190



Light Vehicular Underpass
at km. 298.613



Vehicular Underpass at km. 299.338



Light Vehicular Underpass at km. 304.900



Vehicular Underpass at km. 306.750



Reconstruction of Minor Bridge at km. 309.422



Light Vehicular Underpass at km. 310.890



Light Vehicular Underpass at km. 311.490



Reconstruction of Minor Bridge at km. 314.279



Light Vehicular Underpass at km. 314.735



Existing Minor Bridge widening at km. 319.849 on RHS



New Minor Bridge at km. 319.849 on LHS



Light Vehicular Underpass at km. 320.900

3.16 Condition Survey of Culverts

The cross-drainage structure includes hume pipe culverts at various locations. There are 64 nos. of pipe culverts along the project highway. There were 6 nos. box / slab culverts along the project highway. During the condition survey of structure, these culverts were inspected on Site.

The project involves strengthening and widening of existing road to four lane divided carriageway. The culverts beneath existing alignment are either widened or reconstructed. The condition of culverts is generally found in sound condition. The quality of surface concrete of box culverts is satisfactory. The RCC parapet, has been provided at culvert locations, which is maintained properly.

Vegetation growth and accumulation of debris at waterway is being removed and cleaned by the Concessionaire on regular basis.

Figure 3-7 Photographs of Culverts



Pipe Culvert at km. 321.024



Pipe culvert at km. 317.979



Pipe culvert at km. 318+657



Pipe culvert at km. 310+423



Pipe culvert at km. 311+550



Pipe culvert at km. 304+300



Box culvert at km. 302+500



Pipe Culvert at km. 302+150



Pipe Culvert at km. 300+020



Pipe Culvert at km. 299+507



Box Culvert at km. 284+112



Box Culvert at km. 285+300



Pipe Culvert at km. 276+190



Pipe Culvert at km. 292+135



Box Culvert at km. 311.734

3.17 Drainage System

There are RCC box drains at the built-up areas and earthen drain at rural area provided for the project stretch. Lined median longitudinal drain is provided at super-elevated sections. The roadside drainage along the project highway as well as lined drains at median portion is maintained by cleaning debris on regular basis. Some of the photographs of the drains provided are presented as below.

Figure 3-8 Photographs of Drains provided



Built-up Drain at km. 314+735



Built-up Drain at km. 299+350

3.18 Slope Protection Measures

Slope protection for high embankment of height greater than 3.0 m has been provided with stone pitching and turfing has been provided for height upto 3.0 m. At sections of stone pitching is provided and some sections stone pitching is in progress. The same is found to be regularly maintained at most the locations. Some of the photographs of slope protection work are presented below.

Figure 3-9 Photographs of Slope Protection Works



Slope Protection work at km. 284+500.000



Slope Protection work at km. 298+300

3.19 Road Furniture

Pavement Marking

Pavement marking for the project highway is done as per the design standards indicated in section 12 of Schedule-D. Pavement marking is faded at some locations which needs rectification. As informed by Concessionaire, the painting is being done wherever is required on regular basis as a part of routine maintenance. Some of the photographs of road marking are presented below.

Figure 3-10 Photographs of Road Markings



Road Markings at km. 306+500



Road Markings at km. 286+600

Traffic Signage

Traffic signs includes roadside signs, overhead signs, kerb mounted signs and median signs along the project highway. The design for the traffic signs along the project highway is done as per the design standards indicated in section 11 of Schedule-D.

The height, lateral clearance, location and installation are as per relevant clauses of Schedule 'D'. Overhead sign has been installed ahead of major intersections, start / end of project highway and urban areas as per detailed design requirements.

The sign boards, kilometre stones and hectometre stones are being replaced wherever damaged.

Some of the photographs of sign boards are presented below.

Figure 3-11 Photographs of Road Sign Boards



Cantilever Gantry Sign at km. 321+600



VMS Board at km. 301+100

Highway Lighting

Highway lighting is provided at underpasses, flyovers, ROBs and built-up locations.

At underpass and flyover locations, highway lighting is provided at the structure locations and at its approaches.

Solar amber blinker signals are provided at each at-grade intersections and at median opening locations. These lights are properly maintained and are in good working condition. Regular maintenance work is carried out to ensure their efficient operation. Some of the photographs of highway lightings are presented below.

Figure 3-12 Photographs of Highway Lighting



Highway Lighting at km. 313+700



Lighting arrangement made under structures

Crash Barriers

Metal beam crash barriers are provided at bridge approaches, locations of high embankment and sharp curves. All the crash barriers provided by the Concessionaire are well maintained at site. Some of the photographs of metal beam crash barriers are presented below.

Figure 3-13 Photographs of Crash Barriers



Crash Barrier at km. 285+650



Crash Barrier at High Embankment Location

Road Land Boundary

Road land (ROW) boundary demarcation is required to be maintained by the Concessionaire on the project highway during the concession period. The road land boundary pillars are being fixed at required locations whenever required.

3.20 Avenue Plantation and Median Plantation

Avenue plantation and median plantation is available intermittently along the project highway. Variety of trees and plants are planted throughout the corridor at road side and at median side respectively. Median plantation is maintained along the project highway. The plantation is being done wherever required on regular basis. Some of the photographs of avenue plantation and median plantation are presented below.

Figure 3-14 Photographs of Avenue and Median Plantation



Avenue Plantation at km. 293+700



Median Plantation at km. 313+450

3.21 Project Facilities

Toll Plaza

As per Concession Agreement, there is no Toll plaza proposed in the project stretch.

Truck Lay Byes

As per Concession Agreement, there is no Truck Lay Bye proposed in the Project stretch.

Rest Area

Rest area location is shifted from km. 302.200 to km. 303.140 on RHS due to existence of HPCL pipeline. It is not constructed due to LA issue. As informed by the Company, 3A is completed and 3D is in progress for the required land.

Bus Bay and Passenger Shelter

Bus bays and passenger shelters are constructed at the various locations along the project highway. 34 Nos. of bus bays with passenger shelters are provided in project highway and 34 Nos. of passenger shelters are provided on service roads along project highway. Bus bays are equipped with all necessary signage as per relevant IRC guidelines mentioned in Schedule-D of Concession Agreement. The details of the bus bays and passenger shelters provided as below.

Table 3-7 Details of Bus Bays along Project Highway

Sr. No.	Design Chainage (km)	Name of Village	Side
1	277.000	Ankhada	LHS
2	277.150	Ankhada	RHS
3	278.450	Watambare	LHS
4	278.990	Watambare	RHS
5	283.350	Kamalapur	LHS
6	283.100	Kamalapur	RHS
7	284.400	Godeshwadi	LHS
8	284.600	Godeshwadi	RHS

Sr. No.	Design Chainage (km)	Name of Village	Side
9	285.600	Sugar Factory	LHS
10	285.750	Sugar Factory	RHS
11	287.700	Sangola Bypass	LHS
12	287.850	Sangola Bypass	RHS
13	290.550	Sangola Bypass	LHS
14	290.885	Sangola Bypass	RHS
15	295.100	Sangola Bypass	LHS
16	295.250	Sangola Bypass	RHS
17	297.200	Sangola Bypass	LHS
18	297.900	Sangola Bypass	RHS
19	299.450	Vadegaon	LHS
20	299.600	Vadegaon	RHS
21	301.200	Dhikawadi	LHS
22	301.635	Dhikawadi	RHS
23	305.900	Rajpur	LHS
24	306.100	Malwadi	RHS
25	310.800	Andhalgaon	LHS
26	311.200	Andhalgaon	RHS
27	312.200	Shelewadi	LHS
28	312.350	Shelewadi	RHS
29	316.440	Ganeshwadi	LHS
30	316.800	Ganeshwadi	RHS
31	318.532	Mangalwedha	LHS
32	318.980	Mangalwedha	RHS
33	320.800	Mangalwedha	LHS
34	321.100	Mangalwedha	RHS

Figure 3-15 Photographs of Bus Bay



Bus Bay at km. 312+150 (Andhalgaon)



Bus Bay at km. 285+650 (Sut Girni)



Bus Bay on service road at km. 305+800



Bus Bay at km. 301+600 (Dighewadi)

4 BALANCE WORKS

The project has received Provisional Completion Certificate (PCOD) on 28th June 2021 with balance works to be executed at Site as mentioned in punch list items. During site visit, it is noticed that there is a balance work of service road which is hindered due to non-availability of land. It is also found that construction of 210 m of main carriageway is in progress which was balance due to High Tension Line.

The cost of balance work is estimated as Rs. 30.50 Crores. The detailed estimated balance work is presented in **Annexure-IV** for reference.

5 PAVEMENT AND SITE INVESTIGATION

5.1 General

The project has been developed on Design, Build, Operate and Transfer (DBOT) basis.

The concession period of the project is 17 years from Appointment Date i.e., 31st December 2018 including construction period of 2 years. The Provisional Completion (PCOD) for the entire project has been achieved on 28th June 2021. The project is currently under operation and maintenance (O&M) stage.

5.2 Details of As-built Pavement

The following table shows crust details based on pavement design report submitted by the Concessionaire. The details of pavement crust are as provided during the development of existing two lane to four lane divided carriageway. The pavement design report states that pavement was designed as per IRC:58-2015.

Table 5-1 Existing Pavement Crust Details

Particulars	Chainage (km)		Design Life	Pavement Thickness (mm)		
	From	To		PQC	DLC	GSB
Main Carriageway	276.000	321.600	30 years	300	150	150
Service Road	-	-	30 years	250	150	150

5.3 Surveys and Investigation

5.3.1 Pavement Condition Survey

Pavement condition survey was carried out from **16th August to 18th August 2022** through visual inspection for the entire project length. The details of the visual condition survey are provided in **Annexure-V.**

The summary of pavement condition based on the visual inspection is tabulated below.

Table 5-2 Summary of Pavement Condition

Design Chainage (km)		Length	Visual Condition (As per IRC:115-2014)	
From	To		LHS Carriageway	RHS Carriageway
276.000	280.000	4.000	Good	Good
280.000	285.000	5.000	Good	Good
285.000	290.000	5.000	Good	Good
290.000	295.000	5.000	Good	Good
295.000	300.000	5.000	Good	Good
300.000	305.000	5.000	Good	Good
305.000	310.000	5.000	Good	Good
310.000	315.000	5.000	Good	Good
315.000	320.000	5.000	Good	Good
320.000	321.600	1.600	Good	Good

Observation and Conclusion:

From the above table, it is observed that the overall pavement condition for the entire project stretch is found to be good.

Following Photographs were taken at the time of visual pavement condition survey.

Figure 5-1 Photographs of Pavement Condition Survey



Pavement Condition at km. 306+500 (LHS)



Pavement Condition at km. 319+100 (RHS)



Pavement Condition at km. 285+750 (BHS)



Pavement Condition at km. 287+700 (RHS)



Panel Repair work done at km. 276+050 (LHS)



Pavement Condition at km. 304+600 (LHS)

5.3.2 Roughness Index test

Prior period report for the Roughness Index Test conducted by **Eclat Engineering Consultant** Dated **13th and 14th May 2021** has been provided by the Concessionaire. This test was done using Car Mounted Bump Integrator to assess the riding quality on each direction (each lane) of the carriageway of project highway.

As per IRC:SP:16-2004, condition of pavement is categorised under:

Table 5-3 Roughness Values (BI Value - mm / km)

Sr. No.	Roughness Range (m/km)	Severity	Inner Lane (Lane-1) LHS Length (km)	Outer Lane (Lane-2) LHS Length (km)	Inner Lane (Lane-1) RHS Length (km)	Outer Lane (Lane-2) RHS Length (km)
1	Less than 2.55	Good	40.685	40.685	39.618	39.618
2	2.55 - 3.30	Fair	-	-	-	-
3	More Than 3.30	Poor	-	-	-	-

6 OPERATION AND MAINTENANCE

6.1 Introduction

Article 17 and Schedule-K of the Concession Agreement defines the Operation and Maintenance requirement during the concession period.

The Company has received Provisional Completion Certificate on 28th June 2021.

The project is currently under Operation and Maintenance stage. The concession period of the project is 17 years form the Appointed Date including construction period of 2 years.

6.2 O & M Set Up

O & M Contract

As per Clause 17.1 of the Concession Agreement, the Concessionaire shall operate and maintain the Project Highway by itself, or through O&M Contractors and if required, modify, repair, improve the Project Highway to comply with Specifications and Standards, and other requirements set forth in the Agreement through Good Industry Practice, Applicable Laws and Applicable Permits and manufacturer's guidelines. The Operation and Maintenance activities will confirm to all the requirements laid down in MoRT&H, IRC Specifications and the Concession Agreement.

The Concessionaire (**GR Sangli Solapur Highways Limited**) has appointed **G R Infraprojects Limited** as a O&M Contractor to carry out the activities related to operation and maintenance of the project highway.

Under Routine maintenance, the road is to be maintained in good, safe and motorable condition. The specification in contracts are kept as same as per design and construction specification.

The periodical maintenance will have to be done during O&M period as per requirement of Concession Agreement and as per site requirement to maintain the design standards and level.

List of Manpower

Sr. No.	Name of Employee's	Designation	Department
1	Dnyaneshwar Rajendra Kamble	Engineer	Highway
2	Deepak Tanaji Waghmode	Junior Supervisor	Highway
3	Shali Gram Chouhan	Supervisor	Highway
4	Swapnil Maruti Chavan	Surveyor	Survey
5	Akash Bhikaji Lendave	Junior Engineer	Survey
6	Deepak Popat Ingvale	Helper	Highway
7	Shivaji Krushna Kumbhar	Helper	Highway
8	Siddheshwar Subhash Sonalkar	Helper	Highway
9	Siddheshwar Baburao Bhosale	Assistant	Legal & Liasoning
10	Niranjan Singh	Supervisor	Safety
11	Devkaran	Nurse	First Aider
12	Rupesh Kumar Yadav	Electrician	Plants & Equipments
13	Sayappa Hanumant Pandhare	HMV Driver	Plants & Equipments
14	Dilip Machindra Pawar	HMV Driver	Plants & Equipments
15	Sawai Ram	HMV Driver	Plants & Equipments

Sr. No.	Name of Employee's	Designation	Department
16	Vinayak Madhukar Lendave	HMV Driver	Plants & Equipments
17	Farkande Santosh Antram	HMV Driver	Plants & Equipments
18	Ramnarayan Mahto	Hydra Operator	Plants & Equipments
19	Dinesh Ram	Hydra Operator	Plants & Equipments
20	Chandan Kumar Mehata	Hydra Operator	Plants & Equipments
21	Ashutosh Patel	JCB Operator	Plants & Equipments
22	Dayanand Shankar Kharpade	LMV Driver	Plants & Equipments
23	Satish Gajendra Khatkale	LMV Driver	Plants & Equipments
24	Ghan Shyam	LMV Driver	Plants & Equipments
25	Istakhar Ali	LMV Driver	Plants & Equipments
26	Rampal Gurjar	LMV Driver	Plants & Equipments

6.3 Operation Cost

Operations cost is comprised of manpower cost, power and electricity cost, office operating expenses, vehicle running expenses, administrative expenses and other miscellaneous expenses. The Concessionaire has provided the expenses occurred towards operation expenses for current / past years. Necessary assumptions have made from the expenses of similar type of projects to arrive at the operation cost. The estimates are projected based on best industry practices and are compared with the operating cost in the vicinity of the project area.

The estimated Operating Cost for the base month of August 2022 is **Rs. 4.46 Crores**. The detailed working of the same is attached in **Annexure-I**.

6.4 Routine Maintenance Cost

The Routine Maintenance cost is derived based on the Ministry of Road Transport and Highways-Report of the Committee on Norms for Maintenance of Roads in India (published by Indian Road Congress New Delhi 2001) along with actual pavement condition assessed during condition survey.

Maintenance cost constitutes the routine, day-to-day maintenance activities for project assets, including road pavement, shoulders, embankment, drainage, structures, plantations, roadside furniture, traffic signs, traffic safety devices etc. Past data has been used to assess maintenance costs due to normal usage or “wear-and-tear”. Likely costs of maintenance of structures are assessed based on their present condition and vintage, in combination with well-established guidelines and thumb rules given in Indian codes and standards.

The estimated cost of Routine Maintenance works out to be **Rs. 0.76 Crores (1.67 Lakhs per km)** for the base month August 2022. The detailed working of the same is attached in **Annexure-II**.

6.5 Major Maintenance Cost

Unlike the old Concession Agreements where periodicity and threshold limits were clearly described for the major maintenance, the Concession Agreement of this project does not specify the periodicity or the threshold limits for carrying out the full-length major maintenance. Schedule-K of the Concession Agreement specifies the threshold limits and the timelines for carrying out repairs to the distresses during the operation period.

The maintenance thus can be carried out as and when required basis and to the compliance of Schedule-K requirement to maintain the road in serviceable condition. Only improvement to Riding Quality is expected if the roughness value exceeds 2750 mm/km. However, the average roughness value of the project highway lies within the limit as mentioned above.

Any New pavement is not expected to show any distresses at least for 6 to 7 years with the proper routine maintenance. Mere Routine Maintenance would suffice to meet the performance standard mentioned in Schedule-K. In this project, there is no specific requirement to carry out the major maintenance at the end of concession period.

Hence, major maintenance is planned every 7th year from the date of COD till end of concession period.

The summary of the major maintenance planned up to end of concession period is presented in the below table.

The total base cost of major maintenance works out to be **Rs. 16.24 Crores** for the base month of August 2022 i.e., till 31st August 2022. The detailed working for the same is shown in **Annexure-III**.

6.6 Paved Shoulders

As per design specifications, the paved Shoulder is designed as an integral part of the pavement for main carriageway. Therefore, the total pavement thickness in paved shoulders would be the same as in the carriageway.

6.7 Summary of Major Maintenance Cycle

The table below shows the major maintenance cycle throughout the concession period for the project stretch.

Table 6-1 Maintenance Cycle

Sr. No.	Year	Main Carriageway	Service Road
1	FY 2023	-	-
2	FY 2024	-	-
3	FY 2025	-	-
4	FY 2026	-	-
5	FY 2027	-	-
6	FY 2028	1st Major Maintenance	1st Major Maintenance
7	FY 2029	1st Major Maintenance	1st Major Maintenance
8	FY 2030	-	-
9	FY 2031	-	-
10	FY 2032	-	-
11	FY 2033	-	-
12	FY 2034	-	-
13	FY 2035	2nd Major Maintenance	2nd Major Maintenance
14	FY 2036	2nd Major Maintenance	2nd Major Maintenance
15	FY 2037	-	-

6.8 Projected Maintenance Cost without escalation

The below table shows the total cost of operation and routine maintenance, periodic maintenance and strengthening up to end of the concession period without escalation.

Table 6-2 Summary of Operation & Maintenance Cost without escalation

Sr. No.	Item Description	Length (km)	Year of Execution	Rate (Lakhs / km)	Total Amount (Crores)
1	**Total Operation and Routine Maintenance Cost**	45.600	Every year	11.45	**5.22**
2	**Periodic Maintenance Cost**				
i)	1st Periodic maintenance - MCW & SR	45.600	FY 2028	17.81	**8.12**
ii)	2nd Periodic Maintenance - MCW & SR	45.600	FY 2035	17.81	**8.12**
	Total Strengthening Cost				**16.24**

Notes:

1. It is to be noted that, the rates considered for calculating all the above cost are exclusive of Goods and Service Tax (GST).
1. The estimated cost in table above is for base month of August 2022 i.e., till 31st August 2022.
2. The rates are based on SOR of Govt. of Maharashtra for the year 2022-2023. The current market rates are considered for Bitumen, cement and steel.
3. The labour rate adopted from Govt. of India, Ministry of Labour and Employment Office of the Chief Labour Commissioner © w.e.f. 25.07.2022.

6.9 Projected Maintenance Cost with escalation

The below table shows the total cost of operation and routine maintenance, periodic maintenance and strengthening up to end of the concession period with escalation as per WPI provided by the company.

Table 6-3 Summary of Operation & Maintenance Cost with escalation

Sr. No.	Year	WPI Inflation	Total O & M Cost (Crores)	Major Maintenance Cost (Crores)
1	FY 2023		5.22	-
2	FY 2024	2.87*%	5.37	-
3	FY 2025	5.00%	5.64	-
4	FY 2026	5.00%	5.93	-
5	FY 2027	5.00%	6.22	-
6	FY 2028	5.00%	6.53	5.08
7	FY 2029	5.00%	6.86	5.33
8	FY 2030	5.00%	7.20	-
9	FY 2031	5.00%	7.56	-
10	FY 2032	5.00%	7.94	-
11	FY 2033	5.00%	8.34	-
12	FY 2034	5.00%	8.75	-
13	FY 2035	5.00%	9.19	7.14
14	FY 2036	5.00%	9.65	7.50
15	FY 2037	5.00%	2.53	-
	Total Cost (Cr)		**102.96**	**25.05**

* Considering the base month for calculation as August 2022.

The company may carry out necessary investigation prior to O&M and major maintenance. This will help in proper assessment of maintenance work based on the actual pavement condition. The spending on periodic maintenance / strengthening can then be reduced if the road is adequately and timely maintained.

7 REVIEW OF CONCESSION AGREEMENT

The NHAI accordance with the statutory powers vested on it by the Government of India has entered into a Concession Agreement with the M/s. GR Sangli Solapur Highway Pvt. Ltd., a Special Purpose Vehicle (SPV) formed for implementing this project, a company incorporated under Indian Companies Act, 2013 to Design, Built, Finance, Operate and Transfer (The "DBFOT Annuity" or Hybrid Annuity") basis for the Four laning of Sangli - Solapur (Package - III: Watambare to Mangalwedha of length 45.600 km.) section of NH-166 from existing km. 272.394 to km. 314.969 (Design chainage km. 276.00 to km. 321.600) of length 45.600 km in the state of Maharashtra on Hybrid Annuity Mode.

We have reviewed the provisions under various clauses of the Agreement concerned with post construction period. Our specific comments are indicated below clause-wise.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 3 Clause 3.1	The Concession	Subject to and in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits, the Authority hereby grants to the Concessionaire the concession set forth herein including the exclusive right, license and authority to construct, operate and maintain the Project (the "**Concession**") during the Construction Period of 730 (Seven hundred and thirty) days and Operation Period of 15 (Fifteen) years commencing from COD, and the Concessionaire hereby accepts the Concession and agrees to implement the Project subject to and in accordance with the terms and conditions set forth herein.	This construction work is completed, and PCOD is achieved on 28th June 2021. The project is in O&M stage.
Article 4 Clause 4.1.2	Conditions Precedent	The Condition precedent required to be satisfied by the Authority shall be deemed to have been fulfilled when the Authority shall have (a) Procured for the Concessionaire the Right of Way to the site in accordance with the provisions of Clauses 10.3.1 and 10.3.2 (b) Procured all Applicable Permits relating to environmental protection, and conservation in respect land forming part of the Right of Way under Clause 10.3.1 and 10.3.2 (c) Procured forest clearance for and in respect land forming part of the Right of Way under Clause 10.3.1 and 10.3.2, save and except permission for cutting trees; and	All issues complied and PCOD is achieved.
Article 4 Clause 4.2	Conditions Precedent-	In the event that (i) the Authority does not procure fulfillment of any or all the Conditions Precedent set forth in Clause 4.1.2 within the period specified in respect thereof, and (ii) the delay has not occurred as a result of breach of this Agreement by the Concessionaire or due to Force Majeure, the Authority shall pay to the Concessionaire Damages in an	All issues complied and PCOD is achieved.

Article & Clause No.	Subject	Description in Brief	Remarks
	Damages for delay by the Authority	amount calculated at the rate of 0.2% (zero point two percent) of the Performance Security for each day's delay until the fulfillment of such Conditions Precedent, subject to the maximum limit equal to the amount of 1% of the Estimated Project Cost as mentioned in RFP and upon reaching such limit, the Concessionaire may, in its sole discretion terminate the Agreement.	
Article 4 Clause 4.3	Damages for delay by the concessionaire	In the event that (i) the Concessionaire does not procure fulfillment of any or all of the Conditions Precedent set forth in Clause 4.1.3 within the period specified in respect thereof, and (ii) the delay has not occurred as a result of failure to fulfill the obligations under Clause 4.1.2 or other breach of this Agreement by the Authority, or due to Force Majeure, the Concessionaire shall pay to the Authority Damages in an amount calculated at the rate of 0.3% (zero point three per cent) of the Performance Security for each day's delay until the fulfillment of such Conditions Precedent. Provided, however, that the Damages payable hereunder shall be subject to the maximum limit equal to the amount of 1% of the Estimated Project Cost as mentioned in the RFP and upon reaching such limit, the Concessionaire may, in its sole discretion and subject to the provisions of Clause 9.2, terminate the Agreement	The PCOD is achieved.
Article 5 Clause 5.1.4 (d, e & f)	Obligation of the Concessionaire	The Concessionaire shall, at its own cost and expense, in addition to and not in derogation of its obligations elsewhere set out in this Agreement d) The Concessionaire shall make reasonable efforts to maintain harmony and good industrial relations among the personnel employed by it or its Contractors in connection with the performance of its obligations under this Agreement. e) Make reasonable efforts to facilitate the acquisition of land required for the purposes of the Agreement f) Ensure and procure that its Contractors comply with all Applicable Permits and Applicable Laws in the performance by them of any of the Concessionaire's obligations under this agreement.	The Concessionaire followed actions and PCOD is achieved.
Article 5 Clause 5.3.1	Obligation relating to Change in ownership	The Concessionaire shall not undertake or permit any Change in Ownership, except with the prior written approval of the Authority.	The risk of Lender is covered.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 8 Clause 8.1.5	Disclaimer	Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Concessionaire and the Authority shall not be liable in any manner for such risks or the consequences thereof.	The Concessionaire shall note this and perform according to Concession Agreement Provision. All risks are with Concessionaire.
Article 9 Clause 9.1.1	Performance Security	The Concessionaire shall, for the performance of its obligations hereunder during the Construction Period, provide to the Authority no later than 30 (thirty) days from the date of this Agreement, an irrevocable and unconditional guarantee from a Bank For a sum equivalent to Rs.47.85 (Rupees Forty-Seven Crores and Eighty Five Lakhs only) in the form set forth in schedule-F (the "Performance Security").	The PCOD is achieved.
Article 10 Clause 10.3.2	Procurement of the site -	Without prejudice to the provisions of Clause 10.3.1, the Parties hereto agree that on or prior to the Appointment Date, the Authority shall have granted vacant access and Right of Way such that the Appendix shall not include land which shall in any manner prevent the Concessionaire from undertaking construction of the project to the extent of at least 80% (eighty percent) of the length thereof, and in the event Financial Close is delayed on account of delay in grant of such vacant access and Right of Way, the Authority shall be liable to payable to damages solely under the provisions of Clause 4.2.	The PCOD is achieved.
Article 10 Clause 10.3.4	Procurement of the site-Right of Way	The Authority shall make best efforts to procure and grant no later than 90 (ninety) days from the Appointed date, Right of Way to the Concessionaire in respect of all land included in the Appendix, and in the event of delay for any reason other than Force Majeure or breach of this Agreement by the Concessionaire, it shall pay to the Concessionaire Damages in a sum calculated at the rate of Rs.1 per day for every 10 square meter or part thereof, commencing from the 91st day of the Appointed Date and until such Right of Way is procured or 180 days from Appointed date whichever is earlier.	The PCOD is achieved.
Article 11 Clause 11.4	Utilities, Associated Roads and Trees-Felling of trees	The Authority shall assist the Concessionaire in Obtaining the Applicable Permits for felling of trees to be identified by the Authority for this purpose if and only if such trees cause a material adverse effect on the construction, operation or maintenance of Project Highway. The Cost of such felling shall be borne by the Authority and in the event of any delay in felling thereof for reasons beyond the control of the Concessionaire, it shall be excused to perform any of its obligations hereunder if such failure is a direct consequence of delay in the felling of trees.	The work is completed. No obstructions of trees.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 12 Clause 12.3.1	Construction of the Project	On or after the Appointed Date, the Concessionaire shall undertake construction of the Project as specified in Schedule-B and Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-D. The 730th (Seven hundred and thirty)) day from the Appointed Date shall be the scheduled date for completion of the Project (the **"Scheduled Completion Date"**) and the Concessionaire agrees and undertakes that the Project shall be completed on or before the Scheduled Completion Date.	The work is now completed, and PCOD is achieved.
Article 12 Clause 12.3.2	Construction of the Project Highway and Milestone	The Concessionaire shall construct the Project Highway in accordance with the Project Completion schedule set forth in Schedule-G. In the event that the Concessionaire fails to achieve any Project Milestone within a period of 90 (ninety) days from the date set forth for such Milestone in Schedule G, unless such failure has occurred due to Force Majeure or for reasons solely attributable to the Authority, it shall pay Damages to the Authority in a sum calculated at the rate of 0.1% (zero point one percent) of the amount of performance Security for delay of each day until such Milestone is achieved.	The work is competed as per Milestone.
Article 12 Clause 12.3.3	Construction of the Project Highway and Milestone	In the event that the project is not completed, and COD does not occur within 270 (two hundred and seventy) days from the Scheduled Completion Date, unless the delay is on account of reasons solely attributable to the Authority or due to Force Majeure, the Authority shall be entitled to terminate this Agreement.	The work is completed, and PCOD is achieved.
Article 13 Clause 13.2	Inspection	During the construction period, the independent Engineer shall inspect the Project at least once a month and make a report of such inspection (the "Inspection Report") stating all reasonable detail the defects or deficiencies, if any, with particular reference to the Project Completion Schedule, Scope of the Project and specification and standards	The work is completed with quality. The defect will be attended during Defect Liability Period.
Article 14 Clause 14.3.2	Provisional Certificate	The parties here to expressly agree that a Provisional Certificate under this Clause 14.3 may, upon requested of the Concessionaire to this effect, be issued for operating part of the Project, if the Concessionaire has completed construction of 100% of the site made available to the Concessionaire up to 146 days from the Appointed Date. Upon issue of such Provisional Certificate, the provisions of Article 15 shall apply to such completed part, and the rights and obligations of the Concessionaire for and in respect of such completed part of the Project shall be constructed accordingly.	The project is completed as per Schedule Completion Date.
Article 15 Clause 15.2	Entry into commercial	Subject to the provisions of Clause 12.3, if COD does not occur prior to the 91st (ninety first) day after the Scheduled completion Date, unless the delay is on account of reasons	The PCOD is achieved on 28th June 2021.

Article & Clause No.	Subject	Description in Brief	Remarks
	service-Damages for delay	attributable to the Authority or due to force Majeure, the Concessionaire shall pay Damages to the Authority in a sum calculated at the rate of 0.2% of the amount of performance Security for delay of each day until COD is achieved.	
Article 17 Clause 17.8.1	Damages for beach of maintenance obligations	In the event that the concessionaire fails to repair any defect or deficiency set forth in the Maintenance Requirements within the period specified therein, it shall be deemed to be in breach of this Agreement and the Authority shall be entitled to recover Damages, to be calculated and paid for each day of delay until the breach is cured, at the higher of (a) 2% (two per cent) of the Performance Security and (b) 0.1 (zero point one per cent) of the cost of such repair or rectification as estimated by the Independent Engineer. Recovery of such Damages shall be without prejudice to the rights of the Authority under this Agreement, including the right of Termination thereof.	The Maintenance of completed Highway is in progress after COD as per O&M Contractor executed between Concessionaire & Contractor. The scope specifications, standards as per CA is being followed.
Article 23 Clause 23.1	Bid Project cost	The parties expressly agree that the cost of construction of the project, as on the Bid Date, which is due and payable by the Authority to the Concessionaire shall deemed to be Rs. 957.00 Crores (Rupees Nine Hundred Fifty-Seven Crore)	The work is completed within Project Cost.
Article 23 Clause 23.2.1	Payment of Bid Project Cost	The bid project cost specified in Clause 23.1 shall be revised from time to time in accordance with the provisions of this Clause 23.2 to reflect the variation in Price Index occurring after the Reference Index Date immediately preceding the Bid Date.	This is paid during construction work.
Article 23 Clause 23.3.1	Payment of Bid Project Cost	40% of the Bid Project Cost, adjusted for the Price Index Multiple, shall be due and payable to the Concessionaire is 10 equal installments of 5% during the construction Period in accordance with the provisions of Clause 23.4.	This is paid during construction work.
Article 23 Clause 23.4	Payment during construction period	For the purpose of this clause 23.4, the payment Milestone for release of payment during construction period shall be as under: (a) I (first) payment Milestone - On achievement of 5% Physical Progress. (b) II (Second) payment Milestone-On achievement of 10% Physical Progress. (c) III (Third) payment Milestone-On achievement of 20% Physical Progress. (d) IV (Fourth) payment Milestone - On achievement of 30% Physical Progress. (e) V (Fifth) payment Milestone-On achievement of 40% Physical Progress. (f) VI (Sixth) payment Milestone-On achievement of 50% Physical Progress. (g) VII (Seventh) payment Milestone - On achievement of 60% Physical Progress.	This amount is released and paid during construction activities.

Article & Clause No.	Subject	Description in Brief	Remarks
		(h) VIII (Eighth) payment Milestone-On achievement of 70% Physical Progress. (i) IX (Ninth) payment Milestone-On achievement of 80% Physical Progress. (j) X (Tenth) payment Milestone-On achievement of 90% Physical Progress.	
Article 23 Clause 23.5	Bonus on early completion	In the event that the concessionaire shall achieve COD on or more than 30 days prior to the Scheduled Completion Date, the Authority shall pay to the Concessionaire a bonus equal to 0.5% of 60% of the Bid project cost for the first 30 days by which COD shall precede the Schedule Completion date and there after the said bonus shall be calculated on the pro-rata basis for each day preceding the said 30 days period. The Bonus shall be due and payable to the Concessionaire along with the 1st Annuity Payment.	The Concessionaire should claim this if it is eligible.
Article 23 Clause 23.6.2	Annuity Payments during operation period	The completion cost remaining to be paid in pursuance of the provisions Clause 23.6.1 shall be due and payable in biannual installments over a period of 15 (fifteen) years commencing from COD, (the Authority Payments) the 1st (first) installment of Annuity Payments shall be due and payable within 15 (fifteen) days of the 180th (one hundred and eighteen) day of COD and the remaining installments shall be due and payable within 15 (fifteen) days of completion of each of the successive six months (the "Annuity Payment Date").	The Concessionaire is getting this as per Concession Agreement as PCOD is achieved.
Article 23 Clause 23.7.1	O & M Payments	The Parties acknowledge and agree that all O&M Expenses shall be borne by the Concessionaire and in lieu thereof; a lump sum financial support in the form of biannual payments shall be due and payable by the Authority, which shall be computed on Rs.3.00 crores (Rupees Three crores only) (the first year O&M), in accordance with the provisions of this Clause 23.7 (the "**O&M Payments**"). The Parties further acknowledge and agree that any O&M Expenses in excess of the O&M Payments shall be borne solely by the Concessionaire, save and except as expressly provided in this Agreement. For avoidance of doubt it is clarified that the O&M Payments will be subject to any Change in Scope of the Project of the Concessionaire under Article 16 of this Agreement.	Expenses towards O&M shall be the responsibility of Concessionaire and biannual O&M payments shall be of Authority.
Article 23 Clause 23.8	Mobilization advance	The Authority shall, on request of the Concessionaire, make an advance payment in a sum not exceeding 10% (ten percent) of the bid project cost (the Mobilization Advance). This advance payment shall be made in two equal installments. The concessionaire may request the Authority for the first installment of the advance payment at any time after the appointed date, along with furnishing a Bank Guarantee in a form satisfactory to the Authority. The concessionaire may request the Authority for the second installment of	The Concessionaire has received this Mobilization Advance and work is completed.

Article & Clause No.	Subject	Description in Brief	Remarks
		the advance payment at any time after 60 (Sixty) days from the appointed date, along with furnishing a Bank Guarantee in a form satisfactory to the Authority	
Article 26 Clause 26.1	Insurance-Insurance during Concessionaire period	The Concessionaire shall affect and maintain at its own cost, during the Construction Period and the Operation Period, such insurances for such maximum sums as may be required under the Financing Agreements and Applicable laws, and such insurances as may be necessary or prudent in accordance with Good Industry Practice.	The Concessionaire, has taken all Insurances.
Article 34 Clause 34.3.1	Substitution Agreement	The Lender's Representative, on behalf of Senior Lenders, may exercise the right to substitute the Concessionaire pursuant to the agreement for substitution of the Concessionaire (the '**Substitution Agreement**') to be entered into amongst the Concessionaire, the Authority and the Lenders' Representative, on behalf of Senior Lenders, Substantially, in the form set forth in Schedule-R.	The Lender's risk is covered with provision of Substitution Agreement. This will be operated if situation needs.
Article 38 Clause 38.3.1	Dispute Resolution	Any dispute which is not resolved amicably by conciliation as provide in Clause 38.2 shall be finally settled by arbitration as set forth below:	There is provision of Arbitration in case of unresolved dispute between Authority and concessionaire.
Article 41 Clause 41.17	State support agreement	The Concessionaire acknowledges that it has received from the authority a certified true copy of the agreement executed between MORTH and the state government for providing the support and services specified therein (the "State support agreement"), and the parties here to agree to make their best endeavors to procure the support of the state government.	This provision will help the Concessionaire for obtaining permission, approval and land acquisition faster.

Most of the points above are brought out to see that the Agreement is generally enforceable in law without ambiguities.

7.1 Conclusions

The Concession Agreement is comprehensive and covers most of the concerns of Lenders and all risk factors.

8 REVIEW OF O&M AGREEMENT

The Operation and Maintenance Agreement was signed between **M/s GR Sangli Solapur Highway Private Limited (GSSHPL)** and **G R Infraprojects Limited (O&M Contractor)** on 02nd November 2021 and addendum O&M Agreement has been signed on 26th July 2022 for a period of 1 year.

We have reviewed the provisions under various clauses of this O&M Contract and our specific comments are indicated below clause-wise.

Sr. No.	Clause No.	Description in Brief	Remark
1	Agreement Para (ii)	The Concessionaire now wishes to appoint M/s G R lnfraproiects Limited for Operation and Maintenance of Project Highway as 0&M Contractor in accordance with Scope of Work as mentioned in Annexure 1 hereto, under the Concession Agreement.	The Contractor M/s. G. R. Infraprojects Ltd. is appointed for O&M work as per scope in CA.
2	Clause (n) Definition	"O&M Contractor" means the person, if any, with whom the Concessionaire has entered into an O&M agreement for discharging O&M obligations for and on behalf of the Concessionaire.	The Contractor is appointed to discharge duties of O&M work on behalf of Concessionaire as per scope in O&M Agreement.
3	Clause r Definition	"O&M Period" O&M Agreement means operation and maintenance period of 1 year commencing from Commencement Date.	The Agreement of O&M is for one year and addendum is signed for another 1 year.
4	Clause 2 Availability of Documents	The O&M Contractor also acknowledges the fact that the Concession Agreement is always binding and applicable back to back on the O&M Agreement, limited to the obligations during the O&M period under the Concession Agreement and the scope of the O&M Contractor as per this Agreement. In case of any discrepancy in whatsoever matter, the clauses or' Concession Agreement shall prevail over and above this O&M Agreement.	The copy of Concession Agreement & Maintenance Manual is provided to Contractor. It is always binding to Contractor for implementation during O&M work.
5	Para 6 O&M Contractor's obligation	6.1 During Operation Period, provisions of Article 17 of the Concession Agreement shall apply. The O&M Contractor shall operate and maintain the Project Highway in accordance with Article 17 of the Concession Agreement and if required, modify, repair or otherwise make improvements to the Project Highway comply with the provisions of this Agreement, Applicable Laws and Applicable Permits, and confirm to Specifications and Standards and Good Industry Practice.	The obligation of O&M is as per Article 17 of CA. These cover periodical routine & major repair work and safety of users.

Sr. No.	Clause No.	Description in Brief	Remark
6	Clause 6 Maintenance Requirements	6.3 The O&M Contractor shall procure that at all times during the Operation Period; the Project Highway conforms to the maintenance requirements set forth in Schedule-K of the Concession Agreement (the "Maintenance Requirements").	The maintenance required to be done as per Schedule K of CA only.
7	Clause 6 Maintenance Program	6.4 Not later than 55 days prior to the beginning of each Accounting Year during the Operation Period, the O&M Contractor shall provide to the Concessionaire, its proposed annual program of preventive. urgent and other scheduled maintenance (the "Maintenance Program") to comply with the Maintenance Requirements, Maintenance Manual and Safety Requirements.	The Contractor has to submit the programme and work for O&M with maintenance requirement and safety.
8	Clause 6 Maintenance Requirements 6.5 Safety, Breakdown and accident	6.5.1 The 0&M Contractor shall ensure safe conditions for the users, and in the event of unsafe conditions, closures, diversions, breakdowns and accidents, it shall follow the relevant operating procedures including the setting up of temporary Lights and removal of obstruction and debris without delay. Such procedures shall conform to the provisions of this Agreement, Applicable Laws, Applicable Permits and Good industry Practice.	Safety of users including breakdown, accident rescue operations is covered.
9	Clause 6 Maintenance Requirements 6.10 Damages for Breach of Maintenance obligations	In the event that the O&M Contractor fails to repair or rectify any defect or deficiency set forth in the Maintenance Requirements within the period specified therein, it shall be deemed to be this Agreement and the cm Contractor shall pay to the Concessionaire Damages at such rate as the Concessionaire Is required to pay to the Authority under the Concession Agreement. Recovery of such Damages shall be without prejudice to the rights of the Concessionaire under this Agreement, including the right of Termination thereof.	The provision of Levy of Damage or Termination for breach of Agreement, defective work will keep pressure on contractor to work as per requirement.
10	Clause 6 Maintenance Requirements 6.16 Monthly Status report during Operation Period	During the Operation Period, the O&M Contractor shall, no later than 7 (seven) days after the close of each English calendar month, furnish to the Concessionaire, a monthly report stating in reasonable detail the condition of the Project including its compliance or otherwise with the Maintenance Requirements, Maintenance Manual. Maintenance Program and Safety Requirements and shall promptly give such other relevant information as may be required by the Concessionaire/ IE/ Authority.	It is binding on Contractor to submit status report on monthly basis for information of Authority, Concessionaire, IE & Lender.
11	Clause 6 Maintenance Requirements	For determining that the Project Highway conforms to the Maintenance Requirements, the Project Manager/IE shall require the O&M Contractor to carry	This will maintain quality of work.

Sr. No.	Clause No.	Description in Brief	Remark
	6.17 Tests	out, or cause to be carried out, tests specified by it in accordance with Good Industry Practice.	
12	Clause 6 Maintenance Requirements 6.19 Safety Requirements	6.19.1 The O&M Contractor shall comply with the provisions of this Agreement and [or Concession Agreement, Applicable Laws and Applicable Permits and confirm to Good Industry Practice for securing the safety of the Users. in particular, the O&M Contractor shall develop, implement and administer a surveillance and safety program for providing a safe environment on or about the Project Highway, and shall comply with the safety requirements set forth in Schedule L of the Concession Agreement (the “Safety Requirements").	The O&M Contractor has to provide requirements provision for safety of Highway users. The safety of users is given priority.
13	Clause 13 Sub-contracts	13.1 The O&M Contractor shall notify to the Project Manager in writing of its intent to subcontract the O&M works in part or full and without the written approval of the Project Manager no subcontractor shall be appointed by the O&M Contractor.	The sub-contractor cannot be appointed without approval of Project Manager. This will keep control over contractor to appoint competent contractor.
14	Clause 16 Insurance	16.1 The Concessionaire shall. procure and maintain the insurance for the Project Highway including all facilities in accordance with the Article 26 of the Concession Agreement.	The risks and security of Authority, concessionaire and lender is covered.
15	Clause 17 Defect Liability Period	17.1 The Concessionaire and/or the EPC Contractor ls responsible for all the defects and deficiencies in construction of the Project Highway or any section thereof and rectify the Same, without any cost to the O&M Contractor. during the O&M period. Under this agreement the O&M Contractor is only under obligation of Operation 8r Maintenance of the Project Highway. For avoidance of doubt, any repair or restoration on account of usual wear and tear in the Project Highway shall form a part of the maintenance.	The Contractor is responsible for any defects during Defect Liability period of 1 year. This will maintain the quality to avoid any action for defective work as proposed.
16	Clause 21 Acknowledgement	The O&M Contractor acknowledges and accepts that this agreement entitles the Authority and/or Lenders Representative to step into this agreement, in its sole discretion, in Substitution-of the Concessionaire In the event of Termination or Suspension of the Concessionaire. Further, provision of clause 5.2 of the Concession Agreement relating to Project Agreement shall apply *mutatis mutandis.*	The Contractor has agreed for step in right of Authority or Lender in case of Termination of Concessionaire.
17	Clause 22 O&M Payments	The Parties acknowledge and agree that all O&M Expenses shall be borne by the 0&M Contractor to carryout routine maintenance Works as detailed in Annexure-I to this 0&M Agreement and in lieu thereof; a fixed lump sum fee amounting to Rs.	The O&M Contractor will be paid of Rs. 3.00 crores. Biannual payment during year for his work

Sr. No.	Clause No.	Description in Brief	Remark
		3,00,00,000 inclusive of taxes for the entire year in the form of biannual payment shall be due and payable by the Concessionaire.	as per scope. The contractor has to manage O&M work responsibility within this payment. Over & above these expenses, Concessionaire is incurring expenses for insurance, electricity, IE & professional fees etc.,
18	Clause 27 Termination 27.1 Termination For O&M Contractor Default	In the event of any defaults specified below shall have occurred, and the 0&M Contractor falls to cure the default within the Cure Period of 60 (sixty) days, the O&M Contractor shall be deemed to be in default of this Agreement (the "08M Contractor Default"), unless the default has occurred as a result of any breach of this Agreement by the Concessionaire or due to Force Majeure.	The Contractor shall note this. This provision of termination keep pressure on contractor to work as per scope of O&M responsibility.
19	Clause 32 Liability and Indemnification	The O&M Contractor shall fully indemnify and hold harmless and defend the Concession extent that the Concessionaire has provided any indemnities to Authority in terms of Article Concession Agreement, in so far as such indemnities relate to the Services.	The Concessionaire is secured from contractor for any loss, claim.

8.1 Conclusion

i. Operation and Maintenance Contract is comprehensive and correct for major concerns of Lender.
ii. The provision of O&M Contract Agreement is consistent with the provision of the Concession Agreement.

9 TOLL PLAZA EQUIPMENT STATUS & ATMS

There is no proposed Toll Plaza on the project highway. However, the Concessionaire has to provide Advanced Management Traffic System (ATMS) as specified in Clause 12.12 of IRC:SP:84-2014. Accordingly, the Concessionaire has provided the ATMS such as Emergency Call Box (ECB) [Foundation for the same is completed and installation is yet to be done] and Variable Message Sign System on the project highway.

10 ACCIDENT DATA ANALYSIS

Accident Data Records for the project have been studied in order to analyse the nature of accidents occurring on the stretch and identify blackspots.

10.1 Accident Trend

Accident Data for the period January 2019 to June 2022 has been made available for analysis. 23 Accidents have occurred out of which 9 no. were fatal, 5 were grievous injury and 9 were minor. More number of accidents have occurred during the day time than at night time. Monthly data analysis does not show any consistent seasonal trend. Fault of the driver has been recorded as a major cause of accident (65%) followed by over speeding.(35%).

10.2 Blackspots Identification

There are no black spot found in the project stretch. Details of accidents in the project length are given in Table below:

Table 10-1 Accidents details on Project Road

Date	Time	Accident Location	Causes	Fatal	Grievous	Minor
18-01-2019	10:30	Andhalgaon Rural	Over speeding Fault of driver of Motor Vehicle	1		
11.02.2019	14:30	Sangola Rural	Over speeding Fault of driver of Motor Vehicle		1	
06-03-2019	19:30	Sangola Rural	Over speeding Fault of driver of Motor Vehicle			1
01.04.2019	21:00	Wadhegaon Rural	Over speeding Fault of driver of Motor Vehicle	1		
28.05.2019	20:00	Mangalwedha Urban	Over speeding Fault of driver of Motor Vehicle	1		
05.06.2019	18:30	Kamlapur	Over speeding		1	
06.06.2019	18:00	Mangalwedha	Over speeding			1
09.06.2019	18:30	Sangola Urban	Over speeding	2	1	
05.01.2020	22:30	Wadhegaon (Not In Construction Area)	Fault of Driver of motor Vehicle	1		
05.01.2020	23:30	Watambare (No Construction Activity started yet)	Fault of Driver of motor Vehicle		1	
23-12-2021	10:40	Andhalgaon (No Construction Activity started yet)	Fault of Driver of motor Vehicle	1		
16-12-2021	14:00	Vasud (No Construction Activity started yet)	Fault of Driver of motor Vehicle	1		
20-12-2021	14:30	Kamlapur (No Construction Activity started yet)	Fault of Driver of motor Vehicle	1		

Date	Time	Accident Location	Causes	Fatal	Grievous	Minor
01-03-2022	09:15	Godsewadi (Not In Construction Area)	Fault of Driver of motor Vehicle	0	1	1
04-03-2022	10:00	Andhalgaon (No Construction Activity started yet)	Fault of Driver of motor Vehicle	0	1	
27-03-2022	09:30	Kamlapur (No Construction Activity started yet)	Fault of Driver of motor Vehicle	0		2
08-05-2022	10:00	Andhalgaon (No Construction Activity started yet)	Fault of Driver of motor Vehicle			3
10-06-2022	09:00	No construction Activity started yet	Fault of Driver of motor Vehicle	1		3
16-06-2022	18:15	No construction Activity started yet	Fault of Driver of motor Vehicle			6
18-06-2022	13:25	No construction Activity started yet	Fault of Driver of motor Vehicle			3
22-06-2022	10:06	No construction Activity started yet	Fault of Driver of motor Vehicle			1
24-06-2022	16:28	No construction Activity started yet	Fault of Driver of motor Vehicle			1
25-06-2022	9:20 PM	No construction Activity started yet	Fault of Driver of motor Vehicle			1

10.3 Conclusions & Recommendations

There are no accident blackspots based on analysis of recorded data. Concessionaire need to maintain all signs, markings and road safety devices as per schedule given in CA.

Annexures

Annexure I: Operation Cost

Sr. No.	Particulars	Cost per Annum (Rs)	Cost per Annum (Cr)
1	Incidental Management Expenses		
a	*Ambulance - 1 Nos.*	1,962,925	0.20
b	*Patrolling Vehicle - 1 Nos.*	2,207,911	0.22
c	*Crane - 1 Nos.*	1,699,231	0.17
d	*Other Vehicle - 2 Nos.*	1,330,411	0.13
e	*JCB - 1 Nos.*	691,554	0.07
f	*Corridor Manager & Officer*	953,280	0.10
2	Maintenance Staff Expenses	5,400,000	0.54
3	Routine Maintenance Cost (Civil Works)	7,601,029	0.76
4	Professional & IE Fee	8,400,000	0.84
5	Insurance Expenses	7,461,778	0.75
6	Staff Welfare Expenses	1,320,000	0.13
7	Electricity Expenses + Maintenance of parts	8,977,172	0.90
8	ATMS Expenses	2,115,065	0.21
9	Contingency @ 5% (Excl. Civil works)	2,125,966	0.21
	Total Cost (Rs)	**52,246,323**	**5.22**
	Per km Cost (Lakh)		**11.46**

Annexure II: Routine Maintenance Cost

Routine Maintenance Cost – GSSHPL	
Ordinary Repair Cost for Rigid without GST	**7,601,029**
(Exclusive of GST @ 12%)	**= 1.67 lakhs per km**

CONVERSION FACTORS									
National Highways / State Highways - Rigid Pavement									
Reference cost taken for Two / four lane (7.0 or 14m or 21m) with 1.5m/2m wide shoulders									
(Refer Chapter 6.17 of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 45)									
Sr. No.	**Description for Flexible Pavement**		**Factor**	**Rigid Pavement**		**Project Length (km)**		**Per Year Project Maintenance Cost**	
				Normal	**Urban**				
				More than 4500 CVD	More than 4500 CVD				
				96,083	**111,305**				
						Normal	**Urban**	**Normal**	**Urban**
1	Four-lane with divided carriageway	Without paved shoulder	1.53	131094.00	154383.00	-	-	-	-
		Paved shoulder	1.70	145660.00	171537.00	29.15	-	4,246,425.98	-
2	Six lane with divided carriageway	without Paved shoulder	2.43	208208.00	245197.00	-	-	-	-
		with Paved shoulder	2.60	222774.00	262351.00	1.22	15.23	271,383.29	3,995,343.38
TOTAL						**45.60**		**8,513,152.65**	

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
1	**Maintenance of Carriageway & Paved Shoulders (1.5m wide); B.T. Surface**			
	i) Pot holes repair (50 mm deep)	100 % Pot hole free	As & when required	0.00%
	Volume (cum)			0.00
	Rs/m^3			0
	Cost in Rupees			0
	ii) Patch repair	100 % Patch less	As & when required	0.00%
	Area (sqm)			0
	Rs/m^2			467
	Cost in Rupees			0
	iii) Sealing (Crack)			
	a) Wider than 3 mm	100 % Crack Less	As & when required	0.50%
	Area (sqm)			50
	Rs/m^2			90
	Cost in Rupees			4,480
	b) Width less than 3 mm	75 % Crack Less	As & when required	1.00%
	Area (sqm)			75
	Rs/m^2			64
	Cost in Rupees			4,788
	iv) Repair of ruts and undulations			
	a) Greater than 20 mm	75%	As & when required	0.00%
	Area (sqm)			0
	Rs/m^2			467
	Cost in Rupees			0

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
	v) Road marking	7%	Once in 15 year & @ Repaired location	6341
	vi) Joint Sealant Repair/Replacement	5%		20217
	vii) Slab Replacement	0.00%		0
	SUB TOTAL			**35,826**
2	**Maintenance of earthen Shoulders:**			
	i) Renewal of earthen shoulders	70%	Once in a Year	5177
	ii) Jungle Clearance	70%	Twice in a Year	1359
	iii) Kuccha Drain Maintenance	70%	Twice in a Year	728
	SUB TOTAL			**7,264**
3	**Maintenance of Cross Drainage works:**			
	i) Cleaning of culvert bed	70%	Once in a Year	1835
	ii) Repair of floors	70%	Once in a Year	3320
	iii) Repair of parapets	70%	As & when required	1383
	SUB TOTAL			**6,538**
4	**Maintenance of Minor & Major Bridges:**			
	i) Cleaning and removal of dirt & vegetation from pier caps, Bearings, Expansion Joints, Superstructure, Substructure and Retaining wall etc.	50%	As & when required	17,334
	ii) Spot painting & protective Coating required on Bearing and greasing of Bearings, railing, structural members, Expansion joints			
	iii) Repair of minor washouts, erosion scour and animal holes			
	iv) Sealing Cracks with Cement/ Epoxy Mortar			
	v) Replacement & Correction of safety barriers, Guard rails and damaged members			

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
	SUB TOTAL			**17,334**
5	**Miscellaneous Items:**			
	i) Turfing and Arboriculture		Once in a Year	2311
	ii) Maintenance of gang hut store, sheds, animal & debris removal		Once in a Year	3467
	iii) Lettering, Painting of Km stones & kerbs, sign boards, hectometer stone etc.		Once in a Year	3467
	iv) Replacement and providing additional retro reflective signage	20%	Covering Total Network in 5 Years	6934
	v) Providing first aid kits, Umbrella, Safety Jackets, Vardi etc.		Once in a Year	1156
	vi) Traffic Census		Once in a Year	0
	vii) Provision for roughness measurement		Twice in a Year	1386
	SUB TOTAL			**18,721**
	GRAND TOTAL (Normal)			**85,682**
6	**Additional Cost required for Urban Area**			
	i) Renewal of Center Line, Edge Marking, Kerb Marking/ Zebra crossing etc. in City Portion	7%	Once in 15 years with thermoplastic paint	3550
	ii)Repairs to footpath	0%	As & when required	0
	iii) ROB/ Fly-over Railings & repair	50%	As & when required	2311
	iv) Street Lighting	0%	As & when required	0
	v) Encroachment Removal Squad	50%	As & when required	3583
	vi) Repair of divider/ Railing in City portion	50%	As & when required	4623
	vii) Provision for maintenance of pedestrian underpass	50%	As & when required	1156
	SUB TOTAL			**15,222**
	GRAND TOTAL (Urban)			**100,904**

Annexure III: Periodic Maintenance Cost

Periodic Maintenance Cost (Every 6th / 7th year) (FY2028 & FY2035)											
Sr. No.	**Description**	**Unit**	**No.**	**Length (m)**	**Width (m)**	**Depth (m)**	**Quantity**	**Total Quantity**	**Rate (Rs.)**	**Amount (Rs.)**
I. Main Carriageway, Service Road / Slip Road & Miscellaneous location										
A	**Main Carriageway: Rigid Pavement**									
1	Replacement of Joint Sealant	Rmt	5%	435,480.87			21,774.04	21,774.04	69.00	1,502,409
2	Dismantling of CC Panels @ 2% area	Cum	2%	44,653.80	19.20	0.30	5,144.12	5,144.12	655.00	3,369,397
3	Replacement of Panels - PQC @ 2% area	Cum	2%	44,653.80	19.20	0.30	5,144.12	5,144.12	6,439.00	33,122,974
4	Replacement of Panels - DLC @ 0% area	Cum	0%	44,653.80	19.20	0.15	-	-	3,445.00	-
5	Diamond Grinding	Sqm	3%	44,653.80	19.20		25,720.59	25,720.59	50.00	1,286,029
B	**Service Road : Rigid Pavement**									
6	Replacement of Joint Sealant	Rmt	3%	140,124.95			4,203.75	4,203.75	69.00	290,059
7	Dismantling of CC Panels @ 1% area	Cum	1%		275,871.00	0.30	827.61	827.61	655.00	542,087
8	Replacement of Panels - PQC @ 1% area	Cum	1%		275,871.00	0.30	827.61	827.61	6,439.00	5,329,000
9	Replacement of Panels - DLC @ 0% area	Cum	0%		275,871.00	0.15	-	-	3,445.00	-
10	Diamond Grinding	Sqm	0%		275,871.00		-	-	50.00	-
C	**Structural Deck area**									
11	Milling	Sqm	50%	946.20	26.00		12,300.60	12,300.60	55.00	676,533
12	Tack Coat	Sqm	50%	946.20	26.00		12,300.60	12,300.60	15.00	184,509
13	Mastic Asphalt Overlay	Sqm	50%	946.20	26.00		12,300.60	12,300.60	599.00	7,368,059
D	**Miscellaneous**									
14	Replacement of Kerb	Rmt	10%	125,208.40			12,520.84	12,520.84	210.00	2,629,376
15	Painting of Kerb	Sqm	1	125,208.40		0.32	39,440.65	39,440.65	110.00	4,338,471
16	Painting of Crash Barrier	Sqm	1	34,786.40		1.12	38,786.84	38,786.84	110.00	4,266,552
17	Thermoplastic paint									
	a) Median & Edge line	Sqm	50%				22,634.81	22,634.81	425.00	9,619,793
	Main Carriageway 4L		4	29,736.06	0.15		17,841.64			
	Main Carriageway 6L		4	16,775.94	0.15		10,065.56			
	Service Road		2	37,518.46	0.10		7,503.69			
	b) Lane line									
	Main Carriageway 4L		2	10,407.62	0.10		2,081.52			
	Main Carriageway 6L		4	5,871.58	0.10		2,348.63			
	Service Road		1	13,131.46	0.10		1,313.15			
	c) Junction crossing						4,115.42			
18	Replacement of Road Stud	No	50%				8,190.00	8,190.00	343.00	2,809,170
	Main Carriageway 4L		4	1,653.00			6,612.00			
	Main Carriageway 6L		6	933.00			5,598.00			
	Service Road		2	2,085.00			4,170.00			
19	Miscellaneous	5%								3,866,721
									Total Amount (MCW)	**81,201,139.45**
									Total Cost in Lakhs (MCW)	**812.01**
									Per km Cost in lakhs (MCW)	**17.81**

Annexure-IV: Balance Cost

Sr. No.	Item	No.	Length (m)	Width (m)	Depth (m)	Qty.	Rate (Rs.)	Amount (Rs.)
1	Balance DLC & PQC, RCC Drain work of Service road							
	PQC	1.00	818.00	7.50	0.25	1,533.75	6,439.43	9,876,475.76
	DLC	1.00	818.00	7.50	0.15	920.25	3,444.85	3,170,123.21
	RCC Drain	1.00	367.00			367.00	21,818.00	8,007,206.00
2	W-Beam Crash Barrier	1.00	54.00			54.00	3,804.00	205,416.00
3	MCW Work at Ch. 292+460 to Ch. 297+670 (WIP & completed upto Emb. Top)							
	Subgrade	1.00	210.00	31.00	0.50	3,255.00	468.00	1,523,340.00
	GSB	1.00	210.00	31.00	0.15	976.50	1,476.15	1,441,460.48
	DLC	1.00	210.00	31.00	0.15	976.50	3,444.85	3,363,896.03
	PQC	1.00	210.00	31.00	0.30	1,953.00	6,439.43	12,576,206.79
4	Median Filling	1.00	350.00			350.00	468.00	163,800.00
5	Kerb Laying	1.00	330.00			330.00	210.00	69,300.00
6	Kerb Painting	1.00	480.00			480.00	110.00	52,800.00
7	Plantation	1.00	480.00			480.00	473.00	227,040.00
8	Road Marking							
	Edge Line	4.00	360.00	0.15		216.00	425.00	91,800.00
	Centre Line	4.00	360.00	0.10		144.00	425.00	61,200.00
9	Road Studs	8.00	360.00			2,880.00	343.00	987,840.00
10	Construction of Rest Area	1.00						263,175,000.00
								304,992,904.27

Annexure-V: Pavement Condition Survey

LHS - Watambare to Mangalwedha

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP) *	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
1	276.000	277.000	G	-	PQC	300	-	G	0.5	-	-	-	-	-	G	PQC	G	G	G	F	-	Junction at Km 276.200
2	277.000	278.000	G	-	PQC	300	-	G	0.25	-	-	-	-	-	G	PQC	G	G	G	F	-	Drain 276.400 to 277.000
3	278.000	279.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	G	F	-	Drain 278.000 to 279.200
4	279.000	280.000	G	-	PQC	300	-	G	0.25	-	-	-	-	-	G	PQC	G	G	G	F	-	
5	280.000	281.000	G	-	PQC	300	-	G	-	2.5	-	-	-	-	G	PQC	G	G	-	-	-	
6	281.000	282.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	Junction at Km 281.000
7	282.000	283.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	G	F	-	Drain 282.700 to 283.000
8	283.000	284.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	G	F	-	
9	284.000	285.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	G	F	-	
10	285.000	286.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	G	F	-	
11	286.000	287.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	G	F	-	
12	287.000	288.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	G	F	-	
13	288.000	289.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	G	F	-	Drain up to 288.460
14	289.000	290.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
15	290.000	291.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
16	291.000	292.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
17	292.000	292.460	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
18	292.460	292.670	Left side Subgrade in progress																			
19	292.670	293.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
20	293.000	294.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
21	294.000	295.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
22	295.000	296.000	G	-	PQC	300	-	G	-	0.25	-	-	-	-	G	PQC	G	G	-	-	-	Junction at Km 295.200
23	296.000	297.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	Bus bay at Km. 295.150
24	297.000	298.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
25	298.000	299.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
26	299.000	300.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
27	300.000	301.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
28	301.000	302.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	Bus bay at Km. 301.200
29	302.000	303.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
30	303.000	304.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	Junction at Km 303.270
31	304.000	305.000	G	-	PQC	300	-	G	0.25	-	-	-	-	-	G	PQC	G	G	-	-	-	
32	305.000	306.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	Bus bay at Km. 305.800
33	306.000	307.000	G	-	PQC	300	-	G	1	0.5	-	-	-	-	G	PQC	G	G	-	-	-	
34	307.000	308.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
35	308.000	309.000	G	-	PQC	300	-	G	0.5	-	-	-	-	-	G	PQC	G	G	-	-	-	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP) *	Cracking (%)	Raveling (%)	Potholing (%) **	Rut (None/ Moderate/ Severe)	Patching (%) **			Type	Condition			Left	Right	
36	309.000	310.000	G	-	PQC	300	-	G	0.5	0.5	-	-	-	-	G	PQC	G	G	-	-	-	
37	310.000	311.000	G	-	PQC	300	-	G	2.0	-	-	-	-	-	G	PQC	G	G	-	-	-	
38	311.000	312.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	Junction at Km 311.900
39	312.000	313.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	Bus bay at Km. 312.180
40	313.000	314.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	Junction at Km 313.450
41	314.000	315.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
42	315.000	316.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
43	316.000	317.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	Bus bay at Km. 316.460
44	317.000	318.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	Junction at Km 317.230
45	318.000	319.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
46	319.000	320.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
47	320.000	321.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
48	321.000	322.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	

RHS - Mangalwedha to Watambare

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Road Side Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
1	322.000	321.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
2	321.000	320.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
3	320.000	319.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
4	319.000	318.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
5	318.000	317.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
6	317.000	316.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
7	316.000	315.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
8	315.000	314.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	Junction at Km 314.270
9	314.000	313.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
10	313.000	312.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
11	312.000	311.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
12	311.000	310.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Road Side Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Raveling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
13	310.000	309.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
14	309.000	308.000	G	-	PQC	300	-	G	0.5	-	-	-	-	-	G	PQC	G	G	-	-	-	
15	308.000	307.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
16	307.000	306.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
17	306.000	305.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
18	305.000	304.000	G	-	PQC	300	-	G	0.25	-	-	-	-	-	G	PQC	G	G	-	-	-	
19	304.000	303.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
20	303.000	302.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
21	302.000	301.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
22	301.000	300.000	G	-	PQC	300	-	G	0.25	-	-	-	-	-	G	PQC	G	G	-	-	-	
23	300.000	299.000	G	-	PQC	300	-	G	0.25	-	-	-	-	-	G	PQC	G	G	-	-	-	
24	299.000	298.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
25	298.000	297.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
26	297.000	296.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
27	296.000	295.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
28	295.000	294.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
29	294.000	293.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
30	293.000	292.670	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
31	292.670	292.460	On RHS Embankment filling & RE Wall in Progress																			
32	292.460	292.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	G	-	-	
33	292.000	291.000	G	-	PQC	301	-	G	-	-	-	-	-	-	G	PQC	G	G	G	-	F	Drain 291.00 to 291.200
34	291.000	290.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
35	290.000	289.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
36	289.000	288.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	G	-	F	
37	288.000	287.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	G	-	F	
38	287.000	286.000	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	G	-	F	
39	286.000	285.000	G	-	PQC	300	-	G	-	0.25	-	-	-	-	G	PQC	G	G	G	-	F	
40	285.000	284.000	G	-	PQC	300	-	G	-		-	-	-	-	G	PQC	G	G	G	-	F	
41	284.000	283.000	G	-	PQC	300	-	G	-		-	-	-	-	G	PQC	G	G	G	-	-	
42	283.000	282.000	G	-	PQC	300	-	G	-		-	-	-	-	G	PQC	G	G	G	-	F	Drain 283.000 to 282.750
43	282.000	281.000	G	-	PQC	300	-	G	-		-	-	-	-	G	PQC	G	G	G	-	-	
44	281.000	280.000	G	-	PQC	300	-	G	-		-	-	-	-	G	PQC	G	G	G	-	-	
45	280.000	279.000	G	-	PQC	300	-	G	-	0.5	-	-	-	-	G	PQC	G	G	G	-	-	Junction at Km 279.700
46	279.000	278.000	G	-	PQC	300	-	G	-	0.5	-	-	-	-	G	PQC	G	G	G	-	F	
47	278.000	277.000	G	-	PQC	300	-	G	-	0.5	-	-	-	-	G	PQC	G	G	G	-	F	
48	277.000	276.000	G	-	PQC	300	-	G	-	0.5	-	-	-	-	G	PQC	G	G	G	-	F	Drain 276.500 to 277.000

Four Laning of Dwarka (Kuranga) - Khambhaliya - Devariya Section of NH-151A from km. 203+500 to km. 176+500 and from km. 171+800 to km. 125+000 in the State of Gujarat under Bharatmala Project on Hybrid Annuity mode (Package I)

Technical Due Diligence Study

Final Report

November 2022

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Four Laning of Dwarka (Kuranga) - Khambhaliya - Devariya Section of NH-151A from km. 203+500 to km. 176+500 and from km. 171+800 to km. 125+000 in the State of Gujarat under Bharatmala Project on Hybrid Annuity mode (Package I)

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FOUR LANING OF DWARKA (KURANGA) – KHAMBHALIYA - DEVARIYA SECTION OF NH-151A FROM KM. 203+500 TO KM. 176+500 AND FROM KM. 171+800 TO KM. 125+000 [DESIGN LENGTH 71.890 KM] IN THE STATE OF GUJARAT UNDER BHARATMALA PROJECT ON HYBRID ANNUITY MODE (PACKAGE-I)

TECHNICAL DUE DILIGENCE STUDY

FINAL REPORT

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1 INTRODUCTION

1.1 Background

The Government of India in the Ministry of Shipping, Road Transport and Highways had authorized NHAI for the development of National Highways and as a part of this endeavor, the authority has decided to undertake development and operation / maintenance of the Four Lanning of Dwarka - Devariya section of NH-151 (Old NH-8E) from existing carriageway km. 203+500 to km. 176+500 (Design km. 0+000 to km. 26+800) and km. 171+800 to km. 125+000 (Design km. 31+500 to km. 71+820) as well as km. 71+820 to km. 76+270 under COS (approx. 67.12 + 4.45 = 71.57 kms) in the state of Gujarat through Design, Build, Operate and Transfer (the "DBOT Annuity" or "Hybrid Annuity") basis, which shall be partly financed by the Concessionaire who shall recover its investment and costs through payments to be received from the Authority, in accordance with the terms and conditions to be set forth in a Concession Agreement to be executed. Total length of the project highway a per CA is 67.12 kms and including COS is 71.57 kms.

Based on competitive bid process completed, NHAI has signed Concession Agreement with **M/s GR Dwarka Devariya Highway Private Limited (GDDHPL)**, a Special Purpose Vehicle (SPV) formed for implementing this project.

The Appointed Date of the project was 8th February 2020. The Scheduled Completion Date of the project highway was on 07th August 2022. Operation period of the project is 15 years from the COD. The Concessionaire has applied for Provisional Completion Certificate to IE / NHAI vide letter no. GDDHPL/2022/DW-KH/2421 Dated: 11-07-2022 and IE has drafted a PCOD letter and sent to RO, NHAI vide letter no. LASA/MUM/IE/DKD-73709/ 2022/3949 Dated 02-08-2022. The NHAI had granted Extension of Time (EOT) for 180 days.

During maintenance of the project highway, **M/s. GR Highways Investment Manager Pvt. Ltd.** (in its capacity as the Investment Manager of Bharat Highways InvIT) has appointed **FP Project Management Consultancy Services Private Limited** [Formerly Frischmann Prabhu (I) Pvt. Ltd.] Technical Consultant for carrying out technical study, and assessment of Opex and major maintenance requirement (MMR) for balance concession period. The scope includes review of operation and maintenance system and to prepare maintenance schedule for entire duration of concession period based on a technical analysis. In turn, FP Project Management undertook the site visits to carry out site inspection. The report is based on findings during this period.

1.2 Our Approach Philosophy

Composition of Team

Our team consists of well-qualified Engineers and other professionals, whose experience covers all the skills and specializations required for undertaking such assignments. All the team personnel proposed are our regular employees and have a long and stable working relationship with our firm.

The Team Leader coordinates the activities between all the key staff who work closely together. The key staff is assisted by various support staff, who report to the respective key staff in their field of expertise. The Team Leader is the point of contact for Client on Technical Study.

The technical study includes review of all the available documents namely:

a) Concession Agreement including Technical Schedules
b) EPC Agreement
c) Pavement design reports
d) O&M Manual prepared by the Concessionaire
e) O&M Contract, work order and their provisions
f) Recent O&M Report submitted to Authority
g) Quality of construction based on available data, design and drawings
h) Documents on historical expenditure on operation and maintenance
i) Reports on past accidents
j) O&M cost schedule for the concession period
k) Completion / Provisional Completion and status of items in punch list items
l) Correspondence regarding scope of works and during O&M
m) Toll operation manual / ATMS related documents

The review of above documents is the first step towards accomplishment of the assignment. This gives a complete idea of the project and is used as input data for preparation of report after necessary analysis.

Site Visit and Data Collection

A team of experts from various streams has carried out the preliminary site visit to understand the assessment of project assets mainly condition of the pavement and structures.

- The site visit is undertaken for detailed reconnaissance and visual pavement condition assessment
- The condition assessment of major structures by visual inspection
- The information like material sources and the probable cost to be collected for the purpose of cost estimate

The detailed design / drawings viz. Plan & L-sections, drainage design, structure design, layout drawings for project facilities like toll plaza, bus bay, truck lay-byes, highway lighting facilities etc., would be studied. Also, design / drawing and provision pertaining to road furniture are studied.

The adequacy of design is verified in accordance with the concession agreement, manual of specifications and standards as well as relevant IRC standards.

The information on availability of material in the vicinity is gathered. It has direct impact on cost of maintenance work and balance work if any.

The basic approach for preparation for cost estimates for operation and maintenance is as per the practice of State PWD / MORT&H in respect of highways and structures.

Data Analysis

Based on the study of the available information and preliminary site visits, the consultants share their preliminary observations with the Client.

1.3 About this Report

This report has been prepared based on the information, reports and documents made available to us by the Company. We have also referred to publicly available reports, literature etc. and have made our best efforts to check the authenticity of the information available, analyse the same as per the best engineering / industry practices.

The site visit and inspection were carried out between the periods of **07th August 2022 to 10th August 2022**.

The report is organized with the following chapters for easy understanding of various issues.

- **Introduction -** This chapter gives an overview of the project background, approach and methodology of Due Diligence studies.
- **Project Description -** This chapter describes existing project features.
- **Development of Project Highway -** This chapter gives an overview of project development.
- **Pavement and Site Investigation -** This chapter describes present condition of pavement, surveys and investigations carried out on site and proposals for maintenance as per contract requirements.
- **Balance works -** This chapter summarizes the balance works to be executed at Site.
- **Review of Concession Agreement -** This chapter summarizes the observations on the Concession Agreement.
- **Operation and Maintenance -** This chapter describes O&M set up as well as O&M cost over the concession period.
- **Toll Plaza Equipment and ATMS -** This chapter summarizes assessment of Toll Plaza in terms of no. of lanes, Toll Collection System installed and working status is presented under this section.
- **Accident Data Analysis -** This chapter deals with the analysis of nature of accidents occurring on the stretch and to identify blackspots.
- **Annexures**

2 PROJECT DESCRIPTION

2.1 Location

The project corridor road is a section of National Highway Number 151A (Old NH-08E), NH-151A in the state of Gujarat which starts near Kuranga village from km. 0+000 and end at km. 76+270 in Jakhar Patia and total design length as per Concession Agreement is 67.12 kms and the length of the project highway including COS is 71.57 kms.

The project highway passes through the built-up areas of towns and villages enroute. Important towns along the alignment are Bhatia, Kuvadia, Bamnsa, Dhandusar, Vadinar and Devariya etc.,

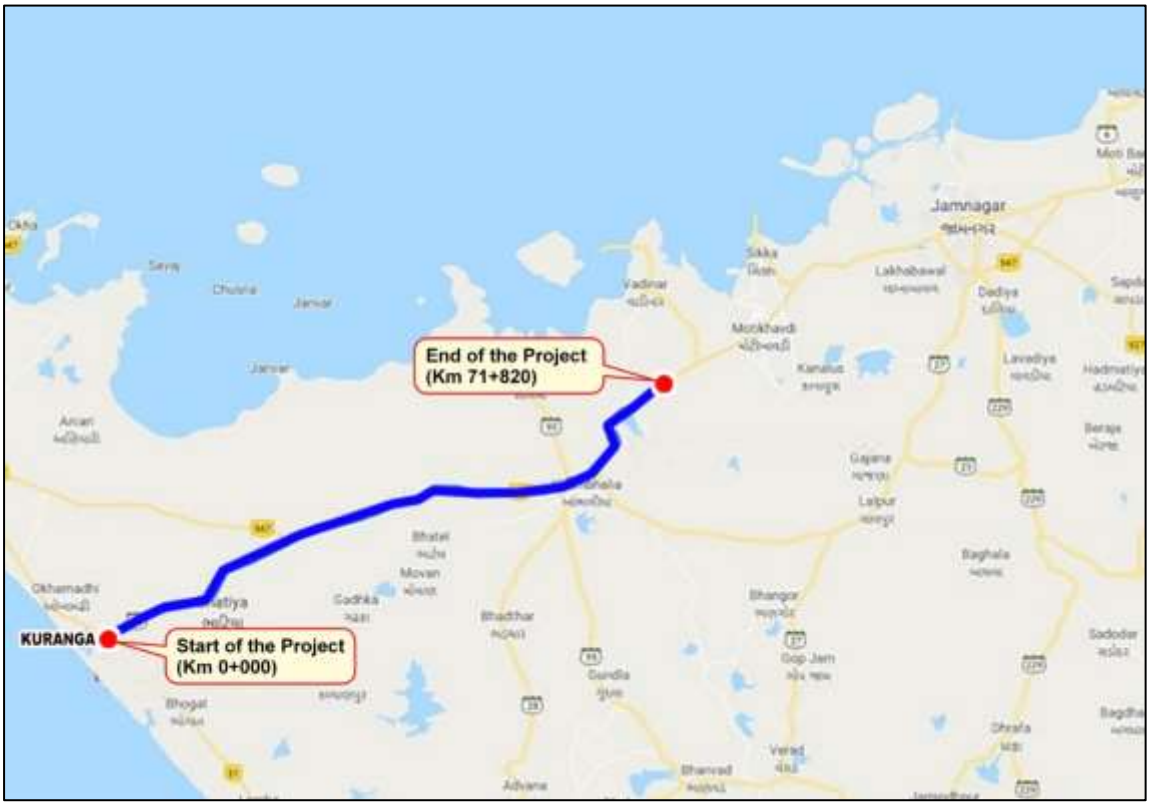


Figure 2-1 Location Map



Figure 2-2 Start of project highway at km. 0+000



Figure 2-3 End of project highway at km. 76+270

2.2 Climate

The climate of the project area is generally dry except during the South-West monsoon season between July to September. The average annual rainfall in the area is around 520 mm. The driest month is May. The average annual temperature of the project area is 28.5^{0}C & June is being the warmest month. The highest relative humidity is in August @ 77.83% and the lowest relative humidity is in January @ 39.92%.

2.3 Terrain

This section of National Highway traverses through plain / rolling terrain.

2.4 Abutting Land Use

The land use along the highway is predominantly agriculture or barren.

2.5 Right of Way

The width of existing Right of Way (RoW) throughout the project stretch varies from 45 m to 60 m. However, at many locations ROW as per site condition is 30 m. Details of ROW for the project highway are as given below.

Table 2-1 RoW Details

Section	Existing Chainage (km)		Design Chainage (km)		Proposed RoW (m)
	Start	End	Start	End	
NH - 151A (Dwarka from Kuranga to Devariya)	203+500	202+580	0+000	1+000	45
	202+580	200+100	1+000	3+400	45
	200+100	199+800	3+400	3+700	45
	199+800	196+000	3+700	7+500	45
	196+000	195+700	7+500	7+800	45
	195+700	191+700	7+800	11+800	45
	191+700	190+400	11+800	13+100	60
	190+400	187+680	13+100	15+800	45
	187+680	187+200	15+800	16+200	45
	187+200	185+950	16+200	17+450	45
	185+950	185+400	17+450	18+000	45
	185+400	180+850	18+000	22+500	45

Section	Existing Chainage (km)		Design Chainage (km)		Proposed RoW (m)
	Start	End	Start	End	
	180+850	179+850	22+500	23+500	60
	179+850	176+500	23+500	26+800	45
	176+500	171+800	26+800	31+500	Air Strip: Not in Scope
	171+800	171+100	31+500	32+200	45
	171+100	163+450	32+200	39+800	45
	163+450	162+000	39+800	41+300	45
	162+000	161+270	41+300	42+000	45
	161+270	160+550	42+000	42+700	45
	160+550	158+500	42+700	44+800	45
	158+500	155+000	44+800	48+200	45
	155+000	153+400	48+200	49+800	45
	153+400	152+000	49+800	51+070	45
	152+000	149+200	51+070	53+400	45
	149+200	148+120	53+400	54+500	60
	148+120	147+700	54+500	54+960	45
	147+700	146+970	54+960	55+700	60
	146+970	144+700	55+700	57+900	45
	144+700	143+450	57+900	59+150	60
	143+450	141+400	59+150	61+200	45
	141+400	140+500	61+200	62+100	45
	140+500	140+200	62+100	62+400	45
	140+200	139+600	62+400	63+000	45
	139+600	139+060	63+000	63+500	45
	139+060	136+800	63+500	65+000	60
	136+800	136+400	65+000	65+400	45
	136+400	135+300	65+400	66+500	45
	135+300	134+300	66+500	67+500	45
	134+300	132+000	67+500	69+800	45
	132+000	131+700	69+800	70+100	45
	131+700	130+700	70+100	71+100	45
	130+700	130+000	71+100	71+820	45

2.6 Existing Utilities

During widening of the project highway, various affected utility services located along the project road were shifted to the PROW. The different types of utilities found along the road include, electrical poles, water pipeline, OFC Cables, etc.,

3 DEVELOPMENT OF PROJECT ROAD

3.1 Project Road

The Road from Kuranga (Dwarka) km. 203+500 to Devariya km. 176+500 (design km. 0+000 to km. 26+800) and km. 171+800 to 125+000 (Design km. 31+500 to km. 71+820) as well as from km. 71+820 to km. 76+270 under COS (approx. 67.12 + 4.45 = 71.57 km length) was proposed to be developed as four lane divided carriageway with median width varies from 1.0 m to 4.0 m, service road and other arrangements. The project road passes through rural as well as built-up sections. The stretches falling in built-up areas have been provided with service road as per scope of works. The development of entire project road has been carried out in accordance with schedule-B and schedule-C as per standards set forth in schedule-D under the Concession Agreement.

M/s. GR Dwarka Devariya Highway Private Limited (GDDHPL) has been involved in construction of the project road for the length of 71.57 kms (67.12 + 4.45). The Concessionaire has applied for Provisional Completion Certificate on 11th July 2022.

The stretch of the project highway under the scope of study runs predominantly through plain / rolling terrain. The design standards have been adhered to with a realistic compatibility with the existing ROW, utilities and optimum land acquisition. Generally, the cross-sectional dimensions of project road are as below:

Table 3-1 Cross sectional dimension

Main Carriageway	Width (m)
Carriageway width	18
Paved Shoulder width - one side	1.5
Earthen Shoulder width - one side	2.0
Median width	1.00 - 4.50
Service Road	7.0

3.2 Bypass and Realignment

There are no bypass and realignment on the project highway.

3.3 Pavement Construction

Both carriageway of the project highway including Toll Plaza, service road and slip road is rigid pavement.

3.4 Service Roads

Service roads have been constructed at 05 locations along the project highway. However, as per CA there are 7 locations to construct the service road and two nos. of service roads are descoped. The total length of service road (including LHS and RHS) is 9.09 kms and the width of service road is 7.0 m. Service roads are provided in both built-up sections and in open country. Built-up sections are provided with HPC drains on outer side of service roads. The details of service roads are provided in the table below.

Table 3-2 Details of Service Roads as per CA

Sr. No.	Existing Chainage (km)		Design Chainage (km)		Length (km)	Width (m)	Side	Remark
	From	To	From	To				
1	191+700	190+400	11+800	13+100	1.300	7.0	Both	
2	180+850	179+850	22+500	23+500	1.000	7.0	Both	
3	149+200	148+120	53+400	54+500	1.100	7.0	Both	De-scoped
4	147+700	146+970	54+960	55+700	0.740	7.0	Both	
5	146+970	144+700	55+700	57+900	2.200	7.0	Both	
6	144+700	143+450	57+900	59+150	1.250	7.0	Both	
7	139+060	136+800	63+500	65+000	1.500	7.0	Both	De-scoped

Figure 3-1 Photographs of Service Road



km. 11+800 to km. 13+100 (LHS)



km. 22+500 to km. 23+500 (LHS)



km. 22+500 to km. 23+500 (LHS)



km. 54+960 to km. 55+700 (LHS)



km. 55+260 to km. 55+700 (LHS)



km. 57+900 to km. 59+150 (LHS)



km. 57+900 to km. 59+150 (LHS)



km. 56+950 to km. 56.550 (RHS)



km. 23+500 to km. 22+500 (RHS)



km. 11+800 to km. 13+100 (RHS)

3.5 Major Intersections

There is no major intersection in the project highway.

3.6 Minor Junctions

There are 55 Nos. of minor junctions along project highway. The details of the minor junctions are presented as below.

Table 3-3 Details of Minor Intersections

Sr. No.	Chainage (km)		Type of Junction	Side	Road Type	Going to Village
	Existing	Design				
1	200+540	3+010	T	RHS	BT	BT Road To Suines
2	197+400	6+045	T	LHS	BT	BT Road to Gaga Marine Sanctuary
3	195+740	7+830	T	RHS	GR	Towards Wind World Pvt.
4	192+820	10+710	T	LHS	BT	Towards Bhatiya Road
5	186+875	16+600	X	LHS	BT	Towards Gurgadh
6	186+875	16+600	X	RHS	BT	Towards Nandana
7	185+915	17+560	X	LHS	GR	Towards Village
8	185+915	17+560	X	RHS	BT	Towards Nandana
9	181+580	21+845	T	LHS	GR	Towards Shiv Mandir
10	180+570	22+850	T	RHS	GR	Towards Bharatpur Village
11	177+990	25+430	T	LHS	GR	Towards Ran Village
12	177+740	25+660	T	RHS	GR	Towards Juvanpur Village
13	176+620	26+780	T	RHS	GR	Towards Juvanpur Village
14	171+450	31+910	X	LHS	BT	LHS To Datrana
15	171+450	31+910	X	RHS	BT	Towards Hanjdapar

Sr. No.	Chainage (km)		Type of Junction	Side	Road Type	Going to Village
	Existing	Design				
16	169+550	33+800	T	RHS	BT	Towards Hanjdapar
17	168+285	35+075	X	LHS	GR	To Zakasiva
18	168+285	35+075	X	RHS	BT	Towards Gokul
19	167+680	35+675	X	LHS	GR	Towards Dhandusar
20	167+680	35+675	X	RHS	GR	Towards Sonardi
21	167+580	35+780	T	LHS	GR	Towards Bara Village
22	163+450	39+900	T	LHS	BT	Towards Baikapatiya Village
23	162+560	40+780	T	RHS	BT	Towards Bhatel Village
24	162+140	41+200	X	LHS	BT	Towards Village
25	162+140	41+200	X	RHS	BT	Towards Vadatara Village
26	159+000	44+300	X	LHS	GR	Towards Ithal Village
27	159+000	44+300	X	RHS	GR	Towards Kajurda Village
28	158+000	45+300	T	LHS	BT	Towards Hansthal
29	156+540	46+790	T	RHS	BT	Towards Viramdad Village
30	155+330	47+950	T	LHS	BT	Towards Sam or village
31	152+935	50+340	T	LHS	BT	Towards Kuvadiya Village
32	149+975	52+850	T	RHS	CC	Towards Suplat Village
33	149+055	53+650	X	LHS	CC	Towards DN School
34	149+055	53+650	X	RHS	GR	Towards Temple
35	146+750	55+910	T	RHS	GR	Towards Khambhaliya
36	146+242	56+425	T	LHS	BT	Towards Haripur
37	144+470	58+165	T	LHS	BT	Towards JKV Nagar
38	144+135	58+500	T	LHS	BT	Towards JKV Nagar
39	144+100	58+590	T	RHS	BT	Towards Lalpur SH-23
40	143+625	59+010	T	RHS	BT	Towards Brick Field
41	142+845	59+825	T	RHS	BT	Towards Kanchanpur
42	142+240	60+410	T	RHS	GR	Towards Kanchanpur
43	140+420	62+200	T	RHS	GR	Towards Factory
44	140+420	62+200	Y	RHS	GR	Towards Khatabadi Village
45	137+010	64+890	T	LHS	BT	Towards Danta
46	136+460	65+220	T	LHS	GR	Towards Shavan farm
47	135+850	66+080	X	LHS	GR	Towards Danta
48	135+850	66+080	X	RHS	GR	Towards Dam
49	134+950	66+900	T	LHS	BT	Towards Forest
50	134+480	67+400	T	LHS	BT	Towards Motarnadha
51	134+445	67+450	T	RHS	BT	Towards Vadalia Sihan
52	133+185	68+680	T	LHS	BT	Towards Kajurda
53	132+350	69+570	X	LHS	BT	Towards Essar Power Plant
54	132+350	69+570	X	RHS	ER	Towards Shrihorrow Village
55	130+165	71+760	T	LHS	BT	Towards Devariya

Figure 3-2 Photographs of Minor Intersection


km. 3+000


km. 10+710


km. 16+600


km. 25+660


km. 33+800


km. 35+700


km. 41+200


km. 44+300


km. 50+340

3.7 Condition Survey of Bridges

The inventory of structures including major bridges, minor bridges, ROB, underpasses and culverts is presented in table as below:

Table 3-4 Summary of Structures

Sr. No.	Type of Structure	Total No. of Structures	De-Scope	COS	Net Total
1	ROB	01			01
2	Flyover	00			00
3	Major Bridge (New)	04			04
4	Minor Bridge (Re-construction)	16			16

Sr. No.	Type of Structure	Total No. of Structures	De-Scope	COS	Net Total
5	Minor Bridge (Widening & Repairing)	04			04
6	Vehicular Underpass	06	01		05
7	Slab Culvert (New)	16	03		13
8	Slab Culvert (Reconstruction)	08			08
9	Box Culvert (Widening)	11			11
10	Pipe Culverts (New)	29		7	36
11	Pipe culvert (Widening)	16			16
12	Pipe culvert (Reconstruction)	40			40

The detailed condition survey of structures was carried out by visual inspection. The observations and findings are presented in table below:

Table 3-5 Structure Condition Survey

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
1	0+527	ROB 1 x 18 + 1 x 24 + 1 x 18 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition. Drainage grating to be cleaned at both sides.
			Foundation	Pile Foundation	Pile Foundation	
			Sub structure Abutment / Pier	Abutment – RE Block & RCC Circular type Piers - RCC Circular type Condition – Satisfactory	Abutment - RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	
			Super Structure	3 Span Composite Girders/RCC Girders & RCC Slab Footpath - Both side Condition – Satisfactory	3 Span Composite Girders/RCC Girders & RCC Slab Footpath - Both side Condition - Satisfactory	
			Bearing	Bearing – POT/PTFE + PIN & Metallic Bearing for Steel Girder	Bearing – POT/PTFE + PIN & Metallic Bearing for Steel Girder	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	RCC railing with Crash Barrier - Condition – Satisfactory	RCC railing with Crash Barrier Condition - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - No problem	BC - No problem	
			Approach Slope	Earthen slope with Turfing Stable in condition	Earthen slope with Turfing Stable in condition	
			Drainage	Water grating clear	Water grating clear	
2	0+580	Minor Bridge 1 x 9.0 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition. Waterspouts to be clean at both sides.
			Foundation	RCC Raft	RCC Raft	
			Sub structure Abutment / Pier	Abutment - RCC Wall type Condition - Satisfactory	Abutment - RCC Wall type Condition - Satisfactory	
			Super Structure	Single Span	Single Span	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
				RCC Solid Slab Condition - Satisfactory	RCC Solid Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	-	-	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	RE Block Wall	RE Block Wall	
			Drainage	Water grating not clear	Water grating not clear	
3	1+620	Minor Bridge 2 x 4.625 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition. Waterspouts to be clean at both sides.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Pier – Pier RCC wall type Condition - Satisfactory	Abutment - RCC Wall type Pier - Pier RCC wall type Condition - Satisfactory	
			Super Structure	Double Span RCC Solid Slab Condition - Satisfactory	Double Span RCC Solid Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier	Crash Barrier	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	Earthen slope washed out, need to be rectified	Earthen slope washed out, need to be rectified	
			Drainage	Waterspouts not clear	Waterspouts not clear	
4	3+010	Minor Bridge 4 x 4.9875 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Pier – Pier RCC wall type Condition - Satisfactory	Abutment - RCC Wall type Pier – Pier RCC wall type Condition - Satisfactory	Waterspouts to be clean at both sides.
			Super Structure	4 Span RCC Solid Slab Condition - Satisfactory	4 Span RCC Solid Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	RCC Railing with Crash Barrier	RCC Railing with Crash Barrier	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	Earthen slope	Earthen slope	
			Drainage	Waterspouts clear	Waterspouts clear	
5	9+230	Major Bridge 4 x 24.0 m (Rabari Local Stream)	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition.
			Foundation	Pile Foundation	Pile Foundation	
			Sub structure Abutment / Pier	Abutment - RCC Wall type & RCC Piers Piers - RCC piers Condition - Satisfactory	Abutment - RCC Wall type & RCC Piers Piers - RCC piers Condition - Satisfactory	
			Super Structure	4 Span PSC Girders & RCC Deck Slab Condition - Satisfactory	4 Span PSC Girders & RCC Deck Slab Condition - Satisfactory	
			Bearing	POT-PTFE	POT-PTFE	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier -Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	Earthen slope with turfing	Earthen slope with turfing	
			Drainage	Water grating clear	Water grating clear	
6	9+880	Minor Bridge 1 x 7.20 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Condition - Satisfactory	Abutment - RCC Wall type Condition - Satisfactory	
			Super Structure	Single Span RCC Solid Slab Condition - Satisfactory	Single Span RCC Solid Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier	Crash Barrier	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	Earthen slope	Earthen slope	
			Drainage	Waterspouts clear	Waterspouts clear	
7	12+420	VUP 2 x 25.0 m x 5.5 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition.
			Foundation	Pile Foundation	Pile Foundation	
			Sub Structure Abutment / Pier	Abutment – RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	Abutment - RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	
			Super Structure	2 Span PSC Girders & RCC Deck Slab Condition - Satisfactory	2 Span PSC Girders & RCC Deck Slab Condition - Satisfactory	
			Bearing	POT/PTFE	POT/PTFE	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier -Satisfactory	Crash Barrier @A2 side-Pending	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	-	-	
			Drainage	Water grating clear	Water grating clear	
8	13+410	Minor Bridge 2 x 4.625 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub structure Abutment / Pier	Abutment - RCC Wall type Piers - Pier RCC wall type Condition - Satisfactory	Abutment - RCC Wall type Piers - Pier RCC wall type Condition - Satisfactory	
			Super Structure	Double Span RCC Solid Slab Condition - Satisfactory	Double Span RCC Solid Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier -Satisfactory	Crash Barrier -Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Satisfactory	Wearing coat pending	
			Approach Slope	Earthen slope not maintained	Earthen slope not maintained	
			Drainage	Waterspouts clear	Waterspouts clear	
9	15+270	Minor Bridge 3 x 7.55 m	Age	New - 2 Lane	New – 2 Lane	The Structure is in sound condition,
			Foundation	RCC Raft	RCC Raft	
			Sub structure Abutment / Pier	Abutment - RCC Wall type Piers - Pier RCC wall type	Abutment - RCC Wall type Piers - Pier RCC wall type	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
				Condition - Satisfactory	Condition - Satisfactory	
			Super Structure	3 Span RCC Solid Slab Condition - Satisfactory	3 Span RCC Solid Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier -Satisfactory	Crash Barrier -Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Satisfactory	Wearing coat pending	
			Approach Slope	Earthen slope not maintained	Earthen slope not maintained	
			Drainage	Drainage spouts clear	Drainage spouts pending	
10	21+955	Minor Bridge 3 x 6.30 m (Skew)	Age	New - 2 Lane	New – 2 Lane	The Structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub structure Abutment / Pier	Abutment - RCC Wall type Piers - Pier RCC wall type Condition - Satisfactory	Abutment - RCC Wall type Piers - Pier RCC wall type Condition - Satisfactory	
			Super Structure	3 Span RCC Solid Slab Condition - Satisfactory	3 Span RCC Solid Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier -Satisfactory	Crash Barrier -Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Satisfactory	BC - damaged	
			Approach Slope	Earthen slope not maintained	Earthen slope not maintained	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Drainage	Waterspouts clear	Waterspouts clear	
11	22+495	Minor Bridge 2 x 25.0 m	Age	New - 2 Lane	New – 2 Lane	The Structure is in sound condition,
			Foundation	Pile Foundation	Pile Foundation	
			Sub structure Abutment / Pier	Abutment – RCC Wall & RCC Piers Piers - RCC Piers Condition - Satisfactory	Abutment – RCC Wall & RCC Piers Piers - RCC Piers Condition - Satisfactory	
			Super Structure	2 Span PSC Girders & RCC Deck Slab Condition - Satisfactory	2 Span PSC Girders & RCC Deck Slab Condition - Satisfactory	
			Bearing	POT/PTFE	POT/PTFE	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier -Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - damaged	BC - Satisfactory	
			Approach Slope	Earthen slope damaged	Earthen slope	
			Drainage	Water grating clear	Water grating clear	
12	23+120	VUP 2 x 25.0 x 5.5 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment – RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	Abutment - RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	
			Super Structure	2 Span PSC Girders & RCC Deck Slab Condition - Satisfactory	2 Span PSC Girders & RCC Deck Slab Condition - Satisfactory	
			Bearing	POT/PTFE	POT/PTFE	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier -Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	-	-	
			Drainage	Water grating clear	Water grating clear	
13	23+600	Major Bridge 4 x 18.3 m (Skew) (Vankvaya River)	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	Abutment - RCC Wall type Piers - RCC piers Condition - Satisfactory	
			Super Structure	4 Span RCC Girders & RCC Deck Slab Condition - Satisfactory	4 Span RCC Girders & RCC Deck Slab Condition - Satisfactory	
			Bearing	POT-PTFE	POT-PTFE	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier -Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC – Pending @ A1 side approach slab portion	BC – Damaged @ approach slab portion	
			Approach Slope	Earthen slope – Pending @ A1 side	Earthen slope	
			Drainage	Water grating clear	Water grating clear	
14	34+400	Minor Bridge 1 x 7.8 m	Age	New - 2 lane	New - 2 lane	The Structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	RCC wall Condition - Satisfactory	RCC wall Condition - Satisfactory	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Super Structure	RCC solid slab Condition - Satisfactory	RCC solid slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return & CC Pitching	RCC Return & CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier-Satisfactory	Crash Barrier-Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	Earthen slope @ A1 & A2 side to be maintained	Stable	
			Drainage	Waterspouts - Clear	Waterspouts - Clear	
15	40+807	Minor Bridge 2 x 10.35 m	Age	New - 2 lane	New - 2 lane	The structure is in sound condition. .
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Pier - RCC wall type Condition - Satisfactory	Abutment - RCC Wall type Pier - RCC wall type Condition - Satisfactory	
			Super Structure	RCC solid slab Condition - Satisfactory	RCC solid slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return & CC Pitching	RCC Return & CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier-Satisfactory	Crash Barrier-Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	Earthen slope @ A1 & A2 side washed out, to be maintained	Earthen slope @ A2 side washed out, to be maintained	
			Drainage	Waterspouts - Clear	Waterspouts - Clear	
16	45+893	Minor Bridge (Widened)	Age	New - 2 lane (Upper side)	Widened (Old) - 2 lane (Lower side)	The structure is in sound condition.

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
		4 x 3.4 m	Foundation	RCC Raft	RCC Open Foundation/ RCC Raft	
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Pier - RCC wall type Condition - Satisfactory	Abutment - RCC Wall type Pier - RCC wall type Condition - Satisfactory	
			Super Structure	2 Span RCC solid slab Condition - Satisfactory	4 Span RCC solid slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return & CC Pitching	RCC Return & CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier-Satisfactory	Crash Barrier-Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	Earthen slope & MBCB @ A2 side are pending due to Shifting of Electrical line.	Stable	
			Drainage	Waterspouts - Clear	Waterspouts - Clear	
17	46+965	Minor Bridge (Skew) 1 x 7.2 m	Age	New - 2 lane	New - 2 lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Condition - Satisfactory	Abutment - RCC Wall type Condition - Satisfactory	
			Super Structure	Single Span RCC solid slab Condition - Satisfactory	Single Span RCC solid slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return & CC Pitching	RCC Return & CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier-Satisfactory	Crash Barrier-Satisfactory	
			Expansion Joint	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	Stable	Stable	
			Drainage	Waterspouts - Clear	Waterspouts - Clear	
18	47+700	Minor Bridge 2 x 4.625 m	Age	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment – RCC wall Piers -RCC type Condition - Satisfactory	Abutment – RCC wall Piers - RCC type Condition - Satisfactory	
			Super Structure	Double Span RCC Solid Slab Condition - Satisfactory	Double Span RCC Solid Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return & CC Pitching	RCC Return & CC Pitching	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Waterspouts clear	Waterspouts clear	
19	49+243	Minor Bridge (Widened) 2 x 7.45 m	Age	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment – RCC wall Piers -RCC type Condition - Satisfactory	Abutment – RCC wall Piers - RCC type Condition - Satisfactory	
			Super Structure	Double Span RCC Solid Slab Condition - Satisfactory	Double Span RCC Solid Slab Condition - Satisfactory	
			Bearing	-	-	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Slope Protection	RCC Return & CC Pitching	RCC Return & CC Pitching	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Waterspouts not provided	Waterspouts not provided	
20	51+293	Minor Bridge 2 x 4.625 m	Age	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment – RCC wall Piers -RCC type Condition - Satisfactory	Abutment – RCC wall Piers - RCC type Condition - Satisfactory	
			Super Structure	Double Span RCC Solid Slab Condition - Satisfactory	Double Span RCC Solid Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return & CC Pitching	RCC Return & CC Pitching	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Waterspouts clear	Waterspouts clear	
21	51+730	Minor Bridge 2 x 18.3 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC Circular pier Condition - Satisfactory	Abutment - RCC Wall type Piers - RCC Circular pier Condition - Satisfactory	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Super Structure	Double Span RCC Girders & RCC Deck Slab Condition - Satisfactory	Double Span RCC Girders & RCC Deck Slab Condition - Satisfactory	
			Bearing	POT-PTFE	POT-PTFE	
			Slope Protection	RCC Return and CC Pitching damaged @ A2 side	RCC Return and CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier -Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Water grating clear	Water grating clear	
22	54+245	Minor Bridge 2 x 12.5 m	Age	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment – RCC wall Piers -RCC wall type Condition - Satisfactory	Abutment – RCC wall Piers - RCC wall type Condition - Satisfactory	
			Super Structure	Double Span RCC Solid Slab Condition - Satisfactory	Double Span RCC Solid Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return & CC Pitching	RCC Return & CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Waterspouts not provided	Waterspouts not provided	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
23	54+855	Major Bridge 7 x 21.8 m	Age	New - 3 Lane	New – 3 Lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC piers & Pier Caps Condition - Satisfactory	Abutment - RCC Wall type Piers - RCC piers & Pier Caps Condition - Satisfactory	
			Super Structure	7 Span RCC Girders & RCC Deck Slab Condition - Satisfactory	7 Span RCC Girders & RCC Deck Slab Condition - Satisfactory	
			Bearing	POT-PTFE	POT-PTFE	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	Crash Barrier -Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Water grating clear	Water grating clear	
24	55+300	VUP 1 x 25 x 5.5 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment – RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	Abutment - RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	
			Super Structure	Single Span PSC Girders & RCC Deck Slab Condition - Satisfactory	Single Span PSC Girders & RCC Deck Slab Condition - Satisfactory	
			Bearing	POT/PTFE	POT/PTFE	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Parapet / Railing	Crash Barrier -Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	-	-	
			Drainage	Water grating clear	Water grating clear	
25	57+975 instead of 54+030	VUP 1 x 25 x 5.5 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment – RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	Abutment - RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	
			Super Structure	Single Span PSC Girders & RCC Deck Slab Condition - Satisfactory	Single Span PSC Girders & RCC Deck Slab Condition - Satisfactory	
			Bearing	POT/PTFE	POT/PTFE	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier -Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	-	-	
			Drainage	Water grating clear	Water grating clear	
26	58+520	VUP 1 x 25 x 5.5 m	Age	New - 2 Lane	New – 2 Lane	The structure is in sound condition.
			Foundation	RCC Open Foundation	RCC Open Foundation	
			Sub Structure Abutment / Pier	Abutment – RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	Abutment - RE Block & RCC Circular type Piers - RCC Circular type Condition - Satisfactory	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
			Super Structure	Single Span PSC Girders & RCC Deck Slab Condition - Satisfactory	Single Span PSC Girders & RCC Deck Slab Condition - Satisfactory	
			Bearing	POT/PTFE	POT/PTFE	
			Slope Protection	-	-	
			Nalla Bed	Service Road	Service Road	
			Parapet / Railing	Crash Barrier -Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC - Satisfactory	BC - Satisfactory	
			Approach Slope	-	-	
			Drainage	Water grating clear	Water grating clear	
27	64+635	VUP 1 x 12 x 5.5 m	Age	-	-	This structure is descoped.
			Foundation	-	-	
			Sub Structure Abutment / Pier	-	-	
			Super Structure	-	-	
			Bearing	-	-	
			Slope Protection	-	-	
			Nalla Bed	-	-	
			Parapet / Railing	-	-	
			Expansion Joint	-	-	
			Wearing Coat / Surface	-	-	
			Approach Slope	-	-	
			Drainage	-	-	
28	64+660	Minor Bridge 2 x 5.125 m	Age	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment – RCC wall Piers -RCC wall type	Abutment – RCC wall Piers - RCC wall type	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
				Condition - Satisfactory	Condition - Satisfactory	
			Super Structure	Double Span RCC Solid Slab Condition - Satisfactory	Double Span RCC Solid Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return & CC Pitching	RCC Return & CC Pitching	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Waterspouts not provided	Waterspouts not provided	
29	64+765	Minor Bridge 2 x 5.125 m	Age	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment – RCC wall Piers -RCC wall type Condition - Satisfactory	Abutment – RCC wall Piers - RCC wall type Condition - Satisfactory	
			Super Structure	Double Span RCC Solid Slab Condition - Satisfactory	Double Span RCC Solid Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return & CC Pitching	RCC Return & CC Pitching	
			Nalla Bed	Clear	Clear	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Waterspouts not provided	Waterspouts not provided	
30	66+310	Major Bridge	Age	New - 2 Lane	New – 2 Lane	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	**LHS**	**RHS**	
		4 x 18.0 m (Sihan River)	Foundation	RCC Open Foundation	RCC Open Foundation	The structure is in sound condition.
			Sub Structure Abutment / Pier	Abutment - RCC Wall type Piers - RCC Circular piers & Pier Caps Condition - Satisfactory	Abutment - RCC Wall type Piers – RCC Circular piers & Pier Caps Condition - Satisfactory	
			Super Structure	4 Span RCC Girders & RCC Deck Slab Condition - Satisfactory	4 Span RCC Girders & RCC Deck Slab Condition - Satisfactory	
			Bearing	POT-PTFE	POT-PTFE	
			Slope Protection	RCC Return and CC Pitching	RCC Return and CC Pitching	
			Nalla Bed	Flowing water	Flowing water	
			Parapet / Railing	RCC Railing with Crash Barrier -Satisfactory RCC Railing at both ends to be provided	RCC Railing with Crash Barrier - Satisfactory	
			Expansion Joint	Available (Require cleaning)	Available (Require cleaning)	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Stable in condition	
			Drainage	Water grating clear	Water grating clear	
31	67+865	Minor Bridge 2 x 10.65 m	Age	New - 2 Lane	New - 2 Lane	The structure is in sound condition.
			Foundation	RCC Raft	RCC Raft	
			Sub Structure Abutment / Pier	Abutment – RCC wall Piers -RCC wall type Condition - Satisfactory	Abutment – RCC wall Piers - RCC wall type Condition - Satisfactory	
			Super Structure	Double Span RCC Solid Slab Condition - Satisfactory	Double Span RCC Solid Slab Condition - Satisfactory	
			Bearing	-	-	
			Slope Protection	RCC Return & CC Pitching	RCC Return & CC Pitching	

Sr. No.	Design Chainage (km)	Type of Bridge / Spans	Features and Observation			General Comments
			Component	LHS	RHS	
			Nalla Bed	Flowing Water	Flowing Water	
			Parapet / Railing	Crash Barrier - Satisfactory	Crash Barrier - Satisfactory	
			Expansion Joint	-	-	
			Wearing Coat / Surface	BC is in good condition	BC is in good condition	
			Approach Slope	Stable in condition	Side Slope @ A1 side washed out, need to be rectified.	
			Drainage	Waterspouts not provided	Waterspouts not provided	

Figure 3-3 Photographs of Major Structures



Side View of ROB at km. 0+527 (LHS)



Bottom View of ROB's Girders at km. 0+527



Side View of ROB at km. 0+527 (RHS)



Wearing Coat of ROB at km. 0+527 (RHS)



Side Slope @ A2 side of ROB at km. 0+527 (RHS)



Side View of Minor Bridge at km. 0+580 (LHS)



Side View of Minor Bridge at km. 1+620 (LHS)



Side View of Minor Bridge at km. 1+620 (RHS)



Wearing Coat of Minor Bridge at km. 3+010 (LHS)



Side View of Minor Bridge at km. 3+010 (RHS)



Side View of Major Bridge at km. 9+230 (LHS)



Side View of Minor Bridge at km. 9+880 (LHS)



Side View of Minor Bridge at km. 9+880 (RHS)



Side View of VUP at km. 12+420 (LHS)



Bottom View of VUP at km. 12+420



Side View of VUP at km. 12+420 (RHS)



Wearing Coat of VUP at km. 12+420 (BHS)



Wearing Coat of Minor Bridge at km. 13+410 (LHS)



Side View of Minor Bridge at km. 13+410 (RHS)



Side View of Minor Bridge at km. 15+270 (LHS)



Side View of Minor Bridge at km. 21+955 (LHS)



Side view of Minor Bridge at km. 22+495 (LHS)



Side View of VUP (Limdi) at km. 23+120 (LHS)



Wearing Coat of VUP (Limdi) at km. 23+120 (BHS)



Side View of VUP (Limdi) at km. 23+120 (RHS)



Wearing Coat pending of Major Bridge at km. 23+600 (LHS)



Side View of Major Bridge at km. 23+600 (LHS)



Side View of Minor Bridge at km. 34+400 (LHS)



Side View of Minor Bridge at km. 34+400 (RHS)



Side View of Minor Bridge at km. 40+807 (RHS)



Side View of Minor Bridge at km. 45+893 (RHS)



Side View of Minor Bridge at km. 47+700 (LHS)



Side View of Minor Bridge at km. 47+700 (RHS)



Side View of Minor Bridge at km. 49+243 (RHS)



Side View of Minor Bridge at km. 51+293 (LHS)



MCW pending (1-lane) of Minor Bridge (New) at km. 51+293 (LHS)



Side View of Minor Bridge at km. 51+730 (RHS)



Side View of Minor Bridge at km. 51+730 (LHS)



Side View of Minor Bridge at km. 54+945 (RHS)



Wearing Coat of Major Bridge at km. 54+855 (LHS)



Side View of Major Bridge at km. 54+855 (LHS)



Wearing Coat of Major Bridge at km. 54+855 (RHS)



Side View of VUP at km. 55+300 (LHS)



Bottom View of VUP at km. 55+300



Side View of VUP at km. 57+975 (LHS)



Side View of VUP at km. 57+975 (RHS)



Side View of VUP at km. 58+570 (LHS)



Wearing Coat of Minor Bridge at km. 64+660 (LHS)



Side View of Minor Bridge at km. 64+660 (LHS)



Side View of Minor Bridge at km. 64+660 (RHS)



Side View of Minor Bridge at km. 64+765 (RHS)



Side View of Minor Bridge at km. 64+765 (LHS)



Wearing Coat of Major Bridge at km. 66+310 (LHS)



Wearing Coat of Major Bridge at km. 66+310 (RHS)



Expansion joint of Major Bridge at km. 66+310 (RHS)



Side View of Minor Bridge at km. 67+865 (LHS)



Side View of Minor Bridge at km. 67+865 (RHS)

3.8 Condition Survey of Culverts

The cross-drainage structure includes hume pipe culverts, box culverts and slab culverts at various locations. There are 92 Nos. of pipe culverts including COS and 32 Nos. of box culverts including de-scope along the project road. The height of culvert varies from 1.0 m to 3.0 m from bed level. During the condition survey of structure, these culverts were inspected on sample basis.

The project involves strengthening and widening of existing road to four lane divided carriageway. The culverts beneath existing alignment are either widened or reconstructed. The structural condition of culverts is generally found in sound condition. The quality of surface concrete of box culverts and slab culverts is satisfactory. The RCC parapet, metal beam crash barrier or RCC railing has been provided at culvert locations, which is maintained properly.

Vegetation growth and accumulation of debris at waterway is being removed and cleaned by the Concessionaire on regular basis.

Figure 3-4 Photographs of Culverts



Box culvert at km. 0+060 (LHS)



Box culvert at km. 0+060 (RHS)



Box culvert at km. 7+240 (LHS)



Box culvert at km. 7+240 (RHS)



Box culvert at km. 11+950 (LHS)



Box culvert at km. 11+950 (RHS)



Box culvert at km. 62+720 (LHS)



Box culvert at km. 62+720 (RHS)



HPC at km. 5+800 (RHS)



HPC at km. 5+800 (LHS)



HPC at km. 32+520 (RHS)



HPC at km. 32+520 (LHS)



HPC at km. 66+010 (RHS)



HPC at km. 66+010 (LHS)



HPC at km. 70+640 (RHS)



HPC at km. 70+640 (LHS)

3.9 Drainage System

There are hume pipe drains at the built-up areas and earthen drains at rural areas provided for the project stretch. The roadside drainage along the project highway needs to be maintained by cleaning debris on regular basis wherever it is completed. Some of the photographs of the drains provided are presented as below.

Figure 3-5 Photographs of Drains provided



km. 11+800 to km. 13+100 (LHS)



km. 11+800 to km. 13+100 (LHS)



km. 22+500 to km. 23+500 (LHS)



km. 50+300 to km. 50+900 (LHS)



km. 57+900 to km. 59+150 (LHS)



km. 66+000 to km. 67+000 (RHS)



km. 60+000 to km. 59+000 (RHS)



km. 50+000 to km. 49+000 (RHS)

3.10 Slope Protection Measures

Slope protection for high embankment of height greater than 3 m has not been provided with stone pitching although at few locations turfing has been provided for height up to 3 m. At many places, rain cut found in the slope which need rectification. Some of the photographs of slope are presented below.

Figure 3-6 Photographs of Slope Protection Works







km. 0+000 to km. 1+000 (LHS)



km. 6+000 to km. 7+000 (LHS)



km. 7+000 to km. 8+000 (LHS)



km. 8+000 to km. 9+000 (LHS)



km. 25+000 to km. 26+000 (LHS)



km. 40+000 to km. 41+000 (LHS)



km. 34+000 to km. 35+000



km. 54+000 to km. 55+000 (LHS)



km. 65+000 to km. 66+000 (LHS)



km. 71+000 to km. 72+000 (LHS)



km. 74+000 to km. 73+000 (RHS)



km. 69+000 to km. 68+000 (RHS)



km. 64+000 to km. 63+000 (RHS)



km. 53+000 to km. 54+000 (RHS)



km. 44+000 to km. 43+000 (RHS)



km. 39+000 to km. 38+000 (RHS)



km. 21+000 to km. 20+000 (RHS)



km. 9+000 to km. 8+000 (RHS)



km. 1+000 to km. 0+000 (RHS)

3.11 Road Furniture

Pavement and Kerb Marking

Pavement and kerb marking for the project highway is done as per the design standards indicated in section 12 of Schedule-D. Pavement marking work was in progress wherever front is available. The painting is being done wherever is required on regular basis as a part of routine maintenance.. Some of the photographs of road marking are presented below.

Figure 3-7 Photographs of Road Markings

LHS



km. 0+600



km. 2+900



km. 5+000 to km. 6+000



km. 13+000 to km. 14+000



km. 21+00 to km. 22+000



km. 45+060



km. 50+260



km. 76+100



km. 8+160



km. 9+900



km. 13+400
RHS



km. 21+050



km. 75+100



km. 68+100



km. 61+360



km. 53+450



km. 45+300



km. 20+000



km. 10+700

Road Studs

Road studs for the project highway is done as per the design standards indicated in section 12 of Schedule-D. Road studs have been fixed at junction and pedestrian crossings. Some of the photographs of road studs are presented below.

Figure 3-8 Photographs of Road Studs



km. 0+000



km. 2+650



km. 35+700



km. 41+200



km. 45+160



km. 60+350

Traffic Signage / km Stone

Traffic signs includes roadside signs, overhead signs, kerb mounted signs and median signs along the project highway. The design for the traffic signs along the project highway is done as per the design standards indicated in section 12 of Schedule-D.

The height, lateral clearance, location and installation are as per relevant clauses of Schedule-D. Overhead sign has been installed ahead of major intersections, toll plazas, start / end of project highway and urban areas as per detailed design requirements.

Kilometre stones, vertical post of sign boards, chevron boards and median kerb paint are faded at few locations. The same is being done wherever is required. Concessionaire needs to rectify the same. Some of the photographs of sign boards are presented below.

Figure 3-9 Photographs of Road Sign Boards

LHS



km. 0+100



km. 10+500



km. 11+000



km. 13+500



km. 45+060



km. 60+000



km. 71+500



km. 0+000



km. 2+000



km. 11+000



km. 15+000



km. 65+000



km. 72+000



km. 0+100



km. 10+710



km. 2+450



km. 2+500



km. 4+900



km. 14+900



km. 15+000



km. 15+950



km. 17+300



km. 34+685



km. 34+700



km. 41+200



km. 49+900
RHS



km. 53+400



km. 75+100



km. 71+700



km. 54+550



km. 23+450



km. 75+100



km. 71+700



km. 66+000



km. 60+150



km. 59+900



km. 55+900



km. 53+850



km. 45+000



km. 25+700



km. 25+700



km. 23+450



km. 8+260



km. 0+100



km. 75+000



km. 47+000



km. 45+000



km. 20+000



km. 1+000

Highway Lighting

Highway lighting is provided at underpasses, flyovers, toll plaza, ROB and built-up locations. High mast lighting is provided at toll plaza locations.

At underpass and flyover locations, highway lighting is provided at the structure and at its approaches.

Solar amber blinker signals are provided at each median opening locations. These lights are properly maintained and are in good working condition. Regular maintenance work is carried out to ensure their efficient operation. Some of the photographs of highway lightings are presented below.

Figure 3-10 Photographs of Highway Lighting



km. 0+500



km. 11+900 to km. 12+900



km. 22+650


km. 46+800


km. 55+050


km. 45+160


km. 2+600


km. 10+710


km. 25+660


km. 33+700


km. 50+340


km. 71+700

Crash Barriers

Metal beam crash barriers are provided at bridge approaches, locations of high embankment and sharp curves. Some of the photographs of metal beam crash barriers are presented below.

Figure 3-11 Photographs of Crash Barriers


km. 0+100 (LHS)


km. 0+150 (LHS)


km. 9+300 (LHS)


km. 15+950 (LHS)


km. 40+900 (LHS)


km. 49+300 (LHS)


km. 64+900 (RHS)


km. 62+450 (RHS)


km. 40+800 (RHS)


km. 38+400 (RHS)


km. 8+260 (RHS)


km. 0+100 (RHS)

Delineators

The Traffic Delineators are provided by Concessionaire for road users in abnormal condition of weather in the project highway. It is maintained by the Concessionaire. Some of the photographs are presented below.

Figure 3-12 Photographs of Delineator



km. 7+360 (LHS)



km. 11+100 (LHS)



km. 40+400 (LHS)



km. 66+000 (RHS)



km. 68+100 (RHS)

Pedestrian Guard Rail

The pedestrian guard rails are provided at the bus shelters only. It is maintained by the Concessionaire. Some of the photographs of pedestrian guard rails are presented below.

Figure 3-13 Photographs of Pedestrian Guard Rail



km. 2+600 (LHS)



km. 5+700 (LHS)



km. 46+800 (LHS)


km. 71+700 (RHS)


km. 60+550 (RHS)


km. 45+160 (RHS)

Road Land Boundary

Road land (ROW) boundary demarcation is maintained by the Concessionaire on the project highway during the concession period. The road land boundary pillars are being fixed at required locations wherever required. Some of the photographs of boundary pillars are presented below.

Figure 3-14 Photographs of Road Land Boundary


km. 7+260 (LHS)


km. 10+760 (LHS)



km. 13+760 (LHS)


km. 35+500 (LHS)


km. 49+900 (LHS)


km. 73+700 (RHS)



km. 63+450 (RHS)



km. 43+300 (RHS)



km. 38+400 (RHS)



km. 7+860 (RHS)

3.12 Avenue Plantation and Median Plantation

Avenue and median plantation are available along the project highway. Variety of trees and plants are planted throughout the corridor at median and at roadside. Median plantation is maintained along the project highway. The plantation is being done wherever required on regular basis. All plantation is maintained in good condition except some locations of the project highway. Some of the photographs of plantation are presented below.

Figure 3-15 Photographs of Avenue and Median Plantation



km. 0+1100



km. 1+650 (LHS)



km. 4+900 (LHS)


km. 8+160


km. 13+760


km. 21+050


km. 25+100


km. 40+400


km. 44+300


km. 60+000


km. 70+625


km. 70+625 (RHS)

3.13 Project Facilities

Toll Plaza

The Concession Agreement requires construction of Toll Plaza at 1 No. of location. Concessionaire has constructed 1 No. of Toll Plazas at following location.

1. Toll Plaza at km. 61+400

The construction of toll plaza is completed and is in operation. 8 (4+4) Nos. of lanes has been constructed although some work is in progress. Concessionaire has constructed administration, operation and maintenance facility at base camp. All required facilities are available at the toll plaza. Some of the photographs of toll plaza are presented below.

Figure 3-16 Photographs at Toll Plaza


Toll Plaza


Toll Plaza


Admin Building


Crane


Ambulance


DG Room


Toilets



Highway / Medical / Traffic Post at Toll Plaza


Sign Bords


CCTV Camera


Tunnel / passage



High Mast

Truck Lay Byes

There is one rest area cum truck lay bye proposed in the Concession Agreement. Due to land unavailability, the same is not constructed. However, Concessionaire will construct the same as and when land is made available.

Bus Bay and Passenger Shelter

Bus bays and passenger shelters are constructed at the various locations wherever land available along the project highway. As per CA, there are 50 Nos. of bus bays to be constructed with passenger shelters. Due to land problem, Concessionaire has provided bus shelters wherever land available along project highway. Bus bays are equipped with all necessary signage as per relevant IRC guidelines mentioned in Schedule-D of Concession Agreement. The details of the bus bays and passenger shelters provided as below.

Table 3-6 Details of Bus Bays along Project Highway

Sr. No.	Project Facility	Location	Design Requirements	
			LHS	RHS
1	Bus-bay	Start of SH-25 Kuranga	0+000	0+000
2	Bus-bay	BT Road To Suines	2+645	3+245
3	Bus-bay	BT Road To Ganga Sanctuary Village Bamanasa	5+685	5+800
4	Bus-bay	BT Road To Bhatiya Village	12+250	12+800
5	Bus-bay	Nandana Village	17+065	16+815
6	Bus-bay	Limbdi Jnc	23+450	22+950
7	Bus-bay	Juvanpur Village	25+430	25+100
8	Bus-bay	BT Road To Datrana and Hanjdapar	32+240	32+130
9	Bus-bay	BT Road To Hanjdapar	33+475	33+955
10	Bus-bay	To Village Zakasiya and Dhandusar	34+685	35+360
11	Bus-bay	To Village Vadatara	41+380	41+430
12	Bus-bay	To Village Kajurda	43+955	43+820
13	Bus-bay	To Village Hansthal	45+400	45+040
14	Bus-bay	To Viramdad Village	46+440	46+545
15	Bus-bay	To Kuvadiya Village	50+050	50+475
16	Bus-bay	BT Road To Porbander	53+100	53+225
17	Bus-bay	5-leg Jnc	55+945	55+600
18	Bus-bay	BT Road To Khambhaliya	57+570	57+210
19	Bus-bay	BT Road To Lalpur	58+800	58+200

Sr. No.	Project Facility	Location	Design Requirements	
			LHS	RHS
20	Bus-bay	BT Road To Kanchanpur	60+170	60+520
21	Bus-bay	Towards Danta	63+470	63+470
22	Bus-bay	Aradhana Dham	66+675	66+900
23	Bus-bay	BT Road To Motamadha and Vadaliya Sinhan to Vadaliya Sinhan	67+600	67+570
24	Bus-bay	BT Road To Village Kajurda	68+400	68+800
25	Bus-bay	BT Road To Devariya Road	71+500	71+710

4 PAVEMENT AND SITE INVESTIGATION

4.1 General

The project has been developed through on Hybrid (Annuity) mode basis. The concession period of the project is 17.5 years including 2.5 years (912 days) of construction period.

The Concessionaire has applied for issue of Provisional Completion Certificate (PCOD) for the length of 54.210 kms. The operation period of the project highway is 15 years from COD.

4.2 Details of As-built Pavement

The project highway built with the rigid pavement for both main carriageway and service road. The details of the as built pavement crust from pavement design report as submitted by the Company has been tabulated as below:

The rigid pavement is designed for the design life of 30 years and 10% CBR with specifications as per IRC:58-2015.

Table 4-1 Rigid Pavement Details

Location	Panel Size	Crust (mm)	Dowel bar	Tie bar
Main Carriageway (*Existing km. 203+500 to km. 176+500 & km. 171+800 to km. 130+000)	TCS Type - A, B, C, D, E & F Panel Size: 4.5 m x 4.5 m	PQC - 300 DLC - 150 GSB - 150	32 mm dia. Spacing - 300 mm for Contraction & 240 mm for Expansion Joint, Length - 500 mm	12 mm dia. Spacing - 400 mm, Length - 640 mm
	TCS Type - G & H Panel Size: 4.5 m x 3.5 m			12 mm dia. Spacing - 590 mm, Length - 640 mm
Service / Slip Road	TCS F & G Panel Size: 4.5 m x 3.5 m	PQC - 200 DLC - 150 GSB - 150	-	12 mm dia. Spacing - 890 mm, Length - 640 mm

*(Design km. 0+000 to km. 26+800 & km. 31+500 to km. 71+820)

As per CA, following overlay (minimum) is to be laid over existing bituminous road from existing km. 130+000 to km. 125+000 (end of toll road, maintained by M/s L&T Ltd.), section length of 4.6 kms (approx.): Bituminous Concrete: 50 mm and Dense Bituminous Macadam (DBM): 100 mm. However, during site visit it is observed that the above mentioned stretch (Design km. 71+820 to km. 76+270) is constructed with the rigid pavement under COS as recommended by the IE.

4.3 Surveys and Investigation

4.3.1 Pavement Condition Survey

Pavement condition survey was carried out from **7th August 2022 to 10th August 2022** through visual inspection for the entire project length. The details of the visual condition survey are given as under**.** The details of the visual condition survey are provided in **Annexure-IV.**

The summary of pavement condition based on the visual inspection is tabulated below.

Table 4-2 Summary of Pavement Condition (MCW)

Sr. No.	Design Chainage (km)		Length (km)	Visual Condition (As per IRC:115-2014)		Remark
	From	To		LHS Carriageway	RHS Carriageway	
1	0+000	1+000	1.000	Good	Good	
2	1+000	2+000	1.000	Good	Fair/Good	
3	2+000	3+000	1.000	Good	Good	
4	3+000	4+000	1.000	Good	Good	
5	4+000	5+000	1.000	Good	Good	
6	5+000	6+000	1.000	Good	Good	
7	6+000	7+000	1.000	Fair/Good	Good	
8	7+000	8+000	1.000	Fair/Good	Good	
9	8+000	9+000	1.000	Fair/Good	Good	
10	9+000	10+000	1.000	Good	Good	
11	10+000	11+000	1.000	Fair/Good	Good	
12	11+000	12+000	1.000	Good	Good	Partially constructed / single lane RHS due to LA
13	12+000	13+000	1.000	Good	Good	Partially constructed/single lane RHS due to LA
14	13+000	14+000	1.000	Good	Good	
15	14+000	15+000	1.000	Good	Fair/Good	
16	15+000	16+000	1.000	Fair/Good	Good	Partially constructed RHS due to LA
17	16+000	17+000	1.000	Good	Good	
18	17+000	18+000	1.000	Good	Good	Partially constructed RHS due to LA
19	18+000	19+000	1.000	Good	Good	
20	19+000	20+000	1.000	Good	Fair/Good	
21	20+000	21+000	1.000	Good	Good	
22	21+000	22+000	1.000	Good	Good	
23	22+000	23+000	1.000	Good	Good	Partially constructed RHS due to LA
24	23+000	24+000	1.000	Good	Good	Partially Constructed LHS due to LA
25	24+000	25+000	1.000	Good	Good	
26	25+000	26+000	1.000	Good	Good	
27	26+000	27+000	1.000	Good	Good	
28	27+000	28+000	Air Strip and it is not in scope of work			
29	28+000	29+000				
30	29+000	30+000				
31	30+000	31+000				
32	31+000	32+000				
33	32+000	33+000	1.000	Good	Good	
34	33+000	34+000	1.000	Fair / Good	Good	Partially constructed RHS due to LA
35	34+000	35+000	1.000	Good	Good	
36	35+000	36+000	1.000	Good	Good	
37	36+000	37+000	1.000	Fair / Good	Good	
38	37+000	38+000	1.000	Fair / Good	Good	

Sr. No.	Design Chainage (km)		Length (km)	Visual Condition (As per IRC:115-2014)		Remark
	From	To		LHS Carriageway	RHS Carriageway	
39	38+000	39+000	1.000	Fair / Good	Fair / Good	
40	39+000	40+000	1.000	Good	Good	
41	40+000	41+000	1.000	Good	Good	
42	41+000	42+000	1.000	Good	Good	
43	42+000	43+000	1.000	Good	Good	
44	43+000	44+000	1.000	Good	Good	
45	44+000	45+000	1.000	Good	Good	
46	45+000	46+000	1.000	Good	Good	
47	46+000	47+000	1.000	Good	Good	Only single lane constructed LHS due to LA
48	47+000	48+000	1.000	Good	Good	
49	48+000	49+000	1.000	Good	Good	
50	49+000	50+000	1.000	Good	Good	Only single lane constructed RHS due to LA
51	50+000	51+000	1.000	Good	Fair / Good	Only single lane constructed LHS due to LA
52	51+000	52+000	1.000	Good	Good	
53	52+000	53+000	1.000	Good	Fair / Good	
54	53+000	54+000	1.000	Good	Good	
55	54+000	55+000	1.000	Fair / Good	Good	
56	55+000	56+000	1.000	Good	Good	
57	56+000	57+000	1.000	Fair / Good	Good	
58	57+000	58+000	1.000	Good	Good	Only single lane constructed RHS due to LA
59	58+000	59+000	1.000	Good	Good	
60	59+000	60+000	1.000	Good	Good	
61	60+000	61+000	1.000	Good	Good	
62	61+000	62+000	1.000	Good	Good	
63	62+000	63+000	1.000	Good	Fair / Good	
64	63+000	64+000	1.000	Fair / Good	Fair / Good	
65	64+000	65+000	1.000	Fair / Good	Good	
66	65+000	66+000	1.000	Good	Good	
67	66+000	67+000	1.000	Good	Good	
68	67+000	68+000	1.000	Good	Good	
69	68+000	69+000	1.000	Good	Good	Only single lane constructed RHS due to LA
70	69+000	70+000	1.000	Good	Good	
71	70+000	71+000	1.000	Good	Good	
72	71+000	72+000	1.000	Good	Good	
73	72+000	73+000	1.000	Fair / Good	Good	Under COS
74	73+000	74+000	1.000	Good	Good	
75	74+000	75+000	1.000	Good	Good	
76	75+000	76+000	1.000	Good	Good	
77	76+000	76+270	0.270	Good	Good	

Table 4-3 Summary of Pavement Condition (SR)

Sr. No.	Existing Chainage (km)		Design Chainage (km)		Length (km)	Visual Condition (As per IRC:115-2014)		Remark
	From	To	From	To		LHS Carriageway	RHS Carriageway	
1	191+700	190+400	11+800	13+100	1.300	Fair / Good	Fair / Good	Partially Constructed B/S due to LA
2	180+850	179+850	22+500	23+500	1.000	Good	Good	Partially Constructed B/S due to LA
3	149+200	148+120	53+400	54+500	1.100	-	-	De scope
4	147+700	146+970	54+960	55+700	0.740	Good	Good	Partially Constructed- B/S
5	146+970	144+700	55+700	57+900	2.200	Good	Good	Partially completed – B/S
6	144+700	143+450	57+900	59+150	1.250	Fair / Good	Good	Partially completed – B/S
7	139+060	136+800	63+500	65+000	1.500			De Scope

Observation and Conclusion:

From the above table, it is observed that the overall pavement condition for the entire project stretch is found to be fair to good.

Following Photographs were taken at the time of visual pavement condition survey.

Figure 4-1 Photographs of Pavement Condition Survey

LHS


km. 0+600


km. 6+350


km. 8+900


km. 9+900


km. 10+760


km. 25+700


km. 56+650


km. 64+700



km. 72+000



km. 23+400 LA



km. 26+800 Air Strip



km. 32+450 Work in Progress



km. 32+450 Work in Progress



km. 46+000 single lane constructed



km. 50+900 LA

RHS


km. 76+100


km. 63+960


km. 62+700


km. 50+500


km. 38+400


km. 6+000


km. 68+650 LA


km. 57+000 LA



km. 49+760 LA



km. 33+000 LA



km. 26+750 Air Strip



km. 22+360 LA



km. 17+340 LA



km. 16+150 LA



km. 12+500 LA

4.3.2 Roughness Index test

Prior period report for the Roughness Index Test conducted by Aadharshila Infratech Pvt. Ltd. Dated **17th June 2022** has been provided by the Concessionaire. This test was done using Car Mounted Bump Integrator to assess the riding quality on each direction (each lane) of the carriageway of project highway.

As per IRC:SP:16-2019, condition of pavement is categorised under:

Table 4-4 Roughness Value (BI Value - mm / km)

Sr. No.	Roughness Range (mm / km)	Severity	Inner Lane (Lane - 1) LHS Length (km)	Outer Lane (Lane - 2) LHS Length (km)	Inner Lane (Lane - 1) RHS Length (km)	Outer Lane (Lane - 2) RHS Length (km)
1	Less than 2000	Good	54.210	54.210	54.210	54.210
2	2000 - 2400	Fair	-	-	-	-
3	More than 2400	Poor	-	-	-	-

TDD Consultant's Observations:

TDD Consultants have visited the project road along with Mr. Ankur, Manager from Concessionaire on 06th August 2022 to understand the status of the project although site visit / survey conducted between 07-08-22 to 10-08-22. TDD Consultants have the following observations:

1. During survey, it has been come to know that work is under construction and Concessionaire has requested to IE / NHAI for Provisional Completion Certificate. The same is recommended by IE in draft manner and send to RO, NHAI.

2. The project chainages are km. 0.000 to 26.800 & 31.500 to 71.820. In between chainages from km. 26.800 to 31.500 (Air strip) are in scope of another Contractor. Although Concessionaire has done additional MCW length from km. 71.820 to km. 76.270 which is under COS.

3. Concessionaire informed to TDD Consultant that they will establish their O&M office at Bhatia at km. 13+100.

4. Double lane shall be constructed post the required land is handed over to the concessionaire by the authority.

5. There are no ATMS in Toll Plaza. Only TMS provision is given in CA.

6. Concessionaire has completed 90% of the work regarding Toll Plaza System.

7. Avenue plantation has been done as per CA wherever land is available.

8. Concessionaire Informed to TDD Consultant that due to un precedented rainfall in the zone, lots of damages have occurred at site. Hence, they are claiming for insurance which is under estimation at Insurance dept.

9. One VUP and 3 slab box culverts has descoped from the project length.

10. IE has recommended the consolidated COS to NHAI which is under review at NHAI end.

11. Concessionaire has done the all the test results as per schedule-I and submitted to IE. The same has been forward by the IE to RO,

12. To complete the balance work, the Company has sufficient resources at site.

5 BALANCE WORKS

5.1 Introduction

During site visit it has been come to know that work is under construction and Concessionaire has requested / compliance to IE / NHAI for the Provisional Completion Certificate. The same is recommended by IE in draft manner and send to RO, NHAI. IE has recommended for issue of Provisional Completion Certificate draft for the length 54.210 kms on 02-08-2022.

As per details given by the Company, till the end of July 2022 cumulative 87.07% of physical progress achieved. The balance work is as listed in below table.

Table 5-1 Balance work details

Sr. No.	Balance work details	Unit	Quantity
1	**Earthwork up to top of the sub-grade**	km	1.73
2	**Granular work (sub- base, shoulders)**		
a	GSB	km	1.98
3	**Shoulders**	km	12.94
4	**Rigid Pavement**		
a	DLC	km	2.78
b	PQC	km	4.11
5	**Widening and repair of culverts**	No	2.00
6	**Culverts**	No	7.50
7	Reinforced Earth Wall (includes Approaches of ROB, Underpasses, Overpasses, Flyover etc.	Sqm	1,130.35
	Other Works		
1	**Service roads / Slip Roads**	km	4.74
2	**Roadside drains**	km	12.47
3	**Road signs, markings, km stones, safety devices**		
a	Road signs, markings, km stones	km	47.18
4	**Project facilities**		
a	Bus bays	No	33.00
b	Truck lay-byes	No	2.00
c	Rest areas	No	
5	**Roadside plantation, median plantation and Transplantation**	km	32.81
6	**Protection works**		
a	Boulder Pitching on slopes	km	0.74
7	**Miscellaneous**		
a	Junctions	No	18.00
b	Kerb	Lkm	13.17
c	Median Fill	km	12.83
d	Others	LS	1.00

6 REVIEW OF CONCESSION AGREEMENT

6.1 General

The NHAI accordance with the statutory powers vested on it by the Government of India has entered into a Concession Agreement with the **M/s. GR Dwarka Devariya Highway Pvt. Ltd., a** Special Purpose Vehicle (SPV) formed for implementing this project, a company incorporated under Indian Companies Act, 2013 for Four Laining of Dwarka (Kurangak Khambhallya - Devariya section from km. 203+500 to km. 176+500 and from km. 171+800 to km. 125+000 (design length 71.890 kms) of NH-151A in the state of Gujarat under Bharatmala project on Hybrid Annuity Mode (Package-I).

The Documents we studied from the point of interest of Lenders and our comments on Concession Agreement are given below.

6.2 Specific Comments on Articles

We have reviewed the provisions under various clauses of the Agreement and our specific comments are indicated below clause-wise.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 3 Clause 3.1.1	The Concession	Subject to and in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits, the Authority hereby grants to the Concessionaire the concession set forth herein including the exclusive right, license and authority to construct, operate and maintain the Project (the "**Concession**") during the Construction Period of 912 (Seven Hundred and thirty) days and Operation Period of 15 (Fifteen) years commencing from COD, and the Concessionaire hereby accepts the Concession and agrees to implement the Project subject to and in accordance with the terms and conditions set forth herein.	The Concessionaire has to complete the construction work in 912 days. The Operation Period is 15 Years from COD.
Article 4 Clause 4.1.2	Conditions Precedent-Damages for delay by the Authority	The Conditions Precedent required to be satisfied by the Authority shall be deemed to have been fulfilled when the Authority shall have: (a) procured for the Concessionaire the Right of Way to the Site in accordance with the provisions of Clauses 10.3.1 and 10.3.2. (b) procured all Applicable Permits relating to environmental protection, and conservation in respect land forming part of the	The Authority has to complete activities like Land Acquisition, Environmental, Forest Clearances, Tree cutting and Approval to GAD of ROB prior to Appointment Date. This will complete the work within stipulated date of completion.

Article & Clause No.	Subject	Description in Brief	Remarks
		Right of Way under Clause 10.3.1 and 10.3.2. (c) procured forest clearance for and in respect land forming part of the Right of Way under Clause 10.3.1 and 10.3.2, save and except permission for cutting trees; and (d) procured approval of the General Arrangement Drawings for the road over bridges/under bridges at level crossings on the Project.	
Article 4 Clause 4.2	Conditions Precedent-Damages for delay by the Authority	In the event that (i) the Authority does not procure fulfillment of any or all of the Conditions Precedent set forth in Clause 4.1.2 within the period specified in respect thereof, and (ii) the delay has not occurred as a result of breach of this Agreement by the Concessionaire or due to Force Majeure, the Authority shall pay to the Concessionaire Damages in an amount calculated at the rate of 0.2% (zero point two per cent) of the Performance Security for each day's delay until the fulfillment of such Conditions Precedent, subject to the maximum limit equal to the amount of bid security and upon reaching such limit, the Concessionaire may, in its sole discretion terminate the Agreement.	The Concessionaire should follow up all issues in Cl.4.1.2 so that situation of damage or termination does not arise and delay the project.
Article 4 Clause 4.3	Damages for delay by the concessionaire	In the event that (i) the Concessionaire does not procure fulfillment of any or all of the Conditions Precedent set forth in Clause 4.1.3 within the period specified in respect thereof, and (ii) the delay has not occurred as a result of failure to fulfill the obligations under Clause 4.1.2 or other breach of this Agreement by the Authority, or due to Force Majeure, the Concessionaire shall pay to the Authority Damages in an amount calculated at the rate of 0.3% (zero point three per cent) of the Performance Security for each day's delay until the fulfillment of such Conditions Precedent.	Follow up by Concessionaire is these actions is required to avoid the delay and damages.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 5 Clause 5.1.4 (d, e & f)	Obligation of the Concessionaire	The Concessionaire shall, at its own cost and expense, in addition to and not in derogation of its obligations elsewhere set out in this Agreement: d) The Concessionaire shall make reasonable efforts to maintain harmony and good industrial relations among the personnel employed by it or its Contractors in connection with the performance of its obligations under this Agreement. e) Make reasonable efforts to facilitate the acquisition of land required for the purposes of the Agreement f) Ensure and procure that its Contractors comply with all Applicable Permits and Applicable Laws in the performance by them of any of the Concessionaire's obligations under this agreement.	The Concessionaire shall follow up these issues for achieving COD timely.
Article 8 Clause 8.1.5	Disclaimer	Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Concessionaire and the Authority shall not be liable in any manner for such risks or the consequences thereof.	The Concessionaire shall note this and perform according to Concession Agreement. Provision to avoid consequences as all risk is with Concessionaire
Article 9 Clause 9.1.1	Performance Security	The Concessionaire shall, for the performance of its obligations hereunder during the Construction Period, provide to the Authority no later than 30 (thirty) days from the date of this Agreement, an irrevocable and unconditional guarantee from a Bank for a sum equivalent to Rs. 55.05 crore (Rupees Fifty Five crore and Five Lakhs only) in the form set forth in Schedule-F (the "Performance Security"). Until such time the Performance Security is provided by the Concessionaire pursuant hereto and the same comes into effect, the Bid Security shall remain in force and effect, and upon such provision of the Performance Security pursuant hereto, the Authority shall	The Concessionaire should perform as per Agreement to safeguard the Performance Security of Rs. 55.05 Crores in forms of Bank Guarantee.

Article & Clause No.	Subject	Description in Brief	Remarks
		release the Bid Security to the Concessionaire.	
Article 10 Clause 10.3.2	Procurement of the site -	Without prejudice to the provisions of Clause 10.3.1, the Parties hereto agree that on or prior to the Appointment Date, the Authority shall have granted vacant access and Right of Way such that the Appendix shall not include land which shall in any manner prevent the Concessionaire from undertaking construction of the project to the extent of at least 80% (eighty percent) of the length thereof, and in the event Financial Close is delayed on account of delay in grant of such vacant access and Right of Way, the Authority shall be liable to payable to damages solely under the provisions of Clause 4.2.	The Concessionaire shall confirm that total 80% of length is available to work at the time of Appointment date. The follow up is necessary to get balance land earliest for timely completion.
Article 10 Clause 10.3.4	Procurement of the site-Right of Way	The Authority shall make best efforts to procure and grant, no later than 90 (ninety) days from the Appointed Date, the Right of Way to the Concessionaire in respect of all land included in the Appendix, and in the event of delay for any reason other than Force Majeure or breach of this Agreement by the Concessionaire, it shall pay to the Concessionaire Damages in a sum calculated at the rate of Re. 1 Rupee one) per day for every 10 (ten) square meters or part thereof, commencing from the 91st (ninety first) day of the Appointed Date and until such Right of Way is procured or 180 (one hundred and eighty) days from the Appointed Date whichever is earlier.	The provision of payment of damages is small as compared with the loss due to delay in availability of land. Hence follow up by Concessionaire to get balance ROW is required to avoid delay the work
Article 11 Clause 11.4	Utilities, Associated Roads and Trees-Felling of trees	The Authority shall assist the Concessionaire in obtaining the Applicable Permits for felling of trees to be identified by the Authority for this purpose if and only if such trees cause a material adverse effect on the construction, operation, or maintenance of the Project Highway. The cost of such felling shall be borne by the Authority, and in the event of any delay in felling thereof for reasons beyond the control of the	Tree cutting may delay the project. Hence such situation needs to be avoided with follow up and obtaining the permission timely.

Article & Clause No.	Subject	Description in Brief	Remarks
		Concessionaire, it shall be excused for failure to perform any of its obligations hereunder if such failure is a direct consequence of delay in the felling of trees.	
Article 12 Clause 12.3.1	Construction of the Project	On or after the Appointed Date, the Concessionaire shall undertake construction of the Project as specified in Schedule-B and Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-D. The 912th (nine hundred and twelfth) day from the Appointed Date shall be the scheduled date for completion of the Project (the "Scheduled Completion Date") and the Concessionaire agrees and undertakes that the Project shall be completed on or before the Scheduled Completion Date.	The Concessionaire has to complete the project within 912 days from Appointed Date. However, Concessionaire has received EOT for 180 days.
Article 12 Clause 12.3.2	Construction of the Project Highway and Mile Stone	The Concessionaire shall construct the Project Highway in accordance with the Project Completion schedule set forth in Schedule-G. In the event that the Concessionaire fails to achieve any Project Milestone within a period of 90 (ninety) days from the date set forth for such Milestone in Schedule G, unless such failure has occurred due to Force Majeure or for reasons solely attributable to the Authority, it shall pay Damages to the Authority in a sum calculated at the rate of 0.1% (zero point one percent) of the amount of performance Security for delay of each day until such Milestone is achieved.	The Concessionaire shall avoid such situations (payment of LD) by achieving Milestone timely. Milestone Payments are being received on time.
Article 12 Clause 12.3.3	Construction of the Project Highway and Mile Stone	In the event that the project is not completed and COD does not occur within 270 (two hundred and seventy) days from the Scheduled Completion Date, unless the delay is on account of reasons solely attributable to the Authority or due to Force Majeure, the Authority shall be entitled to terminate this Agreement.	The Concessionaire shall achieve COD timely to avoid such situation of Termination of Agreement.
Article 13 Clause 13.2	Monitoring of Construction - Inspection	During the construction period, the Independent Engineer shall inspect the Project at least once a month	The Concessionaire has to maintain quality of work as per

Article & Clause No.	Subject	Description in Brief	Remarks
		and make a report of such inspection (the "Inspection Report") stating in reasonable detail the defects or deficiencies, if any, with particular reference to the Project Completion Schedule, Scope of the Project and specifications and standard.	standard and specifications of CA. The Independent Engineer will control by Regular Inspector.
Article 14 Clause 14.3.2	Provisional Certificate	The Parties hereto expressly agree that a Provisional Certificate under this Clause 14.3 may, upon request of the Concessionaire to this effect, be issued for operating part of t he Project, if the Concessionaire has completed construction of 100% (Hundred per cent) of the Site made available to the Concessionaire up to 180 days from the Appointed Date. Upon issue of such Provisional Certificate, the provisions of Article 15 shall apply to such completed part, and the rights and obligations of the Concessionaire for and in respect of such completed part of the Project shall be construed accordingly.	This Clause covers the risk and give relief to Concessionaire and Lender in case full Project Completion is delayed due to land or utility problems. The Concessionaire has to complete 100% work on site made available upto 180 days from Appointment Date.
Article 15 Clause 15.2	Entry into commercial service-Damages for delay	Subject to the provisions of Clause 12.3, if COD does not occur prior to the 91st (ninety first) day after the Scheduled completion Date, unless the delay is on account of reasons attributable to the Authority or due to force Majeure, the Concessionaire shall pay Damages to the Authority in a sum calculated at the rate of 0.2% of the amount of performance Security for delay of each day until COD is achieved.	The Concessionaire shall note this provision of L.D. and avoid such situation of delay by achieving COD within stipulated time
Article 18 Clause 18.1.1	Safety Requirements	The Concessionaire shall comply with the provisions of this Agreement, Applicable Laws and Applicable Permits and conform to Good Industry Practice for securing the safety of the Users. In particular, the Concessionaire shall develop, implement and administer a surveillance and safety program for providing a safe environment on or about the Project, and shall comply with the safety requirements set forth in Schedule-L (the **"Safety Requirements").**	The safety of users is given priority and importance.

Article & Clause No.	Subject	Description in Brief	Remarks
Article 23 Clause 23.1	Bid Project cost	The Parties expressly agree that the cost of construction of the Project, as on the Bid Date, which is due and payable by the Authority to the Concessionaire, shall be deemed to be Rs. 1101.00 Crores (Rupees Eleven Hundred One Crore only) (The " Bid Project Cost ")	The Concessionaire shall note this cost of project and complete work within this cost of Rs. 981 crores Variation in price index is payable.
Article 23 Clause 23.3.1	Payment of Bid Project Cost	40% (forty per cent)] of the Bid Project Cost, adjusted for the Price Index Multiple, shall be due and payable to the Concessionaire in 5 (five) equal installments of (8% (eight per cent) each during the Construction Period in accordance with the provisions of Clause 23.4.	This is Financial support to Concessionaire from Authority for planned progress during construction.
Article 23 Clause 23.4	Payment during construction period	For the purpose of this Clause 23.4, the Payment Milestone for release of payment during Construction Period shall be as under: a) I (first) Payment Milestone - On achievement of 10% Physical Progress b) II (second) Payment Milestone - On achievement of 30% Physical Progress c) Ill (third) Payment Milestone - On achievement of 50% Physical Progress d) IV (fourth) Payment Milestone - On achievement of 75% Physical Progress e) V (fifth) Payment Milestone - On achievement of 90% Physical Progress	This financial supports to the Concessionaire in instalments during construction for progress and timely completion.
Article 23 Clause 23.5	Bonus on early completion	In the event that the Concessionaire shall achieve COD on or more than 30 (thirty) days prior to the Scheduled Completion Date, the Authority shall pay to the Concessionaire a bonus equal to 0.5% of 60 % of the Bid Project Cost for the first 30 days by which COD shall precede the Scheduled Completion Date and thereafter the said bonus shall be calculated on the pro-rata basis for each day preceding the said 30 days period. The Bonus shall be due and payable	This provision of Bonus will encourage the Concessionaire for early completion of work.

Article & Clause No.	Subject	Description in Brief	Remarks
		to the Concessionaire along with the 1st Annuity Payment.	
Article 23 Clause 23.6.2	Annuity Payments during operation period	The Completion Cost remaining to be paid in pursuance of the provisions of Clause 23.6.1 shall be due and payable in biannual installments over a period of 15 (fifteen) years commencing from COD, (the "Annuity Payments").	This is for the returns of balance investment, expense, overhead, profit etc, of Concessionaire.
Article 23 Clause 23.7.1	O & M Payments	The Parties acknowledge and agree that all O&M Expenses shall be borne by the Concessionaire and in lieu thereof; a lump sum financial support in the form of biannual payments shall be due and payable by the Authority, which shall be computed on Rs. 3.50 Crore (Rupees Three Crore Fifty Lakh only) (the "First Year O&M Cost") £, in accordance with the provisions of this Clause 23.7 {the "O&M Payments"). The Parties further acknowledge and agree that any O&M Expenses in excess of the O&M Payments shall be borne solely by the Concessionaire, save and except as expressly provided in this Agreement. For avoidance of doubt it is clarified that the O&M Payments will be subject to any Change in Scope of the Project of the Concessionaire under Article 16 of this Agreement.	Expenses towards O&M shall be the responsibility of Concessionaire and biannual O&M payments shall be of Authority.
Article 23 Clause 23.8	Mobilization Advance	The Authority shall, on request of the Concessionaire, make an advance payment in a sum not exceeding 10% (ten per cent) of the Bid Project Cost (the "Mobilization Advance"). This advance payment shall be made in two equal instalments. The Concessionaire may request the Authority for the first instalment of the advance payment at any time after the Appointed Date, along with furnishing a Bank Guarantee in a form satisfactory to the Authority. The Concessionaire may request the Authority for the second instalment of the advance payment at any time, after 60 (sixty) days from the Appointed Date, along with	The 10% Mobilization Advance is financial support to Concessionaire for timely start and progress the work. The Bank Guarantee is to be submitted by Concessionaire to Authority for security.

Article & Clause No.	Subject	Description in Brief	Remarks
		furnishing a Bank Guarantee in a form satisfactory to the Authority.	
Article 26 Clause 26.1	Insurance during Concession Period	The Concessionaire shall effect and maintain at its own cost, during the Construction Period and the Operation Period, such insurances for such maximum sums as may be required under the Financing Agreements and Applicable Laws, and such insurances as may be necessary or prudent in accordance with Good Industry Practice. The Concessionaire shall also effect and maintain such insurances as may be necessary for mitigating the risks that may devolve on the Authority as a consequence of any act or omission of the Concessionaire during the Construction Period. The Concessionaire shall procure that in each insurance policy, the Authority shall be a co-insured and that the insurer shall pay the proceeds of insurance into the Escrow Account.	The Concessionaire, has taken all Insurances.
Article 31 Clause 31.1.2	Termination	Without prejudice any other rights or remedies which the Authority may have under this Agreement, upon occurrence of a Concessionaire Default, the Authority shall be entitled to terminate this Agreement by issuing a Termination Notice to the Concessionaire; provided that before issuing the Termination Notice, the Authority shall by a notice inform the Concessionaire of its intention to issue such Termination Notice and grant 15 (fifteen) days to the Concessionaire to make a representation, and may after the expiry of such 15 (fifteen) days, whether or not it is in receipt of such representation, issue the Termination Notice, subject to provision of Clause 31.1.3.	The Concessionaire shall note the provisions of Termination and take care by not doing any default.
Article 34 Clause 34.3.1	Substitution Agreement	The Lender's Representative, on behalf of Senior Lenders, may exercise the right to substitute the Concessionaire pursuant to the agreement for substitution of the Concessionaire (the '**Substitution Agreement**') to be entered into	The Lender's risk and interest is covered with provision of Substitution Agreement.

Article & Clause No.	Subject	Description in Brief	Remarks
		amongst the Concessionaire, the Authority and the Lenders' Representative, on behalf of Senior Lenders, Substantially in the form set forth in Schedule-R.	
Article 38.3 Clause 38.3.1	Arbitration	Any Dispute which is not resolved amicably by conciliation, as provided in Clause 38.2, shall be finally decided by reference to arbitration by an arbitral tribunal constituted in accordance with Clause 38.3 .2. Such arbitration shall be held in accordance with the Rules of Society for Affordable Redressal of Disputes ("SAROD"), New Delhi (the "Rules"), or such other rules as may be mutually agreed by the Parties, and shall be subject to the provisions of the Arbitration and Conciliation Act, 1996.	The provision of Arbitration will help to solve unresolved dispute between concessionaire and Authority.
Article 41.17	State Support Agreement	The concessionaire acknowledges that it has received from the Authority a certified true copy of the agreement executed between MoRTH and the State Government for providing the support and services specified therein (the "State Support Agreement"), and the Parties hereto agree to make their best endeavors to procure the support of the State Government.	This provision will help the Concessionaire for obtaining permission, approval and land acquisition faster and for timely completion of work.

Most of the points above are brought out to see that the Agreement is generally enforceable in law without ambiguities.

6.3 Conclusions

The Concession Agreement is comprehensive and covers most of the concerns of Lenders and all risk factors.

7 OPERATION AND MAINTENANCE

7.1 Introduction

Article 17 and Schedule-K of the Concession Agreement defines the Operation and Maintenance requirement during concession period.

During site visit it has been come to know that work is under construction and Concessionaire has requested for Provisional Completion Certificate for the project road. The same is recommended by IE in draft manner and send to RO, NHAI on 02-08-2022. TDD Consultant has considered that the project is currently under O&M stage. The O&M of the project highway is 15 years from COD.

7.2 O & M Set Up

O & M Contract

As per Clause 17.1 of the Concession Agreement, the Concessionaire shall operate and maintain the project by itself, or through O&M Contractors and if required, modify, repair, improve the project highway to comply with Specifications and Standards, and other requirements set forth in the Agreement through Good Industry Practice, Applicable Laws and Applicable Permits and manufacturer's guidelines and instructions with respect to toll systems. The Operation and Maintenance activities will confirm to all the requirements laid down in MORT&H, IRC Specifications and the Concession Agreement.

Under routine maintenance, the road is to be maintained in good, safe and motorable condition. The specifications in contracts are kept as same as per design and construction specification.

The periodical maintenance will have to be done during O&M period as per requirement of Concession Agreement and as per site requirement to maintain the design standards and level.

Details of Maintenance Staff

The details of maintenance staff as provided by the Company is presented below. The team controls the maintenance activities along with other supporting staff.

Table 7-1 Details of Maintenance Staff

Sr. No.	Responsibilities	Name
1.	O&M In-Charge	Mr. Phool Chand
2.	Route Patrol Officer	i) Mr. Sanjay Singh ii) Mr. Dashrath Bhai
3.	O&M Supervisors	i) Mr. Sachin Anand Mishra ii) Mr. Sunil Kumar Meena
4.	Medical Attendants	iii) Mr. Aman Patel iv) Mr. Hari Liriya

Sr. No.	Responsibilities	Name
5.	Drivers	i) Mr. Norat Ram ii) Mr. Rajendra Kumar Meena iii) Mr. Bajrang Singh iv) Mr. Samat Kariya v) Mr. Mahesh Yogi vi) Mr. Nakum Arjanbhai vii) Mr. Pramod Kumar viii) Mr. Devsi Bhai Sutreja ix) Mr. Babulal Meena x) Mr. Dalveer Singh xi) Mr. Laxman Singh xii) Mr. Budhani Yaseen
6.	Electrician	i) Mr. Sanjay Singh
7.	Administration & Accounts, In-Charge	i) Mr. Mahesh Kumar ii) Mr. Dinesh Kumar
8.	In-charge HSMU	i) Mr. Raniya Rizvan

Note: As informed by the Company, there are enough manpower to complete the balance work at Site.

7.3 Operation Cost

Operations cost is comprised of manpower cost, power and electricity cost, office operating expenses, vehicle running expenses, administrative expenses and other miscellaneous expenses. The Concessionaire has provided the expenses occurred towards operation expenses for current year. Necessary assumptions have made from the expenses of similar type of projects to arrive at the operation cost. The estimates are projected based on best industry practice and are compared with the operating cost in the vicinity of the project area.

The estimated operating cost for the base month of August 2022 is **Rs. 4.83 Crores**. The detailed working of the same is attached in **Annexure-I**.

7.4 Routine Maintenance Cost

The Routine Maintenance cost is derived based on the Ministry of Road Transport and Highways - Report of the Committee on Norms for Maintenance of Roads in India (published by Indian Road Congress New Delhi 2001) along with actual pavement condition assessed during condition survey.

Maintenance cost constitutes the routine, day-to-day maintenance activities for project assets, including road pavement, shoulders, embankment, drainage, structures, plantations, roadside furniture, traffic signs, traffic safety devices etc., Past data has been used to assess maintenance costs due to normal usage or “wear-and-tear”. Likely costs of maintenance of structures are assessed based on their present condition and vintage, in combination with well-established guidelines and thumb rules given in Indian codes and standards.

The estimated cost of Routine Maintenance works out to be **Rs. 1.09 Crores (1.52 Lakhs per km)** for the base month of August 2022. The detailed working of the same is attached in **Annexure-II**.

7.5 Major Maintenance Cost

Unlike the old Concession Agreements where periodicity and threshold limits were clearly described for the major maintenance, the Concession Agreement of this project does not specify the periodicity or the threshold limits for carrying out the full-length major maintenance. Schedule-K of the Concession Agreement specifies the threshold limits and the timelines for carrying out repairs to the distresses during the operation period.

The maintenance thus can be carried out as and when required basis and to the compliance of Schedule-K requirement to maintain the road in serviceable condition. Only improvement to Riding Quality is expected if the roughness value exceeds 2750 mm/km. However, the average roughness value of the project highway lies within the limit as mentioned above.

Any New pavement is not expected to show any distresses at least for 6 to 7 years with the proper routine maintenance. Mere Routine Maintenance would suffice to meet the performance standard mentioned in Schedule-K. In this project, there is no specific requirement to carry out the major maintenance at the end of concession period.

Hence, major maintenance is planned every 7th year from the date of COD till end of concession period.

The summary of the major maintenance planned up to end of concession period is presented in the below table.

The total base cost of major maintenance works out to be **Rs. 18.49 Crores** for the base year of base month of August 2022. The detailed working for the same is shown in **Annexure-III**.

7.6 Paved Shoulders

As per design specifications, the paved shoulder is designed as an integral part of the pavement for main carriageway. Therefore, the total pavement thickness in paved shoulder would be the same as in the carriageway.

7.7 Summary of Major Maintenance Cycle

The table below shows the major maintenance cycle throughout the concession period for the project stretch.

Table 7-2 Maintenance Cycle

Sr. No.	Year	Main Carriageway	Service Road
1	FY 2023	-	-
2	FY 2024	-	
3	FY 2025	-	-
4	FY 2026	-	-
5	FY 2027	-	-
6	FY 2028	-	-
7	FY 2029	1st Major Maintenance	-
8	FY 2030	1st Major Maintenance	1st Major Maintenance
9	FY 2031	-	-
10	FY 2032	-	-

Sr. No.	Year	Main Carriageway	Service Road
11	FY 2033	-	-
12	FY 2034	-	-
13	FY 2035	-	-
14	FY 2036	2nd Major Maintenance	-
15	FY 2037	2nd Major Maintenance	2nd Major Maintenance
16	FY 2038	-	-

7.8 Projected Maintenance Cost without escalation

The below table shows the total cost of operation and routine maintenance, major maintenance up to end of the concession period without escalation.

Table 7-3 Summary of Operation & Maintenance Cost without escalation

Sr. No.	Item Description	Length (km)	Year of Execution	Rate (Lakhs / km)	Total Amount (Crores)
1	**Total Operation and Routine Maintenance Cost**	71.57	Every year	8.26	**5.91**
2	**Major Maintenance Cost**				
i)	1st major maintenance	71.57	FY 2029	12.92	**9.245**
ii)	2nd major maintenance	71.57	FY 2036	12.92	**9.245**
	Total Major Maintenance Cost				**18.49**

Notes:

1. It is to be noted that, the rates considered for calculating all the above cost are exclusive of Goods and Service Tax (GST).
2. The estimated cost in table above is for base month of August 2022 i.e., till 31st August 2022.
3. The material rates are based on SOR of Govt. of Gujrat NH Division Rajkot for the year 2015-2016. The plant & machinery rates are adopted from the revised standard data book 2019 and escalated @ 5% every year. The current market rates are considered for bitumen, cement and steel.
4. The labour rate adopted from Govt. of India, Ministry of Labour and Employment Office of the Chief Labour Commissioner (C) w.e.f. 29/07/2022.

7.9 Projected Maintenance Cost with escalation

The below table shows the total cost of operation and routine maintenance and major maintenance cost up to end of the concession period with assumed escalation of 5% every year.

Table 7-4 Summary of Operation & Maintenance Cost with escalation

Sr. No.	Year	WPI Inflation	Total O&M Cost (Crores)	Major Maintenance Cost (Crores)
1	FY 2023		3.94	-
2	FY 2024	2.87*%	6.08	-
3	FY 2025	5.00%	6.39	-
4	FY 2026	5.00%	6.71	-
5	FY 2027	5.00%	7.04	-
6	FY 2028	5.00%	7.39	-
7	FY 2029	5.00%	7.76	6.07

Sr. No.	Year	WPI Inflation	Total O&M Cost (Crores)	Major Maintenance Cost (Crores)
8	FY 2030	5.00%	8.15	6.37
9	FY 2031	5.00%	8.56	-
10	FY 2032	5.00%	8.99	-
11	FY 2033	5.00%	9.44	-
12	FY 2034	5.00%	9.91	-
13	FY 2035	5.00%	10.40	-
14	FY 2036	5.00%	10.92	8.54
15	FY 2037	5.00%	11.47	8.97
16	FY 2038	5.00%	4.01	-
	Total Cost (Crores)		**127.18**	**29.95**

* Considering the base month for calculation as August 2022.

The company may carry out necessary investigation prior to O&M and Major Maintenance. This will help in proper assessment of maintenance work based on the actual pavement condition. The spending on major maintenance can then be reduced if the road is adequately and timely maintained.

8 TOLL PLAZA EQUIPMENT STATUS & ATMS

An assessment of Toll Plaza in terms of nos. of lanes, Toll Collection System installed and working status is carried out based on Section 10 of IRC:SP:84-2014 (The Manual) and the Authority's requirements of Hybrid ETC System. There is no ATMS specified as part of facilities in Schedule-C of CA.

8.1 Toll Plaza and Toll Collection System

Toll plaza is provided at km. 61+400 at Dharampur Danta. Toll Management System installed at the toll plaza is provided by Qualix Ltd.

Toll Plaza layout is based on NHAI's latest policy wherein toll booths with cash payment option is provided only on the outer extra-wide lane on each direction. The toll plaza has 3+3 normal lanes without cash option and 1+1 Extra wide lanes. Views of the toll plaza are shown in Figure below.





Figure 8-1 Views of Dharampur Dante Toll Plaza

8.2 Lane Equipment

Lane hardware and equipment installed at each toll plaza are the following:

1. RFID ETC Transceiver
2. Lane Controller with Industrial PC
3. AVC Sensors
4. Automatic Lane Barrier (ALB)
5. Incident Capture Camera
6. Overhead Lane Signals
7. Traffic Lights
8. Toll Booth Equipment

8.2.1 RFID ETC Transceiver

RFID ETC Transceiver reads tags installed on the windshield of vehicles and mounted on a pole at about 6 m height. Handheld RFID readers are provided (1 no. in each direction) in case a tag is not detected by the fixed reader.



Figure 8-2 RFID Scanner located on pole

8.2.2 Lane Controller with Industrial PC

Lane controller with industrial Grade computer contains the basic electronic equipment needed for the lane to operate, such as CPU, memory, disks, I/O cards, interface cards, inductive loop controllers, etc. The computer has Intel i3 Processor, storage of 1 TB HDD SATA, DDR4 4 GB RAM.

Toll Lane Controllers for lanes without booths are placed side by side with separate enclosures while it is located inside toll booth on extra wide lanes. These are connected to the common server and are capable of independent storage of data.



Figure 8-3 Lane Controllers for normal ETC lanes

8.2.3 Automatic Vehicle Classification (AVC) Profiler and Sensors

The AVC equipment comprises of a pair of laser profilers & axle counters and inductive loops. When the vehicle enters in AVC profiler range & loop gets activated, 2 D image of the vehicle is generated which is compared with the stored images in the system and classified accordingly.

8.2.4 Automatic Lane Barrier

Boom barriers installed on all lanes are in working condition and have a working time of 0.5 seconds. Automatic Lane Barrier is used to allow only authorized vehicles to pass through the lane. The barrier is activated only on generation of user fee receipt or other relevant vehicle processing activity. A torque motor powers the barrier for raising and lowering the boom. The motor can be blocked at any position without causing any damage. In the event of power failure, the boom is automatically raised. The boom weight is exactly balanced by built-in springs.

8.2.5 Lane Traffic Light (LTL) and User Fare Display (UFD)

Lane Traffic Light (LTL) is used to instruct vehicles to stop or pass through the lane. The LTL is RED when the toll collector is expecting the vehicle at the booth. After the transaction is done; the LTL turns Green to instruct the vehicle to pass through the lane.
The User Fare Display is a part of electronic toll collection equipment located at the toll booth. It is a mini variable message sign (VMS) made of Light Emitting Diodes (LED). The user fare display is used to display the toll fare that is due and that must be paid by the motorist and the classification of vehicle selected by the collector.



Figure 8-4 Lane Traffic Light (LTL) and User Fare Display (UFD)

8.2.6 Incident Capture Camera (AVC Camera)

The incident capture camera is installed on island of the booth to capture the image of the vehicle from the back side. The AVC triggers the Image capture system.

8.2.7 License Plate Image Capture Camera (LPIC)

License Plate Image capture camera is installed on a 3m pole facing incoming vehicle to capture the image of the vehicle number plate.

8.2.8 Over Head Lane Signal (OHLS)

The **Overhead Lane Signal (OHLS)** for lane “Open” and “Close” sign consists of a pair of “GREEN” (arrow) and “RED” (cross) lights. The OHLS is located at the vehicle approaching side of the canopy to show the drivers whether the lane is open or closed.



Figure 8-5 Over Head Lane Signal (OHLS)

8.2.9 Toll Booth Equipment

Toll booths are provided on one lane (extra wide lane) in each direction. The equipment provided are:

- Toll Collector Display (Operator Monitor)
- Customized Industrial Keyboard
- Receipt Printer
- Intercom Slave unit
- Bar code reader
- Violation Light and alarm
- Manual Booth Control (MBC)
- Booth Camera

The operator monitor termed as Toll Collector Display (TCD) is located on the toll collector's desk. It is the system's interface to the toll collector, to display the status of transactions and status of the lane peripherals.

The keyboard on the toll terminal is a programmable keyboard for Registration of toll operations and is customized for different vehicle types and type of ticket.



Figure 8-6 Booth Equipment

Thermal Printers are installed at the toll booths to print tickets. Intercom slave unit facilitates communication with the master unit located in the control room.

Violation system has an alarm switch which is triggered whenever there is a violation such as run-through happening on the lane. When there is an emergency, a foot switch pressed by the booth operator alerts the control room.

Booth Cameras are provided on the inside roof corner of the booth to provide surveillance through CCTV screen located in the control room. Manual Booth Controller is used to release exempt vehicles.

8.2.10 Medium Speed Weigh in Motion (MSWIM)

Medium Speed Weigh in Motion (MSWIM) is installed on entry lanes with a platform size of 1500mm x 620mm for normal lanes and 1750mm x 620mm for extra wide lanes and capacity of 30 ton/axle. Bending plate strain gauge technology is used with hardware and software support to calculate weight of vehicles running through it up to a speed of 50 km/hr.



Figure 8-7 Medium Speed Weigh in Motion (MSWIM)

8.3 Plaza Equipment

8.3.1 Plaza Server

Plaza Server is provided in a hot standby configuration (8 Core Intel® Xeon® E5-2620v4, 2.1 GHz, 2.1 GHz) and provided with 42 U switch rack, 16 port non POE network switch and 8 Port PoE switch. UPS-6 KVA is available for Plaza whereas 3 KVA is available for the lanes.





Figure 8-8 Control Room Equipment - Server & Switch rack/UPS Room

8.3.2 55" LED screen for CCTV monitoring

55" LED screen for CCTV monitoring installed at the toll plaza admin block provides view of all the toll booths , important zones within the plaza where cash transactions take place (server room, control room, cash up).



Figure 8-9 CCTV screen at the Toll Plaza Control Room

The toll plaza manager is able to observe the activities at the toll lanes and toll booth. When the toll collector calls up on the intercom, the manager is able to comprehend the situation at the lane by a zoomed view of the particular lane.

8.3.3 Workstations in Control Room, PoS and Cash up room

Workstations are available in control room (LSDU, audit), cash up and PoS with intel core i5 CPU, 8 GB RAM and 1 TB HDD.



Figure 8-10 Workstations at Control room

8.4 Adequacy of Toll Collection System and ATMS

- Adequacy - The software and hardware as a part of Toll Collection and Management System is installed.

- Advanced Traffic Management System (ATMS) is not available on the project highway. The same is not mentioned in Schedule C Project Facilities.

9 ACCIDENT DATA ANALYSIS

Accident Data Records for the project have been studied in order to analyze the nature of accidents occurring on the stretch and identify blackspots. However, work is still under construction and final data can be collected after completion of the work.

9.1 Accident Trend

Accident data for the period of June 2022 has been made available for analysis. 21 Accidents have occurred out of which 3 nos. were fatal, and 02 nos. were minor, 01 no. major. More number of accidents have occurred during the evening to night-time. Monthly data analysis does not show any consistent seasonal trend. Over speeding has been recorded as a major cause of accident which alone or in combination with faulty driver behaviour.

9.2 Blackspots Identification

There is no black spot found in the project stretch. However, the details of accidents in the project length are given in table below:

Table 9-1 Accidents details on Project Road

Sl. No	Date	Chainage (km)	Time of Accident	Sex (M/F)	No. of affected Persons			Help Provided by
					Fatal	Major	Minor	
1.	02-06-2022	48+500	9:00 AM	M/F	1	0	1	Public
2.	11-06-2022	65+200	10:30 AM	M	0	0	1	Public
3.	04-06-2022	17+500	06:15 PM	M	0	1	0	Public
4.	09-06-2022	5+900	04:00 PM	M	1	0	0	Public
5.	12-06-2022	23+100	12:00 PM	M	1	0	0	Public

9.3 Conclusions & Recommendations

As the work is under construction and final assessment can be done after work completion. Company informed that all accidents occur due to over speeding and uncontrolled driving on the highway. Hence, there are no black spot detected from IE as well as from Concessionaire. However, Concessionaire needs to maintain all road furniture as per schedule given in CA.

Annexures

Annexure I : Operation Cost

Sr. No.	Particulars	Cost per Annum (Rs)	Cost per Annum (Cr)
1	Incidental Management Expenses		
a	*Ambulance - 1 Nos.*	1,894,868	0.19
b	*Patrolling Vehcile - 2 Nos.*	4,045,539	0.40
c	*Crane - 1 Nos.*	1,529,089	0.15
d	*Other Vehicle - 2 Nos.*	1,186,970	0.12
e	*JCB - 1 Nos.*	841,617	0.08
f	*Corridor Manager & Officer*	953,280	0.10
2	Maintenance Staff Expenses	6,600,000	0.66
3	Routine Maintenance Cost (Civil Works)	10,876,496	1.09
4	Professional & IE Fee	5,630,261	0.56
5	Insurance Expenses	9,447,240	0.94
6	Staff Welfare Expenses	622,659	0.06
7	Electricity Expenses + Maintenance of parts	9,342,869	0.93
8	ATMS Expenses	3,864,780	0.39
9	Contingency @ 5% (Excl. Civil works)	2,297,959	0.23
	Total Cost (Rs)	**59,133,628**	**5.91**
	Per km Cost (Lakh)		**8.26**

Annexure II : Routine Maintenance Cost

Routine Maintenance Cost	
Ordinary Repair Cost for Rigid	**1,08,76,496.04**
(Exclusive of GST)	**= 1.52 lakhs per km**

CONVERSION FACTORS									
National Highways / State Highways - Rigid Pavement									
Reference cost taken for Two / four lane (7.0 or 14m or 21m) with 1.5m/2m wide shoulders									
(Refer Chapter 6.17 of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 45)									
Sr. No.	**Description for Flexible Pavement**		**Factor**	**Rigid Pavement**		**Project Length (km)**		**Per Year Project Maintenance Cost**	
				Normal	**Urban**				
				More than 4500 CVD	More than 4500 CVD				
				95,120	**1,10,126**				
						Normal	**Urban**	**Normal**	**Urban**
1	Four-lane with divided carriageway	Without paved shoulder	1.53	145534.00	168492.00	-	-	-	-
		Paved shoulder	1.70	161704.00	187214.00	64.08	-	1,03,61,992.32	-
2	Four-lane with divided carriageway and service lane on either side	Without paved shoulder	2.00	190240.00	220251.00	-	-	-	-
		Paved shoulder	2.20	209264.00	242276.00		6.49	-	15,72,371.24
3	Six lanes with divided carriageway	without Paved shoulder	2.43	231142.00	267605.00	-	-	-	-
		with Paved shoulder	2.60	247312.00	286327.00	1.00	-	2,47,312.00	-
					TOTAL		**71.570**		**1,21,81,675.56**

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
1	**Maintenance of Carriageway & Paved Shoulders (1.5m wide); B.T. Surface**			
	i) Pot holes repair (50 mm deep)	100 % Pot hole free	As & when required	0.00%
	Volume (cum)			0.00
	Rs/m^3			10360
	Cost in Rupees			0
	ii) Patch repair	100 % Patch less	As & when required	0.00%
	Area (sqm)			0
	Rs/m^2			414
	Cost in Rupees			0
	iii) Sealing (Crack)			
	a) Wider than 3 mm	100 % Crack Less	As & when required	0.50%
	Area (sqm)			50
	Rs/m^2			84
	Cost in Rupees			4,220
	b) Width less than 3 mm	75 % Crack Less	As & when required	1.00%
	Area (sqm)			75
	Rs/m^2			57
	Cost in Rupees			4,270
	iv) Repair of ruts and undulations			
	a) Greater than 20 mm	75%	As & when required	0.00%
	Area (sqm)			0
	Rs/m^2			414
	Cost in Rupees			0
	v) Road marking	7%	Once in 15 year & @ Repaired location	10258
	vi) Joint Sealant Repair/Replacement	5%		16115

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
	SUB TOTAL			**34,863**
2	**Maintenance of earthen Shoulders:**			
	i) Renewal of earthen shoulders	70%	Once in a Year	5177
	ii) Jungle Clearance	70%	Twice in a Year	1359
	iii) Kuccha Drain Maintenance	70%	Twice in a Year	728
	SUB TOTAL			**7,264**
3	**Maintenance of Cross Drainage works:**			
	i) Cleaning of culvert bed	70%	Once in a Year	1835
	ii) Repair of floors	70%	Once in a Year	3320
	iii) Repair of parapets	70%	As & when required	1383
	SUB TOTAL			**6,538**
4	**Maintenance of Minor & Major Bridges:**			
	i) Cleaning and removal of dirt & vegetation from pier caps, Bearings, Expansion Joints, Superstructure, Substructure and Retaining wall etc.	80%	As & when required	27,734
	ii) Spot painting & protective Coating required on Bearing and greasing of Bearings, railing, structural members, Expansion joints			
	iii) Repair of minor washouts, erosion scour and animal holes			
	iv) Sealing Cracks with Cement/ Epoxy Mortar			
	v) Replacement & Correction of safety barriers, Guard rails and damaged members			
	SUB TOTAL			**27,734**
5	**Miscellaneous Items:**			
	i) Turfing and Arboriculture		Once in a Year	2311
	ii) Maintenance of gang hut store, sheds, animal & debries removal		Once in a Year	3467

Details of Ordinary Repair in Rs. For one km. of Two lane (7.0 m) of NH / SH per Year				
(Refer Annex. XXIV-E of REPORT OF THE COMMITTEE ON NORMS FOR MAINTENANCE OF ROADS IN INDIA, Page 112-113)				
Sr. No.	**Activity**	**Performance Standard Level of Maintenance**	**Frequency**	**Cost Per Km. as per Traffic Intensity** **More than 4500 CVD** **CC Surface**
1	**2**	**3**	**4**	**5**
	iii) Lettering, Painting of Km stones & kerbs, sign boards, hectometer stone etc.		Once in a Year	3467
	iv) Replacement and providing additional retro reflective signage	20%	Covering Total Network in 5 Years	6934
	v) Providing first aid kits, Umbrella, Safety Jackets, Vardi etc.		Once in a Year	1156
	vi) Traffic Census		Once in a Year	0
	vii) Provision for roughness measurement		Twice in a Year	1386
	SUB TOTAL			**18,721**
	GRAND TOTAL (Normal)			**95,120**
6	**Additional Cost required for Urban Area**			
	i) Renewal of Center Line, Edge Marking, Kerb Marking/ Zebra crossing etc. in City Portion	7%	Once in 15 years with thermoplastic paint	1023
	ii)Repairs to footpath	50%	As & when required	2311
	iii) ROB/ Fly-over Railings & repair	50%	As & when required	2311
	iv) Street Lighting	0%	As & when required	0
	v) Encroachment Removal Squad	50%	As & when required	3583
	vi) Repair of divider/ Railing in City portion	50%	As & when required	4623
	vii) Provision for maintenance of pedestrian underpass	50%	As & when required	1156
	SUB TOTAL			**15,005**
	GRAND TOTAL (Urban)			**1,10,126**

Annexure III : Major Maintenance Cost

Periodic Maintenance Cost (Every 6th / 7th Year) FY 2029 & FY 2034											
Sr. No.	**Description**	**Unit**	**No.**	**Length (m)**	**Width (m)**	**Depth (m)**	**Quantity**	**Total Quantity**	**Rate (Rs.)**	**Amount (Rs.)**
I. Main Carriageway, Service Road / Slip Road & Miscellaneous location										
A	**MCW - Rigid Pavement**									
1	Replacement of Joint Sealant	Rmt	5%	5,34,809.52			26,740.48	26,740.48	55.00	14,70,726
2	Dismantling of CC Panels @ 2% area	Cum	2%	70,193.75	15.00	0.30	6,317.44	6,317.44	874.00	55,21,440
3	Replacement of Panels - PQC @ 2% area	Cum	2%	70,193.75	15.00	0.30	6,317.44	6,317.44	6,563.00	4,14,61,342
4	Replacement of Panels - DLC @ 0% area	Cum	0%	70,193.75	15.00	0.15	-	-	2,899.00	-
5	Diamond Grinding	Sqm	3%	70,193.75	15.00		31,587.19	31,587.19	50.00	15,79,359
B	**Rigid Pavement at Toll Plaza**									
6	Replacement of Joint Sealant	Rmt	5%	5,986.95			299.35	299.35	55.00	16,464
7	Dismantling of CC Panels @ 2% area	Cum	2%		11,786.80	0.30	70.72	70.72	874.00	61,810
8	Replacement of Panels - PQC @ 2% area	Cum	2%		11,786.80	0.30	70.72	70.72	6,563.00	4,64,141
9	Replacement of Panels - DLC @ 0% area	Cum	0%		11,786.80	0.15	-	-	2,899.00	-
10	Diamond Grinding	Sqm	0%		11,786.80		-	-	50.00	-
C	**Rigid Pavement (Service Road/Slip Road)**									
6	Replacement of Joint Sealant	Rmt	5%	46,151.11			2,307.56	2,307.56	55.00	1,26,916
7	Dismantling of CC Panels @ 1% area	Cum	1%	6,490.00	14.00	0.20	181.72	181.72	874.00	1,58,823
8	Replacement of Panels - PQC @ 1% area	Cum	1%	6,490.00	14.00	0.20	181.72	181.72	6,563.00	11,92,628
9	Replacement of Panels - DLC @ 0% area	Cum	0%	6,490.00	14.00	0.15	-	-	2,899.00	-
10	Diamond Grinding	Sqm	0%	6,490.00	14.00		-	-	50.00	-
D	**Structural Deck Area**									
11	Milling	Sqm	50%	1,037.25	25.79		13,377.65	13,377.65	55.00	7,35,770
12	Tack Coat for BC	Sqm	50%	1,037.25	25.79		13,377.65	13,377.65	19.00	2,54,175
13	Mastic Asphalt Overlay	Cum	50%	1,037.25	25.79		13,377.65	13,377.65	510.00	68,22,599
E	**Miscellaneous**									
14	Replacement of Kerb	Rmt	10%	1,32,240.00			13,224.00	13,224.00	231.00	30,54,744
15	Painting of Kerbs	Sqm	1	1,32,240.00		0.32	41,655.60	41,655.60	89.00	37,07,348
16	Painting of Crash Barriers	Sqm	4	17,020.00		1.12	75,909.20	75,909.20	89.00	67,55,919
17	Thermoplastic paint									
	a) Median & Edge line	Sqm	50%				28,612.23	28,612.23	451.00	1,29,04,118
	4 Lane		4	73,001.40	0.15		43,800.84			
	Service Road		2	13,239.60	0.10		2,647.92			
	b) Lane line									
	4 Lane		2	25,550.49	0.10		5,110.10			
	Service Road		1	4,633.86	0.10		463.39			
	c) Junction crossing						5,202.22			
18	Replacement of Road Stud	No	50%				8,851.00	8,851.00	201.00	17,79,051
	4 Lane		4	4,057.00			16,228.00			
	Service Road		2	737.00			1,474.00			
19	Miscellaneous	5%								44,03,369
Total Amount (MCW + Service Road + Toll Plaza + Miscellaneous)										**9,24,70,743**
Total Cost in Lakhs (MCW + Service Road + Toll Plaza + Miscellaneous)										**924.71**
Per km Cost in lakhs (MCW + Service Road + Toll Plaza + Miscellaneous)										**12.92**

Annexure IV : Pavement Condition Survey

LHS :

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
1	0	1	Good	-	PQC	300	-	G	-	-	-	-	-	-	P	PQC	G	F	-	-	-	
2	1	2	Good	-	PQC	300	-	G	-	-	-	-	-	-	P	PQC	G	F/P	-	-	-	
3	2	3	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
4	3	4	Good	-	PQC	300	-	G		-	-	-	-	-	F	PQC	G	F	-	-	-	
5	4	5	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
6	5	6	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
7	6	7	G/F	-	PQC	300	-	G/F	0.2	-	-	-	-	-	P	PQC	F	P	-	-	-	One panel settles
8	7	8	G/F	-	PQC	300	-	G/F	0.15	-	-	-	-	-	P	PQC	F	P	-	-	-	One panel settles
9	8	9	G/F	-	PQC	300	-	G	0.1	-	-	-	-	-	P	PQC	G	P	-	-	-	
10	9	10	G	-	PQC	300	-	G	-	-	-	-	-	-	P	PQC	G	P	-	-	-	
11	10	11	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
12	11	12	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
13	12	13	Good	-	PQC	300	-	G	-		-	-	-	-	F	PQC	G	F	-	-	-	
14	13	14	Good	-	PQC	300	-	G		-	-	-	-	-	P	PQC	G	P	-	-	-	
15	14	15	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
16	15	16	G/F	-	PQC	300	-	G	-	-	-	-	-	-	P	PQC	G	P	-	-	-	
17	16	17	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
18	17	18	Good	-	PQC	300	-	G		-	-	-	-	-	F	PQC	G	F	-	-	-	
19	18	19	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
20	19	20	G/F	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
21	20	21	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
22	21	22	Good	-	PQC	300	-	G		-	-	-	-	-	F	PQC	G	F	-	-	-	
23	22	23	Good	-	PQC	300	-	G		-	-	-	-	-	P	PQC	G	P	-	-	-	
24	23	24	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	MCW Partially Completed due to LA
25	24	25	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
26	25	26	Good/F	-	PQC	300	-	G/F	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
27	26	26.8	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
28	26.8	28																	-	-	-	This MCW are in another concessionaire scope
29	28	29																	-	-	-	
30	29	30																	-	-	-	
31	30	31.5																	-			
32	31.5	32	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
33	32	33	Good	-	PQC	300	-	G	-	-	-	-	-	-	WIP	PQC	G	WIP	-	-	-	Shoulder filling work in progress
34	33	34	G/F	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
35	34	35	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
36	35	36	G	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
37	36	37	G/F	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
38	37	38	G/F	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
39	38	39	Good	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
40	39	40	G/F	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
41	40	41	Good	-	PQC	300	-	G	-	-	-	-	-	-	G/P	PQC	P	F/P	-	-	-	
42	41	42	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
43	42	43	Good	-	PQC	300	-	G		-	-	-	-	-	F	PQC	G	F	-	-	-	
44	43	44	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
45	44	45	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
46	45	46	Good	-	PQC	300	-	G		-	-	-	-	-	F	PQC	G	F	-	-	-	
47	46	47	Good	-	PQC	300	-	G		-	-	-	-	-	F	PQC	G	F	-	-	-	Only Single Lane constructed due to LA. Side shoulder partially done
48	47	48	Good	-	PQC	300	-	G		-	-	-	-	-	WIP	PQC	G	WIP	-	-	-	MCW Work in progress
49	48	49	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
50	49	50	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
51	50	51	Good		PQC	300		G		-	-				WIP	PQC	G	WIP	-	-	-	Only Single Lane constructed due to LA. Side shoulder partially done
52	51	52	Good		PQC	300		G		-	-				G	PQC	G	G/F	-	-	-	
53	52	53	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
54	53	54	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
55	54	55	G/F		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
56	55	56	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
57	56	57	G/F		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
58	57	58	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
59	58	59	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
60	59	60	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
61	60	61	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
62	61	62	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
63	62	63	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
64	63	64	G/F		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
65	64	65	G/F		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
66	65	66	Good		PQC	300		G		-	-				F	PQC	G	F		-	-	
67	66	67	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
68	67	68	Good		PQC	300		G		-	-				P	PQC	G	F	-	-	-	
69	68	69	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
70	69	70	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
71	70	71	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
72	71	72	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
73	72	73	G/F		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
74	73	74	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
75	74	75	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
76	75	76	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	
77	76	77	Good		PQC	300		G		-	-				F	PQC	G	F	-	-	-	MCW Under COS

RHS

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
1	0	1	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
2	1	2	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F/P	-	-	-	
3	2	3	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
4	3	4	Good	-	PQC	300	-	G		-	-	-	-	-	F	PQC	G	F	-	-	-	
5	4	5	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
6	5	6	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
7	6	7	Good	-	PQC	300	-	G	0.2	-	-	-	-	-	F	PQC	F	F	-	-	-	
8	7	8	Good	-	PQC	300	-	G	0.15	-	-	-	-	-	F	PQC	F	F	-	-	-	
9	8	9	Good	-	PQC	300	-	G	0.1	-	-	-	-	-	F	PQC	G	P	-	-	-	
10	9	10	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	P	-	-	-	
11	10	11	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
12	11	12	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
13	12	13	Good	-	PQC	300	-	G	-		-	-	-	-	WIP	PQC	G	WIP	-	-	-	Work partially completed due to LA. Side shoulder partially done
14	13	14	Good	-	PQC	300	-	G		-	-	-	-	-	F	PQC	G	P	-	-	-	
15	14	15	G/F	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
16	15	16	G/F	-	PQC	300	-	G	-	-	-	-	-	-	WIP	PQC	G	WIP	-	-	-	Work partially completed due to LA. Side shoulder partially done
17	16	17	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
18	17	18	Good	-	PQC	300	-	G		-	-	-	-	-	WIP	PQC	G	WIP	-	-	-	Work partially completed due to LA. Side shoulder partially done
19	18	19	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
20	19	20	G/F	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
21	20	21	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
22	21	22	Good	-	PQC	300	-	G		-	-	-	-	-	F	PQC	G	F	-	-	-	
23	22	23	Good	-	PQC	300	-	G		-	-	-	-	-	WIP	PQC	G	WIP	-	-	-	Work partially completed due to LA. Side shoulder partially done
24	23	24	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
25	24	25	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
26	25	26	Good/F	-	PQC	300	-	G/F	-	-	-	-	-	-	F	PQC	G	F	-	-	-	
27	26	26.8	Good	-	PQC	300	-	G	-	-	-	-	-	-	WIP	PQC	G	WIP	-	-	-	
28	26.8	28																	-	-	-	This MCW are in another concessionaire scope
29	28	29																	-	-	-	
30	29	30																	-	-	-	
31	30	31.5																	-			
32	31.5	32	Good	-	PQC	300	-	G	-	-	-	-	-	-	WIP	PQC	G	WIP	-	-	-	
33	32	33	Good	-	PQC	300	-	G	-	-	-	-	-	-	WIP	PQC	G	WIP	-	-	-	
34	33	34	Good	-	PQC	300	-	G	-	-	-	-	-	-	F	PQC	G	F	-	-	-	Work partially completed due to LA. Side shoulder partially done
35	34	35	Good	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G/F	-	-	-	
36	35	36	G	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
37	36	37	G/F	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
38	37	38	G/F	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
39	38	39	Good	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
40	39	40	G/F	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
41	40	41	Good	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	P	F/P	-	-	-	
42	41	42	Good	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
43	42	43	Good	-	PQC	300	-	G		-	-	-	-	-	G	PQC	G	G	-	-	-	
44	43	44	Good	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
45	44	45	G/F	-	PQC	300	-	G	-	-	-	-	-	-	G	PQC	G	G	-	-	-	
46	45	46	Good	-	PQC	300	-	G		-	-	-	-	-	G	PQC	G	G	-	-	-	
47	46	47	Good	-	PQC	300	-	G		-	-	-	-	-	G	PQC	G	G	-	-	-	
48	47	48	G/F	-	PQC	300	-	G		-	-	-	-	-	G	PQC	G	G	-	-	-	
49	48	49	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
50	49	50	Good		PQC	300		G		-	-				WIP	PQC	G	WIP	-	-	-	Only Single lane constructed due to LA. Side shoulder partially done
51	50	51	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
52	51	52	Good		PQC	300		G		-	-				G	PQC	G	G/F	-	-	-	

Sr. No.	Chainage (km)		Visual	Pavement Composition			Riding Quality		Pavement Condition					Pavement Edge drop (mm	Visual Condition of Shoulders (G/F/P/VP)	Shoulders Condition (G/F/ P/VP)		Embankment Condition (Good /Fair/ Poor)	Visual Condition of Roadside Drain(G/F/P/VP)	Road side Drain (NE/ PF/ F)***		Remarks
	From	To	Pavement Condition of (G/F/P/VP)	Composition	Type	Thickness (mm)	Speed (km/hr.)	Quality/ G/ F/ P/ VP)*	Cracking (%)	Ravelling (%)	Potholing (%)**	Rut (None/ Moderate/ Severe)	Patching (%)**			Type	Condition			Left	Right	
53	52	53	G/F		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
54	53	54	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
55	54	55	G/F		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
56	55	56	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
57	56	57	G/F		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
58	57	58	Good		PQC	300		G		-	-				WIP	PQC	G	WIP	-	-	-	Only Single lane constructed due to LA. Side shoulder partially done
59	58	59	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
60	59	60	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
61	60	61	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
62	61	62	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
63	62	63	G/F		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
64	63	64	G/F		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
65	64	65	G/F		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
66	65	66	Good		PQC	300		G		-	-				G	PQC	G	G		-	-	
67	66	67	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
68	67	68	Good		PQC	300		G		-	-				G	PQC	G	F	-	-	-	
69	68	69	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	Only Single lane constructed due to LA. Side shoulder partially done
70	69	70	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
71	70	71	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
72	71	72	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
73	72	73	G/F		PQC	300		G		-	-				G	PQC	G	G	-	-	-	MCW Under COS
74	73	74	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
75	74	75	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
76	75	76	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	
77	76	77	Good		PQC	300		G		-	-				G	PQC	G	G	-	-	-	