



**U P STATE BRIDGE CORPORATION LTD.
(UNDERTAKING GOVT. OF UTTAR PRADESH)**

Engineering Procurement and Construction (EPC) Basis

For

**Design and Construction of R.O.B. At NE Railway Level
X-ing No. 16-C AT KM 19/2-3 between Mohibullapur -
BKT Railway Station on BKT - Asti Road in Distt.
Lucknow on EPC Mode.**

Volume 1 - Request for Proposal (RFP)

June, 2026

TABLE OF CONTENTS

Notice Inviting Bid	4
DISCLAIMER.....	5
GLOSSARY	7
Instructions to Bidder for e-Tendering.....	9
1 INTRODUCTION.....	
1.1 Background.....	
1.2 Brief description of Bidding Process.....	
1.3 Schedule of Bidding Process.....	
2 INSTRUCTIONS TO BIDDERS	12-35
2.1 General terms of Bidding.....	
2.2 Eligibility and qualification requirements of Bidder.....	
2.3 Proprietary data.....	
2.4 Cost of Bidding.....	
2.5 Site visit and verification of information.....	
2.6 Verification and Disqualification.....	
2.7 Contents of the RFP.....	
2.8 Clarifications.....	
2.9 Amendment of RFP.....	
2.10 Format and Signing of BID.....	
2.11 Documents comprising Technical and Financial BID.....	
2.12 BID Due Date.....	
2.13 Late BIDs.....	
2.14 Procedure for e-tendering.....	
2.15 Online Opening of BIDs.....	
2.16 Rejection of BIDs.....	
2.17 Validity of BIDs.....	
2.18 Confidentiality.....	
2.19 Correspondence with the Bidder.....	
2.20 BID Security.....	
2.21 Performance Security.....	

3	Evaluation of Technical Bids and Opening & Evaluation of Financial Bids.....	36-38
	3.1 Evaluation of Technical Bids.....	
	3.2 Opening and Evaluation of Financial Bids.....	
	3.3 Selection of Bidder.....	
	3.4 Contacts during BID Evaluation.....	
	3.5 Correspondence with Bidder.....	
4	FRAUD AND CORRUPT PRACTICES	39
5	PRE-BID CONFERENCE	40
6	MISCELLANEOUS.....	41
	Appendix-IA Letter Comprising the Technical Bid.....	42
	Appendix-IB Letter Comprising the Financial Bid.....	46
	Appendix-IA-Annex-I Details of Bidder.....	47
	Appendix-IA-Annex-II - Technical Capacity of the Bidder	51
	Appendix-IA-Annex-III Financial Capacity of the Bidder	53
	Appendix IA-Annex-IV Details of Eligible Projects.....	55
	Appendix IA-Annex-V Statement of Legal Capacity.....	58
	Appendix IA-Annex-VI Information required to evaluate the BID Capacity.....	59
	Appendix IA-Annex-VII Guidelines of the Department of Disinvestment.....	62
	Appendix IA-Annex-VIII Details of Ongoing Works.....	64
	Appendix-II BLANK	65
	Appendix-III Format for Power of Attorney for signing of BID.....	66
	Appendix-IV Format for Power of Attorney for Lead Member of Joint Venture.....	68
	Appendix-V Format for Joint Bidding Agreement for Joint Venture.....	70
	Appendix-VI Integrity Pact Format	74
	Appendix-VII Form of Bank Guarantee	81
	Appendix-VIII Format of LOA	84
	Appendix-IX Certificate regarding Compliance.....	85

**OFFICE OF THE THE GENERAL MANAGER
U.P. STATE BRIDGE CORPORATION LTD.
LUCKNOW**

Notice inviting Bid

NIT No. 368/E-Tender/EPC/GM (Lko)/26-27

Date: 05/06/2026

RFP for Design and Construction of R.O.B. At NE Railway Level X-ing No. 16-C AT KM 19/2-3 between Mohibullapur - BKT Railway Station on BKT - Asti Road in Distt. Lucknow on EPC Mode.


Uttar Pradesh State Bridge Corporation Limited is engaged with the development of Bridges/ROBs/VUPs etc. and as part of this endeavour, it has been decided to undertake Design and Construction of 03 Lane R.O.B. At NE Railway Level X-ing No. 16-C AT KM 19/2-3 between Mohibullapur - BKT Railway Station on BKT - Asti Road in Distt. Lucknow through an Engineering, Procurement and Construction (EPC) Contract.

The U.P. State Bridge Corporation Limited represented by its General Manager (Lucknow Zone) Uttar Pradesh now invites bids from eligible contractors for the following project:

State	Bridge No.	NCB/ ICB No.	Name of work	Estimated cost (INR) (excluding all taxes/ GST)	Completion period	Maintenance period
Uttar Pradesh			Design and Construction of R.O.B. At NE Railway Level X-ing No. 16-C AT KM 19/2-3 between Mohibullapur - BKT Railway Station on BKT - Asti Road in Distt. Lucknow on EPC Mode.	INR 32,50,12,028/-	18 Months and Defect Liability Period of 2 Years(including Rainy Season)	2 years

The complete BID document can be viewed / downloaded from official UPNIC portal website <https://etender.up.nic.in/nicgep/app> from **05/06/2026 to 19.06.2026 (upto 17:00 Hrs IST)**. Bidder must submit its Financial bid and Technical Bid at <https://etender.up.nic.in/nicgep/app> on or before **19.06.2026 (up to 17.00 hours IST)**. Bids received online shall be opened on **20.06.2026 (at 15.00 hours IST)**.

Bid through any other mode shall not be entertained. BID Security & Document fee shall be submitted online and the receipt of the same shall be uploaded with technical bid on official UPNIC portal website <https://etender.up.nic.in/nicgep/app>, on or before **19.06.2026 (at 17.00 hours IST)**. Please note that the Authority reserves the right to accept or reject all or any of the BIDs without assigning any reason whatsoever.


(Kamal Kumar Srivastava)
General Manager (Lucknow Zone)
U.P. State Bridge Corporation Ltd.,
Lucknow
E-mail: gmlkoupsbc@gmail.com

Copy for information & necessary action to:

1. Managing Director, U.P. State Bridge Corporation Ltd., Lucknow
2. General Manager (Comm.), U.P. State Bridge Corporation Ltd., Lucknow
3. Project Manager, BCU-1, Lucknow.

DISCLAIMER

The information contained in this Request for Proposal document (the “RFP”) or subsequently provided to Bidder(s), whether verbally or in documentary or any other form by or on behalf of the Authority or any of its employees or advisors, is provided to Bidder(s) on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

This RFP is not an Agreement and is neither an offer nor invitation by the Authority to the prospective Bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in making their financial offers (BIDs) pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by the Authority in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFP may not be appropriate for all persons, and it is not possible for the Authority, its employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in the Bidding Documents, may not be complete, accurate, adequate or correct. Each Bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this RFP and obtain independent advice from appropriate sources.

Information provided in this RFP to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Authority accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

The Authority, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Applicant or Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way for participation in this BID Stage.

The Authority also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP. The Authority may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP.

The issue of this RFP does not imply that the Authority is bound to select a Bidder or to appoint the Selected Bidder JV or Contractor, as the case may be, for the Project and the Authority reserves the right to reject all or any of the Bidders or BIDs without assigning any reason whatsoever.

The Bidder shall bear all its costs associated with or relating to the preparation and submission of its BID including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the Authority or any other costs incurred in connection with or relating to its BID. All such costs and expenses will remain with the Bidder and the Authority shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the BID, regardless of the conduct or outcome of the Bidding Process.

GLOSSARY

Agreement	As defined in Clause 1.1.4
Authority	As defined in Clause 1.1.1
Bank Guarantee	As defined in Clause 2.20.1
BID(s)	As defined in Clause 1.2.2
Bidders	As defined in Clause 1.2.1
Bidding Documents	As defined in Clause 1.1.5
BID Due Date	As defined in Clause 1.1.5
Bidding Process	As defined in Clause 1.2.1
BID Securing Declaration	As defined in Clause 1.2.4
BID Price or BID	As defined in Clause 1.2.6
Contractor	As defined in Clause 1.1.2
Construction Period	As defined in Clause 1.2.6
Conflict of Interest	As defined in Clause 2.2.1(c)
Defect Liability Period	As defined in Clause 1.2.6
Eligible Experience	As defined in Clause 2.2.2.6 (a)
Eligible Projects	As defined in Clause 2.2.2.6 (a)
EPC	As defined in Clause 1.1.1
EPC Contract	As defined in Clause 1.1.2
Estimated Project Cost	As defined in Clause 1.1.3
Financial Capacity	As defined in Clause 2.2.2.3 (i)
Government	Government of Uttar Pradesh
Joint Venture	As defined in Clause 2.2.1
Jt. Bidding Agreement	As defined in Clause 2.1.11 (f)
Lead Member	As defined in Clause 2.1.11 (c)
Lowest Bidder	As defined in Clause 1.2.6
LOA	As defined in Clause 3.3.4
Net Worth	As defined in Clause 2.2.2.9 (ii)
Performance Security	As defined in Clause 2.21.1
Additional Performance Security	As defined in Clause 2.21.1
Project	defined in Clause 1.1.1
Re. or Rs. or INR	Indian Rupee
RFP or Request for Proposals	As defined in the Disclaimer
Selected Bidder	As defined in Clause 3.3.1
Technical Capacity	As defined in Clause 2.2.2.2 (i)
Tie BIDs	As defined in Clause 3.3.2
Threshold Technical Capacity	As defined in Clause 2.2.2.2 (i)

The words and expressions beginning with capital letters and defined in this document shall, unless repugnant to the context, have the meaning ascribed thereto herein.

SECTION 1

1 INTRODUCTION

1.1 Background

- 1.1.1 UPSBC, represented by the General Manager (Lucknow Zone), U.P. State Bridge Corporation Ltd., Lucknow (the Authority) has decided to undertake Design and Construction of 03 Lane R.O.B. At NE Railway Level X-ing No. 16-C AT KM 19/2-3 between Mohibullapur - BKT Railway Station on BKT - Asti Road in Distt. Lucknow comprising of Viaduct, Approach, Railway Portion and Maintenance during the Defect Liability ("Project") through an Engineering Procurement and Construction (the "EPC") Contract and has decided to carry out the Bidding process for the selection of a Bidder to whom the project may be awarded. A brief description of the project may be seen in the Information Memorandum of the Project on the UPNIC website <https://etender.up.nic.in/nicgep/app>. Brief particulars of the Project are as follows:

Name of Work	Length in m	Estimated cost (INR) (excluding all taxes/ GST)	No of Years for Completion of Work
Design and Construction of R.O.B. At NE Railway Level X-ing No. 16-C AT KM 19/2-3 between Mohibullapur - BKT Railway Station on BKT - Asti Road in Distt. Lucknow on EPC Mode.	649.27 Meter (Excluding Railway Portion)	INR 32,50,12,028.00 (Thirty Tow Crore Fifty Lacs Twelve Thousand Twenty Eight Rupees only)	18 Months and Defect Liability Period of 2 Years(including Rainy Season)

- 1.1.2 The selected Bidder (the "Contractor") shall be responsible for designing, engineering, procurement, and construction of the Project under and in accordance with the provisions of an engineering, procurement, and construction contract (the "**EPC Contract**") to be entered into between the Contractor and the Authority in the form provided by the Authority as part of the Bidding Documents pursuant hereto. The Contractor shall also be responsible for the maintenance of the project during the defect Liability Period. The scope of work will broadly include Design and Construction of 03 Lane R.O.B. At NE Railway Level X-ing No. 16-C AT KM 19/2-3 between Mohibullapur - BKT Railway Station on BKT - Asti Road in Distt. Lucknow, and Maintenance of the Project during the Defect Liability Period, which shall be 2 (Two) years.
- 1.1.3 The estimated cost of the Project (the "**Estimated Project Cost**") has been specified in clause 1.1.1 above, which excludes all taxes/GST as applicable. The assessment of actual costs, however, will have to be made by the Bidders.
- 1.1.4 The Agreement sets forth the detailed terms and conditions for award of the project to the Contractor, including the scope of the Contractor's services and obligations.
- 1.1.5 The Authority shall receive BIDs pursuant to this RFP in accordance with the terms set forth in this RFP and other documents to be provided by the Authority pursuant to this RFP (collectively the "**Bidding Documents**"), and all BIDs shall be prepared and submitted in accordance with such terms on or before the BID due date specified in Clause 1.3 for submission of BIDs (the "**BID Due Date**").

1.2 Brief Description of the Bidding Process

- 1.2.1 The Authority has adopted a single stage two-part system (referred to as the "**Bidding Process**") for the selection of the Bidder for award of the Project. Under this process, the bid shall be invited

under two parts. The eligibility and qualification of the Bidder will be first examined based on the details submitted under the first part (Technical Bid) with respect to the eligibility and qualifications criteria prescribed in this RFP

(the “**Bidder**”). The Financial Bid under the second part shall be opened to only those Bidders whose Technical Bids are responsive to eligibility and qualifications requirements as per this RFP

GoI has issued guidelines (see Annexure-VII of Appendix-1A of RFP) for the qualification of Bidders seeking to acquire stakes in any public sector enterprise through the process of disinvestment. These guidelines shall apply mutatis mutandis to this Bidding Process. The Authority shall be entitled to disqualify any Bidder in accordance with the aforesaid guidelines at any stage of the Bidding Process. Bidders must satisfy themselves that they are qualified to bid, and should give an undertaking to this effect in the form at Appendix IA.

- 1.2.2 The Bid shall be valid for a period of 120 days from the date specified in Clause 1.3 for submission of BIDs.
- 1.2.3 The complete Bidding Documents including the draft Agreement for the Project are enclosed for the Bidders. The Detailed Project Report prepared by the Authority/ consultants of the Authority (the “**Detailed Project Report**”) is also enclosed. The Detailed Project Report of the project is being provided only as a preliminary reference document by way of assistance to the Bidders who are expected to carry out their own surveys, investigations, and other detailed examination of the Project before submitting their Bids. Nothing contained in the Detailed Project Report shall be binding on the Authority nor confer any right on the Bidders, and the Authority shall have no liability whatsoever in relation to or arising out of any or all contents of the Detailed Project Report. The aforesaid documents and any addenda issued subsequent to this RFP Document will be deemed to form part of the Bidding Documents.
- 1.2.4 A Bidder is required to submit online, along with its BID, a BID Security of **Rs. 65.00 Lakh** (the “**BID Security**”), refundable not later than 150 (One hundred & fifty) days from the BID Due Date, except in the case of the Selected Bidder whose BID Security shall be retained till it has provided a Performance Security and Additional Performance Security (if any) as per the provision of this RFP and LOA. **This Bid Security shall be transmitted through UPSBC’s online tender portal <https://upsbcl.procure247.com/TenderPay/x-login>. The Bidders shall also make an online payment towards the cost (including GST) of tender documents of **Rs. 20,000/- (Rupees Twenty Thousand only)** through the online portal at <https://upsbcl.procure247.com/TenderPay/x-login>.** Bidders are advised to examine the Project in greater detail and to carry out, at their cost, such studies as may be required for submitting their respective bids for the award of the contract including implementation of the Project.
- 1.2.5 The Bidders are advised to examine the Project in greater detail and to carry out, at their cost, such studies as may be required for submitting their respective bids for the award of the contract including implementation of the Project.
- 1.2.6 BIDs will be evaluated for the Project on the basis of the lowest cost required by a Bidder for implementing the Project (the “**BID Price**”), which is exclusive of Goods and Service Tax (GST). The total time allowed for completion of construction under the Agreement (the “**Construction Period**”) and the period during which the Contractor shall be liable for maintenance and rectification of any defect or deficiency in the Project after completion of the Construction Period (the “**Defect Liability Period**”) shall be pre-determined, and are specified in the draft Agreement forming part of the Bidding Documents.
- In this RFP, the term “**Lowest Bidder**” shall mean the Bidder who is quoting the lowest BID price.
- 1.2.7 Generally, the Lowest Bidder shall be the selected Bidder. In case such Lowest Bidder fails to submit the original Bid Security, POA for signing the Bid, POA for lead member of JV, if any, JBA for JV, if any, Integrity pact, and experience certificates apostille at foreign origin, if any and other documents required by the authority before of issuance of LoA or withdraws or is not

selected for whatsoever reason except the reason mentioned in Clause 2.1.12 (b) (4) & Clause 3.3.1, the Authority shall annul the Bidding Process and invite fresh BIDs.

1.2.8 Other details of the process to be followed under this bidding process and the terms thereof are spelled out in this RFP.

1.3 Any queries or requests for additional information concerning this RFP shall be submitted by e-mail to the officer designated in Clause 2.11.4 below with identification/ title: "Queries / Request for Additional Information: RFP for Design and Construction of R.O.B. At NE Railway Level Crossing No. 16-C AT KM 19/2-3 between Mohibullapur - BKT Railway Station on BKT - Asti Road in Distt. Lucknow on EPC Mode.

1.4 Schedule of Bidding Process

The Authority shall endeavor to adhere to the following schedule:

S. No.	Event Description	Date
1.	Invitation of RFP (NIT)	05/06/2026
2.	Last date for receiving queries	19.06.2026
3.	Pre-BID meeting at venue 2.11.4	15/06/2026
4.	Authority response to queries by	Project Manager, Bridge Construction Unit-1, Lucknow Mob: 9415364589
5.	Last date of Request for BID Document	19.06.2026 up to 17.00 hrs
6.	BID Due Date	19.06.2026 up to 17.00 hrs
7.	Opening of Technical BIDs at venue	20.06.2026 up to 15.00 hrs
8.	Declaration of Eligible/ Qualified Bidders	Shall be declared later
9.	Opening of Financial BID	Shall be declared later
10.	Letter of Acceptance (LoA)	Shall be declared later
11.	Return of the signed duplicate copy of the	Shall be declared later
12.	Bid Security	65,00,000/-
13.	Validity of BID	120 days from the BID Due date
14.	Submission of Performance Security (PS) and Additional Performance Security (APS), if any	Within 30 days of receipt of LOA.
15.	Signing of Agreement	Within 10 days from the receipt of Performance Security and Additional Performance Security, if any

SECTION 2

INSTRUCTIONS TO BIDDERS

A. GENERAL

2.1 General terms of Bidding

- 2.1.1 No Bidder shall submit more than one BID for the Project. A Bidder bidding individually or as a member of a Joint Venture shall not be entitled to submit another BID either individually or as a member of any Joint Venture, as the case may be.
- 2.1.2 Deleted
- 2.1.3 Notwithstanding anything to the contrary contained in this RFP, the detailed terms specified in the draft Agreement shall have overriding effect; provided, however, that any conditions or obligations imposed on the Bidder hereunder shall continue to have effect in addition to its obligations under the Agreement. Further, the statements and explanations contained in this RFP are intended to provide a better understanding to the Bidders about the subject matter of this RFP and should not be construed or interpreted as limiting in any way or manner the scope of services and obligations of the Contractor set forth in the Agreement or the Authority's rights to amend, alter, change, supplement or clarify the scope of work, the work to be awarded pursuant to this RFP or the terms thereof or herein contained. Consequently, any omissions, conflicts, or contradictions in the Bidding Documents including this RFP are to be noted, interpreted, and applied appropriately to give effect to this intent, and no claims on that account shall be entertained by the Authority
- 2.1.4 The BID shall be furnished in the format exactly as per Appendix-I i.e., Technical Bid as per Appendix IA and Financial Bid as per Appendix IB. The BID amount shall be indicated clearly in both figures and words, in Indian Rupees in the prescribed format of the Financial Bid and it will be signed by the Bidder's authorized signatory. In the event of any difference between figures and words, the amount indicated in words shall be taken into account.
- 2.1.5 The Bidder should upload Power of Attorney as per the format in Appendix-III, authorizing the signatory of the BID to commit the Bidder. The lowest Bidder shall be required to submit an original Power of Attorney before the issuance of a Letter of Acceptance (LOA) by the Authority.
- 2.1.6 In case the Bidder is a Joint Venture, the Members thereof should upload Power of Attorney in favour of the Lead Member in the format at Appendix-IV and Joint Bidding Agreement in the format at Appendix-V. The lowest Bidder shall be required to submit the original Power of Attorney in favour of the Lead Member and the original Joint Bidding Agreement before the issuance of a Letter of Acceptance (LOA) by the Authority.
- 2.1.7 Any condition or qualification or any other stipulation contained in the BID shall render the BID liable to rejection as a non-responsive BID.
- 2.1.8 The BID and all communications in relation to or concerning the Bidding Documents and the BID shall be in English language.
- 2.1.9 This RFP is not transferable.
- 2.1.10 Any award of the Project pursuant to this RFP shall be subject to the terms of Bidding Documents and also fulfill the criterion as mentioned in clause 2.2.
- 2.1.11 In case the Bidder is a Joint Venture, it shall comply with the following additional requirements:
- (a) The number of members in a Joint Venture shall not exceed 2 (Two);
 - (b) Subject to the provisions of clause (a) above, the Bid should contain the information required for each Member of the Joint Venture;
 - (c) Members of the Joint Venture shall nominate one member as the lead member (the "Lead

Member”). Lead Member shall meet at least 60% requirement of Bid Capacity, Technical and Financial Capacity, required as per Clause 2.2.2.1, 2.2.2.2(i) & 2.2.2.3. The nomination(s) shall be supported by a Power of Attorney, as per the format in Appendix III, signed by all the other Members of the Joint Venture. Other Member(s) shall meet at least 20% requirement of Bid Capacity, Technical and Financial Capacity required as per Clause 2.2.2.1, 2.2.2.2(i) & 2.2.2.3 and the JV as a whole shall cumulatively/collectively fulfill the 100% requirement;

- (d) The Bid should include a brief description of the roles and responsibilities of individual members, particularly with reference to financial, technical, and defect liability obligations;
- (e) The Lead Member shall undertake and perform at least 51(fifty-one) percent of the Project Highway.
- (f) Members of the Joint Venture shall have entered into a binding Joint Bidding agreement, substantially in the form specified in Appendix V (the “**Jt. Bidding Agreement**”), for the purpose of making the Application and submitting a Bid in the event of being pre-qualified. The Jt. Bidding Agreement, to be submitted along with the Application, shall, *inter alia*:
 - (i) Convey the commitment(s) of the Lead Member in accordance with this RFP, in case the contract to undertake the Project is awarded to the Joint Venture; and clearly outline the proposed roles & responsibilities, if any, of each member;
 - (ii) Commit the approximate share of work to be undertaken by each member conforming to sub-clause 2.1.11 (e) mentioned above;
 - (iii) Include a statement to the effect that all members of the Joint Venture shall be liable jointly and severally for all obligations of the Contractor in relation to the Project until the Defect Liability Period is achieved in accordance with the EPC Contract; and
- (g) Except as provided under this RFP, there shall not be any amendment to the Jt. Bidding Agreement.
- (h) No Joint Venture up to Estimate Project Cost of **Rs. 25 crores (including GST)** (Twenty five crores). However, a Joint Venture for any Estimated Project Cost is permissible in case maintenance works are to be taken up in EPC mode.

2.1.12 While bidding is open to persons from any country, the following provisions shall apply:

- (a) Where, on the date of the Application, not less than 50% (fifty percent) of the aggregate issued, subscribed, and paid up equity share capital in the L-1 Bidder or its Member is held by persons resident outside India or where a Bidder or its Member is controlled by persons resident outside India, then the eligibility and award of the project to such L-1 Bidder shall be subject to the approval of the Competent Authority from national security and public interest perspective as per the instructions of the Government of India applicable at such time. The decision of the Authority on this behalf shall be final conclusive and binding on the Bidder.
 - (b) Further, where the LoA of a project has been issued to an agency, not covered under the category mentioned above, and it subsequently wishes to transfer its share capital in favour of another entity that is a resident outside India or where a Bidder or its Member is controlled by persons resident outside India and there by the equity capital of the transferee entity exceeds 50% or above, any such transfer of equity capital shall be with the prior approval of the Competent Authority from national security and public interest perspective as per the instructions of the Government of India applicable at such point in time.
- 2) The holding or acquisition of equity control, as above shall include direct or indirect holding, acquisition, including by transfer of the direct or indirect legal or beneficial ownership or control, by persons acting for themselves or in concert and in determining such holding or acquisition, the Authority shall be guided by the principles, precedents, and definitions

contained in the Securities and Exchange Board of India (Substantial Acquisition of Shares and Takeovers) Regulations, 2011, or any substitute thereof, as in force on the date of such acquisition.

- 3) The Bidder shall promptly inform the Authority of any change in the shareholding, as above, and failure to do so shall render the Bidder liable for disqualification from the Bidding process.
 - 4) In case the L-1 Applicant under (a) above is denied the security clearance, for whatsoever reasons, then the applicants emerging as L-2, L-3 eligible Bidders (in that order) may be given a counter-offer (one by one sequentially) to match the bid of L-1 applicant/preferred Bidder. In the event of acceptance of the counter-offer by another eligible Bidder, the project may be awarded to such Bidder. In case no applicant matches the bid of the L-1 applicant, the bid process shall be annulled and fresh bids invited.
- 2.1.13 Notwithstanding anything to the contrary contained herein, in the event that the Bid Due Date falls within three months of the closing of the latest financial year of a Bidder, CA certified provisional certificate with valid UDIN no. can be submitted and the Bidder may furnish all its information and certification with reference to the 5 (five) years or 1 (one) year as the case may be, preceding its due date. For the avoidance of doubt, financial year shall, for the purposes of a Bid hereunder, mean the accounting year followed by the Bidder in the course of its normal business.
- 2.1.14 The Bidder, including an individual or any of its Joint Venture members, should not be a non-performing party on the bid submission date. The Bidder, including any Joint Venture Member, shall be deemed to be a non-performing party if it attracts any or more of the following conditions in any of its ongoing or completed projects:
- (i) Fails to set up institutional mechanisms and procedures as per contract.
 - (ii) Fails to mobilize key construction equipment within 4 months from the Appointed Date;
 - (iii) Fails to complete or has missed any milestone and progress not commensurate with contiguous unencumbered project length/ROW available even after lapse of 6 months from respective project milestone/Schedule Completion date, unless Extension of Time has been granted due to Authority's Default or Force Majeure;
 - (iv) Fails to achieve progress commensurate with funds released from Escrow Account (Equity + Debt + Grant) in BOT or HAM project and variation is more than 25% in the last 365 days;
 - (v) Fails to achieve the target progress or complete the project as per the schedule agreed at the time of sanctioning of funds under One Time Funds Infusion (OTFI) or relaxations to contract conditions to improve cash flow solely on account of Contractor's failure/default;
 - (vi) Fails to complete rectification (excluding minor rectifications) as per time given in non-conformity reports (NCR) in design/completed works/maintenance or reported in Inspection Reports issued by Quality Inspectors deployed by the Authority or Officers of the Authority.
 - (vii) Fails to complete minor rectifications exceeding 3 instances in a project as per time given in non-conformity reports (NCR) in design/completed works/maintenance;
 - (viii) Fails to fulfill its obligations to maintain a highway in a satisfactory condition in spite of two rectification notices issued in this regard;
 - (ix) Damages/penalties recommended by the Independent/Authority's Engineer during the O&M Period and remedial works are still not taken up;
 - (x) Fails to complete Punch list items even after lapse of time for completion of such items

-
- excluding delays attributable to the Authority;
- (xi) Occurrence of minor failure of structures/highway due to construction defect wherein no casualties are reported (casualties include injuries to human beings/animals);
 - (xii) Occurrence of major failure of structures/highway due to construction defect wherein no casualties are reported (casualties include injuries to human beings/animals);
 - (xiii) Occurrence of major failure of structures/highway due to construction defect leading to loss of human lives besides loss of reputation etc. of the authority;
 - (xiv) Fails to make premium payments excluding the current installment in one or more projects;
 - (xv) Fails to achieve financial closure in two or more projects within the given or extended period (which shall not be more than six months in any case);
 - (xvi) Fails to submit the Performance Security within the permissible time period in more than one project;
 - (xvii) Rated as an unsatisfactory performing entity/non-performing entity by an independent third-party agency and so notified on the website of the Authority;
 - (xviii) Failed to perform for the works of Expressways, National Highways, ISC & EI in the last 2 (two) years, as evidenced by the imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitral award against the Bidder, including individual or any of its Consortium/ JV Member, as the case may be;
 - (xix) Expelled from the contract or the contract terminated by the MORTH/UPPWD/ UPSBC or its implementing agencies for breach by such Bidder, including individual or any of its Consortium/JV Member; Provided that any such decision of expulsion or termination of contract leading to debarring of the Bidder from further participation in bids for the prescribed period should have been ordered after affording an opportunity of hearing to such party.
 - (xx) Fails to start the works or causes a delay in maintenance & repair/overlay of the project.

The Bidder, including individual or each member of the Joint Venture, shall give the list of the projects of all works including Expressways, National Highways, ISC and EI works, bridge works, ROB works, and VUP works. Or any other works for which the tender is invited, of MORTH/UPPWD/UPSBC or OTHER implementing agencies and the status of the above issues in each project as on the bid submission date and undertake that they do not attract any of the above categories (Ref. Sr. No.6, Annex-I of Appendix – IA).

The Bidder, including individual or each member of the Joint Venture, may provide

- (i) details of all their on-going projects along with the updated stage of litigation, if so, against the Authority / Government;
- (ii) details of the updated ongoing process of blacklisting if so, under any contract with Authority/ Government; and
- (iii) details of all their on-going projects in the format at Annexure-VIII of Appendix IA (Ref Clause 10.3 (iv) of Draft EPC Agreement).

The Authority reserves the right to reject an otherwise eligible Bidder on the basis of the information provided under clause 2.1.14. The decision of the Authority in this case shall be final.

In case, any debarred/declared non-performer firm submits the bid, the same will be ignored. In case such firm is lowest (L-1), the next lowest firm shall be considered as L-1. Bid Security submitted by such debarred/declared non-performer firms shall be returned to them.

Debarment/ declaration as a non-performer of a particular firm shall automatically extend to all its allied firms. In case a joint venture/ consortium is debarred, all partners/ members shall stand debarred for the entire period.

- 2.1.15 All Orders of the Ministry of Finance/DPIIT/UPSBC/Government of UP/any other Central/State Government agencies, as applicable and prevalent on the date of LOA, shall be applicable
- 2.1.16 Entities of countries that have been identified by the Ministry of Road Transport & Highways as not allowing Indian companies to participate in their Government procurement for any item related to the Ministry of Road Transport & Highways shall not be allowed to participate in Government procurement in India for all items related to Ministry of Road Transport & Highways, except for the list of items published by the Ministry of Road Transport & Highways permitting their participation.

2.2 Eligibility and qualification requirements of Bidder

2.2.1 For determining the eligibility of Bidder, the following shall apply:

- (a) **The Bidder may be a single entity or a group of entities (the “Joint Venture”), coming together to implement the Project. The term Bidder used herein would apply to both a single entity and a Joint Venture.** However, in case the estimated cost of the project for which the bid is invited is up to Rs. 25 Crore, then Joint Venture shall not be allowed
- (b) The bidder may be a natural person, private entity, or any combination of them with a formal intent to enter into a Joint Venture agreement or under an existing agreement to form a Joint Venture. A Joint Venture shall be eligible for consideration subject to the conditions set out in Clause 2.1.11 above.
- (c) A Bidder shall not have a conflict of interest (**“Conflict of Interest”**) that affects the Bidding Process. Any Bidder found to have a Conflict of Interest shall be disqualified and liable for forfeiture of the BID Security or Performance Security as the case may be. A Bidder shall be deemed to have a Conflict of Interest affecting the Bidding Process, if:
- (i) the Bidder, its Joint Venture Member (or any constituent thereof), and any other Bidder, its Member, or any Member of its Joint Venture thereof (or any constituent thereof) have common controlling shareholders or other ownership interest; provided that this disqualification shall not apply in cases where the direct or indirect shareholding of a Bidder, or its Joint Venture Member thereof (or any shareholder thereof having a shareholding of more than 5% (five percent) of the paid-up and subscribed share capital of such Bidder, or its Joint Venture Member, as the case may be), in the other Bidder, its Joint Venture Member is less than 5% (five percent) of the subscribed and paid-up equity share capital thereof; provided further that this disqualification shall not apply to any ownership by a bank, insurance company, pension fund, or a public financial institution referred to in section 4A of the Companies Act 1956. For the purposes of this Clause 2.2.1(c), indirect shareholding held through one or more intermediate persons shall be computed as follows:
- (aa) where any intermediary is controlled by a person through management control or otherwise, the entire shareholding held by such controlled intermediary in any other person (the **“Subject Person”**) shall be taken into account for computing the share holding of such controlling person in the Subject Person; and
- (bb) subject always to subclause (aa) above, where a person does not exercise control over an intermediary, which has shareholding in the Subject Person, the computation of indirect shareholding of such person in the Subject Person shall be undertaken on a proportionate basis; provided, however, that no such shareholding shall be reckoned under this sub- clause (bb) if the shareholding of such person in the intermediary is less than 26% of the subscribed and paid-up equity shareholding

of such intermediary; or

- (ii) a constituent of such Bidder is also a constituent of another Bidder; or
 - (iii) such Bidder, or any of its Joint Venture Member thereof receives or has received any direct or indirect subsidy, grant, concessional loan, or subordinated debt from any other Bidder, or any of its Joint Venture Member thereof or has provided any such subsidy, grant, concessional loan or subordinated debt to any other Bidder, its Member or any of its Joint Venture Member thereof; or
 - (iv) such Bidder has the same legal representative for purposes of this Application as any other Bidder; or
 - (v) such Bidder, or any of its Joint Venture Member thereof has a relationship with another Bidder, or any of its Joint Venture Member thereof, directly or through common third party/parties, that puts either or both of them in a position to have access to each other's information about, or to influence the Application of either or each other; or
 - (vi) such Bidder, or any of its Joint Venture Member thereof has participated as a consultant to the Authority in the preparation of any documents, design, or technical specifications of the Project.
- (d) For determining the eligibility of Bidder from a country which shares a land border with India the following shall apply:
- (i) Any Bidder from a country that shares a land border with India will be eligible to bid, only if the Bidder is registered with the Competent Authority, specified in Annexure-I of Order (Public Procurement No.1) issued by the Ministry of Finance, Department of Expenditure Public Procurement Division vide F. No. 6/18/2019-PPD, dated 23rd July 2020, which shall form an integral part of RFP and DCA.
 - (ii) **“Bidder from a country which shares a land border with India” means:**
 - a. An entity incorporated, established, or registered in such a country, or
 - b. A subsidiary of an entity incorporated, established, or registered in such a country; or
 - c. An entity substantially controlled through entities incorporated, established; or registered in such a country; or
 - d. An entity whose beneficial owner is situated in such a country; or
 - e. An Indian (or other) agent of such an entity; or
 - f. A natural person who is a citizen of such a country; or
 - g. A Consortium or joint venture where any member of the consortium or joint venture falls under any of the above.
 - (iii) **“Beneficial owner for the purpose of (ii) above means:**
 - 1. In the case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together or through one or more judicial persons, has a controlling ownership interest or who exercises control through other means.

Explanation:

- (a) “Controlling ownership interest” means ownership of or entitlement to more than twenty-five percent of shares or capital or profits of the company.
 - (b) “Control” shall include the right to appoint a majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholding agreements or voting agreements;
- 2. In the case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together or through one or more juridical persons: has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;
 - 3. In the case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together or through one or more juridical persons, has ownership of or entitlement to more than fifteen percent of the

property or capital or profits of such association of body of individual;

4. Where no natural person is identified under (1), (2), or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;
5. In the case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust, and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

(iv) An Agent is a person employed to do any act for another or to represent another in dealings with a third person.

(v) The Selected Bidder shall not be allowed to sub-contract works to any contractor from a country that shares a land border with India unless such contractor is registered with the Competent Authority. The definition of "contractor from a country which shares a land border with India" shall be as in Clause 2.2.1(d)(ii) above.

Certificate regarding Compliance:

A certificate on the letterhead of the Bidder shall be required to be submitted by the bidders certifying the following:

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to Contractors from such countries; I certify that this bidder is not from a country or, if from such a country, has been registered with the Competent Authority as defined in Public Procurement Order no. F.no.6/ 18/2019-PPD dated 23rd July 2020. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered."

It may be noted that in case the above certification is found to be false, this would be a ground for immediate rejection of the Bid/termination and further legal action under law.

2.2.2 Qualification requirements of Bidders:

2.2.2.1 BID Capacity

Bidders who inter alia meet the minimum qualification criteria will be qualified only if their available BID capacity is more than the total BID value (value as per Clause 1.1.1). The available BID capacity will be calculated as per the following, based on the information mentioned in Annexure-VI of Appendix-IA:

Assessed Available BID capacity = $(A * N * 2.5 - B + C)$, Where

N= Number of years prescribed for completion of work for which Bid is invited

A = Maximum value of civil engineering works excluding the amount of bonus received, if any, in respect of EPC Projects executed in any one year during the last five years (updated to the price level of the year indicated in table at Note-3 below) taking into account the completed as well as works in progress. The **EPC projects** include turnkey projects/ Item rate contracts/ Construction works.

B = Value (updated to the price level of the year indicated in the table at Note-3 below) of existing commitments, works for which the bidder has emerged as the winner of the bids, or ongoing works to be completed during the period of completion of the works for which Bid is invited. For the sake of clarification, it is mentioned that works for which the bidder has emerged as the winner of the bids but LOA has not been issued as on the day before opening the financial bids shall also be considered while calculating the value of B.

C = The amount of bonus received, if any, in EPC Projects during the last 5 years (updated to the price level of the year indicated in table at Note-3 below).

Note:

- 1) **The Statement showing the value of all existing commitments works for which the contractor has emerged as the winner of the bid as given by the bidder** and ongoing works, as well as the stipulated period of completion remaining for each of the works listed, should be countersigned by the Client or its Engineer-in-charge not below the rank of Executive Engineer or equivalent in respect of EPC Projects or Concessionaire /Authorised Signatory of SPV in respect of BOT Projects and verified by Statutory Auditor.
- 2) The amount of bonus received, if any, in EPC Projects should be counter-signed by the Client or its Engineer-in-charge not below the rank of Executive Engineer or equivalent in respect of EPC Project.
- 3) The factor for the year for updation to the price level is indicated as under:

Year	Year-1	Year-2	Year-3	Year-4	Year-5
Updation factor	1.00	1.05	1.10	1.15	1.20

- 4) **The Bid capacity status of the bidder is to be updated on the day before opening the financial bids.**

2.2.2.2 Technical Capacity

- (i) For demonstrating technical capacity and experience (the "**Technical Capacity**"), the Bidder shall, over the past [5 (five)] financial years preceding the Bid Due Date, have received payments for the construction of Eligible Project(s), or has undertaken construction works by itself in a PPP project, such that the sum total thereof, as further adjusted in accordance with clause 2.2.2.5 (i) & (ii), is more than [1.0 times the Estimated Cost of Project] (the "**Threshold Technical Capacity**").

- (ii) The sole Bidder or in case the Bidder is a Joint Venture, the lead member of the Joint Venture shall have completed at least **ROB** having width of 16.80M and total length of structures (excluding culverts & approaches) not less than **one-third** of the total length of the proposed structure of ROB excluding approaches with minimum single span of 24m. The updated completion cost of such project shall not be less than **one-third** of the Estimated Project Cost in the last 5(FIVE) financial years preceding the Bid Due Date.

For this purpose, a project shall be considered to be completed, if more than 90% of the value of work has been completed.

- (iii) The updation factor to update the price of the eligible projects for the year is indicated below:

Year	Year-1	Year-2	Year-3	Year-4	Year-5
Updation factor	1.00	1.05	1.10	1.15	1.20

2.2.2.3 Financial Capacity:

- (i) The Bidder shall have a minimum Net Worth (the "**Financial Capacity**") of [5% of Estimated Project Cost] at the close of the preceding financial year.
- (ii) The Bidder shall have a minimum Average Annual Turnover (updated to the price level of the year based on factors indicated in the table below) of [15% of the Estimated Project Cost] for the last 5 (five) financial years.

Year	Year-1	Year-2	Year-3	Year-4	Year-5
Updation factor	1.00	1.05	1.10	1.15	1.20

- (iii) Notwithstanding anything to the contrary contained herein, if the Bid Due Date falls within three months of the closing of the latest financial year of a Bidder, **CA certified provisional certificate with valid UDIN no. can be submitted and the Bidder may furnish all its information and certification with reference to the 5 (five) years or 1 (one) year as the case may be, preceding its due date.** For the avoidance of doubt, the financial year shall, for a Bid hereunder, mean the accounting year followed by the Bidder in the course of its normal business.

2.2.2.4 In the case of a Joint Venture:

- (i) The Bid Capacity, Technical Capacity, and Financial Capacity of all the Members of the Joint Venture would be taken into account for satisfying the above conditions of eligibility. Further, the Lead Member shall meet at least 60% requirement of Bid Capacity, Technical, and Financial Capacity as per Clause 2.2.2.1, 2.2.2.2(i), and 2.2.2.3 and each of the other JV members shall meet at least 20% requirement of Bid Capacity, Technical and Financial Capacity individually as per Clause 2.2.2.1, 2.2.2.2(i) and 2.2.2.3. For the avoidance of doubt, it is further clarified that the Joint Venture must collectively and individually satisfy the above qualification criteria i.e., JV shall cumulatively/collectively fulfill the 100% requirement.
- (ii) For the requirement of 2.2.2.2(ii), the bidder shall have completed the Eligible Projects in Category 1 and/or Category 3 by the lead partner of the JV members as a single work.

2.2.2.5 Categories and factors for evaluation of Technical Capacity:

- (i) Subject to the provisions of Clause 2.2.2 the following categories of experience would qualify as Technical Capacity and eligible experience (the "**Eligible Experience**") in relation to eligible projects as stipulated in Clauses 2.2.2.6 (i) &(ii) (the "**Eligible Projects**"). In case the Bidder has experience across different categories, the experience for each category would be computed as per the weight of the following factors to arrive at its aggregated Eligible Experience:

Category	Project / Construction experience on Eligible Projects	Factors
1	Project in the highways sector that qualify under Clause 2.2.2.6 (i)	1
2	Project in core sector that qualify under Clause 2.2.2.6 (i)	0.75
3	Construction in the highways sector that qualify under Clause 2.2.2.6 (ii)	1
4	Construction in the core sector that qualifies under Clause 2.2.2.6 (ii)	0.75

- (ii) The Technical capacity in respect of an Eligible Project situated in a developed country that is a member of the OECD shall be further multiplied by a factor of 0.5 (zero point five) and the product thereof shall be the Experience Score for such Eligible Project.

(iii) For the purpose of this RFP:

- (a) highways sector would be deemed to include NH/SH/MDR/ODR/Urban Roads (Widening/reconstruction/up-gradation works), expressways, bridges, ROBs, VUPs, tunnels, runways, railways (construction/re-construction of railway tracks, yards for keeping containers, etc.) metro rail and ports (including construction/re- construction cost of Jetties, any other linear infrastructure including bridges, etc.); and
- (b) core sector would be deemed to include civil construction cost of the power sector, commercial setups (SEZs, etc.), airports, industrial parks/ estates, logistic parks, pipelines, irrigation, water supply, sewerage, stadium, hotel, smart city, warehouses/Silos, Oil and gas and real estate development. The core sector will also include the projects with the title of RIDF, PMGSY road, link road, city roads, rural road, sector /municipality road, real estate projects that demonstrate road development/construction bridges or culverts
- (iv) In case of projects executed by the applicant under categories 3 and 4 as a member of the Joint Venture, the project cost should be restricted to the share of the applicant in the joint venture for

determining eligibility as per provision under clause 2.2.2.2. In case the Statutory Auditor certifies that the work of another member (s) is also executed by the applicant, then the total share executed by the applicant can be considered for determining eligibility as per provision under clause 2.2.2.2.

- (v) Maintenance works are not considered eligible projects for evaluation as per Instruction No. 6 to Annex-IV. As such works with nomenclature like PR, OR, FDR, SR, site/micro grading, surface renewal, resurfacing work, Tarring, B.T. surface work, temporary restoration, urgent works, periodic maintenance, repair & rehabilitation, one-time maintenance, permanent protection work of bank, external pre stressing, repair of central hinge, short term OMT contract of NHAI, any type of work related to border fencing, work of earthwork alone, construction of buildings/hostels, etc, or not specified, shall not be considered. However, such maintenance works shall be considered eligible projects in case of Maintenance works to be taken up on EPC mode.
- (vi) In case both the estimated cost of the project and the revised cost of the project are provided, the revised cost of the project shall be considered for evaluation.

2.2.2.6 Eligible Experience on Eligible Projects in respect of each category:

- (i) For a project to qualify as an Eligible Project under Categories 1 and 2:
 - (a) It should have been undertaken as a PPP project on BOT, BOLT, BOO, BOOT, or other similar basis for providing its output or services to a public sector entity or for providing non-discriminatory access to users in pursuance of its charter, concession, or contract, as the case may be. For the avoidance of doubt, a project which constitutes a natural monopoly such as an airport or port should normally be included in this category even if it is not based on a long-term agreement with a public entity;
 - (b) the entity claiming experience should have held, in the company owning the Eligible Project, a minimum of 26% (twenty-six percent) equity during the entire year for which Eligible Experience is being claimed;
 - (c) the capital cost of the project should be more than 5% of the amount specified as the Estimated Project Cost; and
 - (d) the entity claiming experience shall, during the last 5 (five) financial years preceding the Bid Due Date, have itself undertaken the construction of the project for an amount equal to at least one-half of the Project Cost of eligible projects, excluding any part of the project for which any contractor, subcontractor or other agent was appointed for construction.
- (ii) For a project to qualify as an Eligible Project under Categories 3 and 4, the Bidder should have received payments from its client(s) for construction works executed, fully or partially, or work executed and certified by the Engineer-in-charge/Independent Engineer/Authority's Engineer during the 5 (five) financial years immediately preceding the Bid Due Date, and only the amounts (gross) actually received/ work executed, during such 5 (five) financial years shall qualify for purposes of computing the Experience Score. However, receipts of or work executed amount less than ***[5% of the Estimate Cost of Project]** shall not be reckoned as receipts for Eligible Projects. For the avoidance of doubt, construction works shall not include the supply of goods or equipment except when such goods or equipment form part of a turn-key construction contract / EPC contract for the project. Further, the cost of land and also the cost of pre-construction activities (like shifting of utilities, etc.) shall not be included hereunder.
- (iii) The Bidder shall quote experience in respect of a particular Eligible Project under anyone category only, even though the Bidder (either individually or along with a member of the Joint Venture) may have played multiple roles in the cited project. Double counting for a particular Eligible Project shall not be permitted in any form.
- (iv) Experience for any activity relating to an Eligible Project shall not be claimed by two or more Members of the Joint Venture. In other words, no double counting by a Joint Venture in respect of the same experience shall be permitted in any manner whatsoever.

2.2.2.7 Submission in support of Technical Capacity

- (i) The Bidder should furnish the details of Eligible Experience for the last 5 (five) financial years immediately preceding the Bid Due Date.
- (ii) The Bidder must provide the necessary information relating to Technical Capacity as per the format in Annex-II of Appendix-IA.
- (iii) The Bidder should furnish the required Project-specific information and evidence in support of its claim of Technical Capacity, as per format at Annex -IV of Appendix-IA

2.2.2.8 Submission in support of financial capacity

- (i) The Technical Bid must be accompanied by the Audited Annual Reports of the Bidder (of each Member in case of a Joint Venture) for the last 5 (five) financial years, preceding the year in which the bid is submitted.
- (ii) In case the annual accounts for the latest financial year are not audited and therefore the Bidder cannot make it available, the Bidder shall give an undertaking to this effect and the statutory auditor shall certify the same with a valid UDIN no.
- (iii) The Bidder must establish the minimum Net Worth specified in Clause 2.2.2.3, and provide details as per the format in Annex-III of Appendix-IA.

2.2.2.9 The Bidder shall enclose with its Technical Bid, to be submitted as per the format at Appendix-IA, complete with its Annexes, the following:

- (i) Certificate(s) from its statutory auditors or the concerned client(s) stating the payments received or in case of a PPP project, the construction carried out by itself, during the past 5 years, in respect of the Eligible Projects. In case a particular job/ contract has been jointly executed by the Bidder (as part of a Joint Venture), it should further support its claim for the payments received or construction carried out by itself in PPP Projects as applicable the share in work done for that particular job/ contract by producing a certificate from its statutory auditor or the client; and
- (ii) Certificate(s) from its statutory auditors specifying the net worth of the Bidder, as at the close of the preceding financial year, and also specifying that the methodology adopted for calculating such net worth conforms to the provisions of Clause 2.2.2.9
 - (ii). For the purposes of this RFP, net worth (the “Net Worth”) shall mean the aggregate value of the paid-up share capital and all reserves created out of the profits and securities premium account, after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out of revaluation of assets, write-back of depreciation and amalgamation.

2.3 Proprietary data

All documents and other information supplied by the Authority or submitted by a Bidder to the Authority shall remain or become the property of the Authority and are transmitted to the Bidders solely for the purpose of preparation and the submission of a BID in accordance herewith. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for the preparation and submission of their Bid. The provisions of this Clause 2.3 shall also apply mutatis mutandis to BIDs and all other documents submitted by the Bidders, and the Authority will not return to the Bidders any BID, document, or any information provided along therewith.

2.4 Cost of Bidding

The Bidders shall be responsible for all of the costs associated with the preparation of their BIDs and their participation in the Bidding Process. The Authority will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding process.

2.5 Site visit and verification of information

- 2.5.1 Bidders are encouraged to submit their respective BIDs after visiting the Project site and ascertaining for themselves the site conditions, river channel flow study, sub-soil investigation,

traffic, location, surroundings, climate, availability of power, water & other utilities for construction, access to the site, handling and storage of materials, weather data, applicable laws and regulations, and any other matter considered relevant by them. Bidders are advised to visit the site and familiarize themselves with the Project within the stipulated time of submission of the Bid. No extension of time is likely to be considered for submission of Bids.

2.5.2 It shall be deemed that by submitting a BID, the Bidder has:

- (a) made a complete and careful examination of the Bidding Documents and schedules annexed to the EPC agreement Document;
- (b) received all relevant information requested from the Authority;
- (c) accepted the risk of inadequacy, error, or mistake in the information provided in the Bidding Documents or furnished by or on behalf of the Authority relating to any of the matters referred to in Clause 2.5.1 above. No claim shall be admissible at any stage on this account.
- (d) satisfied itself about all matters, things, and information including matters referred to in Clause 2.5.1 hereinabove necessary and required for submitting an informed BID, execution of the Project in accordance with the Bidding Documents, and performance of all of its obligations thereunder;
- (e) acknowledged and agreed that inadequacy, lack of completeness, or incorrectness of the information provided in the Bidding Documents or ignorance of any of the matters referred to in Clause 2.5.1 hereinabove shall not be a basis for any claim for compensation, damages, an extension of time for performance of its obligations, loss of profits, etc. from the Authority, or a ground for termination of the Agreement by the Contractor;
- (f) acknowledged that it does not have a Conflict of Interest; and
- (g) agreed to be bound by the undertakings provided by it under and in terms hereof.

2.5.3 The Authority shall not be liable for any omission, mistake, or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to RFP, including any error or mistake therein or in any information or data given by the Authority

2.6 Verification and Disqualification

2.6.1 The Authority reserves the right to verify all statements, information, and documents submitted by the Bidder in response to the RFP and the Bidder shall, when so required by the Authority, make available all such information, evidence, and documents as may be necessary for such verification. Any such verification, or lack of such verification, by the Authority, shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of the Authority thereunder.

2.6.2 The Authority reserves the right to reject any BID and appropriate the BID Security if:

- (a) at any time, a material misrepresentation is made or uncovered, or
- (b) the Bidder does not provide, within the time specified by the Authority, the supplemental information sought by the Authority for evaluation of the BID.

Such misrepresentation/ improper response shall lead to the disqualification of the Bidder. If the Bidder is a Joint Venture, then the entire Joint Venture and each Member of the Joint Venture may be disqualified/ rejected. If such disqualification/rejection occurs after the BIDs have been opened and the lowest Bidder gets disqualified/rejected, then the Authority reserves the right to annul the Bidding Process and invite fresh bids.

2.6.3 In case it is found during the evaluation or at any time before signing of the Agreement or after its execution and during the period of defect liability subsistence thereof, that one or more of the eligibility and /or qualification requirements have not been met by the Bidder, or the Bidder has made material misrepresentation or has given any materially incorrect or false information, the Bidder shall be disqualified forthwith if not yet appointed as the contractor either by issue of the LOA or entering into of the Agreement, and if the Selected Bidder has already been issued the

LOA or has entered into the Agreement, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFP, be liable to be terminated, by a communication in writing by the Authority to the Selected Bidder or the Contractor, as the case may be, without the Authority being liable in any manner whatsoever to the Selected Bidder or the Contractor. In such an event, the Authority shall be entitled to forfeit and appropriate the BID Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and/or the Agreement, or otherwise.

- 2.6.4 A Bidder shall be liable for disqualification and forfeiture of BID Security, if any legal, financial, or technical adviser of the Authority in relation to the Project is engaged by the Bidder, its Member, or any Associate thereof, as the case may be, in any manner for matters related to or incidental to such Project during the Bidding Process or subsequent to the (i) issue of the LOA or (ii) execution of the Agreement. In the event any such adviser is engaged by the selected Bidder or Contractor, as the case maybe, after issue of the LOA or execution of the Agreement for matters related or incidental to the project, then notwithstanding anything to the contrary contained herein or in the LOA or the Agreement and without Prejudice to any other right or remedy or the Authority, including the forfeiture and appropriation of the BID Security or Performance Security, as the case may be, which the Authority may have thereunder or otherwise, the LOA or the Agreement, as the case may be, shall be liable to be terminated without the Authority being liable in any manner whatsoever to the Selected Bidder or Contractor for the same. For the avoidance or doubt, this disqualification shall not apply where such adviser was engaged by the Bidder, its Member, or Associate in the past but its assignment expired or was terminated 6 (six)months prior to the date of issue of this RFP. Nor will this disqualification apply where such an adviser is engaged after a period of 3 (three) years from the date of commercial operation of the Project.

B. DOCUMENTS

2.7 Contents of the RFP

- 2.7.1 This RFP comprises the Disclaimer set forth hereinabove, the contents as listed below, and will additionally include any Addenda issued in accordance with Clause 2.9.

		<u>Sections</u>
		<ul style="list-style-type: none">• Section 1 Introduction• Section 2. Instructions to Bidders• Section 3. Evaluation of BIDs• Section 4. Fraud and Corrupt Practices• Section 5. Pre-BID Conference• Section 6. Miscellaneous

Volume I	Invitation for Bids	<p style="text-align: center;"><u>Appendices</u></p> <ul style="list-style-type: none"> • IA Letter comprising the Technical BID including Annexure I to VIII • IB Letter comprising the Financial BID • II Copy of online receipt towards payment of Bid Security. Bid security is required to be paid online only through the e-tendering portal. • III. Power of Attorney for the signing of bid • IV. Power of Attorney for Lead Member of Joint Venture • V. Joint Bidding Agreement for Joint Venture • VI. Integrity Pact Format • VII. Form of Bank Guarantee (For Performance Security) • VIII. Format of LOA • IX. Certificate regarding Compliance with Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs)
Volume II	EPC agreement with Schedules and Drawings	

2.7.2 The draft Agreement and the Detailed Project Report provided by the Authority as part of the BID Documents shall be deemed to be part of this RFP.

2.8 Clarifications

2.8.1 Bidders requiring any clarification on the RFP may notify the Authority in writing by e-mail in accordance with Clause 1.2.9. They should send in their queries on or before the date mentioned in the Schedule of Bidding Process specified in Clause 1.3. The Authority shall endeavor to respond to the queries within the period specified therein. The responses will be sent by fax or e-mail. The Authority will forward all the queries and their responses thereto, to all Bidders without identifying the source of queries.

2.8.2 The Authority shall endeavor to respond to the questions raised or clarifications sought by the Bidders. However, the Authority reserves the right not to respond to any question or provide any clarification, in its sole discretion, and nothing in this Clause shall be taken or read as compelling or requiring the Authority to respond to any question or to provide any clarification.

2.8.3 The Authority may also on its own motion, if deemed necessary, issue interpretations & clarifications to all Bidders. All clarifications & interpretations issued by the Authority shall be deemed to be part of the Bidding Documents. Verbal clarifications and information given by the Authority or its employees or representatives shall not in any way or manner be binding on the Authority.

2.9 Amendment of RFP

2.9.1 At any time prior to the BID Due Date, the Authority may, for any reason, whether at its own initiative or in response to clarifications requested by a Bidder, modify the RFP by the issuance of an Addenda.

2.9.2 Any Addendum issued hereunder will be hosted on the UPSBC's e-Tendering Portal (<https://etender.up.nic.in/nicgep/app>)

- 2.9.3 In order to afford the Bidders a reasonable time for taking an Addendum into account, or for any other reason, the Authority may, in its sole discretion, extend the BID Due Date.

C. PREPARATION AND SUBMISSION OF BIDS

2.10 Format and Signing of BID

- 2.10.1 The Bidder shall provide all the information sought under this RFP. The Authority will evaluate only those BIDs that are received online in the required formats and complete in all respects. However, Bid Security, POA for signing the Bid, POA for lead member of JV, if any, JBA for JV, if any, Integrity Pact, and experience certificates apostille at foreign origin, if any shall be submitted physically in original by the Lowest Bidder (including all of its joint venture members) before issuance of Letter of Acceptance (LOA) by the Authority when asked to submit. The lowest Bidders (including all of its Joint Venture Members) failing to submit the original documents required as per above shall be unconditionally debarred from bidding in UPSBC projects for a period of 2 (two) years.
- 2.10.2 The BID shall be typed and signed in indelible blue ink by the authorized signatory of the Bidder. All the alterations, omissions, additions, or any other amendments made to the BID shall be initialled by the person(s) signing the BID.

2.11 Documents comprising Technical and Financial BID

- 2.11.1 The Bidder shall first upload all the project details, net worth details, turnover details, eligibility/experience details, and all other details required in this RFP for technical qualification. The Bidder shall ensure that all the details are updated as of the due date of submission of this bid.

The Bidder shall then apply for the RFP on the tendering portal (<https://etender.up.nic.in/nicgep/app>) by submitting the documents mentioned below along with the supporting documents which shall comprise the Technical BID on the portal:

Technical Bid

- (a) Appendix-IA (Letter comprising the Technical Bid) including Annexure I-VII and supporting certificates/documents.
- (b) Power of Attorney for signing the BID as per the format in Appendix III;
- (c) if applicable, Power of Attorney for Lead Member of Joint Venture as per the format in Appendix-IV;
- (d) if applicable, Joint Bidding Agreement for Joint Venture as per the format in Appendix-V;
- (e) Copy of online receipt towards payment of Bid Security. Bid security is required to be paid online only through the e-tendering portal.
- (f) Copy of Online receipt towards payment of the cost of Bid document. The bid document Fee is to be paid online only through the e-tendering portal.
- (g) Bidder shall comply with the provisions of Govt. UP GO no. 184/23-7-172(s)/2017 dated 31.01.2019 regarding Integrity Pact (IP) and the Integrity Pact (IP) duly signed by the Authorised signatory shall be submitted by the Bidder as per Appendix-VI with the RFP Bid & shall be part of the Contract Agreement;
- (h) An undertaking from the person having PoA referred to in Sub. Clause-(b) above that they agree and abide by the Bid documents uploaded by UPSBC and amendments uploaded, if any; and
- (i) Annexure-VIII of Appendix – IA showing details of all ongoing project works (Ref Clause 10.3 (iv) of Document for EPC Agreement).
- (j) Copy of Memorandum and Articles of Association, if the Bidder is a body corporate, and if a partnership then a copy of its partnership deed.
- (k) Copies of duly audited complete annual accounts of the Bidder or of each member (in case of Joint Venture) for the preceding 5 years.

-
- (l) Copy of originals of experience certificates apostille at foreign origin, if any (m) Certificate regarding Compliance with Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs) as per the format given in Appendix-IX shall be submitted by the Bidder with the RFP Bid duly signed by the Authorised signatory & shall be part of the Contract Agreement; and
- (n) Copy of Registration from the Competent Authority as defined in Public Procurement Order No. F. No. 6/18/2019-PPD dated 23rd July 2020, if applicable (to be submitted by the “Bidder from a country which shares a land border with India”)

Financial Bid

Appendix-IB (Letter comprising the Financial Bid) shall be submitted online through the e-procurement portal on or before per Schedule of bidding in Clause 1.3

- 2.11.2 The Bidder is not required to physically submit the original documents. However, the bidder shall ensure the correctness of documents listed under clause 2.11.1 of the Technical Bid. Any discrepancy shall result in the disqualification of the bidders.

2.11.3 NIL

2.11.4

ATTN.OF:
DESIGNATION
ADDRESS:

Mr. Kamal Kumar Srivastava
General Manager (Lucknow)
Vibhuti Khand, Gomti Nagar,
Lucknow-226010

PHONE NO:
E-MAIL ADDRESS

8765973145
gmlkousbc@gmail.com

[the address of tender calling Authority or it's Authorised Representative]

- 2.11.5 BIDs submitted by fax, telex, telegram, or e-mail shall not be entertained and shall be summarily rejected.

2.12 BID Due Date

Financial BID comprising of the documents listed in clause 2.11.1 of the RFP shall be submitted online through the UPSBC e-procurement portal on or before the date and time mentioned as per Clause 1.3 of the RFP. **The Bidder shall upload the scanned copy of the original documents as stated in 2.11.1 along with the bid on or before the date and time mentioned as per Clause 1.3 of the RFP and no physical submission is required to be submitted. However, the successful bidder shall submit the original documents as uploaded in the Bid physically with the concerned authority before issuance of the LOA, when asked.**

2.13 Late BIDs

E-procurement portal <https://etender.up.nic.in/nicgep/app> shall not allow submission of any Bid after the prescribed date and time at clause 2.12.

2.14 Procedure for e-tendering

2.14.1 Accessing/ Purchasing of BID documents

- 2.14.1.1 It is mandatory for all the Bidders to have a class-III Digital Signature Certificate (DSC)(in the name of the Authorized Signatory / Firm or Organization / Owner of the Firm or Organization) from any of the licensed Certifying Agency (Bidders can see the list of licensed CAs from the link www.cca.gov.in) to participate in e- tendering of UPSBC.

DSC should be in the name of the authorized signatory as authorized in Appendix III of this RFP or the person executing/delegating such Appendix III in favour of the Authorized Signatory. It should be in corporate capacity (that is in Bidder capacity / in case of JV in the Lead Member capacity, as applicable). The Bidder shall submit a document in support of the class III DSC. In other cases, the bid shall be considered Nonresponsive.

- 2.14.1.2 To participate in the bidding, it is mandatory for the Bidders to register their firm / Joint Venture with the e-procurement portal <https://etender.up.nic.in/nicgep/app> to have a user ID & password which has to be obtained free of cost. The following may kindly be noted:

- (a) Registration with the e-procurement portal should be valid at least up to the date of submission of BID.
- (b) BIDs can be submitted only during the validity of registration.

It is also mandatory for the Bidders to get their firms registered with the e-tendering portal. The Bidders shall update their project and other details on the portal on a regular basis and apply to the tenders via the portal.

- 2.14.1.3 If the firm / Joint Venture is already registered with the e-tendering service provider, and the validity of registration has not expired, then the firm / Joint Venture does not require a fresh registration.

- 2.14.1.4 The complete BID document can be viewed/downloaded by the Bidder from the e- procurement portal <https://etender.up.nic.in/nicgep/app> as per the date and time mentioned as per Clause 1.3 of RFP.

- 2.14.1.5 The Bidder shall proceed with payment of the tender fee and bid security amounts through the online payment mechanism developed by UPSBC as below;

- (a) Visit the website <https://upsbcl.procure247.com/TenderPay/x-login>
- (b) Valid Bidder having class III DSC used for uploading the bid on <https://etender.up.nic.in/nicgep/app> shall fill out the registration form and create a valid login ID. Any discrepancy in the difference between the name of the bidder submitting the bid and that making payments shall be considered non- responsive.
- (c) Log in to the EMD portal and search for the tender the Bidder is interested in submitting.
- (d) Navigate to the "Payment Dashboard" in the Action tab of the selected tender.
- (e) Choose the appropriate payment option (Online/Challan) and complete the payment process.
- (f) After completing the payment, The Bidder shall download the payment receipt and upload it on the NIC portal <https://etender.up.nic.in/nicgep/app> for submitting the bid.

2.14.2 Preparation & Submission of BIDs:

- 2.14.2.1 The Bidder may submit his Bid online following the instructions appearing on the screen. The detailed guidelines for e-procurement are also available on the e- procurement portal.

- 2.14.2.2 The documents listed in clause 2.11.1 shall be prepared and scanned in different files (in PDF or RAR format such that file size is not more than 30 MB) and uploaded during the on-line submission of BID.

- 2.14.2.3 Bid must be submitted online only through the e-procurement portal <https://etender.up.nic.in/nicgep/app> using the digital signature of an authorized representative of the Bidder on or before the date and time mentioned as per Clause 1.3 of RFP.
- 2.14.2.4 The Bidder shall proceed with payment of the tender fee and bid security amounts through the online payment mechanism developed by UPSBC as below;
- (a) Visit the website <https://upsbcl.procure247.com/TenderPay/x-login>
 - (b) Valid Bidder having class III DSC used for uploading the bid on <https://etender.up.nic.in/nicgep/app> shall fill out the registration form and create a valid login ID. Any discrepancy in the difference between the name of the bidder submitting the bid and that making payments shall be considered non- responsive.
 - (c) Log in to the EMD portal and search for the tender the Bidder is interested in submitting.
 - (d) Navigate to the "Payment Dashboard" in the Action tab of the selected tender.
 - (e) Choose the appropriate payment option (Online/Challan) and complete the payment process.
- 2.14.2.5 After completing the payment, the bidder shall download the payment receipt and upload it on the NIC portal <https://etender.up.nic.in/nicgep/app> for submitting the technical bid.
- 2.14.3 Modifications/ Substitution/Withdrawal of BIDs
- 2.14.3.1 The Bidder may modify, substitute, or withdraw its e-BID after submission before the BID Due Date. No BID can be modified, substituted, or withdrawn by the Bidder on or after the BID Due Date & Time.
- 2.14.3.2 For modification of e-BID, Bidder has to detach its old BID from the e-procurement portal and upload/resubmit a digitally signed modified BID. For withdrawal of BID, Bidder has to click on the withdrawal icon at the e-procurement portal and can withdraw its e-BID. Before withdrawal of a BID, it may specifically be noted that after withdrawal of a BID for any reason, Bidder cannot re-submit e-BID again.

2.15 Online Opening of BIDs

- 2.15.1 Opening of BIDs will be done through an online process.
- 2.15.2 The Authority shall on-line open Technical BIDs as per the date and time mentioned per Clause 1.3 of RFP herein above in the presence of the authorized representatives of the Bidders, who choose to attend. The Authority will subsequently examine and evaluate the BIDs in accordance with the provisions of Section 3 of the RFP.

2.16 Rejection of BIDs

- 2.16.1 Notwithstanding anything contained in this RFP, the Authority reserves the right to reject any BID and to annul the Bidding Process and reject all BIDs at any time without any liability or any obligation for such acceptance, rejection, or annulment, and without assigning any reasons thereof. In the event that the Authority rejects or annuls the BIDs, it may, at its discretion, invite all eligible Bidders to submit fresh BIDs hereunder.
- 2.16.2 The Authority reserves the right not to proceed with the Bidding Process at any time, without notice or liability, and to reject any BID without assigning any reasons.

2.17 Validity of BIDs

The BIDs shall be valid for a period of not less than 120 (one hundred and twenty) days from the BID Due Date. The validity of BIDs may be extended by mutual consent of the respective

2.18 Confidentiality

Information relating to the examination, clarification, evaluation, and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the processor and is not a retained professional advisor advising the Authority in relation to, or matters arising out of, or concerning the Bidding Process. The Authority will treat all information, submitted as part of the BID, in confidence and will require all those who have access to such material to treat the same in confidence. The Authority may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or the Authority or as may be required by law or in connection with any legal process.

2.19 Correspondence with the Bidder

Save and except as provided in this RFP, the Authority shall not entertain any correspondence with any Bidder in relation to the acceptance or rejection of any BID. However, the Authority would display the result of the technical evaluation on the web portal for 7 days including reasons for non- responsiveness, if any, and the financial bid will be opened thereafter.

D. BID SECURITY

2.20 BID Security

- 2.20.1 The Bidder shall furnish as part of its BID, a BID Security referred to in Clause 1.2.4 herein above in the form as specified therein.**
- 2.20.2 The Bidder shall submit online, along with its bid, bid security of (*2% of estimated project cost upto 50 crores and 1% of estimated project cost above 50 crores) (the Bid security), refundable not later than 150 days from the bid due date. The step-by- step manual and guidelines for online payment of bid security and the tender fee are mentioned in clause 2.14.1.5 of the RFP.
- 2.20.3 The Selected Bidder's BID Security will be returned, without any interest, upon the Bidder signing the Contract Agreement and furnishing the Performance Security and Additional Performance Security, if any, in accordance with the provisions thereof. The Authority may, at the Selected Bidder's option, adjust the amount of BID Security in the amount of Performance Security to be provided by him in accordance with the provisions of the Agreement.
- 2.20.4 The Authority shall be entitled to forfeit and appropriate the BID Security as Damages inter alia in any of the events specified in Clause 2.20.5 herein below. The Bidder, by submitting its BID pursuant to this RFP, shall be deemed to have acknowledged and confirmed that the Authority will suffer loss and damage on account of withdrawal of its BID or for any other default by the Bidder during the period of BID validity as specified in this RFP. No relaxation of any kind on BID Security shall be given to any Bidder.
- 2.20.5 The BID Security shall be forfeited and appropriated by the Authority as damages payable to the Authority for, inter-alia, time cost, and effort of the Authority without prejudice to any other right or remedy that may be available to the Authority under the bidding documents and/or under the Agreement, or otherwise, under the following conditions:
- (a) Deleted
 - (b) If a Bidder engages in a corrupt practice, fraudulent practice, coercive practice, undesirable practice, or restrictive practice as specified in Section 4 of this RFP;

-
- (c) If a Bidder withdraws its BID during the period of Bid validity as specified in this RFP and as extended by mutual consent of the respective Bidder(s) and the Authority;
 - (d) In the case of Selected Bidder, if it fails within the specified/extended time limit by Authority –
 - (i) to sign and return the duplicate copy of the LOA;
 - (ii) to furnish the Performance Security /Additional Performance Security (if any) as per Clause 2.21; or
 - (iii) to sign the Agreement;

2.21 Performance Security

- 2.21.1 Within 30 (thirty) days of receipt of the Letter of Acceptance, the selected Bidder shall furnish to the Authority an irrevocable and unconditional guarantee from a Bank in the form set forth in Appendix-VII (the “Performance Security”) for an amount equal to 5% (five percent) of its Bid Price along with GST as applicable. In case of bids mentioned below, the Selected Bidder, along with the Performance Security, shall also furnish to the Authority an irrevocable and unconditional guarantee from a Bank in the same form given in Appendix-VII towards an Additional Performance Security (the “Additional Performance Security”) for an amount calculated as under:
 - (i) If the Bid Price offered by the Selected Bidder is **lower than 20% of the estimated Project Cost**/cost put to tender, the Additional Performance Security shall be calculated @20% of the difference in the (i) Estimated Project Cost (as mentioned in RFP)-20% of the Estimated Project Cost and (ii) the Bid Price offered by the selected Bidder.
 - (ii) The maximum limit of additional performance security **shall be limited to 3% of the Bid price** along with GST as applicable and offered by the selected bidder.
 - (iii) This Additional Performance Security shall be treated as part of the Performance Security.
- 2.21.2 The Performance Security shall be valid until 60 (sixty) days after the Defects Liability Period. The Additional Performance Security shall be valid until 28 (twenty- eight) days after the Project Completion Date.
- 2.21.3 The Selected Bidder shall provide the Performance Security and the Additional Performance Security, if any, within 30 (thirty) days of receipt of the Letter of Acceptance, in any case before signing the Contract Agreement.
- 2.21.4 For the avoidance of any doubt, in case of failure of submission of Performance Security and Additional Performance Security, if any, within the specified period, the award shall be deemed to be cancelled/ withdrawn and the Bid Security shall be encashed and the proceeds thereof appropriated by the Authority. Thereupon all rights, privileges, claims, and entitlements of the Contractor under or arising out of the Award shall be deemed to have been waived by, and to have ceased with the concurrence of the Contractor, and the Award shall be deemed to have been withdrawn by the Authority
- 2.22** The agreement will be executed within 10 days of receipt of Performance Security and Additional Performance Security, if any, as per sub-clause 2.21 above.

SECTION-3

3 Evaluation of Technical Bids and Opening & Evaluation of Financial Bids

3.1 Evaluation of Technical Bids

- 3.1.1 The Authority shall open the BIDs received online after as per the Schedule of Bidding in Clause 1.3 herein above at the place specified in Clause 2.11.4 (i); and in the presence of the Bidders who choose to attend. The Authority shall prepare minutes of the BID opening, including information disclosed to those present at the time of the BID opening.
- 3.1.2 Technical Bids of those Bidders, who have not submitted their Bid online, shall not be considered for opening and evaluation.
- 3.1.3 If any information furnished by the Bidder is found to be incomplete, or contained in formats other than those specified herein, the Authority may, in its sole discretion, exclude the relevant information for consideration of eligibility and qualification of the Bidder.
- 3.1.4 To facilitate the evaluation of Technical BIDs, the Authority may, at its sole discretion, seek clarifications in writing from any Bidder regarding its Technical BID. Such clarification(s) shall be provided within the time specified by the Authority for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing. The bids will be examined and evaluated in accordance with the provisions set out in Section 3. The Authority will subsequently flag issues, if any with the data updated by the Bidders.
- 3.1.5 If a Bidder does not provide clarifications sought under Clause 3.1.4 above within the prescribed time, its Bid may be liable to be rejected. In case the Bid is not rejected, the Authority may proceed to evaluate the Bid by construing the particulars requiring clarification to the best of its understanding, and the Bidder shall be barred from subsequently questioning such interpretation of the Authority.
- 3.1.6 Tests of responsiveness**
- 3.1.6.1 As a first step towards the evaluation of Technical BIDs, the Authority shall determine whether each Technical BID is responsive to the requirements of this RFP. A Technical BID shall be considered responsive only if:
- (a) Technical BID is received online as per the format in Appendix-IA including Annexure I, IV, V and VI(Bid Capacity format);
 - (b) Technical Bid is accompanied by the BID Security as specified in Clause 1.2.4 and 2.20;
 - (c) The Power of Attorney is uploaded on the e-procurement portal as specified in Clauses 2.1.5;
 - (d) Technical Bid is accompanied by Power of Attorney for Lead Member of Joint Venture and the Joint Bidding Agreement as specified in Clause 2.1.6 if so required;
 - (e) Technical Bid contains all the information (complete in all respects);
 - (f) Technical Bid does not contain any condition or qualification; and

-
- (g) Copy of online receipt towards payment of the cost of Bid document Fee of Rs 20,000/- (Rupees Twenty Thousand only) paid online only through the portal.

- 3.1.6.2 The Authority reserves the right to reject any Technical BID which is non-responsive and no request for alteration, modification, substitution, or withdrawal shall be entertained by the Authority in respect of such BID.
- 3.1.7 In the event that a Bidder claims credit for an Eligible Project, and such claim is determined by the Authority as incorrect or erroneous, the Authority may reject/correct such claim for the purpose of qualification requirements.
- 3.1.8 The Authority will get the BID security verified from the issuing authority and after due verification, the Authority will evaluate the Technical BIDs for their compliance with the eligibility and qualification requirements pursuant to clauses 2.2.1 & 2.2.2 of this RFP.
- 3.1.9 After evaluation of Technical Bids, the Authority will publish a list of Technically Responsive Bidders whose financial bids shall be opened. The Authority shall notify other Bidders that they have not been technically responsive. The Authority will not entertain any query or clarification from Applicants who fail to qualify.

3.2 Opening and Evaluation of Financial Bids

The Authority shall inform the venue and time of the online opening of the Financial Bids to the technically responsive Bidders through the e-procurement portal and e-mail.

The Authority shall open the online Financial Bids of the technically responsive Bidders on the scheduled date and time in the presence of the authorized representatives of the Bidders who may choose to attend.

The Authority shall publicly announce the Bid Prices quoted by the technically responsive Bidder. Thereafter, the Authority shall prepare a record of the opening of Financial Bids.

3.3 Selection of Bidder

- 3.3.1 Subject to the provisions of Clause 2.16.1, the Bidder whose BID is adjudged as responsive in terms of Clause 3.1.6, and who quotes the lowest price shall be declared as the selected Bidder (The “**Selected Bidder**”)
- 3.3.2 In the event that two or more Bidders quote the same BID Price (the "Tie BIDs"), the Authority shall identify the Selected Bidder by draw of lots, which shall be conducted, with prior notice, in the presence of the Tie Bidders who choose to attend.
- 3.3.3 In the event that the Lowest Bidder is not selected for any reason except the reason mentioned in Clause 2.1.12 (b) (4), the Authority shall annul the Bidding Process and invite fresh BIDs.
- 3.3.4 After selection, a Letter of Acceptance (the “LOA”) shall be issued in the format set forth in Appendix-VIII, in duplicate, by the Authority to the Selected Bidder, and the Selected Bidder shall, within 7(seven) days of the receipt of the LOA, sign and return the duplicate copy of the LOA in acknowledgment thereof. In the event the duplicate

copy of the LOA duly signed by the Selected Bidder is not received by the stipulated date, the Authority may, unless it consents to an extension of time for submission thereof, appropriate the BID Security of such Bidder as Damages on account of the failure of the Selected Bidder to acknowledge the LOA.

- 3.3.5 After acknowledgment of the LOA as aforesaid by the Selected Bidder, it shall cause the Bidder to submit Performance Security and Additional Performance Security (if any) within the period prescribed/extended by Authority and then execute the Agreement within the period prescribed in Clause 1.3. The Selected Bidder shall not be entitled to seek any deviation, modification, or amendment in the Agreement.
- 3.3.6 The authority shall return the Bid Security of all bidders except L-1 and L-2 within 7 working days from the opening of the financial Bid subject to the provision of Clause 2.1.12 (4). The bid security of the L-2 bidder shall be returned within 7 working days of the issue of the LOA. The Authority shall be responsible for returning the Bid Security, as above, and the bidders shall not be required to ask for the same.

3.4 Contacts during BID Evaluation

BIDs shall be deemed to be under consideration immediately after they are opened and until such time the Authority makes official intimation of award/ rejection to the Bidders. While the BIDs are under consideration, Bidders and/ or their representatives or other interested parties are advised to refrain, save, and except as required under the Bidding Documents, from contacting by any means, the Authority and/ or their employees/representatives on matters related to the BIDs under consideration.

3.5 Correspondence with Bidder

Save and except as provided in this RFP, the Authority shall not entertain any correspondence with any Bidder in relation to the acceptance or rejection of any Bid.

- 3.6 Any information contained in the Bid shall not in any way be construed as binding on the Authority, its agents, successors, or assigns, but shall be binding against the Bidder if the Project is subsequently awarded to it on the basis of such information.

SECTION-4

4 FRAUD AND CORRUPT PRACTICES

- 4.1 The Bidders and their respective officers, employees, agents, and advisers shall observe the highest standard of ethics during the Bidding Process and subsequent to the issue of the LOA and during the subsistence of the Agreement. Notwithstanding anything to the contrary contained herein, or in the LOA or the Agreement, the Authority may reject a BID, withdraw the LOA, or terminate the Agreement, as the case may be, without being liable in any manner whatsoever to the Bidder, if it determines that the Bidder, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process. In such an event, the Authority shall be entitled to forfeit and appropriate the BID Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and/ or the Agreement, or otherwise.
- 4.2 Without prejudice to the rights of the Authority under Clause 4.1 hereinabove and the rights and remedies which the Authority may have under the LOA or the Agreement, or otherwise if a Bidder or Contractor, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process, or after the issue of the LOA or the execution of the Agreement, such Bidder shall not be eligible to participate in any tender or RFP issued by the Authority during a period of 2 (two) years from the date such Bidder, or Contractor, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practices, as the case may be.
- 4.3 For the purposes of this Section 4, the following terms shall have the meaning hereinafter respectively assigned to them:
- (a) “Corrupt practice” means the offering, giving, receiving, or soliciting of anything of value, pressurizing to influence the action of a public official in the process of tendering and execution of the project;
 - (b) “Fraudulent practice” means a misrepresentation or omission of facts suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;
 - (c) “Coercive practice” means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person’s participation or action in the Bidding Process;
 - (d) “Undesirable practice” means (i) establishing contact with any person connected with or employed or engaged by the Authority with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process; or (ii) having a Conflict of Interest; and
 - (e) “Restrictive practice” means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bidding Process.

SECTION-5

5 PRE-BID CONFERENCE

- 5.1 Pre-BID conference of the Bidders shall be convened at the designated date, time, and place. A maximum of two representatives of prospective Bidders shall be allowed to participate in the production of authority letters from the Bidder.
- 5.2 During the course of the Pre-Bid conference(s), the Bidders will be free to seek clarifications and make suggestions for consideration of the Authority. The Authority shall endeavor to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent, and competitive Bidding Process.

SECTION-6

6 MISCELLANEOUS

- 6.1 The Bidding Process shall be governed by, and construed in accordance with, the laws of India, and the Courts at the capital of Uttar Pradesh state (Lucknow), shall have exclusive jurisdiction over all disputes arising under, pursuant to, and/ or in connection with the Bidding Process.
- 6.2 The Authority, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to;
- (a) suspend and/ or cancel the Bidding Process and/ or amend and/ or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;
 - (b) consult with any Bidder in order to receive clarification or further information;
 - (c) retain any information and/ or evidence submitted to the Authority by, on behalf of, and/ or in relation to any Bidder; and/ or
 - (d) Independently verify, disqualify, reject, and/ or accept any and all submissions or other information and/ or evidence submitted by or on behalf of any Bidder.
- 6.3 It shall be deemed that by submitting the Bid, the Bidder agrees and releases the Authority, its employees, agents, and advisers, irrevocably, unconditionally, fully, and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and/ or performance of any obligations hereunder, pursuant hereto and/ or in connection with the Bidding Process and waives, to the fullest extent permitted by applicable laws, any and all rights and/ or claims it may have in this respect, whether actual or contingent, whether present or in future.

Appendix – IA

LETTER COMPRISING THE TECHNICAL BID

(Refer Clauses 2.1.4, 2.11 and 3.1.6)

To,

**Mr. Kamal Kumar Srivastava
General Manager (Lucknow Zone)
U.P. State Bridge Corporation Ltd.,
Vibhuti Khand, Gomti Nagar, Lucknow-226010**

Sub: BID for “Construction of 03 Lane R.O.B. At NE Railway Level X-ing No. 16-C AT KM 19/2-3 between Mohibullapur - BKT Railway Station on BKT - Asti Road in Distt. Lucknow on EPC Mode.”

Dear Sir,

1. With reference to your RFP document dated..... we, having examined the document and understood its contents, hereby submit our BID for the aforesaid Project. The BID is unconditional and unqualified.
2. I / We acknowledge that the Authority will be relying on the information provided in the BID and the documents accompanying such BID for the selection of the Bidders for the aforesaid Project, and we certify that all information provided in the BID and **Annexes I to VIII along with supporting documents** are true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying such BID are true copies of their respective originals.
3. This Statement is made for the express purpose of our selection as EPC Contractor for **the development of the subject Project** and Maintenance of the Project during the **Defects Liability Period (2 Years)**.
4. I/ We shall make available to the Authority any additional information it may find necessary or require to supplement or authenticate the BID.
5. I/ We acknowledge the right of the Authority to reject our BID without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
6. I/We certify that in the last three years, any of the Joint Venture Members have neither failed to perform on any contract, as evidenced by the imposition of a penalty by an arbitral or judicial Authority or a judicial pronouncement or arbitration award, nor been expelled from any Project or contract by any public Authority nor have had any contract terminated by any public Authority for breach on our part.
7. I/ We declare that:
 - (a) I/ We have examined and have no reservations about the Bidding Documents, including any Addendum issued by the Authority.

-
- (b) I/ We do not have any conflict of interest in accordance with Clauses 2.2.1(c) and 2.6. 4 of the RFP document; and
- (c) I/ We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice, or restrictive practice, as defined in Clause 4.3 of the RFP document, in respect of any tender or request for proposal issued by or any agreement entered into with the Authority or any other public sector enterprise or any Government, Central or State; and
- (d) I/ We hereby certify that we have taken steps to ensure that in conformity with the provisions of Section 4 of the RFP document, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.
- (e) the undertakings given by us along with the Application in response to the RFP for the Project and information mentioned for the evaluation of the BID Capacity in Annexure VI were true and correct as on the date of making the Application and are also true and correct as on the BID Due Date and I/we shall continue to abide by them.
8. I/ We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any BID that you may receive nor to invite the Bidders to BID for the Project, without incurring any liability to the Bidders, in accordance with Clause 2.16.2 of the RFP document.
9. I/ We believe that we/ our Joint Venture/ proposed Joint Venture satisfy (s) the Threshold Technical Capacity, and Net Worth criteria and meet(s) all the requirements as specified in the RFP document.
10. I/ We declare that we/ any Member of the Joint Venture or our/Joint Venture member, are not a member of any other Joint Venture submitting a BID for the Project.
11. I/ We certify that in regard to matters other than security and integrity of the country, we/ any Member of the Joint Venture or any of our/their Joint Venture member have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory Authority which could cast doubt on our ability to undertake the Project or which relates to a grave offense that outrages the moral sense of the community.
12. I/ We further certify that in regard to matters relating to the security and integrity of the country, we/ any Member of the Joint Venture or any of our/their Joint Venture member have not been charge-sheeted by any agency of the Government or convicted by a Court of Law.
13. I/ We further certify that no investigation by a regulatory Authority is pending either against us/ any Member of the Joint Venture or against our CEO or any of our directors/ managers/ employees.
14. I/ We further certify that we are not disqualified in terms of the additional criteria specified by Department of Disinvestment OM No. 6/4/2001-DD-II dated 13.07.01, a copy of which forms part of the RFP at Annexure VII of Appendix-IA thereof.
15. I /We undertake that in case due to any change in facts or circumstances during the Bidding Process, we are attracted by the provisions of disqualification in terms of the guidelines referred to above; we shall inform the Authority of the same immediately.

- 16 I /We further acknowledge and agree that in the event of a change in control occurring after signing of the Agreement up to its validity, it would not withstand anything to the contrary contained in the Agreement, be deemed a breach thereof, and the Agreement shall be liable to be terminated without the Authority being liable to us in any manner whatsoever
17. I/ We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by the Authority in connection with the selection of the Bidder, or in connect with the Bidding Process itself, in respect of the above mentioned Project and the terms and implementation thereof.
18. In the event of my / our being declared as the Select Bidder, I / We agree to enter into an Agreement in accordance with the draft that has been provided to us prior to the BID Due date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.
19. I/ We have studied all the Bidding Documents carefully and also surveyed the project area. We understand that except to the extent as expressly set forth in the Agreement, we shall have no claim, right, or title arising out of any documents or information provided to us by the Authority or in respect of any matter arising out of or relating to the Bidding process including aware of the Agreement
20. I/We offer a BID Security of Rs..... (Rupees only) to the Authority in accordance with the RFP Document.
21. The BID Security has been paid online.
22. The documents accompanying the Technical BID as specified in clause 2.11.1 of the RFP have been submitted in separate file.
23. I/We understand that the BID is subject to the provisions of the Bidding Documents. In no case I/ We shall have any claim or right of whatsoever nature if the project/contract is not awarded to me/us or our BID is not opened or rejected.
24. The BID price has been quoted by me/us or after taking into consideration all the terms and conditions stated in the RFP, Draft Agreement, our own estimate of costs, and after a careful assessment of the site and all the conditions that may affect the project cost and implementation of the project.
25. I /We agree and undertake to abide by all the terms and conditions of the RFP document
- 26 We the Joint Venture agree and undertake to be jointly and severally liable for all the obligations of the EPC Contract under the Contract Agreement.
27. I / We shall keep this offer valid for 120 (one hundred and twenty days)from the BID Due Date specified in the RFP.
28. I / We hereby submit our BID and offer a BID Price as indicated in Financial BID for undertaking the aforesaid Project in accordance with the Bidding Documents and the Agreement.

In witness thereof, I/we submit this BID under and in accordance with the terms of the RFP document.

Yours faithfully,

Place: (Signature, name, and designation of the Authorised Signatory)

Date: Name and seal of the Bidder/ Lead Member

Note: Paragraphs in square parenthesis may be omitted by the Bidder, if not applicable, and “ Deleted “ may be indicated there,

Appendix – IB

Letter Comprising the Financial Bid

(Refer Clauses 2.1.4, 2.11 and 3.1.6)

To,

Mr. Kamal Kumar Srivastava
General Manager (Lucknow Zone)
U.P. State Bridge Corporation Ltd.,
Vibhuti Khand, Gomti Nagar, Lucknow-226010

Sub: BID for “Construction of 03 Lane R.O.B. At NE Railway Level X-ing No. 16-C AT KM 19/2-3 between Mohibullapur - BKT Railway Station on BKT - Asti Road in Distt. Lucknow on EPC Mode.”

Dear Sir,

With reference to your RFP document dated..... I/ we, having examined the Bidding document and understood its contents, hereby submit my/our BID for the aforesaid Project. The BID is unconditional and unqualified.

2. I /We acknowledge that the Authority will be relying on the information provided in the BID and the documents accompanying such BID for the selection of the Contractor for the aforesaid Project, and we certify that all information provided in the BID is true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying such BID are true copies of their respective originals.
3. The BID price has been quoted by me/us after taking into consideration all the terms and conditions stated in the RFP, Draft Agreement, our own estimate of costs, and after a careful assessment of the site and all the conditions that may affect the project cost and implementation of the project.
4. I/ We acknowledge the right of the Authority to reject our BID without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
5. In the event of my/our being declared as the Select Bidder, I/We agree to enter into an Agreement in accordance with the draft that has been provided to us prior to the BID Due date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.
6. I / We shall keep this offer valid for 120 (one hundred and twenty days from the BID Due Date specified in the RFP.
- 7 **I/ We hereby submit our BID and offer a BID Price of Rs-----
(Rs in words) exclusive of GST for undertaking the aforesaid Project in accordance with the Bidding Documents and the Agreement. The GST shall be paid as applicable.**

Appendix 1B as part of the RFP shall be treated for reference only and not to be filled by the Bidder. The financial bit shall be evaluated considering financial figures, only available on the CPP portal

Yours faithfully,

Place: (Signature, name, and designation of the Authorised Signatory)

Date: Name and seal of the Bidder/ Lead Member of Authorized Signatory

Annex-I
Details of Bidder

1. (a) Name
 - (b) Country of incorporation
 - (c) Address of the corporate headquarters and its branch office(s), if any, in India:
 - (d) Date of incorporation and/ or commencement of business
2. Brief description of the Company including details of its main lines of business and proposed role and responsibilities in this Project:
3. Details of individual(s) who will serve as the point of contact/ communication for the Authority:
 - a) Name
 - b) Designation
 - c) Company
 - d) Address
 - e) Telephone number
 - f) E-mail address
 - g) Fax Number
4. Particulars of the Authorised Signatory of the Bidder
 - a) Name
 - b) Designation
 - c) Address
 - d) Telephone number
 - e) Fax Number
 - f) Class III Digital Signature Certificate ID number
5. In case of a Joint Venture
 - a) The information above (1-4) should be provided for all the Members of the Joint Venture.
 - b) A copy of the Jt. Bidding Agreement, as envisaged in **Clause 2.1.11. (f)** should be attached to the BID.
 - c) Information regarding the role of each Member should be provided as per the table below:

S No	Name of Member	Role* {Refer Clause 2.1.11 (d)}\$	Share of work in the Project{Refer Clauses 2.11. (a) (f) & (g)}
1			
2			

3		
---	--	--

- * The role of each Member, as may be determined by the Bidder, should be indicated in accordance with instruction 4 at **Annex-IV**

- d) The following information shall also be provided w.r.t. para 2.1.14 for each Member of the Joint Venture:

Name of Applicant / member of Joint Venture:

S.No.	Criteria	Yes	No
1.	Has the Bidder/ constituent of the Joint Venture been barred by the [Central/ State] Government, or any entity controlled by it, from participating in any Project (BOT, EPC, or otherwise)?		
2.	If the answer to 1 is yes, does the bar subsist as on the date of BID?		

- e) The updated following information w.r.t **para 2.2.2.8** for the Bidder and each Member of the Joint Venture:
- 6(a) I/ We certify that in the last two years, we/ any of the JV partners have neither failed to perform for the works of Highways/City/Urban Roads/Utility provisions as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitral award against us, nor been expelled or terminated by MORTH/UPPWD/UPSBC or its implementing agencies for breach on our part.
- (b) I/ We certify that we/ any of the JV partners do not fall in any of the categories of being a non-performing entity given in Clause 2.1.14 of Instructions to Bidders in the projects of Highways/City/Urban Roads/Utility provisions works of Ministry of Road Transport & Highways or its implementing agencies or other Government/Government undertaking and furnished the complete details.
- 7(a) I/ We further certify that no investigation by a regulatory authority is pending either against us/any member of the Joint Venture or our sister concern or against our CEO or any of our directors/managers/employees.
- (b) I/ We further certify that no investigation by any investigating agency in India or outside is pending either against us/ any member of the Joint Venture or our sister concern or against our CEO or any of our directors/managers/employees.

A statement by the Bidder and each of the Members of its Joint Venture (where applicable) disclosing material non-performance or contractual non-compliance in current projects, as on bid due date is given below (attach extra sheets, if necessary) w.r.t. para 2.1.14

Name of Bidder/ member of Joint Venture:.....

Sr. No.	Categories of Non-Performer	Name of the Project(s)
i	Fails to set up institutional mechanisms and procedures as per contract.	

Sr. No.	Categories of Non-Performer	Name of the Project(s)
ii	Fails to mobilize key construction equipment within a period of 4 months from the Appointed Date.	
iii	Fails to complete or has missed any milestone and progress not commensurate with contiguous unencumbered project length /ROW available even after a lapse of 6 months from respective project milestone/Schedule Completion date, unless Extension of Time has been granted due to Authority's Default or Force Majeure.	
iv	Fails to achieve progress commensurate with funds released from Escrow Account (Equity + Debt + Grant) in BOT or HAM project and variation is more than 25% in the last 365 days.	
v	Fails to achieve the target progress or complete the project as per the schedule agreed at the time of sanctioning of funds under One Time Funds Infusion (OTFI) or relaxations to contract conditions to improve cash flow solely on account of Contractor's failure/default.	
vi	Fails to complete rectification (excluding minor rectifications) as per time given in non-conformity reports (NCR) in design/completed works/maintenance or reported in Inspection Reports issued by Quality Inspectors deployed by the Authority or Officers of the Authority.	
vii	Fails to complete minor rectifications exceeding 3 instances in a project as per time given in non-conformity reports (NCR) in design/completed works/maintenance.	
viii	Fails to fulfill its obligations to maintain a highway in a satisfactory condition in spite of two rectification notices issued in this regard.	
ix	Damages/ penalties recommended by the Independent/Authority's Engineer during the O&M Period and remedial works are still not taken up.	
x	Fails to complete Punch list items even after lapse of time for completion of such items excluding delays attributable to the Authority.	
xi	Occurrence of minor failure of structures/highway due to construction defect wherein no casualties are reported (casualties include injuries to human being / animals).	

Sr. No.	Categories of Non-Performer	Name of the Project(s)
xii	Occurrence of major failure of structures/highway due to construction defect wherein no casualties are reported (casualties include injuries to human being/ animals).	
xiii	Occurrence of a major failure of structures/highway due to construction defect leading to loss of human lives besides loss of reputation etc. of the authority.	
xiv	Fails to make premium payments excluding the current installment in one or more projects.	
xv	Fails to achieve financial closure in two or more projects within the given or extended period (which shall not be more than six months in any case).	
xvi	Fails to submit the Performance Security within the permissible time period in more than one project.	
xvii	Rated as an unsatisfactory performing entity/ non-performing entity by an independent third-party agency and so notified on the website of the Authority.	
xviii	Failed to perform for the works of Expressways, National Highways, ISC & EI works in the last 2(two) years, as evidenced by the imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitral award against the Bidder, including individual or any of its JV/Consortium Member, as the case may be.	
xix	Expelled from the contract or the contract terminated by the MORTH/UPPWD/UPSBC or its implementing agencies for breach by such Bidder, including individual or any of its JV/Consortium Member; Provided that any such decision of expulsion or termination of contract leading to debarring of the Bidder from further participation in bids for the prescribed period should have been ordered after affording an opportunity of hearing to such party.	
xx	Fails to start the works or causes a delay in maintenance & repair/overlay of the project.	

I/ We certify that the list is complete and covers all the projects executed for Government / Government Undertakings implementing agencies and that we/ any of the JV partners do not fall in any of the above categories of being a non-performing entity.

(Signature, name and designation of the authorised signatory) For and on behalf of.....

Annex-II –

Technical Capacity of the Bidder

Technical Capacity of the Bidder[@]

(Refer to Clauses 2.2.2.2, 2.2.2.5 and 2.2.2.7 of the RFP)

Applicant type	Project Code*	Category \$	Experience**(Equivalent Rs. crore)\$\$		Technical Experience [‡]
			Payments received for construction of Eligible Projects in categories 3 and 4	Value of self construction of Eligible Projects in categories 1 and 2	
(1)	(2)	(3)	(4)	(5)	(6)
Single entity Bidder or Lead Member including other members of the Joint Venture	a				
	b				
	c				
	d				
	e				
	f				
Aggregate Technical Experience =					

@ Provide details of only those projects that have been undertaken by the Applicant, or its Lead member including members in case of joint venture, under its own name separately and/or by a project company eligible under Clause 2.2.2.6(i) (b). In case of Categories 1 and 2, include only those projects which have an estimated capital cost exceeding the amount specified in Clause 2.2.2.6(i) (c) and for Categories 3 and 4, include only those projects where the payments received exceed the amount specified in Clause 2.2.2. 6(ii). In case the Bid Due Date falls within 3 (three) months of the close of the latest financial year, refer to Clause 2.1.13.

** Refer Annex-IV of this Appendix-I. Add more rows if necessary. \$ Refer Clause 2.2.2.5(i)*

*** Construction shall not include supply of goods or equipment except when such goods or equipment form part of a turn-key construction contract/ EPC contract for the project. In no*

case shall the cost of maintenance and repair, operation of Highways and land be included while computing the Experience Score of an Eligible Project.

*\$\$ For conversion of US Dollars to Rupees, the rate of conversion shall be Rupees ** (**)² to a US Dollar.*

£ . In the case of an Eligible Project situated in an OECD country, the Experience Score so arrived at shall be further multiplied by 0.5, in accordance with the provisions of Clause 2.2.2.5 (ii) and the product thereof shall be the Experience Score for such Eligible Projects.

NOTE: In case of a Joint Venture, information in Annex-II and Annex-IV of Appendix-I shall be provided separately for other Members so as to establish that each such Member has 20 percent or more of the Threshold Technical Capacity. (Refer Clause 2.2.2.4).

²The conversion rate of USD into Rupees shall be the daily representative exchange rates published by the Reserve Bank of India for the relevant date. Where relevant date should be as on the date 28 (twenty-eight) days prior to the Application Due Date (Bid Due Date).

Annex-III

Financial Capacity of the Bidder

(Refer to Clauses 2.2.2.3, 2.2.2.9(i), 2.2.2.8 (iii) of the RFP)

(In Rs. crore\$)

Bidder type	Net Cash Accruals					Net Worth [§]
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1
Single entity Bidder or Lead Member including other members of the Joint Venture						
TOTAL						

Bidder type	Annual Turnover										Average Annual Turnover (In Rs. crore\$)
	Year 1		Year 2		Year 3		Year 4		Year 5		
	(Rs.)	Updation factor	(Rs.)	Updation factor	(Rs.)	Updation factor	(Rs.)	Updation factor	(Rs.)	Updation factor	(In Rs crore\$)
1	2	3	4	5	6	7	8	9	10	11	(2x3+4x5+6x7+8x9+10x11)/5
Single entity Bidder or Lead Member including other members of the Joint Venture		1.00		1.05		1.10		1.15		1.20	

Name & address of Bidder's Bankers:

§

For conversion of other currencies into rupees, see note below Annex-II of Appendix-I

£ The Bidder should provide details of its own Financial Capacity.

Instructions:

1. The Bidder shall attach copies of the balance sheets, financial Statements and Annual Reports for 5(five) years preceding the BID Due Date. The financial Statements shall:
 - a. Reflect the financial situation of the Bidder;
 - b. Be audited by a statutory auditor;
 - c. Be complete, including all notes to the financial Statements; and
 - d. Correspond to accounting periods already completed and audited (no Statements for partial periods shall be requested or accepted).
2. Net Cash Accruals shall mean Profit after Tax + Depreciation.
3. Net Worth (the “Net worth”) shall mean the aggregate value of the paid-up share capital and all reserves created out of the profits and securities premium account, after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out of revaluation of assets, write-back of depreciation and amalgamation.
4. Year 1 will be the latest completed financial year, preceding the Bidding. Year 2 shall be the year immediately preceding Year 1 and so on. In case the BID Due Date falls within 3 (three) months of the close of the latest financial year, refer to Clause 2.1.13
5. In the case of a Joint Venture, a copy of the Jt. Bidding Agreement shall be submitted in accordance with Clause 2.1.15 (g) of the RFP document.
6. The Bidder shall also provide the name and address of the Bankers to the Bidder.
7. The Bidder shall provide an Auditor’s Certificate specifying the net worth of the Bidder and also specifying the methodology adopted for calculating such net worth in accordance with Clause 2.2.2.9 (ii) of the RFP document.

ANNEX-IV

Details of Eligible Projects*(Refer to Clauses 2.2.2.2, 2.2.2.5 and 2.2.2.7 of the RFP)***Project Code:****Entity: Self/Members:**

Item	Refer Instruction	Particulars of the Project
Title & nature of the project		
Category	5	
Year-wise (a) payments received for construction or work executed and certified by the Engineer-in-charge/Independent Engineer/Authority's Engineer, and/or (b) revenues appropriated for self-construction under PPP projects	6	
The entity for which the project was constructed	7	
Location		
Project cost	8	
Date of commencement of project/ contract		
Date of completion/ commissioning	9	
Equity shareholding (with the period during which equity was held)	10	

Instructions:

1. Bidders are expected to provide information in respect of each Eligible Project in this Annex. The projects cited must comply with the eligibility criteria specified in Clause 2.2.2.6 (i) and 2.2.2.6 (ii) of the RFP, as the case may be. Information provided in this section is intended to serve as a back up for information provided in the Application. Applicants should also refer to the Instructions below.
2. The Project Codes would be a, b, c, d, etc.
3. A separate sheet should be filled for each Eligible Project.
4. In case the Eligible Project relates to other Members, write "Member".
5. Refer to Clause 2.2.2.5 of the RFP for category number.
6. The total payments received and/or revenues appropriated for self-construction for each Eligible Project are to be stated in Annex-II of this Appendix-I. The figures to be provided here should indicate the break-up for the past 5 (five) financial years. Year 1 refers to the financial year immediately preceding the Bid Due Date; Year 2 refers to the year before Year 1, Year 3 refers to the year before Year 2, and so on (Refer Clause 2.1.13). For Categories 1 and 2, expenditure on construction of the project by the Applicant itself should be provided, but only in respect of projects having an estimated capital cost exceeding the amount specified in Clause 2.2.2.6 (i) (c). In the case of Categories 3 and 4, payments received only in respect of construction should be provided, but only if the amount received exceeds the minimum specified in Clause 2.2.2.6 (ii). Receipts for construction works should only include capital expenditure, and should not include expenditure on maintenance & repair and operation of Highways.

7. In the case of projects in Categories 1 and 2, particulars such as name, address, and contact details of owner/ Authority/ Agency (i.e. concession grantor, counter party to concession, etc.) may be provided. In the case of projects in Categories 3 and 4, similar particulars of the client need to be provided.
8. Provide the estimated capital cost of the Eligible Project. Refer to Clauses 2.2.2.6 (i) and 2.2.2.6 (ii)
9. For Categories 1 and 2, the date of commissioning of the project, upon completion, should be indicated. In the case of Categories 3 and 4, the date of completion of construction should be indicated. In the case of projects under construction, the likely date of completion or commissioning, as the case may be, shall be indicated.
10. For Categories 1 and 2, the equity shareholding of the Bidder, in the company owning the Eligible Project, held continuously during the period for which Eligible Experience is claimed, needs to be given (Refer Clause 2.2.2.6 (i)).
11. Experience for any activity relating to an Eligible Project shall not be claimed twice. In other words, no double counting in respect of the same experience shall be permitted in any manner whatsoever.
12. Certificates from the Bidder's statutory auditor or its respective clients must be furnished as per the formats below for each Eligible Project. In jurisdictions that do not have statutory auditors, the auditors who audit the annual accounts of the Bidder may provide the requisite certification.
13. If the Bidder is claiming experience under Categories 1 & 2[£], it should provide a certificate from its statutory auditor in the format below as per Clause 2.2.2.6 (i) (d):

Certificate from the Statutory Auditor regarding PPP projects^Φ

Based on its books of accounts and other published information authenticated by it, this is to certify that(*name of the Bidder*) is/ was an equity shareholder in..... (*title of the project company*) and holds/held Rs. cr. (Rupees crore) of equity (which constitutes%[€] of the total paid up and subscribed equity capital) of the project company from (*date*) to (*date*)[¥]The project was/is commenced on..... (*date*) and likely to be commissioned on..... (*date of commissioning of the project*).

We further certify that the total estimated capital cost of the project is Rscr. (Rupeescrore), of which the applicant has undertaken the construction of a project of Rs.(Rupees Crores) excluding any part of the project for which any contractor, sub-contractor, or other agent was appointed for the purpose of construction as per Clause 2.2.2.6 (i) (d)by the aforesaid Applicant itself, during the past five financial years as per year-wise details noted below:

.....

Name of the audit firm:

Seal of the audit firm:

(Signature, name and designation

Date:

of the authorized signatory)

[£] Refer Clause 2.2.2.5 of the RFP.

^Φ Provide Certificate as per this format only. Attach Explanatory Notes to the Certificate, if necessary. Statutory auditor means the entity that audits and certifies the annual accounts of the company.

[€] Refer instruction no. 10 in this Annex-IV.

[¥] In case the project is owned by the Applicant company, this language may be suitably modified to read: "It is certified that (name of Applicant) constructed and/ or owned the (name of project) from (date) to (date)."

14. If the Bidder is claiming experience under Category 3 & 4[¶], as per Clauses 2.2.2.5 and 2.2.2.6(ii) of the RFP, it should provide a certificate from its **Statutory Auditor/client/Engineer-in charge/ Independent Engineer/Authority's Engineer** in the format below:

Certificate regarding construction works^Φ

Based on its books of accounts and other published information authenticated by it, This is to certify that(name of the Bidder) was engaged by(title of the project company) to execute (name of project) for (nature of project). The construction of the project commenced on.....(date) and the project was/ is likely to be commissioned on (date, if any). It is certified that Bidder received payments from its Clients for Construction Works executed by them or work executed and certified by the Engineer-in-charge/Independent Engineer/Authority's Engineer, in the aforesaid construction works.

We further certify that the total estimated capital cost of the project is Rs..... cr. (Rupees crore), of which the Applicant received or has executed the work as certified by the Engineer-in-charge/Independent Engineer/Authority's Engineer Rs. cr. (Rupees crore), during the past five financial years as per year-wise details noted below:

.....
.....

It is further certified that the receipts indicated above are restricted to the share of the Applicant who undertook these works as a partner or a member of the joint venture.

We further certify that the applicant has a share of ____% in the Joint Venture/Consortium.

(Authorized Signatory)

Date:

15. It may be noted that in the absence of any detail in the above certificates, the information would be considered inadequate and could lead to the exclusion of the relevant project in the computation of Experience.

[¶] Refer Clauses 2.2.2.5 and 2.2.2.6(ii) of the RFP.

^Φ Provide Certificate as per this format only. Attach Explanatory Notes to the Certificate, if necessary. Statutory auditor means the entity that audits and certifies the annual accounts of the company. However, in case the work of other member(s) is also executed by the applicant, then this fact should also be certified by the Statutory Auditor and accordingly the language may be suitably modified.

Annex-V

Statement of Legal Capacity

(To be forwarded on the letterhead of the Bidder/ Lead Member of Joint Venture)

Ref.

Date:

To,

Mr. Kamal Kumar Srivastava
General Manager (Lucknow Zone)
U.P. State Bridge Corporation Ltd.,
Vibhuti Khand, Gomti Nagar, Lucknow-226010

Sub: BID for “Construction of 03 Lane R.O.B. At NE Railway Level X-ing No. 16-C AT KM 19/2-3 between Mohibullapur - BKT Railway Station on BKT - Asti Road in Distt. Lucknow on EPC Mode”

Dear Sir,

We hereby confirm that we/ our members in the Joint Venture (the constitution of which has been described in the application) satisfy the terms and conditions laid out in the RFP document.

We have agreed that (insert member's name) will act as the Lead Member of our Joint Venture.*

We have agreed that (insert individual's name) will act as our representative/ will act as the representative of the Joint Venture on its behalf* and has been duly authorized to submit the RFP. Further, the authorized signatory is vested with requisite powers to furnish such letter and authenticate the same.

Thanking you,

Yours faithfully,

(Signature, name, and designation of the authorized signatory)

For and on behalf of.....

**Please strike out whichever is not applicable.*

Information required to evaluate the BID Capacity under clause 2.2.2.1:**To calculate the value of "A" and "C"**

1. A table containing the value of Civil Engineering Works with respect to Projects (EPC Contract / Item Rate Contract / Construction works) undertaken by the Bidder during the last 5 years is as follows (The amount of Bonus received, if any, shall be indicated separately):

2.

S. No	Year	Value of Civil Engg. Works undertaken w.r.t. EPC Projects including Bonus, If any (Rs. In Crores)	Amount of bonus (Rs. in Crores)	Net Value excluding bonus (Rs. in Crores)
1	Year-1 (specify year)			
2	Year-2 (specify year)			
3	Year-3 (specify year)			
4	Year-4 (specify year)			
5	Year-5 (specify year)			

3. Maximum value of Projects that have been undertaken during the F.Y..... out of the last 5 years and value thereof is Rs. _____ Crores (Rupees). Further, the value updated to the price level of the year indicated in the Appendix is as follows:

Rs.....Croresx.....(Updation Factor as per Appendix) =Rs..... Crores (Rupees.....)

4. Amount of bonus received, if any, in EPC Projects during the last 5 years (updated to the price level of the year indicated in Appendix):

S. No.	F.Y. / Calendar Year	Amount of Bonus (Rs. in Crores)	Updation Factor	Updated Amount of Bonus (Rs. in Crores)
1	Year-1 (specify year)		1.00	
2	Year-2 (specify year)		1.05	
3	Year-3 (specify year)		1.10	
4	Year-4 (specify year)		1.51	
5	Year-5 (specify year)		1.20	
			Total (C)=	

..... Name of the Chartered Accountant: (Signature, name and designation and Membership No. of authorised signatory) : Signature, name and designation of Authorised Signatory For and on behalf of..... (<i>Name of</i>
---	---

Date:

Place:

To calculate the value of “B”

A table containing value of all the existing commitments and on-going works to be completed during the next ** years is as follows:

S. No	Name Of Project/ Work	Percentage of participation of Bidder in the project	Date of issue of LOA / Date of opening of financial bid / Date of start / appointed date of project	Construction period as per Agreement / LOA	Value of contract as per Agreement/LOA ^β	Value of work completed	Balance value of work to be completed	Anticipated date of completion	Balance value of work at 2021-22 /2020 price level
					Rs. in Crore	Rs. in Crore	Rs. in Crore		Rs. in Crore
1	2	3	4	5	6	7	8= (6-7)	9	10(3x8x #)

The updation Factor as given below

For Year	F.Y. / Calendar Year	Updation Factor
1	Year-1 (specify year)	1.00
2	Year-2 (specify year)	1.05
3	Year-3 (specify year)	1.10
4	Year-4 (specify year)	1.15
5	Year-5 (specify year)	1.20

The Statement showing the value of all existing commitments works for which the contractor has emerged as the winner of the Bid and anticipated value of work to be completed in the period of construction of the project for which the bid is invited and ongoing works, as well as the stipulated period of completion remaining for each of the works mentioned above, is verified from the certificate issued that has been countersigned by the Client or its Engineer-in-charge not below the rank of Executive Engineer or equivalent in respect of EPC Projects or Concessionaire / Authorised Signatory of SPV in respect of BOT Projects. No awarded / ongoing works/works for which the contractor has emerged as the winner of the Bid has been left in the aforesaid statement which has been awarded to M/s.....individually / and other member M/s.....and M/s

<p>....., as on the bid due date of this RFP</p> <p>.....</p> <p>Signature, name, and designation of Authorised Signatory</p> <p>For and on behalf of..... (Name of the Bidder)</p>	<p>.....</p> <p>Name of the Statutory Auditor's firm; Seal of the audit firm:(Signature, name and designation, and Membership No. of authorized signatory</p>
---	---

1

^BIn case balance period of construction is less than the value of period of construction of the project for which bid is invited, then full value of contract as per Agreement/LOA to be mentioned, else, anticipated value of work to be completed in the period of construction of the project for which bid is invited is to be mentioned. In the absence of the anticipated value of work to be completed, the proportionate value shall be considered while evaluating the Assessed Available Bid Capacity.

Guidelines of the Department of Disinvestment*(Refer Clause 1.2.1)*

No. 6/4/2001 -DD-II

Government of India

Department of Disinvestment

Block 14, CGO Complex New Delhi.

Dated 13th July, 2001.**OFFICE MEMORANDUM**

Sub: Guidelines for qualification of Bidders seeking to acquire stakes in Public Sector Enterprises through the process of disinvestment.

The government has examined the issue of framing comprehensive and transparent guidelines defining the criteria for Bidders interested in PSE-disinvestment so that the parties selected through competitive bidding could inspire public confidence. Earlier, criteria like net worth, experience, etc. used to be prescribed. Based on experience and in consultation with concerned departments, the Government has decided to prescribe the following additional criteria for the qualification/ disqualification of the parties seeking to acquire stakes in public sector enterprises through disinvestment:

- (a) In regard to matters other than the security and integrity of the country, any conviction by a Court of Law or indictment/ adverse order by a regulatory authority that casts doubt on the ability of the Bidder to manage the public sector unit when it is disinvested, or which relates to a grave offense would constitute disqualification. The grave offense is defined to be of such a nature that it outrages the moral sense of the community. The decision in regard to the nature of the offence would be taken on case to case basis after considering the facts of the case and relevant legal principles, by the Government of India.
- (b) In regard to matters relating to the security and integrity of the country, any charge-sheet by an agency of the Government/ conviction by a Court of Law for an offence committed by the bidding party or by any sister concern of the bidding party would result in disqualification. The decision in regard to the relationship between the sister concerns would be taken, based on the relevant facts and after examining whether the two concerns are substantially controlled by the same person/ persons.
- (c) In both (a) and (b), disqualification shall continue for a period that the Government deems appropriate.
- (d) Any entity, that is disqualified from participating in the disinvestment process, would not be allowed to remain associated with it or get associated merely because it has preferred an appeal against the order based on which it has been disqualified. The mere pendency of appeal will have no effect on the disqualification.
- (e) The disqualification criteria would come into effect immediately and would apply to all Bidders for various disinvestment transactions, which have not been completed as yet.

- (f) Before disqualifying a concern, a Show Cause Notice why it should not be disqualified would be issued to it and it would be given an opportunity to explain its position.
- (g) Henceforth, these criteria will be prescribed in the advertisements seeking Expression of Interest (EOI) from the interested parties. The interested parties would be required to provide the information on the above criteria, along with their Expressions of Interest (EOI). The Bidders shall be required to provide with their EOI an undertaking to the effect that no investigation by a regulatory authority is pending against them. In case any investigation is pending against the concern or its sister concern or against its CEO or any of its Directors/ Managers/ employees, full details of such investigation including the name of the investigating agency, the charge/offense for which the investigation has been launched, name and designation of persons against whom the investigation has been launched and other relevant information should be disclosed, to the satisfaction of the Government. For other criteria also, a similar undertaking shall be obtained along with EOI.

Under Secretary to the Government of India

Details of Ongoing Works (Ref. Clause 10.3(iv) of Draft Agreement)

S. No.	Name of the work	Contract Price (INR Cr)	Appointed Date	Original Scheduled Completion Date	Likely Date of Completion	Reason for Delay[#]
1						
2						
3						
...						

(In the event that the Bidder had failed to achieve the Completion of any project within a period of 90 (ninety) days from the Schedule Completion Date of the project, unless such failure had occurred due to Force Majeure or for reasons solely attributable to the Authority, the Bidder shall be deemed to be ineligible for bidding this project (under bidding), both as the sole party or as one of the parties of Joint Venture/ Consortium, if any, during the period from Scheduled Completion Date to issuance of Completion Certificate for that project. This restriction is applicable if the contract value of the delayed project was not less than Rs. 300 Crore.)

#To be supported with a valid certificate issued from the Independent Engineer / Authority's Engineer / Supervision Consultant / Engineer-in-charge

I / We certify that all the information furnished above is true in all respects

..... Name of the Bidder

Signature of the authorized signatory: _____

Name of the Authorised Signatory: _____

Date: _____

Place: _____

APPENDIX –II

BLANK

Appendix III
Format for Power of Attorney for signing of BID
(Refer Clause 2.1.5)

Know all men by these presents, We.....
(name of the firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorize Mr./ Ms (name),
son/daughter/wife of and presently residing at
....., who is presently employed with us/ the Lead Member of our Joint Venture and holding the position of , as our true and lawful attorney (hereinafter referred to as the “Attorney”) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our BID for the Project proposed or being developed by the UPSBC (the “Authority”) including but not limited to signing and submission of all applications, BIDs and other documents and writings, participate in Pre-BID and other conferences and providing information/ responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts including the agreement and undertakings consequent to acceptance of our BID, and generally dealing with the Authority in all matters in connection with or relating to or arising out of our BID for the said Project and/ or upon award thereof to us and/or until the entering into of the EPC Contract with the Authority.

AND we hereby agree to ratify confirm and do hereby ratify and confirm all acts, deeds, and things done or caused to be done by our said Attorney pursuant to and in the exercise of the powers conferred by this Power of Attorney and that all acts, deeds, and things done by our said Attorney in the exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE,, THE ABOVE-NAMED
PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS
DAY OF 2

For

(Signature, name, designation, and address)

of a person authorized by Board Resolution

(in case of Firm/ Company)/ partner in case Witnesses:

Partnership firm

1.

2.

Accepted

.....

(Signature)

(Name, Title and Address of the Attorney)

(Notarised)

Person identified by me/ personally

appeared before me/Attested/ Authenticated*

(*Notary to specify as applicable)

(Signature Name and Address of the Notary)

Seal of the Notary Registration No. of the Notary

Date:.....

Notes:

- *The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.*
- *Wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders' resolution/ power of attorney in favor of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.*
- *For a Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarised in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 is not required to be legalized by the Indian Embassy if it carries a conforming Apostille certificate.*

APPENDIX-IV

Format for Power of Attorney for Lead Member of Joint Venture

(Refer Clause 2.1.6)

Whereas the("The Authority") has invited BIDs for the
" " (the "Project").

Whereas,,, and.....(Collectively the "Joint Venture") being Members of the Joint Venture are interested in bidding for the Project in accordance with the terms and conditions of the Request for Proposal (RFP) and other BID documents including agreement in respect of the Project, and

Whereas, it is necessary for the Members of the Joint Venture to designate one of them as the Lead Member with all necessary power and authority to do for and on behalf of the Joint Venture, all acts, deeds, and things as may be necessary in connection with the Joint Venture's BID for the Project and its execution.

NOW THEREFORE KNOW ALL MEN BY THESE PRESENTS

We, having our registered office at, M/s having our registered office at ..., M/s.

...having our registered office at, and having our registered office at, (hereinafter collectively referred to as the "Principals") do hereby irrevocably designate, nominate, constitute, appoint, and authorize M/S Having its registered office at..... , being one of the Members of the Joint Venture, as the Lead Member and true and lawful attorney of the Joint Venture (hereinafter referred to as the "Attorney"). We hereby irrevocably authorize the Attorney (with power to sub-delegate) to conduct all business for and on behalf of the Joint Venture and any one of us during the bidding process and, in the event the Joint Venture is awarded the contract, during the execution of the Project and in this regard, to do on our behalf and on behalf of the Joint Venture, all or any of such acts, deeds or things as are necessary or required or incidental to the pre-qualification of the Joint Venture and submission of its BID for the Project, including but not limited to signing and submission of all applications, BIDs and other documents and writings, participate in pre BID and other conferences, respond to queries, submit information/ documents, sign and execute contracts and undertakings consequent to acceptance of the BID of the Joint Venture and generally to represent the Joint Venture in all its dealings with the Authority, and/ or any other Government Agency or any person, in all matters in connection with or relating to or arising out of the Joint Venture's BID for the in all respect Project and/ or upon award thereof till the EPC Contract is entered into with the Authority & Compelled.

AND hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us/ Joint Venture.

IN WITNESS WHEREOF WE THE PRINCIPALS ABOVE NAMED HAVE EXECUTED
THIS POWER OF ATTORNEY ON THIS DAY OF 2....

For	For	For
(Signature)	(Signature)	(Signature)
.....
(Name & Title)	(Name & Title)	(Name & Title)

(Executants)

(To be executed by all the Members of the Joint Venture)

Witnesses:

- 1.
- 2.

Notes:

- ☐ *The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.*
- ☐ *Also, wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders' resolution/ power of attorney in favor of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.*
- ☐ *For a Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarised in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 is not required to be legalized by the Indian Embassy if it carries a conforming Apostille certificate.*

APPENDIX V
Format for Joint Bidding Agreement for Joint Venture

(Refer Clause 2.1.11)

(To be executed on Stamp paper of appropriate value)

THIS JOINT BIDDING AGREEMENT is entered into on this the day of202.....

AMONGST

1. {..... Limited, and having its registered office at } (hereinafter referred to as the **"First Part"** which expression shall, unless repugnant to the context include its successors and permitted assigns)

AND

2. {..... Limited, having its registered office at } and (hereinafter referred to as the **"Second Part"** which expression shall, unless repugnant to the context include its successors and permitted assigns)

The above-mentioned parties of the FIRST and SECOND PART are collectively referred to as the **"Parties"** and each is individually referred to as a **"Party"**

WHEREAS,

- (A)
.....(
hereinafter referred to as the **"Authority"** which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) has invited bids (the **Bids**) by its **Request for Proposal No.** dated (the **"RFP"**) for the award of contract for "....." (the **"Project"**) through an EPC Contract.
- (B) The Parties are interested in jointly bidding for the Project as members of a Joint Venture and in accordance with the terms and conditions of the RFP document and other bid documents in respect of the Project, and
- (C) It is a necessary condition under the RFP document that the members of the Joint Venture shall enter into a Joint Bidding Agreement and furnish a copy thereof with the Application.

NOW IT IS HEREBY AGREED as follows:

1. **Definitions and Interpretations**

In this Agreement, the capitalized terms shall, unless the context otherwise requires, have the meaning ascribed thereto under the RFP.

2. **Joint Venture**

2.1 The Parties do hereby irrevocably constitute a Joint Venture (the “**Joint Venture**”) for the purposes of jointly participating in the Bidding Process for the Project.

2.2 The Parties hereby undertake to participate in the Bidding Process only through this Joint Venture and not individually and/ or through any other Joint Venture constituted for this Project, either directly or indirectly.

3. **Covenants**

The Parties hereby undertake that in the event the Joint Venture is declared the selected Bidder and awarded the Project, it shall enter into an EPC Contract with the Authority for performing all its obligations as the Contractor in terms of the EPC Contract for the Project.

4. **Role of the Parties**

The Parties hereby undertake to perform the roles and responsibilities as described below:

- (a) Party of the First Part shall be the Lead member of the Joint Venture and shall have the power of attorney from all Parties for conducting all business for and on behalf of the Joint Venture during the Bidding Process and for performing all its obligations as the Contractor in terms of the EPC Contract for the Project;
- (b) Party of the Second Part shall be {the Member of the Joint Venture; and}

5. **Joint and Several Liability**

The Parties do hereby undertake to be jointly and severally responsible for all obligations and liabilities relating to the Project and in accordance with the terms of the RFP and the EPC Contract, till such time as the completion of the Project is achieved under and in accordance with the EPC Contract.

6. **Share of work in the Project**

The Parties agree that the proportion of construction in the EPC Contract to be allocated among the members shall be as follows:

First Party:

Second Party:

Further, the Lead Member shall itself undertake and perform at least 51 (fifty-one) percent of the total length of the project highway if the Contract is allocated to the Joint Venture.

7. **Representation of the Parties**

Each Party represents to the other Parties as of the date of this Agreement that:

-
- (a) Such Party is duly organized, validly existing, and in good standing under the laws of its incorporation and has all requisite power and authority to enter into this Agreement;
 - (b) The execution, delivery, and performance by such Party of this Agreement have been authorized by all necessary and appropriate corporate or governmental action, and a copy of the extract of the charter documents and board resolution/ power of attorney in favor of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Joint Venture Member is annexed to this Agreement, and will not, to the best of its knowledge:
 - (i) require any consent or approval not already obtained;
 - (ii) violate any Applicable Law presently in effect and having applicability to it;
 - (iii) violate the memorandum and articles of association, by-laws, or other applicable organizational documents thereof;
 - (iv) violate any clearance, permit, concession, grant, license, or other governmental authorization, approval, judgment, order or decree or any mortgage agreement, indenture, or any other instrument to which such Party is a party or by which such Party or any of its properties or assets are bound or that is otherwise applicable to such Party; or
 - (v) create or impose any liens, mortgages, pledges, claims, security interests, charges or Encumbrances, or obligations to create a lien, charge, pledge, security interest, encumbrances or mortgage in or on the property of such Party, except for encumbrances that would not, individually or in the aggregate, have a material adverse effect on the financial condition or prospects or business of such Party so as to prevent such Party from fulfilling its obligations under this Agreement;
 - (c) this Agreement is the legal and binding obligation of such Party, enforceable in accordance with its terms against it; and
 - (d) there is no litigation pending or, to the best of such Party's knowledge, threatened to which it or any of its Affiliates is a party that presently affects or which would have a material adverse effect on the financial condition or prospects or business of such Party in the 72fulfillment of its obligations under this Agreement.

8. **Termination**

This Agreement shall be effective from the date hereof and shall continue in full force and effect until Project completion (the "Defects Liability Period") is achieved under and in accordance with the EPC Contract, in case the Project is awarded to the Joint Venture. However, in case the Joint Venture is either not pre-qualified for the Project or does not get selected for award of the Project, the Agreement will stand terminated in case the Applicant is not pre-qualified or upon return of the Bid Security by the Authority to the Bidder, as the case may be.

9. **Miscellaneous**

- 9.1 This Joint Bidding Agreement shall be governed by laws of {India}.
- 9.2 The Parties acknowledge and accept that this Agreement shall not be amended by the Parties without the prior written consent of the Authority.

IN WITNESS WHEREOF THE PARTIES ABOVE NAMED HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.SIGNED, SEALED AND DELIVERED

For and on behalf of

LEAD MEMBER by:

SECOND PART

(Signature)

(Signature)

(Name)

(Name)

(Designation)

(Designation)

(Address)

(Address)

In the presence of:

Notes:

1. The mode of the execution of the Joint Bidding Agreement should be in accordance with the procedure, if any, laid down by the Applicable Law and the charter documents of the executants (s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.
2. Each Joint Bidding Agreement should attach a copy of the extract of the charter documents and documents such as resolution / power of attorney in favour of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Joint Venture Member.
3. For a Joint Bidding Agreement executed and issued overseas, the document shall be legalised by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney has been executed.

APPENDIX VI
INTEGRITY PACT FORMAT

(To be executed on plain paper and submitted along with Technical Bid/Tender documents for tenders having a value of Rs. 25 crores Construction projects. To be signed by the Bidder and the same signatory competent/ authorized to sign the relevant contract on behalf of the Uttar Pradesh)

This integrity Pact is made at _____ on this _____ day of _____ 202....

BETWEEN

the Governor of UP through UP State Bridge Corporation, Undertaking of Govt of UP represented by Managing Director UPSBC, 16 Madan Mohan Malviya Marg, Lucknow (UP) 226001 (hereinafter referred to as the “**Principal/Owner**” which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns)

AND

{Name and address of the Firm/Company}, (hereinafter referred to as “**The Bidder(s)/Contractor(s)**” and which expression shall unless repugnant to be meaning or context thereof include its successors and permitted assigns.)

Preamble

Whereas, the Principal has floated the Tender NIT no.....dated..... (hereinafter referred to as “**Tender/Bid**”) and intends to award, under laid down organizational procedure, contract/s for.....name of work.....on EPC Mode(hereinafter referred to as the “Contract”).

The Principal values full compliance with all relevant laws of the land, rules of the land, regulations, economic use of resources, and fairness/ transparency in its relations with its Bidder(s) and/ or Contractor(s).

And whereas to meet the purpose aforesaid, both the parties have agreed to enter into this Integrity Pact (hereafter referred to as “Integrity Pact” or “Pact”) the terms and conditions of which shall also be read as an integral part and parcel of the Tender documents and contract between the parties.

Now, therefore, in consideration of mutual covenants contained in this pact, the parties hereby agree as follows and this pact witnesses as under:

Article-1: Commitments of the Principal

- (1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles: -

-
- (a) No employee of the Principal, personally or through family members, will in connection with the Tender for, or the execution of a Contract, demand, take a promise for or accept, for self, or third person, any material or immaterial benefit which the person is not legally entitled to.
 - (b) The Principal will, during the Tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - (c) The Principal will exclude all known prejudiced persons from the process, whose conduct in the past has been of biased nature.
- (2) If the Principal obtains information on the conduct of any of its employees which is a criminal offense under the IPC/PC Act or any other Statutory Acts or if there be a substantive suspicion in this regard, the Principal will inform the Chief Engineer (Complaint), PWD, UP and in addition can initiate disciplinary actions as per its internal laid down Rules/Regulations.

Article – 2: Commitments of the Bidder(s)/ Contractor(s)

The Bidder(s)/ Contractor(s)/ commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

- (a) The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise, or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- (b) The Bidder(s)/ Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or nonsubmission bids, or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- (c) The Bidder(s)/ Contractor(s) will not commit any offense under the relevant IPC/PC Act and other Statutory Acts; further, the Bidder(s) / Contractor(s) / Concessionaire(s) / Consultant(s) will not use improperly, for purposes of completion or personal gain, or pass on to others, any information or document provided by the Principal as part of

the business relationship, regarding plans, technical proposals, and business details, including information contained or transmitted electronically.

- (d) The Bidder(s)/ Contractor(s) of foreign origin shall disclose the name and address of the Agents/ Representatives in India, if any. Similarly, the Bidder(s)/ Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principal, if any.
- (e) The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to, or intends to make to agents, brokers, or any other intermediaries in connection with the award of the contract. He shall also disclose the details of services agreed upon for such payments.
- (f) The Bidder(s)/ Contractor(s) will not instigate third persons to commit offenses outlined above or be an accessory to such offenses.
- (g) The Bidder(s)/ Contractor(s) will not bring any outside influence through any Govt. bodies/quarters directly or indirectly on the bidding process in furtherance of his bid.

Article -3 Disqualification from the tender process and exclusion from future contracts

- (1) If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of any provision of Article-2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process.
- (2) If the Bidder(s)/ Contractor(s) has committed a transgression through a violation of Article-2 such as to put his reliability or credibility into question, the Principal shall be entitled to exclude including blacklist, and put on holiday the Bidder(s)/ Contractor(s) for any future tenders/ contract award process. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the Principal taking into consideration the full facts and circumstances of each case particularly taking into account the number of transgressions, the position of the transgressors within the company hierarchy of the Bidder(s)/ Contractor(s), and the amount of the damage. The exclusion will be imposed for a maximum of 3 years.
- (3) A transgression is considered to have occurred if the Principal after due consideration of the available evidence concludes that “On the basis of facts available there are no material doubts”.
- (4) The Bidder(s)/ Contractor(s) with its free consent and without any influence agrees and undertakes to respect and uphold the Principal’s absolute rights to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.
- (5) The decision of the Principal to the effect that a breach of the provisions of this Integrity Pact has been committed by the Bidder(s)/ Contractor(s) shall be final and

binding on the Bidder(s)/ Contractor(s), however, the Bidder(s)/ Contractor(s) can approach IEM(s) appointed for the purpose of this Pact.

- (6) On the occurrence of any sanctions/ disqualification etc arising out from violation of the integrity pact, the Bidder(s)/ Contractor(s) shall not be entitled to any compensation on this account.
- (7) Subject to the full satisfaction of the Principal, the exclusion of the Bidder(s)/ Contractor(s) could be revoked by the Principal if the Bidder(s)/ Contractor(s) can prove that he has restored/ recouped the damage caused by him and has installed a suitable corruption prevention system in his organization.

Article – 4: Compensation for Damages

- (1) If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Article-3, the Principal shall be entitled to forfeit the Earnest Money Deposit/ Bid Security or demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security apart from any other legal right that may have accrued to the Principal.
- (2) In addition to 1 above, the Principal shall be entitled to take recourse to the relevant provisions of the contract related to the Termination of Contract due to the Contractor/ Concessionaire/Consultant's Default. In such case, the Principal shall be entitled to forfeit the Performance Bank Guarantee of the Contractor/ Concessionaire/ Consultant and/ or demand and recover liquidated and all damages as per the provisions of the contract/concession agreement against Termination.

Article – 5: Previous Transgressions

- (1) The Bidder declares that no previous transgressions occurred in the last 3 years immediately before signing of this Integrity Pact with any other Company in any country conforming to the anti-corruption/Transparency International (TI) approach or with any other Public Sector Enterprise/Undertaking in India or any Government Department in India that could justify his exclusion from the tender process.
- (2) If the Bidder makes an incorrect statement on this subject, he can be disqualified from the tender process or action for his exclusion can be taken as mentioned under Article-3 above for transgressions of Article-2 and shall be liable for compensation for damages as per Article-4 above.

Article –6: Equal treatment of all Bidders/ Contractors/ Concessionaires/ Consultants/ Subcontractors

- (1) The Bidder(s)/ Contractor(s) undertake(s) to demand from all sub-contractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.

-
- (2) The Principal will enter into agreements with identical conditions as this one with all Bidders/ Contractors/ Concessionaires/ Consultants and subcontractors.
 - (3) The Principal will disqualify from the tender process all Bidders who do not sign this Pact or violate its provisions.

Article –7: Criminal charges against violating Bidder(s)/ Contractor(s) / Sub-contractor(s)

If the Principal obtains knowledge of the conduct of a Bidder/ Contractor/ Concessionaire/ Consultant or subcontractor, or of an employee or a representative or an associate of a Bidder/ Contractor/Concessionaire/ Consultant or Subcontractor, which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the General Manager (Complaint), UPSBC.

Article- 8: Independent External Monitor (IEM)

- (1) The Principal has appointed the General Manager (Commercial) UPSBC as an Independent External Monitor (hereinafter referred to as “Monitor”) for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- (2) The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the Principal
- (3) The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all project documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/Contractor(s)/Subcontractor(s) with confidentiality.
- (4) The Principal will provide the Monitor with sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer the Monitor the option to participate in such meetings.
- (5) As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action, or tolerate action.
- (6) The Monitor will submit a written report to the Principal within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.

-
- (7) If the Monitor has reported to the Principal a substantiated suspicion of an offense under the relevant IPC/PC Act, and the Principal has not, within the reasonable time taken visible action to proceed against such offense or reported it to the General Manager (Complaint), UPSBC, the Monitor may also transmit this information directly to the General Manager (Complaint), UPSBC.

- (8) The word 'Monitor' would include both singular and plural.

Article –9 Pact Duration

This Pact begins when both parties have legally signed it (in the case of EPC i.e. for projects funded by Principal and consultancy services). It expires for the Contractor/ Consultant 12 months after his Defect Liability Period is over or 12 months after his last payment under the contract whichever is later and for all other unsuccessful Bidders 6 months after this Contract has been awarded. (In the case of BOT Projects) It expires for the concessionaire 24 months after his concession period is over and for all other unsuccessful Bidders 6 months after this Contract has been awarded.

If any claim is made/ lodged during his time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by the Principal.

Article -10 Other Provisions.

- (1) This pact is subject to Indian Law. The place of performance and jurisdiction is the Registered Office of the Principal, i.e. Lucknow, UP.
- (2) Changes and supplements as well as termination notices need to be made in writing.
- (3) If the Bidder/Contractor is in a partnership or a Joint Venture partner, this pact must be signed by all partners or members.
- (4) Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- (5) Any disputes/ differences arising between the parties with regard to the term of this pact, any action taken by the Principal in accordance with this Pact or interpretation thereof shall not be subject to any Arbitration.
- (6) The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provision of the extent law in force relating to any civil or criminal proceedings.

In witness whereof the parties have signed and executed this Pact at the place and date first done mentioned in the presence of the following witness:-

(For & On behalf of the Principal)

(For & On behalf of the Bidder/
Contractor)

(Office Seal)

Place_____

Date_____

Witness 1 : (Name & Address):

Witness 2 : (Name & Address)

{ COUNTERSIGNED and accepted by:

JV Partner}

Appendix-VII

(See Clauses 2.21)

FORM OF BANK GUARANTEE

[Performance Security/Additional Performance Security]

To

.....[name of Authority]

.....[address of Authority]

WHEREAS [name and address of Contractor] (hereafter called the “**Contractor**”) has undertaken, in pursuance of Letter of Acceptance (LOA) No..... Dated..... for construction of.....[Name of work] (hereinafter called the “**Contract**”).

AND WHEREAS the Contract requires the Contractor to furnish an{Performance Security/ Additional Performance Security} for due and faithful performance of its obligations, under and in accordance with the Contract, during the {Construction Period/ Defects Liability Period and Maintenance Period} in a sum of Rs..... cr. (Rupees crore) (the “**Guarantee Amount**”15).

AND WHEREAS we,through our branch at.....(the “**Bank**”) have agreed to furnish this Bank Guarantee (hereinafter called the “**Guarantee**”) by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor’s obligations during the {Construction Period/ Defects Liability Period and Maintenance Period}under and in accordance with the Contract, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums upto an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an officer not below the rank of..... Authorized Representative of authority, that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Contract shall be conclusive, final, and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Contract and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

-
3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor, and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
 4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
 5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Contract or to extend the time or period for the compliance with, fulfilment and/ or performance of all or any of the obligations of the Contractor contained in the Contract or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Contract and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
 6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Contract or for the fulfillment, compliance, and/or performance of all or any of the obligations of the Contractor under the Contract.
 7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
 8. The Guarantee shall cease to be in force and effect on ****\$. Unless a demand or claim under this Guarantee is made in writing before the expiry of the Guarantee, the Bank shall be discharged from its liabilities hereunder.
 9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
 10. Any notice by way of request, demand, or otherwise hereunder may be sent by post addressed to the Bank at its above-referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice when given by post, it shall be sufficient to prove that the envelope containing the notice was posted

and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Contract.
12. This Guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.
13. This guarantee shall also be operatable at <Mention Bank name and Branch>at Ayodhya, from whom confirmation regarding the issue of this guarantee or extension/renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

Signed and sealed this day of, 20..... at

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by: (Signature)

(Name) (Designation) (Code Number) (Address)

\$ Insert date being 2 (two) years from the date of issuance of this Guarantee (in accordance with Clause 7.2 of the Agreement)

Appendix-VIII
(See Clauses 3.3.4)
Format of LOA

Letter No.

Dated,

To,

{Name of selected Bidder}

Subject: {project description}- Letter of Acceptance (LOA)-Reg.

Reference: Your bid for the subject work dated

Sir,

1. This is to notify you that your Bid dated for the execution of the {project description}, at your quoted bid price amounting to Rs /- {amount in words} has been determined to be the lowest evaluated bid and is substantially responsive and has been accepted.
2. You are requested to return a duplicate of the LOA as an acknowledgment and sign the Contract Agreement within the period prescribed in Clause 1.3 of the RFP.
3. You are also requested to furnish Performance Security for an amount of {and Additional Performance Security for an amount of} as per Clause 2.21 of the RFP within 30 (Thirty) days of receipt of this Letter of Acceptance (LOA).
4. In case of failure of submission of Performance Security and Additional Performance Security (if any) within above mentioned time period, the award shall be deemed to be cancelled and Bid security shall be encashed by the Authority as per Clause 2.21 of the RFP.

Yours faithfully,

{authorized signatory}

“Accepted by

(Name of the Authorized person)

(Name of the sole bidder/lead partner of JV)

Seal of the bidder”

Appendix-IX

(See Clauses 2.2.1)

Certificate regarding Compliance

A certificate on the letterhead of the Bidder shall be required to be submitted by the bidders certifying the following:

“I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to Contractors from such countries; I certify that this bidder is not from a country or, if from such a country, has been registered with the Competent Authority as defined in Public Procurement Order no. F.no.6/ 18/2019-PPD dated 23rd July 2020. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered.”



**UTTAR PRADESH STATE BRIDGE CORPORATION
GOVT. OF UTTAR PRADESH**

Engineering Procurement and Construction (EPC) Agreement

For

**[Construction of R.O.B. At NE Railway Level X-ing No. 16-C
AT KM 19/2-3 between Mohibullapur - BKT Railway
Station on BKT - Asti Road in Distt. Lucknow.]**

Volume 2 – Articles & Schedules

June 2026

Table of Contents

Part I		11-25
	Preliminary	
1	Definitions and Interpretations	
1.1	Definitions	
1.2	Interpretation	
1.3	Measurements and arithmetic conventions	
1.4	Priority of agreements and errors/discrepancies	
1.5	Joint and several liability	
Part II		26-43
	Scope of Project	
2	Scope of the Project	
2.1	Scope of the Project	
3	Obligations of the Authority	
3.1	Obligations of the Authority	
3.2	Maintenance obligations prior to the Appointed Date	
3.3	Environmental Clearances	
3.4	Deemed Termination upon delay	
4	Obligations of the Contractor	
4.1	Obligations of the Contractor	
4.2	Obligations relating to sub-contracts and any other agreements	
4.3	Employment of foreign nationals	
4.4	Contractor's personnel	
4.5	Advertisement on Project Highway	
4.6	Contractor's care of the Works	
4.7	Electricity, water, and other services	
4.8	Unforeseeable difficulties	
4.9	Co-ordination of the Works	
4.10	Environmental Measures	
4.11	Site Data	
4.12	Sufficiency of Contract Price	

- 4.13 Clearance of the Site
- 5 Representations and Warranties**
 - 5.1 Representations and warranties of the Contractor
 - 5.2 Representations and warranties of the Authority
 - 5.3 Disclosure
- 6 Disclaimer**
 - 6.1 Disclaimer

Part III

44-92

Construction and Maintenance

- 7 Performance Security**
 - 7.1 Performance Security
 - 7.2 Extension of Performance Security and Additional Performance Security
 - 7.3 Appropriation of Performance Security
 - 7.4 Release of Performance Security
 - 7.5 Retention Money
- 8 Right of Way**
 - 8.1 The Site
 - 8.2 Procurement of the Site
 - 8.3 Damages for delay in handing over the Site
 - 8.4 Site to be free from Encumbrances
 - 8.5 Protection of Site from encroachments
 - 8.6 Special/ temporary Right of Way
 - 8.7 Access to the Authority and the Authority's Engineer
 - 8.8 Geological and archaeological finds
- 9 Utilities and Trees**
 - 9.1 Existing utilities and roads
 - 9.2 Shifting of obstructing utilities
 - 9.3 New utilities
 - 9.4 Felling of trees
 - 9.5 Dismantling of structures
 - 9.6 Development Period

10 Design and Construction of the Project Highway

- 10.1 Obligations prior to commencement of Works
- 10.2 Design and Drawings
- 10.3 Construction of the Project Highway
- 10.4 Maintenance during Construction Period
- 10.5 Extension of time for completion
- 10.6 Incomplete Works
- 10.7 Maintenance Manual
- 10.8 As-Built Records
- 10.9 Contractor's Use of Authority's Documents

11 Quality Assurance, Monitoring and Supervision

- 11.1 Quality of Materials and workmanship
- 11.2 Quality control system
- 11.3 Methodology
- 11.4 Inspection and technical audit by the Authority
- 11.5 External technical audit
- 11.6 Inspection of construction records
- 11.7 Monthly progress reports
- 11.8 Inspection
- 11.9 Samples
- 11.10 Tests
- 11.11 Examination of work before covering up
- 11.12 Rejection
- 11.13 Remedial work
- 11.14 Delays during construction
- 11.15 Quality control records and Documents
- 11.16 Video recording
- 11.17 Suspension of unsafe Construction Works
- 11.18 Staff and Labour

12 Completion Certificate

- 12.1 Tests on Completion
- 12.2 Completion Certificate
- 12.3 Rescheduling of Tests

- 13 Change of Scope**
 - 13.1 Change of Scope
 - 13.2 Procedure for Change of Scope
 - 13.3 Payment for Change of Scope
 - 13.4 Restrictions on Change of Scope
 - 13.5 Power of the Authority to undertake Works
- 14 Maintenance**
 - 14.1 Maintenance obligations of the Contractor
 - 14.2 Maintenance Requirements
 - 14.3 Maintenance Programme
 - 14.4 Safety, vehicle breakdowns and accidents
 - 14.5 Lane closure
 - 14.6 Reduction of payment for non-performance of Maintenance obligations
 - 14.7 Authority's right to take remedial measures
 - 14.8 Restoration of loss or damage to Project Highway
 - 14.9 Overriding powers of the Authority
 - 14.10 Taking over Certificate
- 15 Supervision and Monitoring during Maintenance**
 - 15.1 Inspection by the Contractor
 - 15.2 Inspection and payments
 - 15.3 Tests
 - 15.4 Reports of unusual occurrence
- 16 Traffic Regulation**
 - 16.1 Traffic regulation by the Contractor
- 17 Defects Liability**
 - 17.1 Defects Liability Period
 - 17.2 Remedying Defects
 - 17.3 Cost of remedying Defects
 - 17.4 Contractor's failure to rectify Defects
 - 17.5 Extension of Defects Liability Period

18 Authority's Engineer

- 18.1 Appointment of the Authority's Engineer
- 18.2 Duties and authority of the Authority's Engineer
- 18.3 Delegation by the Authority's Engineer
- 18.4 Instructions of the Authority's Engineer
- 18.5 Determination by the Authority's Engineer
- 18.6 Remuneration of the Authority's Engineer
- 18.7 Termination of the Authority's Engineer

Part IV

93-105

Financial Covenants

19 Payments

- 19.1 Contract Price
- 19.2 Advance Payment
- 19.3 Procedure for estimating the payment for the Works
- 19.4 Stage Payment Statement for Works
- 19.5 Stage Payment for Works
- 19.6 Monthly Maintenance Statement of the Project Highway
- 19.7 Payment for Maintenance of the Project Highway
- 19.8 Payment of Damages
- 19.9 Time of payment and interest
- 19.10 Price adjustment for the Works
- 19.11 Restrictions on price adjustment
- 19.12 Price adjustment for Maintenance of Project Highway
- 19.13 Final Payment Statement
- 19.14 Discharge
- 19.15 Final Payment Certificate
- 19.16 Final payment statement for Maintenance
- 19.17 Change in law
- 19.18 Correction of Interim Payment Certificates
- 19.19 Authority's claims
- 19.20 Bonus for early completion

20 Insurance

- 20.1 Insurance for Works and Maintenance
- 20.2 Notice to the Authority
- 20.3 Evidence of Insurance Cover
- 20.4 Remedy for failure to insure
- 20.5 Waiver of subrogation
- 20.6 Contractor's waiver
- 20.7 Cross liabilities
- 20.8 Accident or injury to workmen
- 20.9 Insurance against accident to workmen
- 20.10 Application of insurance proceeds
- 20.11 Compliance with policy conditions
- 20.12 General Requirements of Insurance Policies

Part V

106-120

Force Majeure and Termination

21 Force Majeure

- 21.1 Force Majeure
- 21.2 Non-Political Event
- 21.3 Indirect Political Event
- 21.4 Political Event
- 21.5 Duty to report Force Majeure Event
- 21.6 Effect of Force Majeure Event on the Agreement
- 21.7 Termination Notice for Force Majeure Event
- 21.8 Termination Payment for Force Majeure Event
- 21.9 Dispute resolution
- 21.10 Excuse from performance of obligations

22 Suspension of Contractor's Rights

- 22.1 Suspension upon Contractor Default
- 22.2 Authority to act on behalf of Contractor
- 22.3 Revocation of Suspension
- 22.4 Termination

23 Termination

- 23.1 Termination for Contractor Default
- 23.2 Termination for Authority Default
- 23.3 Termination for Authority's convenience
- 23.4 Requirements after Termination
- 23.5 Valuation of Unpaid Works
- 23.6 Termination Payment
- 23.7 Other rights and obligations of the Parties
- 23.8 Survival of rights
- 23.9 Foreclosure with mutual consent

Part VI

120-134

Other Provisions

24 Assignment and Charges

- 24.1 Restrictions on assignment and charges
- 24.2 Hypothecation of Materials or Plant

25 Liability and Indemnity

- 25.1 General indemnity
- 25.2 Indemnity by the Contractor
- 25.3 Notice and contest of claims
- 25.4 Defense of claims
- 25.5 Survival on Termination

26 Dispute Resolution

- 26.1 Dispute Resolution
- 26.2 Conciliation
- 26.3 Arbitration
- 26.4 Adjudication by Regulatory Authority, Tribunal or Commission

27 Miscellaneous

- 27.1 Governing law and jurisdiction
- 27.2 Waiver of immunity
- 27.3 Delayed payments
- 27.4 Waiver

- 27.5 Liability for review of Documents and Drawings
- 27.6 Exclusion of implied warranties etc.
- 27.7 Survival
- 27.8 Entire Agreement
- 27.9 Severability
- 27.10 No partnership
- 27.11 Third parties
- 27.12 Successors and assigns
- 27.13 Notices
- 27.14 Language
- 27.15 Counterparts
- 27.16 Confidentiality
- 27.17 Copyright and Intellectual Property rights
- 27.18 Limitation of Liability
- 27.19 Care and Supply of Documents
- 27.20 Authority's Use of Contractor's Documents.
- 27.21 Contractor's Use of Authority's Documents
- 27.22 Access to the Site by Others
- 27.23 Term
- 27.24 Amendments
- 27.25 Representation and Bribes
- 27.26 No Agency

Schedules

135 onwards

Schedule-A

Schedule-B

Schedule-C

Schedule-D

Schedule-E

Schedule-F

Schedule-G

Schedule-H

Schedule-I Schedule-

J Schedule-K

Schedule-L Schedule-

M Schedule-N

Schedule-O

Schedule-P

Schedule-Q

Schedule-R

Part I
Preliminary

Engineering, Procurement, and Construction Agreement

THIS AGREEMENT is entered into on this the day of, 20....

Between

The General Manager/ Chief Project Manager, UP State Bridge Corporation Limited (the “Authority”) has decided to undertake “Name of Work- Construction of R.O.B. At NE Railway Level X-ing No. 16-C AT KM 19/2-3 between Mohibullapur - BKT Railway Station on BKT - Asti Road in Distt. Lucknow..”

(hereinafter referred to as the “Authority” which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors, and assigns) of **One Part**;

And

<insert name of party>,2 the selected bidder³ having its registered office at <insert registered office address of the party>, (hereinafter referred to as the “Contractor” which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns) of the **Other Part**.

Whereas:

- A. [The Government of India] entrusted [the development, maintenance, and management of to the Authority;
- B. The Authority resolved to [rehabilitate and augment the existing road/ROB/ Bridge/Flyover (Name of Project)
.....)]
on Engineering, Procurement, Construction (“EPC”) basis in accordance with the terms and conditions to be set forth in an agreement to be entered into.
- C. The Authority accordingly invited the proposals (the “Request for Proposals” or “RFP”) from the eligible bidders as per the technical and commercial terms and conditions prescribed in the RFP for undertaking the Project.
- D. After evaluation of the bids received, the Authority accepted the bid of the selected bidder and issued its Letter of Acceptance No. <insert details> dated <insert date> (hereinafter called the “LOA”) to the selected bidder for [rehabilitation and augmentation of the above section of.....at the Contract Price specified hereinafter, requiring the selected bidder to inter alia:
 - (i) to give his consent to enter into this Agreement and the enforceability of the provisions thereof, within 10 (ten) days of the date of issue of LOA;
 - (ii) submit Performance Security and Additional Performance Security (if any) as

per RFP requirements, and

(iii) execute this Agreement within 30 (thirty) days of the date of issue of LOA.

E. The Contractor has fulfilled the requirements specified in Recital (D) above;

NOW, THEREFORE, in consideration of the foregoing and the respective covenants set forth in this Agreement, the sufficiency and adequacy of which are hereby acknowledged, the Authority hereby covenants to pay the Contractor, in consideration of the obligations specified herein, the Contract Price or such other sum as may become payable under the provisions of the Agreement at the times and in the manner specified by the Agreement and intending to be legally bound hereby, the Parties agree as follows:

Article 1

Definitions and Interpretations

1.1 Definitions

- (i) The words and expressions beginning with capital letters and defined in this Agreement shall, unless the context otherwise requires, have the meaning ascribed thereto herein, and the words and expressions defined in the Schedules and used therein shall have the meaning ascribed thereto in the Schedules.
- (ii) In this Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

“Accounting Year” means the financial year commencing from the first day of April of any calendar year and ending on the thirty-first day of March of the next calendar year;

“Advance Payment” shall have the meaning set forth in Clause 19.2;

“Affected Party” shall have the meaning set forth in Clause 21.1;

“Affiliate” means, in relation to either Party {and/or Members}, a person who controls, is controlled by, or is under the common control with such Party {or Member} (as used in this definition, the expression “control” means, with respect to a person which is a company or corporation, the ownership, directly or indirectly, of more than 50% (fifty per cent) of the voting shares of such person, and with respect to a person which is not a company or corporation, the power to direct the management and policies of such person, whether by operation of law or by contract or otherwise);

“Agreement” means this Agreement, its Recitals, the Schedules hereto and any amendments thereto, or any supplementary agreement made in accordance with the provisions contained in this Agreement;

“Applicable Laws” means all laws, brought into force and effect by the GOI or the State Government including rules, regulations, and notifications made thereunder, and judgments, decrees, injunctions, writs, and orders of any court of record, applicable to this Agreement and the exercise, performance and discharge of the respective rights and obligations of the Parties hereunder, as may be in force and effect during the subsistence of this Agreement;

“Applicable Permits” means all clearances, licenses, permits, authorizations, no objection certificates, consents, approvals, and exemptions required to be obtained or maintained under Applicable Laws in connection with the construction, operation, and maintenance of the Project Highway during the subsistence of this Agreement;

“Appointed Date” means the date declared by the Authority as the project commencement date with the consent of the contractor, as per the process prescribed in Articles 3 and 8 of this Agreement;

“Arbitration Act” means the Arbitration and Conciliation Act, 1996, with all its subsequent amendments;

“Authority” shall have the meaning attributed thereto in the array of Parties hereinabove as outlined in the Recitals;

“Authority Default” shall have the meaning outlined in Clause 23.2;

“Authority’s Engineer” shall have the meaning outlined in Clause 18.1;

“Authority Representative” means such person or persons as may be authorized in writing by the Authority to act on its behalf under this Agreement and shall include any person or persons having authority to exercise any rights or perform and fulfill any obligations of the Authority under this Agreement;

“Bank” means a bank incorporated in India and recognized by the Reserve Bank of India

“Base Rate” means the floor rate of interest announced by the State Bank of India for all its lending operations;

“Base Date” means the last date of the calendar month, which precedes the Bid Due Date by at least 28 (twenty eight) days;

“Bid” means the documents in their entirety comprised in the bid submitted by the [selected bidder/ Joint venture] in response to the Request for Proposal in accordance with the provisions thereof;

“Bid Security” means the bid security provided by the Contractor to the Authority in accordance with the Request for Proposal, and which is to remain in force until substituted by the Performance Security;

“Change in Law” means the occurrence of any of the following after the Base Date:

- (a) the enactment of any new Indian law;
- (b) the repeal, modification, or re-enactment of any existing Indian law;
- (c) the commencement of any Indian law which has not come into effect until the Base Date; or
- (d) a change in the interpretation or application of any Indian law by a judgment of a court of record which has become final, conclusive, and binding, as compared to such interpretation or application by a court of record before the Base Date.

“Change of Scope” shall have the meaning outlined in Article 13;

“Change of Scope Notice” shall have the meaning outlined in Clause 13.2 (i);

“Change of Scope Request” shall have the meaning outlined in Clause 13.2 (ii);

“Change of Scope Order” shall have the meaning outlined in Clause 13.2 (iv);

“Completion Certificate” shall have the meaning outlined in Clause 12.2;

“Construction” shall have the meaning outlined in Clause 1.2 (f);

“Construction Period” means the period commencing from the Appointed Date and ending on the date of the Completion Certificate;

“Construction Zone” shall have the meaning outlined in Clause 8.3 (i);

“Contract Price” means the amount specified in Clause 19.1 (i);

“Contractor” shall have the meaning attributed thereto in the array of Parties hereinabove as outlined in the Recitals;

“Contractor Default” shall have the meaning outlined in Clause 23.1;

“Cure Period” means the period specified in this Agreement for curing any breach or default of any provision of this Agreement by the Party responsible for such breach or default and shall:

- (a) commence from the date on which a notice is delivered by one Party to the other Party asking the latter to cure the breach or default specified in such notice;
- (b) not relieve any Party from liability to pay damages or compensation under the provisions of this Agreement; and
- (c) not in any way be extended by any period of Suspension under this Agreement; provided that if the cure of any breach default by the Contractor requires any reasonable action by the Contractor that must be approved by the Authority or the Authority’s Engineer hereunder, the applicable Cure Period shall be extended by the period taken by the Authority or the Authority’s Engineer to accord their approval;

“Damages” shall have the meaning outlined in paragraph (w) of Clause 1.2;

“Defect” means any defect or deficiency in the Construction of the Works or any part thereof, that does not conform with the Specifications and Standards, and in the case of Maintenance, means any Defect or deficiency that is specified in Schedule-E;

“Defects Liability Period” shall have the meaning outlined in Clause 17.1;

“Dispute” shall have the meaning outlined in Clause 26.1;

“Dispute Resolution Procedure” means the procedure for resolution of Disputes outlined in Article 26;

“Drawings” means all of the drawings, calculations, and documents pertaining to the Project Highway as outlined in Schedule-I, and shall include ‘as built’ drawings of the Project Highway;

“Document” or “Documentation” means documentation in printed or written form, or in tapes, discs, drawings, computer programs, writings, reports, photographs, films, cassettes, or expressed in any other written, electronic, audio, or visual form;

“Emergency” means a condition or situation that is likely to endanger the safety or security of the individuals on or about the Project Highway, including Users thereof, or which poses an immediate threat of material damage to any of the Project Assets;

“Encumbrances” means, in relation to the Project Highway, any encumbrances such as a mortgage, charge, pledge, lien, hypothecation, security interest, assignment, privilege, or priority of any kind having the effect of security or other such obligations, and shall include any designation of loss to payees or beneficiaries or any similar arrangement under any insurance policy pertaining to the Project Highway, where applicable herein but excluding utilities referred to in Clause 9.1;

“EPC” means engineering, procurement, and construction;

“Final Payment Certificate” shall have the meaning outlined in Clause 19.15;

“Final Payment Statement” shall have the meaning outlined in Clause 19.13;

“Force Majeure” or “Force Majeure Event” shall have the meaning ascribed to it in Clause 21.1;

“GAD” or “General Arrangement Drawings” shall have the meaning outlined in Clause 3.1 (iii) (b);

“GOI” or “Government” means the Government of India;

“Good Industry Practice” means the practices, methods, techniques, designs, standards, skills, diligence, efficiency, reliability, and prudence that are generally and reasonably expected from a reasonably skilled and experienced contractor engaged in the same type of undertaking as envisaged under this Agreement and which would be expected to result in the performance of its obligations by the Contractor under this Agreement, Applicable Laws and Applicable Permits in a reliable, safe, economical and efficient manner;

“Government Instrumentality” means any department, division, or sub-division of the Government or the State Government and includes any commission, board, authority, agency, or municipal and other local authority or statutory body including panchayat under the control of the Government or the State Government, as the case may be, and having jurisdiction over all or any part of the Project Highway or the

performance of all or any of the services or obligations of the Contractor under or pursuant to this Agreement;

“Handover Memorandum” shall have the meaning outlined in Clause 8.2;

“IRC” means the Indian Roads Congress;

“Indemnified Party” means the Party entitled to the benefit of an indemnity pursuant to Article 25;

“Indemnifying Party” means the Party obligated to indemnify the other Party pursuant to Article 25;

“Indirect Political Event” shall have the meaning outlined in Clause 21.3;

“Insurance Cover” means the aggregate of the maximum sums insured under the insurance taken out by the Contractor under Article 20, and includes all insurances required to be taken out by the Contractor under Clauses 20.1 and 20.9 but not taken, and when used in the context of any act or event, it shall mean the aggregate of the maximum sums insured and payable or deemed to be insured and payable in relation to such act or event;

“Intellectual Property” means all patents, trademarks, service marks, logos, get-ups, trade names, internet domain names, rights in designs, blueprints, programs and manuals, drawings, copyright (including rights in computer software), database rights, semi-conductor, topography rights, utility models, rights in know-how and other intellectual property rights, in each case whether registered or unregistered and including applications for registration, and all rights or forms of protection having equivalent or similar effect anywhere in the world;

“Interim Payment Certificate” or **“IPC”** means the interim payment certificate issued by the Authority’s Engineer for payment to the Contractor in respect of the Contractor’s claims for payment raised under the provisions of this Agreement;

“Joint Venture” means the group of entities which have come together for implementation of this Project;

“Lead Member” shall, in the case of a joint venture, mean the member of such joint venture who shall have the authority to bind the contractor and each member of the Joint venture; and shall be deemed to be the Contractor for this Agreement; the Lead Member shall itself undertake and perform at least 51% (fifty-one percent) of the total length of the Project Highway;

“LOA” or **“Letter of Acceptance”** means the letter of acceptance issued by the Authority as referred to in Recital (D);

“Maintenance” means the maintenance of the Project Highway as outlined in Article 14 for the period specified therein;

“Maintenance Inspection Report” shall have the meaning outlined in Clause 15.2;

“Maintenance Manual” shall have the meaning ascribed to it in Clause 10.7;

“Maintenance Programme” shall have the meaning outlined in Clause 14.3;

“Maintenance Period” shall have the meaning outlined in Clause 14.1;

“Maintenance Requirements” shall have the meaning outlined in Clause 14.2;

“Major Bridge” means a bridge having a total length of more than 60 (sixty) meters between the inner faces of the dirt walls as specified in IRC:5;

“Manual” shall be manual of standards & specifications for Project Highways as per Schedule-D;

“Material Adverse Effect” means a material adverse effect of any act or event on the ability of either Party to perform any of its obligations under and under the provisions of this Agreement and which act or event causes a material financial burden or loss to either Party;

“Materials” comprise all the supplies used by the Contractor in the Works or for the maintenance of the Project Highway;

“Monthly Maintenance Statement” shall have the meaning outlined in Clause 19.6;

“MORTH” means the Ministry of Road Transport and Highways or any substitute thereof dealing with Highways;

“Non-Political Event” shall have the meaning outlined in Clause 21.2;

“Parties” means the parties to this Agreement collectively and “Party” shall mean any of the parties to this Agreement individually;

“Performance Security” and **“Additional Performance Security”** shall have the meaning outlined in Clause 7.1;

“Plant” means the apparatus and machinery intended to form or forming part of the works;

“Political Event” shall have the meaning outlined in Clause 21.4;

“Programme” shall have the meaning outlined in Clause 10.1 (iii);

“Project” means the construction and maintenance of the Project Highway under the provisions of this Agreement, and includes all works, services, and equipment relating to or in respect of the Scope of the Project;

“Project Assets” means all physical and other assets relating to (a) 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, kilometer-stones, [toll plaza(s)], electrical systems, communication systems, rest areas, relief centers, maintenance depots, and administrative offices; and (b) Project Facilities situated on the Site;

“Project Completion Date” means the date on which the Completion Certificate is issued;

“Project Completion Schedule” means the progressive Project Milestones outlined in Schedule-J for completion of the Project Highway on or before the Scheduled Completion Date;

“Project Facilities” means all the amenities and facilities situated on the Site, as described in Schedule-C;

“Project Highway” means the Site comprising the existing road {proposed bypasses and tunnels} forming part of [Name of work] and all Project Assets, and its subsequent development and augmentation under this Agreement;

“Project Milestone” means the project milestone outlined in Schedule J;

“Proof Consultant” shall have the meaning outlined in Clause 10.2;

“Quality Assurance Plan” or **“QAP”** shall have the meaning outlined in Clause 11.2;

“Re.”, “Rs.” or “Rupees” or “Indian Rupees” or “INR” means the lawful currency of the Republic of India;

“Request for Proposals” or **“RFP”** shall have the meaning outlined in Recital ‘C’;

“Retention Money” shall have the meaning outlined in Clause 7.5;

“Right of Way” means and refers to the total land required and acquired for the project, both in its width and length, together with all way leaves, easements, unrestricted access, and other rights of way, howsoever described, necessary for construction and maintenance of the Project Highway under this Agreement;

“Safety Consultant” shall have the meaning outlined in Clause 10.1;

“Scheduled Completion Date” shall be the date outlined in Clause 10.3;

“Scheduled Construction Period” means the period commencing from the Appointed Date and ending on Scheduled Completion Date;

“Scope of the Project” shall have the meaning outlined in Clause 2.1;

“Section” means a part of the Project Highway;

“Site” shall have the meaning outlined in Clause 8.1;

“Specifications and Standards” means the specifications and standards relating to the quality, quantity, capacity, and other requirements for the Project Highway, as outlined in Schedule-D, and any modifications thereof, or additions thereto, as included in the design and engineering for the Project Highway submitted by the Contractor to, and expressly approved by the Authority;

“Stage Payment Statement” shall have the meaning outlined in Clause 19.4;

“Structures” means an elevated road or a flyover, as the case may be;

“Sub-contractor” means any person or persons to whom a part of the Works or the Maintenance has been subcontracted by the Contractor and the permitted legal successors in title to such person, but not an assignee to such person;

“Suspension” shall have the meaning outlined in Article 22;

“Taking Over Certificate” shall have the meaning outlined in Clause 14.10;

“Taxes” means any Indian taxes including GST, excise duties, customs duties, value-added tax, sales tax, local taxes, cess and any impost or surcharge of like nature (whether Central, State, or local) on the goods, Materials, equipment, and services incorporated in and forming part of the Project Highway charged, levied or imposed by any Government Instrumentality, but excluding any interest, penalties and other sums in relation thereto imposed on any account whatsoever. For the avoidance of doubt, Taxes shall not include taxes on corporate income;

“Termination” means the expiry or termination of this Agreement;

“Termination Notice” means the communication issued under this Agreement by one Party to the other Party terminating this Agreement;

“Termination Payment” means the amount payable by either Party to the other upon Termination under Article 23;

“Terms of Reference” or “TOR” shall have the meaning outlined in Clause 18.2;

“Tests” means the tests outlined in Schedule-K to determine the completion of Works under the provisions of this Agreement;

“Time Extension” shall have the meaning outlined in Clause 10.5;

“User” means a person who travels or intends to travel on the Project Highway or any part thereof in/on any vehicle;

“Valuation of Unpaid works” shall have the meaning outlined in Clause 23.5;

“Works” means all works including survey and investigation, design, engineering, procurement, construction, Plant, Materials, maintenance, temporary works and

other things necessary to complete the Project Highway under this Agreement; and

“WPI” means the wholesale price index for various commodities as published by the Ministry of Commerce and Industry, GOI and shall include any index that substitutes the WPI, and any reference to WPI shall, unless the context otherwise requires, be construed as a reference to the WPI published for the period ending with the preceding month.

1.2 Interpretation

- (i) In this Agreement, unless the context otherwise requires,
 - (a) references to any legislation or any provision thereof shall include amendment or re-enactment or consolidation of such legislation or any provision thereof so far as such amendment or re-enactment or consolidation applies or is capable of applying to any transaction entered into hereunder;
 - (b) references to laws of India or Indian law or regulation having the force of law shall include the laws, acts, ordinances, rules, regulations, bye-laws or notifications which have the force of law in the territory of India and as from time to time may be amended, modified, supplemented, extended or re-enacted;
 - (c) references to a “person” and words denoting a natural person shall be construed as a reference to any individual, firm, company, corporation, society, trust, government, state, or agency of a state or any association or partnership (whether or not having separate legal personality) of two or more of the above and shall include successors and assigns;
 - (d) the table of contents, headings, or sub-headings in this Agreement are for convenience of reference only and shall not be used in, and shall not affect, the construction or interpretation of this Agreement;
 - (e) the words “include” and “including” are to be construed without limitation and shall be deemed to be followed by “without limitation” or “but not limited to” whether or not they are followed by such phrases;
 - (f) references to “construction” or “building” include, unless the context otherwise requires, survey and investigation, design, developing, engineering, procurement, supply of plant, materials, equipment, labor, delivery, transportation, installation, processing, fabrication, testing, and commissioning of the Project Highway, including maintenance during the Construction Period, removing of defects, if any, and other activities incidental to the construction and “construct” or “build” shall be construed accordingly;
 - (g) references to “development” include, unless the context otherwise requires, construction, renovation, refurbishing, augmentation, gradation, and other activities incidental thereto during the Construction Period, and “develop” shall be construed accordingly;

- (h) any reference to any period shall mean a reference to that according to Indian standard time;
- (i) any reference to day shall mean a reference to a calendar day;
- (j) references to a “business day” shall be construed as a reference to a day (other than a Sunday) on which banks in Delhi are generally open for business;
- (k) any reference to month shall mean a reference to a calendar month as per the Gregorian calendar;
- (l) references to any date, period, or Project Milestone shall mean and include such date, period, or Project Milestone as may be extended under this Agreement;
- (m) any reference to any period commencing “from” a specified day or date and “till” or “until” a specified day or date shall include both such days or dates; provided that if the last day of any period computed under this Agreement is not a business day, then the period shall run until the end of the next business day;
- (n) the words importing singular shall include plural and vice versa;
- (o) references to any gender shall include the other and the neutral gender;
- (p) “lakh” means a hundred thousand (100,000) and “crore” means ten million (10,000,000);
- (q) “indebtedness” shall be construed to include any obligation (whether incurred as principal or surety) for the payment or repayment of money, whether present or future, actual or contingent;
- (r) references to the “winding-up”, “dissolution”, “insolvency”, or “reorganization” of a company or corporation shall be construed to include any equivalent or analogous proceedings under the law of the jurisdiction in which such company or corporation is incorporated or any jurisdiction in which such company or corporation carries on the business including the seeking of liquidation, winding-up, reorganization, dissolution, arrangement, protection or relief of debtors;
- (s) save and except as otherwise provided in this Agreement, any reference, at any time, to any agreement, deed, instrument, license, or document of any description shall be construed as a reference to that agreement, deed, instrument, license, or other documents as amended, varied, supplemented, modified or suspended at the time of such reference; provided that this Clause shall not operate to increase liabilities or obligations of the Authority hereunder or pursuant hereto in any manner whatsoever;
- (t) any agreement, consent, approval, authorization, notice, communication, information, or report required under or under this Agreement from or by any Party or the Authority’s Engineer shall be valid and effective only if it is in writing under the hand of a duly authorized representative of such Party or the Authority’s Engineer, as the case may be, in this behalf and not otherwise;

- (u) the Schedules and Recitals to this Agreement form an integral part of this Agreement and will be in full force and effect as though they were expressly set out in the body of this Agreement;
 - (v) references to Recitals, Articles, Clauses, Sub-clauses, or Schedules in this Agreement shall, except where the context otherwise requires, mean references to Recitals, Articles, Clauses, Sub-clauses, and Schedules of or to this Agreement, and references to a Paragraph shall, subject to any contrary indication, be construed as a reference to a Paragraph of this Agreement or of the Schedule in which such reference appears;
 - (w) the damages payable by either Party to the other of them, as outlined in this Agreement, whether on a per diem basis or otherwise, are mutually agreed on genuine pre-estimated loss and damage likely to be suffered and incurred by the Party entitled to receive the same and are not by way of penalty or liquidated damages (the “Damages”); and
 - (x) time shall be of the essence in the performance of the Parties’ respective obligations. If any period specified herein is extended for the reasons specified in the Agreement, such extended time shall also be of the essence.
- (ii) Unless expressly provided otherwise in this Agreement, any Documentation required to be provided or furnished by the Contractor to the Authority shall be provided free of cost and in three copies, and if the Authority is required to return any such Documentation with its comments and/or approval, it shall be entitled to retain two copies thereof.
 - (iii) The rule of construction, if any, that a contract should be interpreted against the parties responsible for the drafting and preparation thereof, shall not apply.
 - (iv) Any word or expression used in this Agreement shall, unless otherwise defined or construed in this Agreement, bear its ordinary English meaning and, for these purposes, the General Clauses Act, 1897 shall not apply.

1.3 Measurements and arithmetic conventions

All measurements and calculations shall be in the metric system and calculations done to 2 (two) decimal places, with the third digit of 5 (five) or above being rounded up and below 5 (five) being rounded down.

1.4 Priority of agreements and errors/discrepancies

- (i) This Agreement and all other agreements and documents forming part of or referred to in this Agreement are to be taken as mutually explanatory and, unless otherwise expressly provided elsewhere in this Agreement, the priority of this Agreement and other documents and agreements forming part hereof or referred to herein shall, in the event of any conflict between them, be in the following order:
 - (a) this Agreement; and

- (b) all other agreements and documents forming part hereof or referred to herein; i.e. this Agreement at (a) above shall prevail over the agreements and documents at (b).
- (ii) Subject to the provisions of Clause 1.4 (i), in case of ambiguities or discrepancies within this Agreement, the following shall apply:
 - (a) between two or more Clauses of this Agreement, the provisions of a specific Clause relevant to the issue under consideration shall prevail over those in other Clauses;
 - (b) between the Clauses of this Agreement and the Schedules, the Clauses shall prevail and between Schedules and Annexes, the Schedules shall prevail;
 - (c) between any two Schedules, the Schedule relevant to the issue shall prevail;
 - (d) between the written description on the Drawings and the Specifications and Standards, the latter shall prevail;
 - (e) between the dimension scaled from the Drawing and its specific written dimension, the latter shall prevail; and
 - (f) between any value written in numerals and that in words, the latter shall prevail.

1.5 Joint and several liability

- (i) If the Contractor has formed a Joint Venture of two or more persons for implementing the Project:
 - (a) these persons shall, without prejudice to the provisions of this Agreement or any other agreement, be deemed to be jointly and severally liable to the Authority for the performance of the Agreement; and
 - (b) the Contractor shall ensure that no change in the composition of the Joint Venture is affected without the prior consent of the Authority.
- (ii) Without prejudice to the joint and several liability of all the members of the Joint Venture, the Lead Member shall represent all the members of the Joint Venture and shall always be liable and responsible for discharging the functions and obligations of the Contractor. The Contractor shall ensure that each member of the Joint Venture shall be bound by any decision, communication, notice, action, or inaction of the Lead Member on any matter related to this Agreement and the Authority shall be entitled to rely upon any such action, decision or communication of the Lead Member. The Authority shall have the right to release payments solely to the Lead Member and shall not in any manner be responsible or be held liable for the inter se allocation of payments among members of the Joint venture.

Part II

Scope of Project

Article 2

Scope of the Project

2.1 Scope of the Project

Under this Agreement, the scope of the Project (the “**Scope of the Project**”) shall mean and include:

- (a) construction of the Project Highway on the Site outlined in Schedule- A and as specified in Schedule-B together with the provision of Project Facilities as specified in Schedule-C, and in conformity with the Specifications and Standards outlined in Schedule D;
- (b) maintenance of the Project Highway under the provisions of this Agreement and conformity with the requirements outlined in Schedule-E; and
- (c) performance and fulfillment of all other obligations of the Contractor under the provisions of this Agreement and matters incidental thereto or necessary for the performance of any or all of the obligations of the Contractor under this Agreement.

Article 3

Obligations of the Authority

3.1 Obligations of the Authority

- (i) The Authority shall, at its own cost and expense, undertake, comply with, and perform all its obligations set out in this Agreement or arising hereunder.
- (ii) The Authority shall be responsible for the correctness of the Scope of the Project, Project Facilities, Specifications and Standards, and the criteria for testing of the completed Works.
- (iii) The Authority, upon submission of the Performance Security as per the RFP by the Contractor, shall provide to the Contractor:

(a) the required Right of Way of the Construction Zone is as follows:

S. No.	Work Detail	Date
1	90% ROW	On the appointed date.
2	Remaining 10% ROW	After 90 days from the appointed date

- (b) approval of the general arrangement drawings (the “GAD”) from railway authorities to enable the Contractor to construct road over- bridges/ under-bridges at level crossings on the Project Highway under the Specifications and Standards, and subject to the terms and conditions specified in such approval, within 60 (sixty) days from the Appointed Date, and reimbursement of all the costs and expenses paid by the Contractor to the railway authorities for and in respect of the road over- bridges/ under bridges; and
- (c) All environmental clearances as required under Clause 4.3, if any.
- (iv) Delay in providing the Right of Way or approval of GAD by railway authorities, as the case may be, under the provisions of Clause 3.1 (iii) shall entitle the Contractor to Damages in a sum calculated under the provisions of Clause 8.3 of this Agreement and Time Extension under the provisions of Clause 10.5 of this Agreement. For the avoidance of doubt, the Parties agree that the Damages for the delay in the approval of GAD by the railway authorities for a particular road over-bridge/ under-bridge shall be deemed to be equal to the Damages payable under the provisions of Clause 8.3 for the delay in providing Right of Way for a length of 2 (two) kilometer for each such road over-bridge/ under-bridge.

- (v) Notwithstanding anything to the contrary contained in this Agreement, the Parties expressly agree that the aggregate Damages payable under Clauses 3.1 (iv), 8.3 and 9.5 shall not exceed 1% (one percent) of the Contract Price. For the avoidance of doubt, the Damages payable by the Authority under the aforesaid Clauses shall not be additive if they arise concurrently from more than one cause but relate to the same part of the Project Highway.

Both the parties agree that payment of such Damages shall be a full and final settlement of all claims of the Contractor and such compensation shall be the sole remedy against delays of the Authority both parties further agree that the payment of Damages shall be the final cure for the Contractor against delays of the Authority, without recourse to any other payments.

- (vi) The Authority agrees to provide support to the Contractor and undertakes to observe, comply with, and perform, subject to and under the provisions of this Agreement and the Applicable Laws, the following:
 - (a) upon written request from the Contractor, and subject to the Contractor complying with Applicable Laws, provide reasonable support to the Contractor in procuring Applicable Permits required from any Government Instrumentality for implementation of the Project;
 - (b) upon written request from the Contractor, provide reasonable assistance to the Contractor in obtaining access to all necessary infrastructure facilities and utilities, including water and electricity at rates and on terms no less favorable than those generally available to commercial customers receiving substantially equivalent services;
 - (c) procure that no barriers that would have a material adverse effect on the works are erected or placed on or about the Project Highway by any Government Instrumentality or persons claiming through or under it, except for reasons of Emergency, national security, law and order or collection of inter-state taxes;
 - (d) not do or omit to do any act, deed, or thing which may in any manner violate any provisions of this Agreement;
 - (e) support, cooperate with, and facilitate the Contractor in the implementation of the Project under the provisions of this Agreement; and
 - (f) upon written request from the Contractor and subject to the provisions of Clause 4.3, provide reasonable assistance to the Contractor and any expatriate personnel of the Contractor or its Sub-contractors to obtain the applicable visas and the requisite work permits for discharge by the Contractor or its Sub-contractors of their obligations under this Agreement and the agreements with the Sub-contractors.

3.2 Maintenance obligations before the Appointed Date

The Authority shall, before the Appointed Date, maintain the Project Highway, at its own cost and expense, so that its traffic worthiness and safety are at no time materially inferior as compared to its condition 10 (ten) days before the last date for submission of the Bid, and in the event of any material deterioration or damage other than normal wear and tear, undertake repair thereof. For the avoidance of doubt, the Authority shall undertake only routine maintenance before the Appointed Date, and it shall undertake special repairs only in the event of excessive deterioration or damage caused due to unforeseen events such as floods or earthquakes.

3.3 Environmental Clearances

The Authority represents and warrants that the environmental clearances required for the construction of the Project shall be procured by the Authority before the date of issue of LOA. For the avoidance of doubt, the present status of environmental clearances is specified in Schedule-A.

3.4 Deemed Termination upon delay

Without prejudice to the provisions of Clause 8.3, and subject to the provisions of Clause 7.3, the Parties expressly agree that in the event the Appointed Date does not occur, for any reason whatsoever, within 90 days of the signing of the Agreement and submission of the full Performance Security by the Contractor, the Agreement shall be deemed to have been terminated. The Authority shall pay damages to the Contractor equivalent to 1% of the Contract Price (3% in case of standalone bridge projects). All other rights, privileges, claims, and entitlements of the Contractor under or arising out of this Agreement shall be deemed to have been waived by, and to have ceased. The Contractor shall hand over all information concerning the Highway, including but not limited to any data, designs, drawings, structures, information, plans, etc. prepared by them for the Highway, to the Authority.

Article 4

Obligations of the Contractor

4.1 Obligations of the Contractor

- (i) Subject to and on the terms and conditions of this Agreement, the Contractor shall undertake the survey, investigation, design, engineering, procurement, construction, and maintenance of the Project Highway and observe, fulfill, comply with, and perform all its obligations set out in this Agreement or arising hereunder.
- (ii) The Contractor shall comply with all Applicable Laws and Applicable Permits (including renewals as required) in the performance of its obligations under this Agreement.
- (iii) Subject to the provisions of Clauses 4.1 (i) and 4.1 (ii), the Contractor shall discharge its obligations under Good Industry Practice and as a reasonable and prudent person.
- (iv) The Contractor shall remedy all loss, defects, or damage to the Project Highway from the Appointed Date until the end of the Construction Period at the Contractor's cost, save and except to the extent that any such loss, defect, or damage shall have arisen from any willful default or neglect of the Authority.
- (v) The Contractor shall remedy all loss, defect, or damage to the Project Highway during the Defects Liability Period at the Contractor's cost to the extent that such loss, defect, or damage shall have arisen out of the reasons specified in Clause 17.3.
- (vi) The Contractor shall remedy all loss or damage to the Project Highway during the Maintenance Period at the Contractor's cost, including those stated in Clause 14.1 (ii), save and except to the extent that any such loss or damage shall have arisen on account of any willful default or neglect of the Authority or account of a Force Majeure Event.
- (vii) The Contractor shall, at its own cost and expense, in addition to and not in derogation of its obligations elsewhere set out in this Agreement:
 - (a) make, or cause to be made, necessary applications to the relevant Government Instrumentalities with such particulars and details as may be required for obtaining Applicable Permits outlined in Schedule F and obtain and keep in force and effect such Applicable Permits in conformity with the Applicable Laws;
 - (b) procure, as required, the appropriate proprietary rights, licenses, agreements, and permissions for Materials, methods, processes, and systems used or incorporated into the Project Highway;

- (c) make reasonable efforts to maintain harmony and good industrial relations among the personnel employed by it or its Sub-contractors in connection with the performance of its obligations under this Agreement;
 - (d) ensure and procure that its Sub-contractors comply with all Applicable Permits and Applicable Laws in the performance by them of any of the Contractor's obligations under this Agreement;
 - (e) not do or omit to do any act, deed, or thing which may in any manner violate any provisions of this Agreement;
 - (f) support, cooperate with, and facilitate the Authority in the implementation and operation of the Project under the provisions of this Agreement;
 - (g) ensure that the Contractor and its Sub-contractors comply with the safety and welfare measures for labor under the Applicable Laws and Good Industry Practice;
 - (h) keep, on Site, a copy of this Agreement, publications named in this Agreement, the Drawings, Documents relating to the Project, and Change of Scope orders and other communications given under this Agreement. The Authority's Engineer and its authorized personnel shall have the right of access to all these documents at all reasonable times;
 - (i) cooperate with other contractors employed by the Authority and personnel of any public authority; and
 - (j) not interfere unnecessarily or improperly with the convenience of the public, or the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Authority or others.
- (viii) The Contractor shall undertake all necessary superintendence to plan, arrange, direct, manage, inspect, and test the Works. The Contractor shall provide all necessary superintendence of the Works for the proper fulfilling of the Contractor's obligations under the Agreement. Such superintendence shall be given by a competent person having adequate knowledge of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered, and methods of preventing accidents) for the satisfactory and safe execution of the Works.
- (ix) The Contractor shall obtain and maintain a project-related bank account operational at the site where all transactions related to the payment of work will be done. The Contractor shall submit a monthly account statement and a detailed report on the utilization of funds transferred to this project-related bank account to the Authority's Engineer. Notwithstanding anything contrary to this agreement, the authority, in the interest of ensuring the timely completion of the work, reserves the right to audit such bank accounts to ensure that there is no diversion of funds from this project-specific account to any other project being implemented by the Contractor.

- (x) The Contractor shall provide the documents of the Contractor specified in the Agreement, and all Contractors' personnel; Goods, consumables, and other things and services, whether of a temporary or permanent nature, required in and for the execution, completion of Works, and remedying defects.
- (xi) The Contractor shall perform the Works in conformity with the Project requirements and other requirements and standards prescribed under or pursuant to the Agreement.
- (xii) The Contractor shall carry out such work incidental and contingent to the original Scope of the Project to comply with Good Industry Practices.
- (xiii) The Contractor shall maintain the required staff and necessary Contractor's equipment and materials within the reach of the Site during the Defects Liability Period so that any defects arising are promptly attended.

4.2 Obligations relating to sub-contracts and any other agreements

- (i) The Contractor, whether Joint Venture or sole, shall not sub-contract any Works in more than **49% (forty-nine percent)** of the Contract Price and shall carry out Works directly under its supervision and through its personnel and equipment in **at least 51% (fifty-one percent)** of the Contract Price. Further, in case the Contractor is a Joint Venture, then the Lead Member shall carry out Works directly through its resources (men, material, machines, etc.) in **at least 51% (fifty-one percent)** of the total length of the Project Highway. Provided, however, that in respect of the Works carried out directly by the Contractor, it may enter into contracts for the supply and installation of Materials, Plant, equipment, road furniture, safety devices, and labor, as the case may be, for such Works. For the avoidance of doubt, the Parties agree that the Contractor may sub-divide the aforesaid length of **51% (fifty-one percent)** in no more than 5 (five) sections of the Project Highway. The Parties further agree that all obligations and liabilities under this Agreement for the entire project Highway shall at all times remain with the Contractor.
- (ii) In the event any sub-contract for Works, or the aggregate of such sub-contracts with any Sub-contractor, exceeds 5% (five percent) of the Contract Price, the Contractor shall communicate the name and particulars, including the relevant experience of the Sub-contractor, to the Authority before entering into any such sub-contract. The Authority shall examine the particulars of the Sub- contractor from the national security and public interest perspective and may require the Contractor, no later than 15 (fifteen) business days from the date of receiving the communication from the Contractor, not to proceed with the sub-contract, and the Contractor shall comply therewith.
- (iii) In the event any sub-contract referred to in Clause 4.2 (ii) relates to a Sub- contractor who has, over the preceding 3 (three) years, not undertaken at least one work of a similar nature with a contract value exceeding 40% (forty percent) of the value of the sub-contract to be awarded hereunder, and received payments in respect thereof for an amount equal to at least such 40% (forty percent), the Authority may, no later

than 15 (fifteen) business days from the date of receiving the communication from the Contractor, require the Contractor not to proceed with such sub-contract, and the Contractor shall comply therewith without delay or demur.

- (iv) It is expressly agreed that the Contractor shall, at all times, be responsible and liable for all its obligations under this Agreement notwithstanding anything contained in the agreements with its Sub-contractors or any other agreement that may be entered into by the Contractor, and no default under any such agreement shall excuse the Contractor from its obligations or liability under this Agreement. However, in case of non-compliance of the Contractor towards his obligations for payments to the approved Sub-contractor(s), which is likely to affect the progress of works, the authority reserves the right to intervene and direct the Contractor to release such outstanding payments to approved Sub-contractor(s) out of the payments due for the completed Works in the interest of work.

4.3 Employment of foreign nationals

The Contractor acknowledges, agrees, and undertakes that employment of foreign personnel by the Contractor and/or its Sub-contractors and their sub-contractors shall be subject to the grant of requisite regulatory permits and approvals including employment/ residential visas and work permits, if any required, and the obligation to apply for and obtain the same shall always rest with the Contractor. Notwithstanding anything to the contrary contained in this Agreement, refusal of or inability to obtain any such permits and approvals by the Contractor or any of its Subcontractors or their sub-contractors shall not constitute a Force Majeure Event, and shall not in any manner excuse the Contractor from the performance and discharge it of its obligations and liabilities under this Agreement, and the Contractor's liabilities hereunder shall remain unaffected by such failure, refusal or inability.

4.4 Contractor's personnel

- (i) The Contractor shall ensure that the personnel engaged by it or by its Subcontractors in the performance of its obligations under this Agreement are at all times appropriately and adequately qualified, skilled, and experienced in their respective functions in conformity with Good Industry Practice. The Contractor will try to hire at least 10% (ten percent) trained workmen as per the National Skills Qualifications Framework. If necessary, the requisite workmen may be trained by the Contractor at his cost through authorized training centers of the Directorate General of Training (DGT). The Contractor will organize training at the project site/ sites for the trainees as and when required as per the training schedule finalized in consultation with the training centers. The trainees shall be paid a stipend by the Contractor (subject to a maximum of Rs. 15,000/- per person) based on minimum wages to compensate for loss of income during the training period.
- (ii) The Authority's Engineer may, for reasons to be specified in writing, direct the Contractor to remove any member of the Contractor's or Sub-contractor's personnel. Provided that any such direction issued by the Authority's Engineer shall specify the

reasons for the removal of such a person.

- (iii) The Contractor shall on receiving such a direction from the Authority's Engineer order for the removal of such person or persons with immediate effect. It shall be the duty of the Contractor to ensure that such persons are evicted from the Site within 10 (ten) days of any such direction being issued in pursuance of Clause 4.4 (ii). The Contractor shall further ensure that such persons have no further connection with the Works or Maintenance under this Agreement. The Contractor shall then appoint (or cause to be appointed) a replacement.

4.5 Advertisement on Project Highway

The Project Highway or any part thereof shall not be used in any manner to advertise any commercial product or service.

4.6 Contractor's care of the Works

The Contractor shall bear full risk in, and take full responsibility for, the care of the Works, and the Materials, goods, and equipment for incorporation therein, from the Appointed Date until the date of Completion Certificate, save and except to the extent that any such loss or damage shall have arisen from any willful default or gross neglect of the Authority.

4.7 Electricity, Water, and other services

The Contractor shall be responsible for procuring all utilities as may be required, including without limitation, adequate power, water, and other services.

4.8 Unforeseeable difficulties

Except as otherwise stated in the Agreement:

- (a) the Contractor accepts complete responsibility for having foreseen all difficulties and costs of completing the Works;
- (b) the Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs; and
- (c) the Scheduled Completion Date shall not be adjusted to take account of any unforeseen difficulties or costs.

4.9 Co-ordination of the Works

- (i) The Contractor acknowledges that in addition to the Agreement, it is also aware of terms of the other Project contracts and other agreements the Authority has negotiated and entered into for the performance of its obligations under the Agreement (copies of other contracts and other agreements are made available to the Contractor from time to time) and that the Contractor is fully aware of the consequences to the Authority which would or are likely to result from a breach by the Contractor of its obligations under the Agreement. In the event, that the actions of the Contractor result in the breach by the Authority of any or all of the other Project

contracts and such breach imposes any liability on the Authority, the Contractor shall: (a) undertake all steps as may be possible to mitigate or neutralize the liability that has arisen, and (b) indemnify the Authority against any such liability and compensate the Authority to that extent.

- (ii) The Contractor shall be responsible for the coordination and proper provision of the Works, including co-ordination of other Contractors or Sub-contractors for the Project. The Contractor shall co-operate with the Authority in the coordination of the Works with the works under the other Project contracts. The Contractor shall provide all reasonable support for carrying out their work to:
 - (a) any other contractors employed by the Authority;
 - (b) the workmen of the Authority;
 - (c) the workmen of any Governmental Instrumentality who may be employed in the execution of work on or near the Site; and
 - (d) such other persons as is required in the opinion of the Authority for the successful completion of the Project.

4.10 Environmental Measures

- (i) The Contractor agrees to conduct its activities in connection with the Agreement in such a manner to comply with the environmental requirements which includes, *inter alia*, all the conditions required to be satisfied under the environmental clearances and applicable law, and assumes full responsibility for measures which are required to be taken to ensure such compliance.

4.11 Site Data

- (i) The Contractor shall be deemed to have inspected and examined the Site and its surroundings and to have satisfied himself before entering into the Agreement in all material respects including but not limited to:
 - (a) the form and nature of the Site (including, *inter-alia*, the surface and sub-surface conditions, and geotechnical factors);
 - (b) the hydrological and climatic conditions;
 - (c) the extent and nature of the works already completed Materials necessary for the execution and completion of the Works and the remedying of any defects that include the already executed part.
 - (d) the suitability and the adequacy of the Site for the execution of the Works;
 - (e) the means of access to the Site and the accommodation the Contractor may require;
 - (f) arranging permits as required as per [.] of the Agreement.
 - (g) the requirements of operation and maintenance; and
 - (h) all other factors and circumstances affecting the Contractor's rights and obligations under the Agreement, the Contract Price, and Time for Completion.

4.12 Sufficiency of Contract Price

The Contractor shall have satisfied itself as to the correctness and sufficiency of the Contract Price. The Contract Price shall cover all its obligations under the Agreement, in addition to all risks the Contractor has agreed to undertake under the Agreement, including those associated with the performance of its obligations under the Agreement and all things necessary for the provision of the Works in a manner satisfactory to the Authority and under this Agreement.

4.13 Clearance of the Site

During the provision of the Works, and as a pre-condition to the issue of the Taking-Over Certificate, the Contractor shall clear away and remove from the Site, all Contractor's equipment, surplus material, wreckage, rubbish, and temporary Works, and shall keep the Site free from all unnecessary obstructions, and shall not store or dispose of any Contractor's equipment or surplus materials on the Site. The Contractor shall promptly clear away and remove from the Site any wreckage, rubbish, or temporary Works no longer required and leave the Site and the Works in a clean and safe condition to the sole satisfaction of the Authority.

Article 5

Representations and Warranties

5.1 Representations and warranties of the Contractor

- (i) The Contractor represents and warrants to the Authority that:
 - (a) it is duly organized and validly existing under the laws of India, and has full power and authority to execute and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;
 - (b) it has taken all necessary corporate and/or other actions under Applicable Laws to authorize the execution and delivery of this Agreement and to validly exercise its rights and perform its obligations under this Agreement;
 - (c) this Agreement constitutes its legal, valid, and binding obligation, enforceable against it under the terms hereof, and its obligations under this Agreement will be legally valid, binding, and enforceable against it under the terms hereof;
 - (d) it is subject to the laws of India, and hereby expressly and irrevocably waives any immunity in any jurisdiction in respect of this Agreement or matters arising thereunder including any obligation, liability, or responsibility hereunder;
 - (e) the information furnished in the Bid, Request for Qualification, and Request for Proposals or otherwise and as updated on or before the date of this Agreement is true and accurate in all respects as on the date of this Agreement;
 - (f) the execution, delivery, and performance of this Agreement will not conflict with, or result in the breach of, or constitute a default under, or accelerate performance required by any of the terms of its memorandum and articles of association or any Applicable Laws or any covenant, contract, agreement, arrangement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;
 - (g) there are no actions, suits, proceedings, or investigations pending or, to its knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi-judicial, or other authority, the outcome of which may result in the breach of this Agreement or which individually or in the aggregate may result in any material impairment of its ability to perform any of its obligations under this Agreement;
 - (h) it does not know of any violation or default concerning any order, writ, injunction, or decree of any court or any legally binding order of any Government Instrumentality that may result in any material adverse effect on its ability to perform its obligations under this Agreement and no fact or circumstance exists which may give rise to such proceedings that would adversely affect the performance of its obligations under this Agreement;
 - (i) it has complied with Applicable Laws in all material respects and has not been subject to any fines, penalties, injunctive relief, or any other civil or criminal

liabilities which in the aggregate have or may have a material adverse effect on its ability to perform its obligations under this Agreement;

- (j) no representation or warranty by it contained herein or in any other document furnished by it to the Authority or any Government Instrumentality concerning Applicable Permits contains or will contain any untrue or misleading statement of a material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading;
 - (k) no sums, in cash or kind, have been paid or will be paid, by it or on its behalf, to any person by way of fees, commission, or otherwise for securing the contract or entering into this Agreement or for influencing or attempting to influence any officer or employee of the Authority in connection therewith;
 - (l) nothing contained in this Agreement shall create any contractual relationship or obligation between the Authority and any Subcontractors, designers, consultants, or agents of the Contractor;
 - (m) it is adequately financed and has the requisite knowledge, expertise, technical know-how, experience, resources, infrastructure, licenses, patents, and copy rights, for designing, supplying/ procuring the goods and materials, and for providing the installation and construction services required for completing the construction of the Project Facilities; and
- (ii) it represents the Authority that:
- (a) it owns or has the right to use all **“Intellectual Property”** necessary to perform the contractual obligations and to carry on the Works without conflict with the rights of others;
 - (b) All intellectual property rights necessary to perform the contractual obligations and to carry on the Works are in full force and effect and are vested in, and beneficially owned by the Contractor, and are free from encumbrances.
 - (c) None of the intellectual property rights is being used, claimed, posed, or attacked by any other person, nor does the use of such intellectual property rights or any part of them infringe the intellectual property rights owned or enjoyed by any third party.
 - (d) None of the intellectual property rights owned or used by the Contractor is the subject of any claim, opposition, attack, assertion, or other arrangement of whatsoever nature which does or may impinge upon their use, validity, enforceability, or ownership by the Parties, and there are no grounds or other circumstances which may give rise to the same.
 - (e) No licenses registered users or other rights have been granted or agreed to be granted to any third party in respect of such intellectual property rights.
 - (f) No act has been done or has been omitted to be done to entitle any authority or person to cancel, forfeit, or modify any intellectual property rights.
 - (g) The Contractor shall notify the Authority of any adverse use of the intellectual property rights or confusingly or deceptively similar to the intellectual

property rights.

- (h) The Contractor shall recognize the Authority's ownership and title to the intellectual property rights and shall not at any time, either directly or indirectly, put to issue the validity or ownership of the intellectual property rights and it will not do any act or thing, either directly or indirectly, which in any way impairs the validity and ownership of the intellectual property rights.
 - (i) The Contractor shall, promptly execute, acknowledge, and deliver all documents which are requested by the Authority to record with appropriate governmental agencies and authorities the fact that the Authority has the right to the use of the said intellectual property rights.
 - (j) The Contractor shall not, for any reason, object to, or interfere in any way with the ownership, registration, or use of the intellectual property rights by the Authority (or its licensee or assigns) for any purpose whatsoever.
- (iii) The Contractor is fully aware that the Agreement is interlinked with the other Project contracts and the non-performance or deficient performance or default by the Contractor and/or any of the Contractor's personnel or Subcontractors under one among the said contracts will have bearing on the other contracts and the evaluation of the Contractor's performance under the Agreement and the Project itself.
- (iv) If at any time during the Defects Liability Period any item of the Works or Project Facilities or any part thereof, do not conform to the Authority requirements and Specifications and Standards, on being so notified by the Authority, the Contractor shall promptly rectify/remedy such nonconformity to the satisfaction of the Authority solely at the Contractor's expense; failing which the Authority may reject or revoke Taking-Over Certificate, and the Authority may proceed to correct the Contractor's nonconforming Work by the most expeditious means available, the costs of which shall be to the Contractor's account, or the Authority may retain the non-conforming Work and an equitable adjustment reducing the total Contract Price to reflect the diminished value of such non-conforming Work will be made by written amendment.
- (v) In addition to the other warranties, the Contractor represents and warrants as follows:
 - (a) The Contractor has (or, if the technology does not currently exist, will have granted at the time of passing to The Employer) in and to the technology used in the equipment, materials, goods, Works, Contractor's documents, Drawings, and Manuals ("**Technology**") -
 - i. all rights, title, and interest-free of any lien, claim, or restriction; and
 - ii. right to grant to the Authority the right to use the Technology for this contract, free of any lien, claim, or restriction and on the terms of the license as required.
 - (b) The Contractor has granted (or, if the technology does not currently exist, will grant at the time of passing to the Authority the property and title in and to the equipment, materials, goods, Works, spares, Contractor's documents, Drawings, and Manuals in which it is used) to the Authority the right to use the

Technology, free of any lien, claim or restriction.

- (vi) In addition to the other Warranties, the Contractor represents and warrants as follows:
 - (a) No Technology contains any worm (i.e., a program that travels from one computer to another computer but does not attach itself to the operating system of the computer it enters), virus (i.e., a program that travels from one computer to another computer that attaches itself to the operating system it enters) or self-destruct capability.
 - (b) The Technology will not abnormally end or provide invalid or incorrect results as a result of date-dependent data.
 - (c) The Technology can accurately recognize, manage, accommodate, and manipulate date-dependent data, including single and multi-century formulas and leap years.
- (vii) No criminal proceedings were instituted against any of the employees or Directors of the Contractor.
- (viii) To date, the services of the Contractor have not been terminated by any person for any breach, non-performance, or negligence by the Contractor.

5.2 Representations and warranties of the Authority

The Authority represents and warrants to the Contractor that:

- (a) it has full power and authority to execute, deliver, and perform its obligations under this Agreement and to carry out the transactions contemplated herein and that it has taken all actions necessary to execute this Agreement, exercise its rights and perform its obligations, under this Agreement;
- (b) it has taken all necessary actions under the Applicable Laws to authorize the execution, delivery, and performance of this Agreement;
- (c) it has the financial standing and capacity to perform its obligations under this Agreement;
- (d) this Agreement constitutes a legal, valid, and binding obligation enforceable against it under the terms hereof;
- (e) it does not know of any violation or default concerning any order, writ, injunction, or decree of any court or any legally binding order of any Government Instrumentality that may result in any material adverse effect on the Authority's ability to perform its obligations under this Agreement;
- (f) it has complied with Applicable Laws in all material respects;
- (g) it has good and valid right to the Site and has the power and authority to grant the Right of Way in respect thereof to the Contractor; and
- (h) it has procured Right of Way and environment clearances such that the Contractor can commence construction forthwith on 90% (ninety percent) of

the total length of the Project Highway.

5.3 Disclosure

If any occurrence or circumstance comes to the attention of either Party that renders any of its aforesaid representations or warranties untrue or incorrect, such Party shall immediately notify the other Party of the same. Such notification shall not have the effect of remedying any breach of the representation or warranty that is untrue or incorrect nor shall it adversely affect or waive any obligation of either Party under this Agreement.

Article 6

Disclaimer

6.1 Disclaimer

- (i) The Contractor acknowledges that before the execution of this Agreement, the Contractor has, after a complete and careful examination, made an independent evaluation of the Request for Proposal, Scope of the Project, Specifications and Standards of design, construction and maintenance, Site, local conditions, physical qualities of ground, subsoil and geology, traffic volumes, suitability and availability of access routes to the Site and all information provided by the Authority or obtained, procured or gathered otherwise, and has determined to its satisfaction the accuracy or otherwise thereof and the nature and extent of difficulties, risks and hazards as are likely to arise or may be faced by it in the course of performance of its obligations hereunder. Save as provided in Clause 3.1 and Clause 5.2, the Authority makes no representation whatsoever, express, implicit, or otherwise, regarding the accuracy, adequacy, correctness, reliability, and/or completeness of any assessment, assumptions, statement, or information provided by it and the Contractor confirms that it shall have no claim whatsoever against the Authority in this regard.
- (ii) The Contractor acknowledges and hereby accepts to have satisfied itself as to the correctness and sufficiency of the Contract Price.
- (iii) The Contractor acknowledges and hereby accepts the risk of inadequacy, mistake, or error in or relating to any of the matters outlined in Clause 6.1 (i) above and hereby acknowledges and agrees that the Authority shall not be liable for the same in any manner whatsoever to the Contractor, or any person claiming through or under any of them, and shall not lead to any adjustment of Contract Price or Scheduled Completion Date.
- (iv) The Parties agree that any mistake or error in or relating to any of the matters outlined in Clause 6.1 (i) above shall not vitiate this Agreement, or render it voidable.
- (v) If either Party becomes aware of any mistake or error relating to any of the matters outlined in Clause 6.1 (i) above, that Party shall immediately notify the other Party, specifying the mistake or error.
- (vi) Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Contractor; and the Authority shall not be liable in any manner for such risks or the consequences thereof.

Part III

Construction and Maintenance

Article 7

Performance Security

7.1 Performance Security

- (i) (A) Within 30 (thirty) days of receipt of Letter of Acceptance, the selected Bidder shall furnish to the Authority an irrevocable and unconditional guarantee from a Bank in the form outlined in Annex- I of Schedule-G (the "Performance Security") for an amount equal to 5 % (Five percent) of its Bid Price including GST.
In case of bids mentioned below, the Selected Bidder, along with the Performance Security, shall also furnish to the Authority an irrevocable and unconditional guarantee from a Bank in the same form given at Annex-I of Schedule-G towards an Additional Performance Security (the "Additional Performance Security") for an amount calculated as under: - (Ref. to latest MoRTH Circular no. NH-37015/01/2022-H(Comp No. 208778) dated 29.02.2024.
 - a. If the Bid Price offered by the Selected Bidder is lower than 20% of the estimated Project Cost/ cost put to tender, then the Additional Performance Security shall be calculated @20% of the difference in the (i) Estimated Project Cost (as mentioned in RFP)-20% of the Estimated Project Cost and (ii) the Bid Price offered by the selected Bidder.
 - b. The Maximum limit of the Additional Performance Security shall be limited to 3% of the bid price including GST offered by the Selected Bidder.
 - c. This Additional Performance Security shall be treated as part of the Performance Security.
- (B) The Performance Security shall be valid until sixty (60) days after the Defects Liability Period. The Additional Performance Security shall be valid until 28 (twenty- eight) days after the Project Completion Date.
- (ii) The Selected Bidder shall provide the Performance Security and the Additional Performance Security, if any, within 30 (thirty) days of receipt of the Letter of Acceptance, in any case before signing the Contract Agreement.
- (iii) In the event the Selected Bidder fails to provide the remaining Performance Security and Additional Performance Security, if any, as prescribed herein, it may seek an extension of time for a further period of up to 60 days by paying the Damages upfront along with the request letter seeking the extension. The Damages shall be the sum calculated at the rate of 0.01% (zero point zero one percent) of the Bid Price offered by the Selected Bidder for each day until the Performance Security and Additional Performance Security, if any, are provided in full as prescribed herein. The damages at the full rate as given above shall be applicable even if a part of the Performance Security and the Additional Performance Security is provided.

- (iv) For the avoidance of any doubt, in case of failure of submission of Performance Security and Additional Performance Security, if any, within the additional 60 days' time period, the award shall be deemed to be canceled/ withdrawn and the Bid Security shall be encashed and the proceeds thereof appropriated by the Authority. Thereupon all rights, privileges, claims, and entitlements of the Contractor under or arising out of the Award shall be deemed to have been waived by, and to have ceased with the concurrence of the Contractor, and the Award shall be deemed to have been withdrawn by the Authority

7.2 Extension of Performance Security and Additional Performance Security

The Contractor may initially provide the Performance Security for 2 (two) years; provided that it shall procure the extension of the validity of the Performance Security, as necessary, at least 2 (two) months before the date of expiry thereof. Upon the Contractor providing an extended Performance Security, the previous Performance Security shall be deemed to be released and the Authority shall return the same to the Contractor within 7 (seven) business days from the date of submission of the extended Performance Security.

7.3 Appropriation of Performance Security

- (i) Upon occurrence of a Contractor's Default, the Authority shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to encash and appropriate the relevant amounts from the Performance Security as Damages for such Contractor's Default.
- (ii) Upon such encashment and appropriation from the Performance Security, the Contractor shall, within 30 (thirty) days thereof, replenish, in case of partial appropriation, to its original level the Performance Security, and in case of appropriation of the entire Performance Security provide a fresh Performance Security, as the case may be, and the Contractor shall, within the time so granted, replenish or furnish fresh Performance Security as aforesaid failing which the Authority shall be entitled to terminate the Agreement under Article 23. Upon replenishment or furnishing of a fresh Performance Security, as the case may be, as aforesaid, the Contractor shall be entitled to an additional Cure Period of 30 (thirty) days for remedying the Contractor's Default, and in the event of the Contractor not curing its default within such Cure Period, the Authority shall be entitled to encash and appropriate such Performance Security as Damages, and to terminate this Agreement under Article 23.

7.4 Release of Performance Security

- (i) The Authority shall return the Performance Security to the Contractor within 60 (sixty) days of the expiry of the Maintenance Period or the Defects Liability Period, whichever is later, under this Agreement. Notwithstanding the aforesaid, the Parties agree that the Authority shall not be obliged to release the Performance Security until all Defects identified during the Defects Liability Period have been rectified.

- (ii) The Authority shall return the Additional Performance Security to the Contractor within 28 (twenty-eight) days from the date of issue of the Completion Certificate under Article 12 of this Agreement.
- (iii) The Authority shall be liable to pay interest @ 9% (nine percent) per annum for any delay in the return of Performance Security and Additional Performance Security, if any, beyond the period prescribed above for the period of delay.

7.5 Retention Money

- (i) From every payment for Works due to the Contractor under the provisions of Clause 19.5, the Authority shall deduct 6% (six percent) thereof as guarantee money for the performance of the obligations of the Contractor during the Construction Period (the “**Retention Money**”) subject to the condition that the maximum amount of Retention Money shall not exceed 5% (five percent) of the Contract Price.
- (ii) Upon the occurrence of a Contractor’s Default, the Authority shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to appropriate the relevant amounts from the Retention Money as Damages for such Contractor’s Default.
- (iii) Within 15 (fifteen) days of the date of issue of the Completion Certificate, the Authority shall refund the balance of Retention Money remaining with the Authority after adjusting the amounts appropriated under the provisions of Clause 7.5 (ii).
- (iv) The Parties agree that in the event of Termination of this Agreement, the Retention Money specified in Clause 7.5 shall be treated as if they are Performance Security and shall be reckoned as such for Termination Payment under Clause 23.6.

Article 8

Right of Way

8.1 The Site

The site of the Project Highway (the “**Site**”) shall comprise the site described in Schedule-A in respect of which the Right of Way shall be provided by the Authority to the Contractor. The Authority shall be responsible for:

- (a) acquiring and providing Right of Way on the Site under the alignment finalized by the Authority, free from all encroachments and encumbrances, and free access thereto for the execution of this Agreement; and
- (b) obtaining licenses and permits for environment clearance for the Project Highway.

8.2 Procurement of the Site

- (i) The Authority Representative, the Contractor, and the Authority’s Engineer shall, within 10 (ten) days of the date of this Agreement, inspect the Site and prepare a detailed memorandum containing an inventory of the Site including the vacant and unencumbered land, buildings, structures, road works, trees and any other immovable property on or attached to the Site (hereinafter referred to as the “**Handover Memorandum**”). Subject to the provisions of Clause 8.2 (iii), the Handover Memorandum shall have appended thereto an appendix (the “**Appendix**”) specifying in reasonable detail those parts of the Site to which vacant access and Right of Way has not been given to the Contractor along with details of hindrances in the Construction Zone. For the sake of clarity, the Handover Memorandum shall specify the parts of the Site where work can be executed. The signing of the Handover Memorandum, in three counterparts (each of which shall constitute an original), by the authorized representatives of the Authority, Contractor, and Authority’s Engineer shall be deemed to constitute valid evidence of giving the Right of Way to the Contractor for discharging its obligations under and under the provisions of this Agreement and for no other purpose whatsoever.
- (ii) Whenever the Authority is ready to hand over any part or parts of the Site included in the Appendix, it shall inform the Contractor, by notice, of the proposed date and time such of handover. The Authority Representative and the Contractor shall, on the date so notified, inspect the specified parts of the Site, and prepare a memorandum containing an inventory of the vacant and unencumbered land, buildings, structures, road works, trees, and any other immovable property on or attached to the Site so handed over. The signing of the memorandum, in three (3) counterparts (each of which shall constitute an original), by the authorized representatives of the Parties shall be deemed to constitute valid evidence of giving the relevant Right of Way to the Contractor.

If the contractor fails to join for site inspection or disputes the parts of the site available for work, the Authority's Engineer shall decide the parts of the site where work can be executed and notify both parties within 3 days of the proposed date of inspection. The parties agree that such notification of the Authority's Engineer as mentioned hereinabove shall be final and binding on the parties.

- (iii) The Authority shall provide the Right of Way to the Contractor in respect of all land included in the Appendix by the date specified in Schedule-A for those parts of the Site referred to therein, and in the event of delay for any reason other than Force Majeure or breach of this Agreement by the Contractor, it shall pay to the Contractor, Damages in a sum calculated under Clause 8.3. The Contractor agrees that it shall not be entitled to claim any other damages on account of any such delay by the Authority.
- (iv) Notwithstanding anything to the contrary contained in Clause 8.2, the Authority shall specify the parts of the Site, if any, for which Right of Way shall be provided to the Contractor on the dates specified in Schedule A. Such parts shall also be included in the Appendix prepared in pursuance of Clause 8.2 (i).
- (v) The Authority further acknowledges and agrees that before the Appointed Date, it shall have procured issuance of the statutory notification under Applicable Laws for vesting of all the land comprising the Project in the Authority and has taken possession of the area for Construction Zone for at least 90% (ninety percent) of the total length of the Project Highway. The Parties also acknowledge and agree that the conditions specified in Clause 8.2 (iii) shall not be modified or waived by either Party.
- (vi) For the avoidance of doubt, the Parties expressly agree that the Appendix shall in no event contain sections of the Project Highway the cumulative length of which exceeds 10% (ten percent) of the total length of the Project Highway.
- (vii) According to the signing of the Handover Memorandum under clause 8.2 (i), the Contractor shall submit to the Authority's Engineer, a monthly land possession report till the expiry of 180 (one hundred and eighty) days from the Appointed Date, in respect of those parts of the site to which vacant access and right of way was not given to the contractor and included in Appendix to the memorandum signed under clause 8.2 (i), duly specifying the part of the site, if any, for which the right of way is yet to be handed over.

8.3 Damages for the delay in handing over the Site

- (i) In the event, that the Right of Way to any part of the Site is not provided by the Authority on or before the date(s) specified in Clause 8.2 for any reason other than Force Majeure or breach of this Agreement by the Contractor, the Authority shall pay Damages to the Contractor a sum calculated under the following formula for and in respect of those parts of the Site to which the Right of Way has not been provided:

$$\text{Amount of Damages in Rs. per day per metre} = 0.05 \times C \times \frac{1}{L} \times \frac{1}{N}$$

Where,

C = the Contract Price;

L = length of the Project Highway in meters; and

N = Completion period in days (Appointed Date to Scheduled Completion Date)

In the event that any Damages are due and payable to the Contractor under the provisions of Clause 8.3 (i) for delay in providing the Right of Way, the Contractor shall, subject to the provisions of Clause 10.5, be entitled to Time Extension equal to the period for which the Damages have become due and payable under this Clause 8.3 (i), save and except that:

- (a) if any delays involve time overlaps, the overlaps shall not be additive; and
- (b) Such time Extension shall be restricted only to the Works that are affected by the delay in providing the Right of Way.

For the avoidance of doubt, the Parties expressly agree that the Damages specified hereunder and the Time Extension specified in Clause 10.5 shall be restricted only to the failure of the Authority to provide the Right of Way for and in respect of the “Construction Zone” which shall comprise the following components:

- Main in carriageway
 - Median (for 4 lane carriageway or more)
 - Paved and earthen shoulders
 - Area for Structures including ROB/RUBs.
 - Safety measures include Roadside Drains and Furniture.
 - A parallel working space for accommodating slopes/retaining structures etc.
- (ii) Notwithstanding anything to the contrary contained in this Agreement, the Contractor expressly agrees that Works on all parts of the Site for which Right of Way of Construction Zone is granted on the Appointed Date, or concerning the parts of the Site provided in Schedule-A, no later than the date(s) specified therein, as the case may be, shall be completed before the Scheduled Completion Date and shall not qualify for any Time Extension under the provisions of Clause 8.3 (iii).
- (iii) (a) Notwithstanding anything to the contrary contained in this Agreement, unless covered under the deemed de-scoping in terms of sub-clause 8.3 (iii) (b), the Authority may at any time withdraw any Works forming part of this Agreement, subject to such Works not exceeding an aggregate value, such value to be determined under Schedule-H, equal to 10 (ten) percent of the Contract Price.

(b) Provided that if any Works cannot be undertaken within the municipal limits of a town or any area falling in a reserved forest or wildlife sanctuary or the stretches where vacant access and Right of Way could not be handed over, as the case may be, because the requisite clearances or approvals or affected land parcels for commencing construction of Works therein have not been given within 180 (one hundred and eighty) days of the Appointed date, the affected Works shall be deemed to be withdrawn under the provisions of this Clause 8.3.3. Such Works shall not be computed for the aforesaid ceiling of 10% (ten percent) hereunder.

(c) Provided further that in case such stretches (as mentioned in Sub-Clause (b) above) can be handed over to the Contractor before the expiry of the original Scheduled Construction Period of the Project Highway, and the Contractor agrees to take up the work, the same may be allowed to be executed by him with corresponding Extension of Time, subject to the condition that the Contractor shall not be entitled to raise any claims on account of prolongation costs in this behalf.

- (iv) In the event of withdrawal of Works under Clause 8.3 (iii) (a), the Contract Price shall be reduced by an amount equal to the percent of the value of the works withdrawn as mentioned in the Table below and the Contractor shall not be entitled to any other compensation or Damages for the withdrawal of Works.

Value of the Works withdrawn	Percentage of value of works to be reduced from Contract Price
upto Rs. 100 Crore	90%
More than Rs. 100 Crore	Rs. 90 Crore plus 95% of the amount greater than Rs. 100 Crore

Provided that If any Works are withdrawn after the commencement of the Construction of such works, the Authority shall pay to the Contractor 110% (one hundred and ten percent) of the fair value of the work done, as assessed by the Authority Engineer.

The parties expressly agree that the value of the Works withdrawn shall be determined from the details available in Schedule H. If it is impossible to determine the value from Schedule H, then the value shall be determined under the provisions of Clause 13.2 (iii).

8.4 Site to be free from Encumbrances

Subject to the provisions of Clause 8.2, the Site shall be made available by the Authority to the Contractor pursuant hereto free from all Encumbrances and occupations and without the Contractor being required to make any payment to the Authority because of any costs, compensation, expenses, and charges for the acquisition and use of such Site for the duration of the Project Completion Schedule. For the avoidance of doubt, it is agreed that the existing rights of way, easements, privileges, liberties, and appurtenances to the Site shall not be deemed to be Encumbrances. It is further agreed that, unless otherwise specified in this Agreement,

the Contractor accepts and undertakes to bear all risks arising out of the inadequacy or physical condition of the Site.

8.5 Protection of Site from encroachments

On and after signing the memorandum and/or subsequent memorandum referred to in Clause 8.2, and until the issue of the Completion Certificate, the Contractor shall maintain a round-the-clock vigil over the Site and shall ensure and procure that no encroachment takes place thereon. During the Construction Period, the Contractor shall protect the Site from all occupations, encroachments, or Encumbrances, and shall not place or create nor permit any Sub-contractor or other person claiming through or under the Agreement to place or create any Encumbrance or security threat over all or any part of the Site or the Project Assets, or on any rights of the Contractor therein or under this Agreement, save and except as otherwise expressly set forth in this Agreement. In the event of any encroachment or occupation on any part of the Site, the Contractor shall report such encroachment or occupation forthwith to the Authority and undertake its removal at its own cost and expenses.

8.6 Special/ temporary Right of Way

The Contractor shall bear all costs and charges for any special or temporary right of way required by it in connection with access to the Site. The Contractor shall obtain at its cost such facilities on or outside the Site as may be required by it for the Project Highway and the performance of its obligations under this Agreement.

8.7 Access to the Authority and the Authority's Engineer

- (i) The Right of Way given to the Contractor hereunder shall always be subject to the right of access of the Authority and the Authority's Engineer and their employees and agents for inspection, viewing, and exercise of their rights and performance of their obligations under this Agreement.
- (ii) The Contractor shall ensure, subject to all relevant safety procedures, that the Authority has unrestricted access to the Site during any emergency, as decided by the Authority's Engineer.

8.8 Geological and archaeological finds

It is expressly agreed that mining, geological, or archaeological rights do not form part of this Agreement with the Contractor for the Works, and the Contractor hereby acknowledges that it shall not have any mining rights or interest in the underlying minerals, fossils, antiquities, structures or other remnants or things either of particular geological or archaeological interest and that such rights, interest and property on or under the Site shall vest in and belong to the Authority or the concerned Government Instrumentality. The Contractor shall take all reasonable precautions to prevent its workmen or any other person from removing or damaging such interest or property and shall inform the Authority forthwith of the discovery thereof and comply with such instructions as the concerned Government Instrumentality may reasonably give for the removal of such property. For the avoidance of doubt, it is agreed that any

reasonable expenses incurred by the Contractor hereunder shall be reimbursed by the Authority. It is also agreed that the Authority shall procure that the instructions hereunder are issued by the concerned Government Instrumentality within a reasonable period.

Article 9

Utilities and Trees

9.1 Existing utilities and roads

Notwithstanding anything to the contrary contained herein, it shall be the responsibility of the Contractor to ensure that the respective entities owning the existing roads, right of way, level crossings, structures, or utilities on, under, or above the Site are enabled by it to keep them in continuous satisfactory use, if necessary, by providing suitable temporary diversions with the authority of the controlling body of that road, right of way or utility.

9.2 Shifting of obstructing utilities

The Contractor shall, under Applicable Laws and with the assistance of the Authority, undertake the work of shifting any utility (including electric lines, water pipes, gas pipelines, and telephone cables) to an appropriate location or alignment, if such utility or obstruction adversely affects the execution of Works or Maintenance of the Project Highway under this Agreement. The cost of such shifting, as per estimates prepared by the entity owning the utility and approved by the Authority, shall be reimbursed by the Authority to the Contractor. The scope of work of such shifting of Utilities shall be as indicated in Schedule-B-1. In the event of any delay of such shifting on the part of the contractor, no extension of time for completion of the project and no claims, in any manner, shall be admissible on this account against the Authority.

The work of shifting Utilities can be taken up by the Contractor at any time after the signing of the Agreement.

The scope of all utility shifting works shall be expressly indicated in Schedule B-1 (Annexure).

9.3 New utilities

- (i) The Contractor shall allow, subject to permission from the Authority and such conditions as the Authority may specify, access to, and use of the Site for laying telephone lines, water pipes, electricity lines/ cables, or other public utilities. Where such access or use causes any financial loss to the Contractor, it may require the user of the Site to pay compensation or damages as per Applicable Laws. For the avoidance of doubt, it is agreed that use of the Site under this Clause 9.3 shall not in any manner relieve the Contractor of its obligation to construct and maintain the Project Highway under this Agreement and any damage caused by such use shall be restored forthwith at the cost of the Authority.
- (ii) The Authority may, by notice, require the Contractor to connect any adjoining road to the Project Highway, and the connecting portion thereof falling within the Site shall be constructed by the Contractor at the Authority's cost under Article 10.

- (iii) The Authority may by notice require the Contractor to connect, through a paved road, any adjoining service station, hotel, motel, or any other public facility or amenity to the Project Highway, whereupon the connecting portion thereof that falls within the Site shall be constructed by the Contractor on payment of the cost. The cost to be paid by the Authority to the Contractor shall be determined by the Authority's Engineer. For the avoidance of doubt, in the event such a road is to be constructed for the benefit of any entity, the Authority may require such entity to make an advance deposit with the Contractor or the Authority, as the case may be, of an amount equal to the estimated cost as determined by the Authority's Engineer and such advance shall be adjusted against the cost of construction as determined by the Authority's Engineer hereunder.
- (iv) In the event construction of any Works is affected by a new utility or works undertaken under Clause 9.3, the Contractor shall be entitled to a reasonable Time Extension as determined by the Authority's Engineer.

9.4 Felling of trees

The Authority shall assist the Contractor in obtaining the Applicable Permits for the felling of trees in non-forest areas to be identified by the Authority for this purpose if, and only if, such trees cause a Material Adverse Effect on the construction or maintenance of the Project Highway. The Contractor shall fell these trees as per the Permits obtained. 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 Contractor; 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. The Parties hereto agree that the felled trees shall be deemed to be owned by the Authority and shall be disposed of in such manner and subject to such conditions as the Authority may in its sole discretion deem appropriate. For the avoidance of doubt, the Parties agree that if any felling of trees hereunder is in a forest area, the Applicable Permit thereof shall be procured by the Authority within the time specified in the Agreement.

9.5 Dismantling of structures

The Contractor shall at its own cost dismantle the structures in the acquired lands including those on patta lands, Abadi lands, assigned lands, etc. the compensation for which, was paid by the Authority to the land owners and the lands were handed over to the Contractor as per Schedule B-1. The Contractor shall, at its own cost, dispose of the dismantled material in its sole discretion as deemed appropriate, while complying with all environmental guidelines and regulations and clear the Site for undertaking construction. In the event of any delay in dismantling of structures thereof for reasons beyond the control of the Contractor, the Contractor shall be entitled to Damages in a sum calculated under the formula specified in Clause 8.3 (i) for the period of delay, and to the Time Extension under Clause 10.5 for and in respect of the part(s) of the Works affected by such delay; provided that if the delays involve any time overlaps, the overlaps shall not be additive.

9.6 Development Period

The Contractor may commence pre-construction activities like utility shifting, boundary wall construction, or any other activity assigned to the Contractor by the Authority to enable construction of the Project Highway immediately after signing of the Agreement, to the extent that such work is ready for execution. The Parties agree that these works may be taken up and completed to the extent feasible by the Contractor, before declaration of the Appointed Date, but no claim against the Authority for delay shall survive during this period and that the undertaking of these works by the Contractor shall not count towards the Scheduled Construction Period of the project which starts counting only from the Appointed Date. No construction activity of the Project Highway shall be undertaken during the development period.

Article 10

Design and Construction of the Project Highway

10.1

- (i) Within 20 (twenty) days of the Appointed Date, the Contractor shall:
 - (a) appoint its representative, duly authorized to deal with the Authority in respect of all matters under or arising out of or relating to this Agreement;
 - (b) appoint a design director (the “**Design Director**”) who will head the Contractor’s design unit and shall be responsible for surveys, investigations, collection of data, and preparation of preliminary and detailed designs;
 - (c) undertake and perform all such acts, deeds, and things as may be necessary or required before commencement of Works under and under this Agreement, the Applicable Laws, and Applicable Permits; and
 - (d) make arrangements for the quarrying of materials needed for the Project Highway under and under the Applicable Laws and Applicable Permits.
- (ii) The Authority shall, appoint an engineer (the “**Authority’s Engineer**”) before the Appointed Date to discharge the functions and duties specified in this Agreement, and shall notify the Contractor of the name, address, and the date of appointment of the Authority’s Engineer forthwith.
- (iii) Within 30 (thirty) days of the Appointed Date, the Contractor shall submit to the Authority and the Authority’s Engineer a program (the “**Programme**”) for the Works, developed using networking techniques, for review and consent of the Engineer, giving the following details:
 - (a) Part I: Contractor’s organization for the Project, the general methods and arrangements for design and construction, environmental management plan, Quality Assurance Plan including design quality plan, traffic management and safety plan covering safety of users and workers during construction (including use of ‘ROBOTS’ for diversion and control of traffic), Contractor’s key personnel and equipment.
 - (b) Part II: Programme for completion of all stages of construction given in Schedule-H and Project Milestones of the Works as specified in the Project Completion Schedule outlined in Schedule-J. The Programme shall include:
 - i. the order in which the Contractor intends to carry out the Works, including the anticipated timing of design and stages of Works;
 - ii. the periods for reviews under Clause 10.2;

- iii. the sequence and timing of inspections and tests specified in this Agreement; and
- iv. the particulars for the pre-construction reviews and any other submissions, approvals, and consents specified in the Agreement.

The Contractor shall submit a revised Programme whenever the previous Programme is inconsistent with the actual progress or with the Contractor's obligations.

(c) Part III: Monthly cash flow forecast.

- (iv) The Contractor shall compute, based on the Drawings prepared under Clause 10.2 (iv), and provide to the Authority's Engineer, the length, area, and numbers, as the case may be, in respect of the various items of work specified in Schedule-H and comprising the Scope of the Project. The Parties expressly agree that these details shall form the basis for estimating the interim payments for the Works under the provisions of Clause 19.3. For the avoidance of doubt, the sum of payments to be computed in respect of all the items of work shall not exceed the Contract Price, as may be adjusted under the provisions of this Agreement.
- (v) The Contractor shall appoint a safety consultant (**the "Safety Consultant"**) to carry out a safety audit at the design stage of the Project Highway under the Applicable Laws and Good Industry Practice. The Safety Consultant shall be appointed after proposing to the Authority a panel of three (3) names of qualified and experienced firms from which the Authority may choose one (1) to be the Safety Consultant. Provided, however, that if the panel is not acceptable to the Authority and the reasons for the same are furnished to the Contractor, the Contractor shall propose to the Authority a revised panel of three (3) names from **the firms impaneled as safety consultants by the Ministry of Road Transport and Highways for obtaining the consent of the Authority**. The Contractor shall also obtain the consent of the Authority for the key personnel of the Safety Consultant who shall have adequate experience and qualifications in safety audit of the highway projects. The Authority shall, within 15 (fifteen) days of receiving a proposal from the Contractor hereunder, convey its decision, with reasons, to the Contractor, and if no such decision is conveyed within the said period, the Contractor may proceed with engaging the Safety Consultant.
- (vi) The safety audit under Clause 10.1 (v) shall be carried out by the Safety Consultant concerning all such design details that have a bearing on the safety of Users as well as pedestrians and animals involved in or associated with accidents. The recommendations of the Safety Consultant shall be incorporated in the design of the Project Highway and the Contractor shall forward to the Authority's Engineer a certificate to this effect together with the recommendations of the Safety Consultant. If any works required by the Safety Consultant shall fall beyond the scope of Schedule B, Schedule C, or Schedule D, the Contractor shall make a report thereon and seek the instructions of the Authority for Change in Scope. For the

avoidance of doubt, the Safety Consultant to be engaged by the Contractor shall be independent of the design and implementation team of the Contractor.

10.2 Design and Drawings

- (i) Design and Drawings shall be developed in conformity with the Specifications and Standards outlined in Schedule D. In the event, that the Contractor requires any relaxation in design standards due to restricted Right of Way in any section, the alternative design criteria for such section shall be provided for review and approval of the Authority's Engineer.
- (ii) The Contractor shall appoint a proof check consultant (the "**Proof Consultant**") as an independent third-party Design Audit/Proof Consultant from a reputed engineering institution of IITs/NITs. The Contractor shall submit to the Authority the details of the appointed proof check consultant having adequate experience and qualifications in highways and bridges respectively. The Authority shall, within 15 (fifteen) days of receiving a proposal from the Contractor hereunder, convey its comments, with reasons, to the Contractor, and if no such comment is conveyed within the said period, the Contractor may proceed with engaging in the Proof Consultant.
The Contractor shall ensure that all design Audits and proof Checking by the Proof Consultant shall not be below the rank of the Head of the Department of the institution.
- (iii) The Proof Consultant shall:
 - (a) evolve a systems approach with the Design Director to minimize the time required for final designs and construction drawings; and
 - (b) Proof-check the detailed calculations, drawings, and designs, which have been approved by the Design Director.
- (iv) In respect of the Contractor's obligations concerning the design and Drawings of the Project Highway, as outlined in Schedule-I, the following shall apply:
 - (a) The Contractor shall prepare and submit, with reasonable promptness and in such sequence as is consistent with the Project Completion Schedule, three (3) copies of each of the design and Drawings, duly certified by the Proof Consultant, to the Authority's Engineer for its approval. Provided, however, that in respect of Major Bridges and Structures, the Authority's Engineer may require additional drawings for approval under Good Industry Practice.
 - (b) by submitting the Drawings for review and approval to the Authority's Engineer, the Contractor shall be deemed to have represented that it has determined and verified that the design and engineering, including field construction criteria related thereto, conform with the Scope of the Project, the Specifications and Standards and the Applicable Laws;

- (c) within 15 (fifteen) days of the receipt of the Drawings, the Authority's Engineer shall review the same and convey its approval/observations to the Contractor with particular reference to their conformity or otherwise with the Scope of the Project and the Specifications and Standards. Provided, however, that in case of a major bridge or structure, the aforesaid period of 15 (fifteen) days may be extended up to 30 (thirty) days;
- (d) if the aforesaid observations of the Authority's Engineer indicate that the Drawings are not in conformity with the Scope of the Project or the Specifications and Standards, such Drawings shall be revised by the Contractor in conformity with the provisions of this Agreement and resubmitted to the Authority's Engineer for review and approval. The Authority's Engineer shall give its observations, if any, within 10 (ten) days of receipt of the revised Drawings. In the event the Contractor fails to revise and resubmit such Drawings to the Authority's Engineer for review/approval as aforesaid, the Authority's Engineer may withhold the payment for the affected works under the provisions of Clause 19.5 (iv). If the Contractor disputes any decision, direction, or determination of the Authority's Engineer hereunder, the Dispute shall be resolved under the Dispute Resolution Procedure;
- (e) no review/approval and/or observation of the Authority's Engineer and/or its failure to review/approval and/or convey its observations on any Drawings shall relieve the Contractor of its obligations and liabilities under this Agreement in any manner nor shall the Authority's Engineer or the Authority be liable for the same in any manner; and if errors, omissions, ambiguities, inconsistencies, inadequacies or other Defects are found in the Drawings, they and the construction works shall be corrected at the Contractor's cost, notwithstanding any approval under this Article 10;
- (f) the Contractor shall be responsible for delays in submitting the Drawing as outlined in Schedule-I caused because of delays in surveys and field investigations, and shall not be entitled to seek any relief in that regard from the Authority; and
- (g) the Contractor warrants that its designers, including any third parties engaged by it, shall have the required experience and capability under Good Industry Practice and it shall indemnify the Authority against any damage, expense, liability, loss, or claim, which the Authority might incur, sustain or be subject to arising from any breach of the Contractor's design responsibility and/or warranty set out in this Clause.
- (h) the Contractor shall ensure that all the designs and drawings shall be approved by the Authority's Engineer within 90 days (ninety) from the Appointed Date.
- (v) Any cost or delay in construction arising from review/approval by the Authority's Engineer shall be borne by the Contractor.

- (vi) Works shall be executed under the Drawings provided by the Contractor under the provisions of Clause 10.2 and the approval of the Authority's Engineer thereon as communicated according to the provisions of Subclause (c) & (d) of Clause 10.2 (iv). Such Drawings shall not be amended or altered without prior written notice to the Authority's Engineer. If a Party becomes aware of an error or defect of a technical nature in the design or Drawings, that Party shall promptly give notice to the other Party of such error or defect.
- (vii) Within 90 (ninety) days of the Project Completion Date, the Contractor shall furnish to the Authority and the Authority's Engineer a complete set of as-built Drawings, in 2 (two) hard copies and in microfilm form or such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered, and constructed, including an as-built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities.

10.3 Construction of the Project Highway

- (i) The Contractor shall construct the Project Highway as specified in Schedule- B and Schedule-C, and in conformity with the Specifications and Standards outlined in Schedule- D. The Contractor shall be responsible for the correct positioning of all parts of the Works and shall rectify any error in the positions, levels, dimensions, or alignment of the Works. The Actual day/date of completion as per schedule J from the Appointed Date shall be the scheduled completion date (the "Scheduled Completion Date") and the Contractor agrees and undertakes that the construction shall be completed on or before the Scheduled Completion Date, including any extension thereof.
- (ii) The Contractor shall construct the Project Highway under the Project Completion Schedule outlined in Schedule-J. In the event that the Contractor fails to achieve any Project Milestone or the Scheduled Completion Date within a period of 30 (thirty) days from the date set forth in Schedule-J, unless such failure has occurred due to Force Majeure or for reasons solely attributable to the Authority, it shall pay Damages to the Authority of a sum calculated at the rate of 0.05% (zero point zero five percent) of the Contract Price for delay of each day reckoned from the date specified in Schedule -J and until such Project Milestone is achieved or the Project Highway is completed; provided that if the period for any or all Project Milestones or the Scheduled Completion Date is extended in accordance with the provisions of this Agreement, the dates set forth in Schedule-J shall be deemed to be modified accordingly and the provisions of this Agreement shall apply as if Schedule-J has been amended as above; provided further that in the event the Project Highway is completed within or before the Scheduled Completion Date including any Time Extension, applicable for that work or section, the Damages paid under this Clause 10.3 (ii) shall be refunded by the Authority to the Contractor, but without any interest thereon.

The Parties agree that for determining achievement or delays in completion of the Project Milestones or the Project on the due date, the works affected due to delay in providing the site for which time extension has been granted beyond the Scheduled Completion Date will be excluded. For example on the due date to achieve Project Milestone-I (i.e., Stage Payments of 10% (ten percent) of Contract Price on 180th (one hundred and eighty) day from the Appointed Date), if 5% (five percent) of the project length corresponding to the Project Milestone-I is not handed over or lately handed over resulting in the extension of completion of this 5% (five percent) length beyond Scheduled Completion Date, Stage Payment of $10\% \times 0.95 = 9.5\%$ only is to be achieved by 180th (one hundred and eighty) day.

For the avoidance of doubt, it is agreed that recovery of Damages under this Clause 10.3 (ii) shall be without prejudice to the rights of the Authority under this Agreement including the right of Termination thereof. The Parties further agree that Time Extension hereunder shall only be reckoned for and in respect of the affected Works as specified in Clause 10.5 (ii).

- (iii) The Authority shall notify the Contractor of its decision to impose Damages in pursuance with the provisions of Clause 10.3. Provided that no deduction on account of Damages shall be effected by the Authority without notifying the Contractor of its decision to impose the Damages, and taking into consideration the representation, if any, made by the Contractor within 20 (twenty) days of such notice. The Parties expressly agree that the total amount of Damages under Clause 10.3 (ii) shall not exceed 10% (ten percent) of the Contract Price. If the damages exceed 10% (ten percent) of the Contract Price, the Contractor shall be deemed to be in default of this agreement having no cure and the Authority shall be entitled to terminate this Agreement by issuing a Termination Notice under the provisions of Clause 23.1 (ii).
- (iv) If the Contractor fails to achieve the Project Completion within a period of 90 (ninety) days from the Schedule Completion Date outlined in Schedule-J unless such failure has occurred due to Force Majeure or for reasons solely attributable to the Authority, the contractor shall be deemed to be ineligible for bidding any future projects of the Authority, both as the sole party or as one of the parties of Joint Venture/ Consortium during the period from Scheduled Completion Date to issuance of Completion Certificate. This restriction is applicable if the contract value of the delayed project is not less than Rs. 300 Crore.

10.4 Maintenance during the Construction Period

- (i) During the Construction Period, the Contractor shall maintain, at its cost, the existing lane(s) of the Project Highway so that the traffic worthiness and safety thereof are at no time materially inferior as compared to their condition on Appointed Date, and shall undertake the necessary repair and maintenance works for this purpose; provided that the Contractor may, at its cost, interrupt and divert the flow of traffic if such interruption and diversion is necessary for the efficient progress of Works and conforms to Good Industry Practice; provided further that such interruption and

diversion shall be undertaken by the Contractor only with the prior written approval of the Authority's Engineer which approval shall not be unreasonably withheld. For the avoidance of doubt, it is agreed that the Contractor shall at all times be responsible for ensuring the safe operation of the Project Highway. It is further agreed that in the event the Project includes the construction of a bypass or tunnel and realignment of the existing carriageway, the Contractor shall maintain the existing highway in such sections until the new Works are open to traffic.

- (ii) Notwithstanding anything to the contrary contained in this Agreement, in the event of default by the Contractor in discharging the obligations specified in Clause 10.4 (i) above, the Authority shall get these maintenance works completed in the manner recommended by the Authority's Engineer to avoid public inconvenience at the risk and cost of the Contractor to keep the road in traffic worthy condition.

10.5 Extension of time for completion

- (i) Without prejudice to any other provision of this Agreement for and in respect of extension of time, the Contractor shall be entitled to extension of time in the Project Completion Schedule (the "**Time Extension**") to the extent that completion of any Project Milestone is or will be delayed by any of the following, namely:
 - (a) delay in providing the Right of Way of Construction Zone, environmental clearances, or approval of railway authorities, specified in Clause 3.1 (iv);
 - (b) Change of Scope (unless an adjustment to the Scheduled Completion Date has been agreed under Article 13);
 - (c) occurrence of a Force Majeure Event;
 - (d) any delay, impediment, or prevention caused by or attributable to the Authority, the Authority's personnel, or the Authority's other contractors on the Site; and
 - (e) any other cause or delay which entitles the Contractor to Time Extension under the provisions of this Agreement.
- (ii) The Contractor shall, no later than 15 (fifteen) business days from the occurrence of an event or circumstance specified in Clause 10.5 (i), inform the Authority's Engineer by notice in writing, with a copy to the Authority, stating in reasonable detail with supporting particulars, the event or circumstances giving rise to the claim for Time Extension under the provisions of this Agreement. Provided that the period of 15 (fifteen) business days shall be calculated from the date on which the Contractor became aware, or should have become aware, of the occurrence of such an event or circumstance.

Provided further that notwithstanding anything to the contrary contained in this Agreement, Time Extension shall be due and applicable only for the Works which are affected by the aforesaid events or circumstances and shall not in any manner affect the Project Completion Schedule for and in respect of the Works which are not affected hereunder.

- (iii) On the failure of the Contractor to issue to the Authority's Engineer a notice under the provisions of Clause 10.5 (ii) within the time specified therein, the Contractor shall not be entitled to any Time Extension and shall forfeit its right for any such claims in the future. For the avoidance of doubt, in the event of failure of the Contractor to issue notice as specified in clause 10.5 (iii), the Authority shall be discharged from all liability in connection with the claim.
- (iv) The Authority's Engineer shall, on receipt of the claim under the provisions of Clause 10.5 (ii), examine the claim expeditiously within the time frame specified herein. In the event the Authority's Engineer requires any clarifications to examine the claim, the Authority's Engineer shall seek the same within 15 (fifteen) days from the date of receiving the claim. The Contractor shall, on receipt of the communication of the Authority's Engineer requesting clarification, furnish the same to the Authority's Engineer within 10 (ten) days thereof. The Authority's Engineer shall, within a period of 30 (thirty) days from the date of receipt of such clarifications, forward in writing to the Contractor its determination of Time Extension.

Provided that when determining each extension of time under Clause 10.5, the Authority's Engineer shall review previous determinations and may increase, but shall not decrease the total Time Extension.

- (v) If the event or circumstance giving rise to the notice has a continuing effect:
 - (a) a fully detailed claim shall be considered interim;
 - (b) the Contractor shall, no later than 10 (ten) days after the close of each month, send further interim claims specifying the accumulated delay, the extension of time claimed, and such further particulars as the Authority's Engineer may reasonably require; and
 - (c) the Contractor shall send a final claim within 30 (thirty) days after the effect of the event or the circumstance ceases.

Upon receipt of the claim hereunder, the Authority's Engineer shall examine the same under the provisions of Clause 10.5 (iv) within 30 (thirty) days of the receipt thereof.

10.6 Incomplete Works

In the event the Contractor fails to complete the Works under the Project Completion Schedule, including any Time Extension granted under this Agreement, the Contractor shall endeavor to complete the balance work expeditiously and shall pay Damages to the Authority under the provisions of Clause 10.3 (ii) for delay of each day until the Works are completed under the provisions of this Agreement. Recovery of Damages under this Clause shall be without prejudice to the rights of the Authority under this Agreement including the right to termination under Clause 23.1.

10.7 Maintenance Manual

No later than 60 (sixty) days before the Project Completion Date, the Contractor shall, in consultation with the Authority's Engineer, evolve a maintenance manual (the "**Maintenance Manual**") for the regular and preventive maintenance of the Project Highway in conformity with the Specifications and Standards, safety requirements and Good Industry Practice, and shall provide 5 (five) copies thereof to the Authority's Engineer. The Authority's Engineer shall review the Maintenance Manual within 15 (fifteen) days of its receipt and communicate its comments to the Contractor for necessary modifications, if any.

10.8 As-Built Records

The Contractor shall prepare, and keep up-to-date, a complete set of as-built records of the execution of the Works, showing the exact as-built locations, sizes, and details on the Works as executed with cross-references to all relevant specifications and data sheets. These records shall be kept on the Site and shall be used exclusively for this Sub-Clause 10.8. The Contractor shall provide 2 (two) copies of as-built records to the Authority before the commencement of the Tests on Completion.

10.9 Contractor's Use of Authority's Documents

Intellectual property in the Authority's requirements Specifications and Standards and all other documents and materials issued by the Authority or the Authority's Representative to the Contractor shall (as between the parties) remain the property of the Authority. The Contractor may, at its cost, copy, use, and communicate any such documents for the Contract. They shall not, without the consent of the Authority, be used, copied, or communicated to a third party by the Contractor, except as necessary for the Works under the Agreement.

Article 11

Quality Assurance, Monitoring and Supervision

11.1 Quality of Materials and workmanship

The Contractor shall ensure that the Construction, Materials, and workmanship are under the requirements specified in this Agreement, Specifications and Standards, and Good Industry Practice.

11.2 Quality control system

- (i) The Contractor shall establish a quality control mechanism to ensure compliance with the provisions of this Agreement (the “**Quality Assurance Plan**” or “**QAP**”).
- (ii) The Contractor shall, within 30 (thirty) days of the Appointed Date, submit to the Authority’s Engineer its Quality Assurance Plan which shall include the following:
 - (a) organization, duties and responsibilities, procedures, inspections and documentation;
 - (b) quality control mechanism including sampling and testing of Materials, test frequencies, standards, acceptance criteria, testing facilities, reporting, recording, and interpretation of test results, approvals, checklist for site activities, and proforma for testing and calibration under the Specifications for Road and Bridge Works issued by MORTH, relevant IRC specifications, and Good Industry Practice; and
 - (c) internal quality audit system.

The Authority’s Engineer shall convey its approval to the Contractor within 21 (twenty-one) days of receipt of the QAP stating the modifications, if any, required, and the Contractor shall incorporate those in the QAP to the extent required for conforming with the provisions of this Clause 11.2.

- (iii) The Contractor shall procure all documents, apparatus and instruments, fuel, consumables, water, electricity, labor, Materials, samples, and qualified personnel as are necessary for examining and testing the Project Assets and workmanship under the Quality Assurance Plan.
- (iv) The contractor shall perform control test of bridges & roads on regular basis from any reputed I.I.T/N.I.T/NABL accredited laboratory as per codal provisions. A comprehensive quality control report from any I.I.T, approved by authority, shall be submitted on quarterly basis by the contractor at his own cost.
- (v) The cost of testing of Construction, Materials, and workmanship under Article 11 shall be borne by the Contractor.

11.3 Methodology

The Contractor shall, at least 15 (fifteen) days before the commencement of the construction, submit to the Authority’s Engineer for review and consent the methodology proposed to be adopted for executing the Works, giving details of equipment to be deployed, traffic management, and measures for ensuring safety. The Authority’s Engineer shall complete the review and convey its consent to the

Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.

11.4 Inspection and technical audit by the Authority

The Authority or any representative authorized by the Authority on this behalf may inspect and review the progress and quality of the construction of Project Highway and issue appropriate directions to the Authority's Engineer and the Contractor for taking remedial action in the event the Works are not under the provisions of this Agreement.

11.5 External technical audit

- (i) At any time during construction, the Authority may appoint an external technical auditor to conduct an audit of the quality of the Works. The Auditor in the presence of the representatives of the Contractor and the Authority's Engineer shall carry out the tests and/ or collect samples for testing in the laboratory. The timing, the testing equipment, and the sample size of this audit shall be as decided by the Authority. The findings of the audit, to the extent accepted by the Authority, shall be notified to the Contractor and the Authority's Engineer for taking remedial action under this Agreement.
- (ii) After completion of the remedial measures by the Contractor, the Auditor shall undertake a closure audit and this process will continue till the remedial measures have brought the works into compliance with the Specifications and Standards. The Contractor shall provide all assistance as may be required by the auditor in the conduct of its audit hereunder. Notwithstanding anything contained in Clause 11.5, the external technical audit shall not affect any obligations of the Contractor or the Authority's Engineer under this Agreement.

11.6 Inspection of construction records

The Authority shall have the right to inspect the records of the Contractor relating to the Works.

11.7 Monthly progress reports

During the Construction Period, the Contractor shall, no later than 10 (ten) days after the close of each month, furnish to the Authority and the Authority's Engineer a monthly report on the progress of the Works and shall promptly give such other relevant information as may be required by the Authority's Engineer.

The Contractor agrees that reporting under Clause 11.7 shall continue until the date of the completion of the Works. Each report shall include:

- (a) an executive summary;
- (b) charts showing the status of the Contractor's documents, construction and manufacturing and environmental works;

- (c) details of work subcontracted and the performance of Sub-contractors;
- (d) for the construction of each main part of the Works, the extent of progress (both quantity and percentage of the whole), the actual or expected dates of commencement, the anticipated completion date of the activity, Contractor's inspections and tests;
- (e) records of manpower and Contractor's equipment on the Site;
- (f) copies for that month of quality assurance documents, test results, and certificates;
- (g) safety statistics, accident data collection including details of any hazardous incidents and activities relating to environmental aspects and public relations;
- (h) comparisons of actual and planned progress, with details of any aspects which may jeopardize the completion under the Agreement, and the measures being (or to be) adopted to overcome such aspects;
- (i) details of any unresolved disputes or claims, concerning the Project;
- (j) details of any revision to the cash flow estimate, together with a copy of the revised cash flow estimate;
- (k) status of various Applicable Permits and compliance with conditions therein;
- (l) details of various royalty payments and insurances required to be taken by the Contractor; and
- (m) such other reports as may be required by the Authority to enable the Authority to comply with its obligations under the other Project contracts.
- (n) details of defects by the Authority;
- (o) change in emission of any sewage or effluent of any nature whatsoever, whether qualitatively or quantitatively;
- (p) any Material Adverse Effect;
- (q) declaration towards compliance with Applicable Laws including but not limited to environmental and labor legislation;
- (r) declaration specifying compliance with all Manuals provided to the Contractor; and
- (s) any change in the flow of traffic in the existing Project Highway.

11.8 Inspection

- (i) The Authority's Engineer and its authorized representative shall at all reasonable times:
 - (a) have full access to all parts of the Site and to all places from which natural Materials are being obtained for use in the Works; and

- (b) during production, manufacture, and construction at the Site and the place of production, be entitled to examine, inspect, measure, and test the Materials and workmanship, and to check the progress of the manufacture of Materials.
- (ii) The Contractor shall give the Authority's Engineer and its authorized agents access, to facilities and safety equipment for carrying out their obligations under this Agreement.
- (iii) The Authority's Engineer shall submit a monthly inspection report (the "**Inspection Report**") to the Authority and the Contractor bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. For the avoidance of doubt, such inspection or submission of the Inspection Report by the Authority's Engineer shall not relieve or absolve the Contractor of its obligations and liabilities under this Agreement in any manner whatsoever.

11.9 Samples

The Contractor shall submit the following samples of Materials and relevant information to the Authority's Engineer for pre-construction review:

- (a) manufacturer's test reports and standard samples of manufactured Materials; and
- (b) samples of such other Materials as the Authority's Engineer may require.

11.10 Tests

- (i) For determining that the Works conform to the Specifications and Standards, the Authority's Engineer shall require the Contractor to carry out or cause to be carried out tests, at such time and frequency and in such manner as specified in this Agreement, and in accordance with Good Industry Practice for quality assurance. The test checks by the Authority's Engineer shall comprise at least 50% (fifty percent) of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.
- (ii) In the event that the results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Contractor shall carry out remedial measures and furnish a report to the Authority's Engineer on this behalf. The Authority's Engineer shall require the Contractor to carry out or cause to be carried out tests to determine that such remedial measures have brought the Works into compliance with the Specifications and Standards, and the procedure shall be repeated until such Works conform to the Specifications and Standards. For the avoidance of doubt, the cost of such tests and remedial measures in pursuance thereof shall be solely borne by the Contractor.

11.11 Examination of work before covering up

In respect of the work which the Authority's Engineer is entitled to examine, inspect, measure, and/or test before it is covered up or put out of view or any part of the work

is placed thereon, the Contractor shall give notice to the Authority's Engineer whenever any such work is ready and before it is covered up. The Authority's Engineer shall then either carry out the examination, inspection, or testing without unreasonable delay or promptly give notice to the Contractor that the Authority's Engineer is not required to do so. Provided, however, that if any work is continuous where it is not possible or prudent to keep it uncovered or incomplete, the Contractor shall notify the schedule of carrying out such work to give sufficient opportunity, not being less than 3 (three) business days' notice, to the Authority's Engineer to conduct its inspection, measurement or test while the work is continuing. Provided further that in the event the Contractor receives no response from the Authority's Engineer within a period of 3 (three) business days from the date on which the Contractor's notice hereunder is delivered to the Authority's Engineer, the Contractor shall be entitled to assume that the Authority's Engineer would not undertake the said inspection.

11.12 Rejection

If, as a result of an examination, inspection, measurement, or testing, any Plant, Materials, design, or workmanship is found to be defective or otherwise not under the provisions of this Agreement, the Authority's Engineer shall reject the Plant, Materials, design or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the Defect and ensure that the rejected item complies with the requirements of this Agreement.

If the Authority's Engineer requires the Plant, Materials, design, or workmanship to be retested, the tests shall be repeated under the same terms and conditions, as applicable in each case. If the rejection and retesting cause the Authority to incur any additional costs, such cost shall be recoverable by the Authority from the Contractor; and may be deducted by the Authority from any monies due to be paid to the Contractor.

11.13 Remedial work

- (i) Notwithstanding any previous test or certification, the Authority's Engineer may instruct the Contractor to:
 - (a) remove from the Site and replace any Plant or Materials which are not under the provisions of this Agreement;
 - (b) remove and re-execute any work that is not under the provisions of this Agreement and the Specification and Standards; and
 - (c) execute any work that is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event, or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.
- (ii) If the Contractor fails to comply with the instructions issued by the Authority's Engineer under Clause 11.13 (i), within the time specified in the Authority's

Engineer's notice or as mutually agreed, the Authority's Engineer may advise the Authority to have the work executed by another agency. The cost so incurred by the Authority for undertaking such work shall, without prejudice to the rights of the Authority to recover Damages under the provisions of this Agreement, be recoverable from the Contractor and may be deducted by the Authority from any monies due to be paid to the Contractor.

11.14 Delays during construction

Without prejudice to the provisions of Clause 10.3 (ii), in the event the Contractor does not achieve any of the Project Milestones or the Authority's Engineer shall have reasonably determined that the rate of progress of Works is such that Completion of the Project Highway is not likely to be achieved by the end of the Scheduled Completion Date, it shall notify the same to the Contractor, and the Contractor shall, within 15 (fifteen) days of such notice, by a communication inform the Authority's Engineer in reasonable detail about the steps it proposes to take to expedite progress and the period within which it shall achieve the Project Completion Date.

11.15 Quality control records and Documents

The Contractor shall hand over a copy of all its quality control records and documents to the Authority's Engineer before the Completion Certificate is issued under Clause 12.2. The Contractor shall submit Road Signage Plans to the Authority Engineer for approval at least 6 (six) months before the expected completion of Project Highway.

11.16 Video recording

During the Construction Period, the Contractor shall provide to the Authority for every calendar quarter, a video recording, which will be compiled into a 3 (three)-hour compact disc or digital video disc, as the case may be, covering the status and progress of Works in that quarter. The video recording shall be provided to the Authority no later than 15 (fifteen) days after the close of each quarter after the Appointed Date.

11.17 Suspension of Unsafe Construction Works

- (i) Upon recommendation of the Authority's Engineer to this effect, the Authority may by notice require the Contractor to suspend forthwith the whole or any part of the Works if, in the reasonable opinion of the Authority's Engineer, such work threatens the safety of the Users and pedestrians.
- (ii) The Contractor shall, under the notice under Clause 11.17 (i), suspend the Works or any part thereof for such time and in such manner as may be specified by the Authority and thereupon carry out remedial measures to secure the safety of suspended works, the Users and pedestrians. The Contractor may by notice require the Authority's Engineer to inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may

be revoked. Upon receiving the recommendations of the Authority's Engineer, the Authority shall either revoke such suspension or instruct the Contractor to carry out such other and further remedial measures as may be necessary in the reasonable opinion of the Authority, and the procedure outlined in this Clause 11.17 shall be repeated until the suspension hereunder is revoked.

- (iii) Subject to the provisions of Clause 21.6, all reasonable costs incurred for maintaining and protecting the Works or part thereof during the period of suspension (the "**Preservation Costs**"), shall be borne by the Contractor; provided that if the suspension has occurred as a result of any breach of this Agreement by the Authority, the Preservation Costs shall be borne by the Authority.
- (iv) If suspension of Works is for reasons not attributable to the Contractor, the Authority's Engineer shall determine any Time Extension to which the Contractor is reasonably entitled.

11.18 Staff and Labor

- (i) Engagement of Staff and Labor
 - (a) The Contractor shall make its arrangements for the engagement of all personnel and labor, local or otherwise, and for their payment, housing, feeding, and transport.
 - (b) The Contractor has verified/ shall verify the identity and address of all its employees and officials related to the Works by collecting necessary documentary proof.
 - (c) The Contractor shall seek a self-declaration from its employees that they have not been convicted of any criminal offense by any court and if any criminal proceedings/charge sheets have been pending/filed against them. The Contractor shall not employ persons with a criminal track record on the project. In cases where it comes to notice later that the employee concerned has concealed any such fact in his self-declaration or commits a criminal offense during his employment, the Contractor shall remove such person from the project
 - (d) Deleted.
 - (e) The employees and personnel of the Contractor shall work under the supervision, control, and direction of the Contractor and the Contractor shall be solely responsible for all negotiations with its employees and personnel relating to their salaries and benefits, and shall be responsible for assessments and monitoring of performance and for all disciplinary matters. All employees/personnel and executives engaged by the Contractor shall be in sole employment of the Contractor and the Contractor shall be solely responsible for their salaries, wages, statutory payments, etc, and under no circumstances the personnel shall be deemed to be the employees of the Authority. Under no circumstances the Authority shall be liable for any

payment or claim or compensation of any nature to the employees and personnel of the Contractor.

(ii) Returns of Labor

- (a) The Contractor shall deliver to the Authority a detailed return in such form and at such intervals as the Authority may prescribe, showing the details including names, payment details, and terms of appointment of the several classes of labor employed by the Contractor from time to time for the Works. The Contractor shall, in its returns certify that all dues of the workers or labor have been fully paid.
- (b) The Authority is entitled to witness labor payments made or to be made by the Contractor. If the Contractor defaults in its obligations for making any payments under the labor laws, the Employer may make the relevant payments. Any sum equal to any amount paid by the Employer under this Sub-Sub-Clause 9.2 shall be immediately due as a debt from the Contractor to the Employer and until payment/ set off shall carry interest at 18% per annum. For this purpose, it is agreed between the parties that debt due aforesaid shall be set off immediately out the running account bills of the Contractor under this Agreement.

(iii) Persons in the Service of Others

The Contractor shall not recruit, or attempt to recruit from amongst persons in the service of the Authority.

(iv) Labor Laws

- (a) The Contractor shall obtain all relevant labor registrations and comply with all relevant labor laws applying to its employees, and shall duly pay them and afford to them all their legal rights.
- (b) The Contractor shall make all deductions of tax at source and all contributions to the Payment of Gratuity, Provident Fund (including Employees' contribution), and Employees' State Insurance Scheme as may be required by Applicable Laws and deposit the aforesaid contributed amount with the appropriate authority/(s).
- (c) The Contractor shall require all personnel engaged in the Works to obey all Applicable Laws and regulations. The Contractor shall permit the Authority to witness labor payments for the Contractor's direct labor, or the Subcontractor's labor. The Contractor shall ensure that all its Subcontractors strictly comply with all labor laws.
- (d) Documentary evidence confirming compliance with Sub-Clause 12.4, as may be required from time to time, shall be provided to the Employer's Representative.
- (e) The Employer shall not be liable for any delay/default of the Contractor in compliance with the labor laws.

(v) Facilities for Staff and Labor

The Contractor shall provide and maintain all necessary accommodation and welfare facilities for personnel engaged for the Works. The Contractor shall not permit any personnel engaged for the Works to maintain any temporary or permanent living quarters within the structures forming part of the Works.

(vi) Health And Safety

All necessary precautions shall be taken by the Contractor to ensure the health and safety of staff and labor engaged in the Works. The Contractor shall, in collaboration with and to the requirements of the local health authorities, ensure that para-medical staff, first aid facilities, and ambulance service are available on the Site at all times and that suitable arrangements are made for all necessary welfare and hygiene requirements and the prevention of epidemics. The Contractor shall appoint a safety officer to be responsible for the safety of personnel on the Site. This safety officer shall be qualified for his work and shall have the authority to issue instructions concerning safety and take protective measures to prevent accidents. The Contractor shall maintain records and make reports concerning the health, safety, and welfare of personnel, and damage to property, in such manner as the Authority may reasonably require.

(vii) Contractor's Personnel

The Contractor shall employ only personnel who are appropriately qualified, skilled, and experienced in their respective trades or occupations. The Authority may require the Contractor to remove any personnel engaged for the Works, who in the opinion of the Authority:

- (a) has engaged in any misconduct;
- (b) is incompetent or negligent in the performance of his duties;
- (c) fails to conform with any provisions of the Contract;
- (d) engages in any conduct that is prejudicial to safety, health, or the protection of the environment; or
- (e) makes errors in the discharge of his functions.

If appropriate and required by the Employer, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

(viii) Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous, or disorderly conduct by or amongst its personnel, and to preserve peace and protection of people and property in the neighborhood of the Works.

Article 12

Completion Certificate

12.1 Tests on Completion

- (i) At least 30 (thirty) days before the likely completion of the Project Highway, or a Section thereof, the Contractor shall notify the Authority's Engineer of its intent to subject the Project Highway, or a Section thereof, to Tests. The date and time of each of the Tests shall be determined by the Authority's Engineer in consultation with the Contractor, and notified to the Authority who may designate its representative to witness the Tests. The Contractor shall either conduct the Tests as directed by the Authority's Engineer or provide such assistance as the Authority's Engineer may reasonably require for conducting the Tests. In the event of the Contractor and the Authority's Engineer failing to mutually agree on the dates for conducting the Tests, the Contractor shall fix the dates by giving not less than 10 (ten) days' notice to the Authority's Engineer.
- (ii) All Tests shall be conducted under Schedule K. The Authority's Engineer shall either conduct or observe, monitor, and review the Tests conducted by the Contractor, as the case may be, and review the results of the Tests to determine compliance of the Project Highway or a Section thereof, with Specifications and Standards and if it is reasonably anticipated or determined by the Authority's Engineer during any Test that the performance of the Project Highway or Section or any part thereof, does not meet the Specifications and Standards, it shall have the right to suspend or delay such Test and require the Contractor to remedy and rectify the Defect or deficiencies. Upon completion of each Test, the Authority's Engineer shall provide to the Contractor and the Authority copies of all Test data including detailed Test results. For the avoidance of doubt, it is expressly agreed that the Authority's Engineer may require the Contractor to carry out or cause to be carried out additional Tests, under Good Industry Practice, for determining the compliance of the Project Highway or Section thereof with the Specifications and Standards.

12.2 Completion Certificate

- (i) Upon completion of all Works forming part of the Project Highway, and the Authority's Engineer determining the Tests to be successful and after the receipt of notarized true copies of the certificate(s) of insurance, copies of insurance policies, and premium payment receipts in respect of the insurance defined in Article 20 and Schedule P of this Agreement, it shall, at the request of the Contractor forthwith issue to the Contractor and the Authority a certificate substantially in the form outlined in Schedule-L (the "Completion Certificate").

The Completion certificate is to be issued by the Authority's Engineer with the prior approval of the Authority as per Schedule N of the Contract Agreement. It should be ensured that the completion certificate is approved after verifying/confirming that all works/items including ancillary items forming part of the project are completed in all respects conforming to the standards and specifications of MoRTH. A video of

completed work on the date of completion should invariably be prepared and furnished as authentic documentary evidence of completion of work within 15 days of completion without which the completion certificate should not be issued. The authority engineer, apart from furnishing the certificate of completion and all tests as per specifications under the contract, would also certify that all NCRs issued during the contract have been closed after successful rectification of the defect within the completion date.

- (ii) Upon receiving the Completion Certificate, the Contractor shall remove its equipment, materials, debris, and temporary works from the Site within 30 (thirty) days thereof, failing which the Authority may remove or cause to be removed, such equipment, materials, debris, and temporary works and recover from the Contractor an amount equal to 120% (one hundred and twenty percent) of the actual cost of removal incurred by the Authority.
- (iii) Without prejudice to the obligations of the Contractor specified in Articles 14 and 17, the property and ownership of all the completed Works forming part of the Project Highway shall vest in the Authority.

12.3 Rescheduling of Tests

If the Authority's Engineer certifies to the Authority and the Contractor that it is unable to issue the Completion Certificate, as the case may be, because of events or circumstances on account of which the Tests could not be held or had to be suspended, the Contractor shall be entitled to re-schedule the Tests and hold the same as soon as reasonably practicable.

Article 13

Change of Scope

13.1 Change of Scope

- (i) The Authority may, notwithstanding anything to the contrary contained in this Agreement, require the Contractor to make modifications/ alterations to the Works ("**Change of Scope**") within six months counted from the Appointed Date. Upon the Authority making its intention known to the Contractor for the specific Change of Scope, be it positive or negative, the Contractor shall submit his proposal for the said Change of Scope involving additional cost or reduction in cost. Any such Change of Scope shall be made and valued under the provisions of Article 13.
- (ii) Provided that any such Change of Scope, excluding major structures (e.g. Major Bridge/ ROB/ RUB/ Flyover/ elevated road of more than 50 m lengths) may be required and agreed to be executed between the parties beyond the period of six months of the Appointed Date but before the expiry of 50% of the original Scheduled Construction Period of the Project Highway, subject to the condition that it shall not entail any claims (e.g. Extension of Time/ Prolongation related claims), against the Authority.
- (iii) The Change of Scope shall mean the following:
 - (a) change in specifications of any item of Work;
 - (b) omission of any work from the Scope of the Project except under Clause 8.3 (iii); provided that, subject to Clause 13.5, the Authority shall not omit any Work under this Clause to get it executed by any other authority; and/ or
 - (c) any additional Work, Plant, Materials, or services that are not included in the Scope of the Project, including any associated Tests on completion of construction.

13.2 Procedure for Change of Scope

- (i) In the event of the Authority determining that a Change of Scope is necessary, it may direct the Authority's Engineer to issue to the Contractor a notice specifying in reasonable detail the Works and services contemplated there under (the "**Change of Scope Notice**"). The Contractor shall submit a detailed proposal as per Clause 13.2 (iii) within 15 days from the receipt of the Change of Scope Notice.
- (ii) If the Contractor determines, not later than 90 days from the Appointed Date, that a Change of Scope to the Works is required, it shall prepare a proposal with relevant details as per Clause 13.2 (iii) at its own cost and shall submit to the Authority to consider such Change of Scope (the "**Change of Scope Request**").

- (iii) Upon receipt of a Change of Scope Notice, the Contractor shall, with due diligence, provide to the Authority and the Authority's Engineer such information as is necessary, together with the detailed proposal in support of:
- (a) the impact, if any, which the Change of Scope is likely to have on the Project Completion Schedule if the works or services are required to be carried out during the Construction Period; and
 - (b) the options for implementing the proposed Change of Scope and the effect, if any, each such option would have on the costs and time thereof, including the following details:
 - i. break-up of the quantities, unit rates, and cost for different items of work; and
 - ii. proposed design for the Change of Scope;
 - iii. proposed modifications, if any, to the Project Completion Schedule of the Project Highway.

For the avoidance of doubt, the Parties expressly agree that, subject to the provisions of Clause 13.4 (ii), the Contract Price shall be increased or decreased, as the case may be, on account of any such Change of Scope.

- (iv) The parties agree that costs and time for implementation of the proposed Change of Scope shall be determined as per the following:
- (a) For works where the Schedule of Rates (SOR) of the concerned circle of State's Public Works Department are applicable at the Base Date are available, the same shall be applicable for the determination of costs. In case of non-availability of Schedule of Rates at the Base Date, the available Schedule of Rates shall be applied by updating the same based on WPI. In case the Contract Price is lower/ higher than the Estimated Project Cost as per RFP, then the SOR rates shall be reduced/ increased in the same proportion accordingly.
 - (b) For items of Work not included in the Schedule of Rates as mentioned in sub-para (a) of Clause 13.2 (iv) above, the cost of same shall be derived based on MORTH Standard Data Book, and the Authority's Engineer shall determine the prevailing market rates and discount the same considering WPI to achieve the prevailing rate at the Base Date, and for any item in respect of which MORTH Standard Data Book does not provide the requisite details, the Authority's Engineer shall determine the rate under Good Industry Practice.

For the avoidance of doubt, in case the cost as determined by the Contractor and the Authority reveals a difference of more than 10% (ten percent), the cost as determined by the Authority shall be considered final and binding on the Contractor.
 - (c) The design charges shall be considered only for new works or items (i.e. the Works or items not similar to the works or items in the original scope) @ 1% (one percent) of the cost of such new works or items.

- (d) The costs of existing works or items, which are being changed/ omitted shall also be valued as per the above procedure and only net cost shall be considered.
 - (e) The reasonable time for completion of works to be taken under Change of Scope shall be determined by the Authority's Engineer based on Good Industry Practice and if such time exceeds the Scheduled Completion Date, the issue of Completion Certificate shall not be affected or delayed on account of construction of Change of Scope items/ works remaining incomplete on the date of Tests.
 - (v) Upon consideration of the detailed proposal submitted by the Contractor under Clause 13.2 (iii), the Authority, within 15 (fifteen) days of receipt of such proposal, may in its sole discretion either accept such Change of Scope with modifications, if any and initiate proceedings thereof under this Article 13 or reject the proposal and inform the Contractor of its decision and shall issue an order (the **"Change of Scope Order"**) requiring the Contractor to proceed with the performance thereof.
- For the avoidance of doubt, the Parties agree that the Contractor shall not undertake any Change of Scope without the express consent of the Authority, save and except any works necessary for meeting any Emergency, that too with verbal approval of the Authority which shall be confirmed in writing in next 3 (three) days. If the Parties are unable to agree, the Authority may:
- (a) issue a Change of Scope Order requiring the Contractor to proceed with the performance thereof at the rates and conditions approved by the Authority till the matter is resolved under Article 26;
 - Or
 - (b) proceed under Clause 13.5.
- (vi) The provisions of this Agreement, insofar as they relate to Works and Tests, shall apply *mutatis mutandis* to the Works undertaken by the Contractor under Article 13.

13.3 Payment for Change of Scope

Payment for Change of Scope shall be made under the payment schedule specified in the Change of Scope Order.

13.4 Restrictions on Change of Scope

- (i) No Change of Scope shall be executed unless the Authority has issued the Change of Scope Order save and except any Works necessary for meeting any Emergency.
- (ii) The total value of all Change of Scope Orders shall not exceed 10% (ten percent) of the Contract Price.

- (iii) Notwithstanding anything to the contrary in this Article 13, if any change is necessitated because of any default of the Contractor in the performance of its obligations under this Agreement, the same shall not be deemed to be a Change of Scope, and shall not result in any adjustment of the Contract Price or the Project Completion Schedule.

13.5 Power of the Authority to Undertake Works

- (i) In the event the Parties are unable to agree to the proposed Change of Scope Orders under Clause 13.2, the Authority may, after giving notice to the Contractor and considering its reply thereto, award such Works or services to any person or agency based on open competitive bidding. It is also agreed that the Contractor shall provide assistance and cooperation to the person or agency who undertakes the works or services hereunder. The Contractor shall not be responsible for rectification of any Defects, but the Contractor shall carry out maintenance of such works after completion of the Defect Liability Period of work by another person or agency during the remaining period of this agreement without any extra payment.
- (ii) The Works undertaken under Clause 13.5 shall conform to the Specifications and Standards and shall be carried out in a manner that minimizes the disruption in the operation of the Project Highway. The provisions of this Agreement, insofar as they relate to Works and Tests, shall apply *mutatis mutandis* to the Works carried out under Clause 13.5.

Article 14

Maintenance

14.1

- (i) The Contractor shall maintain the Project Highway for 2 (two) years, corresponding to the Defects Liability Period, commencing from the date of the Completion Certificate (the “Maintenance Period”). For the performance of its Maintenance obligations, the Contractor shall not be paid any maintenance charges.
- (ii) During the Maintenance Period, the Authority shall provide to the Contractor access to the Site for Maintenance under this Agreement. The obligations of the Contractor hereunder shall include:
 - (a) permitting safe, smooth, and uninterrupted flow of traffic on the Project Highway;
 - (b) undertaking routine maintenance including prompt repairs of potholes, cracks, joints, drains, embankments, structures, pavement markings, lighting, road signs, and other traffic control devices. For the avoidance of doubt, the electricity charges for the operation of the electrical infrastructure installed along the project length, except the infrastructure being used by the Contractor for its use, shall be borne by the Authority;
 - (c) undertaking repairs to structures;
 - (d) informing the Authority of any unauthorized use of the Project Highway;
 - (e) informing the Authority of any encroachments on the Project Highway; and
 - (f) operation and maintenance of all communication, patrolling, and administrative systems necessary for the efficient maintenance of the Project Highway under the provisions of this Agreement.
- (iii) In respect of any Defect or deficiency not specified in Schedule E, the Contractor shall, at its own cost, undertake repair or rectification under Good Industry Practice, save and except to the extent that such Defect or deficiency shall have arisen on account of any willful default or neglect of the Authority or a Force Majeure Event.
- (iv) The Contractor shall remove promptly from the Project Highway any waste materials (including hazardous materials and wastewater), rubbish, and other debris (including, without limitation, accident debris) and keep the Project Highway in a clean, tidy, and orderly condition, and in conformity with the Applicable Laws, Applicable Permits and Good Industry Practice.

14.2 Maintenance Requirements

The Contractor shall ensure and procure that at all times during the Maintenance Period, the Project Highway conforms to the maintenance requirements outlined in Schedule-E (the “**Maintenance Requirements**”).

14.3 Maintenance Programme

- (i) The Contractor shall prepare a monthly maintenance program (the “**Maintenance Programme**”) in consultation with the Authority’s Engineer and submit the same to the Authority’s Engineer not later than 10 (ten) days before the commencement of the month in which the Maintenance is to be carried out. For this purpose, a joint monthly inspection by the Contractor and the Authority’s Engineer shall be undertaken. The Maintenance Programme shall contain the following:
 - (a) The condition of the road in the format prescribed by the Authority’s Engineer;
 - (b) the proposed maintenance Works; and
 - (c) deployment of resources for maintenance Works.

14.4 Safety, vehicle breakdowns, and accidents

- (i) The Contractor shall ensure safe conditions for the Users, and in the event of unsafe conditions, lane closures, diversions, vehicle breakdowns, and accidents, it shall follow the relevant operating procedures for 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.
- (ii) The Contractor shall maintain and operate a round-the-clock vehicle rescue post with 1 (one) mobile crane having the capacity to lift a truck with a Gross Vehicle Weight of 30,000 (thirty thousand) kilograms, and such post shall be located at [****]. The Contractor shall promptly remove any damaged vehicles and debris from the Project Highway to enable safe movement of traffic and shall report all accidents to the police forthwith.

14.5 Lane closure

- (i) The Contractor shall not close any lane of the Project Highway for undertaking maintenance works except with the prior written approval of the Authority’s Engineer. Such approval shall be sought by the Contractor through a written request to be made at least 10 (ten) days before the proposed closure of the lane and shall be accompanied by particulars thereof. Within 5 (five) business days of receiving such request, the Authority’s Engineer shall grant permission with such modifications as it may deem necessary and a copy of such permission shall be sent to the Authority.
- (ii) Upon receiving the permission under Clause 14.5 (i), the Contractor shall be entitled to close the designated lane for the period specified therein, and for all lane closures extending a continuous period of 48 (forty-eight) hours, the Contractor shall, in the event of any delay in re-opening such lane, for every stretch of 250 (two hundred and fifty) meters, or part thereof, pay Damages to the Authority calculated at the rate of 0.1% (zero point one percent) of the monthly maintenance payment for each day of delay until the lane has been re-opened for traffic. In the event of any delay in re-opening such lanes or in the event of emergency decommissioning and closure to traffic of the whole or any part of the Project Highway due to failure of the Contractor, the Contractor shall pay damages to the Authority at double the above rate, without

Prejudice the rights of the Authority under this Agreement including Termination thereof.

14.6 Reduction of payment for non-performance of Maintenance obligations

- (i) If the Contractor fails to repair or rectify any Defect or deficiency outlined in Schedule-E within the period specified therein, it shall be deemed as a failure of performance of Maintenance obligations by the Contractor and the Authority shall be entitled to effect reduction in monthly lump sum payment for maintenance under Clause 19.7 and Schedule-M, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.
- (ii) If the nature and extent of any Defect justifies more time for its repair or rectification than the time specified in Schedule E, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Authority's Engineer and conveyed to the Contractor and the Authority with reasons thereof.

14.7 Authority's right to take remedial measures

In the event the Contractor does not maintain and/or repair the Project Highway or any part thereof in conformity with the Maintenance Requirements, the Maintenance Manual, or the Maintenance Programme, as the case may be, and fails to commence remedial works within 15 (fifteen) days of receipt of the Maintenance Inspection Report under Clause 15.2 or notice in this behalf from the Authority or the Authority's Engineer, as the case may be, the Authority shall, without prejudice to its rights under this Agreement including Termination thereof, be entitled to undertake such remedial measures at the cost of the Contractor and to recover its cost from the Contractor. In addition to recovery of the aforesaid cost, a sum equal to 20% (twenty percent) of such cost shall be paid by the Contractor to the Authority as Damages.

14.8 Restoration of loss or damage to Project Highway

Save and except as otherwise expressly provided in this Agreement, if the Project Highway or any part thereof suffers any loss or damage during the Maintenance from any cause attributable to the Contractor, the Contractor shall, at its cost and expense, rectify and remedy such loss or damage forthwith so that the Project Highway conforms to the provisions of this Agreement.

14.9 Overriding powers of the Authority

- (i) If in the reasonable opinion of the Authority, the Contractor is in material breach of its obligations under this Agreement and, in particular, the Maintenance Requirements, and such breach is causing or likely to cause material hardship or danger to the Users and pedestrians, the Authority may, without prejudice to any of its rights under this Agreement including Termination thereof, by notice require the Contractor to take reasonable measures immediately for rectifying or removing such hardship or danger, as the case may be.

- (ii) If the Contractor, upon notice under Clause 14.9 (i), fails to rectify or remove any hardship or danger within a reasonable period, the Authority may exercise overriding powers under Clause 14.9 (ii) and take over the performance of any or all the obligations of the Contractor to the extent deemed necessary by it for rectifying or removing such hardship or danger; provided that the exercise of such overriding powers by the Authority shall be of no greater scope and no longer duration than is reasonably required hereunder; provided further that any costs and expenses incurred by the Authority in the discharge of its obligations hereunder shall be recovered by the Authority from the Contractor, and the Authority shall be entitled to deduct any such costs and expenses incurred from the payments due to the Contractor under Clause 19.7 for the performance of its Maintenance obligations.
- (iii) In the event of a national emergency, civil commotion, or any other circumstances specified in Clause 21.3, the Authority may take over the performance of any or all the obligations of the Contractor to the extent deemed necessary by it, and exercise such control over the Project Highway or give such directions to the Contractor as may be deemed necessary; provided that the exercise of such overriding powers by the Authority shall be of no greater scope and no longer duration than is reasonably required in the circumstances which caused the exercise of such overriding power by the Authority. For the avoidance of doubt, it is agreed that the consequences of such action shall be dealt with under the provisions of Article 21. It is also agreed that the Contractor shall comply with such instructions as the Authority may issue in pursuance of the provisions of this Clause 14.9 (iii), and shall provide assistance and cooperation to the Authority, on a best-effort basis, for the performance of its obligations hereunder.

14.10 Taking over Certificate

The Maintenance Requirements outlined in Schedule-E having been duly carried out, the Maintenance Period as outlined in Clause 14.1 (i) having expired, and the Authority's Engineer determining the Tests on Completion of Maintenance to be successful under Schedule-Q, the Authority will issue Taking Over Certificate to the Contractor substantially in the format outlined in Schedule-R.

Article 15

Supervision and Monitoring during Maintenance

15.1 Inspection by the Contractor

- (i) The Authority's Engineer shall undertake regular inspections to evaluate continuously the compliance with the Maintenance Requirements.
- (ii) The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts, and drainage systems under the guidelines contained in IRC: SP3 5. A report of this inspection together with details of proposed maintenance works as required shall be conveyed to the Authority's Engineer forthwith. The Contractor shall complete the proposed maintenance works before the onset of the monsoon and send a compliance report to the Authority's Engineer. Post-monsoon inspection shall be undertaken by the Contractor and the inspection report together with details of any damages observed and proposed action to remedy the same shall be conveyed to the Authority's Engineer forthwith.

15.2 Inspection and payments

- (i) The Authority's Engineer may inspect the Project Highway at any time, but at least once every month, to ensure compliance with the Maintenance Requirements. It shall make a report of such inspection ("**Maintenance Inspection Report**") stating in reasonable detail the Defects or deficiencies, if any, with particular reference to the Maintenance Requirements, the Maintenance Manual, and the Maintenance Programme, and send a copy thereof to the Authority and the Contractor within 10 (ten) days of such inspection.
- (ii) After the Contractor submits to the Authority's Engineer the Monthly Maintenance Statement for the Project Highway under Clause 19.6, the Authority's Engineer shall carry out an inspection within 10 (ten) days to certify the amount payable to the Contractor. The Authority's Engineer shall inform the Contractor of its intention to inspect at least 3 (three) business days in advance of such inspection. The Contractor shall assist the Authority's Engineer in verifying compliance with the Maintenance Requirements.
- (iii) For each case of non-compliance with Maintenance Requirements as specified in the inspection report of the Authority's Engineer, the Authority's Engineer shall calculate the amount of reduction in payment under the formula specified in Schedule M.
- (iv) Any deduction made on account of non-compliance will not be paid subsequently even after establishing the compliance thereof. Such deductions will continue to be made every month until the compliance is procured.

15.3 Tests

To determine that the Project Highway conforms to the Maintenance Requirements, the Authority's Engineer shall require the Contractor to carry out, or cause to be carried out, Tests specified by it under Good Industry Practice. The Contractor shall, with due diligence, carry out or cause to be carried out all such Tests under the instructions of the Authority's Engineer and furnish the results of such tests forthwith to the Authority's Engineer.

At any time during the Maintenance Period, the Authority may appoint an external technical auditor to conduct an audit of the quality of the Works. The Auditor in the presence of the representatives of the Contractor and the Authority's Engineer shall carry out the Tests and/ or collect samples for testing in the laboratory. The timing, the testing equipment, and the sample size of this audit shall be as decided by the Authority. The findings of the audit, to the extent accepted by the Authority, shall be notified to the Contractor and the Authority's Engineer for taking remedial measures. After completion of the remedial measures by the Contractor, the auditor shall undertake a closure audit and this process will continue till the remedial measures have brought the maintenance works into compliance with the Specifications and Standards. The Contractor shall provide all assistance as may be required by the auditor in the conduct of its audit hereunder. Notwithstanding anything contained in Clause 15.3, the external technical audit shall not affect any obligations of the Contractor or the Authority's Engineer under this Agreement.

15.4 Reports of the unusual occurrence

The Contractor shall, during the Maintenance Period, before the close of each day, send to the Authority and the Authority's Engineer, by facsimile or e-mail, a report stating accidents and unusual occurrences on the Project Highway relating to the safety and security of the Users and Project Highway. A monthly summary of such reports shall also be sent within 3 (three) business days of the closing of the month. For this Clause 15.4, accidents and unusual occurrences on the Project Highway shall include:

- (a) accident, death, or severe injury to any person;
- (b) damaged or dislodged fixed equipment;
- (c) flooding of Project Highway; and
- (d) any other unusual occurrence.

Article 16

Traffic Regulation

16.1 Traffic regulation by the Contractor

- (i) The Contractor shall take all the required measures and make arrangements for the safety of Users during the Construction and Maintenance of the Project Highway or a Section thereof under the provisions of MORTH Specifications. It shall provide, erect, and maintain all such barricades, signs, markings, flags, and lights as may be required by Good Industry Practice for the safety of the traffic passing through the Section under construction or maintenance.
- (ii) All works shall be carried out in a manner that creates the least interference to traffic passing through the Project Highway or a Section thereof. In sections where construction or maintenance Works on the carriageway are taken up, the Contractor shall ensure that proper passage is provided for the traffic. Where it is not possible or safe to allow traffic on part width of the carriageway, a temporary diversion of proper specifications shall be constructed by the Contractor at its own cost. 'ROBOTS' may be used for diversion and control of traffic during Construction. The Contractor shall take prior approval of the Authority's Engineer for any proposed arrangement for traffic regulation during Construction and Maintenance, which approval shall not be unreasonably withheld.

Article 17 Defects

Liability

17.1 Defects Liability Period

The Contractor shall be responsible for all the Defects and deficiencies, except usual wear and tear in the Project Highway or any Section thereof, till the expiry of a period of 2 (two) years from the date of completion commencing from the date of Completion Certificate (the “Defects Liability Period”).

The Defects Liability Period shall commence from the date of the Completion Certificate. For the avoidance of any doubt, any repairs or restoration because of usual wear or tear in the Project Highway or any Section thereof shall form a part of the Maintenance obligations of the Contractor as specified in Article 14.

17.2 Remedying Defects

Save and except as provided in Clause 14.1 (iii), the Contractor shall repair or rectify all Defects and deficiencies observed by the Authority or Authority’s Engineer during the Defects Liability Period within 15 (fifteen) days from the date of notice issued by the Authority or Authority’s Engineer in this behalf, or within such reasonable period as may be determined by the Authority or Authority’s Engineer at the request of the Contractor, under Good Industry Practice.

17.3 Cost of remedying Defects

Any repair or rectification undertaken under the provisions of Clause 17.2, including any additional testing, shall be carried out by the Contractor at its own risk and cost, to the extent that such rectification or repair is attributable to:

- (a) the design of the Project;
- (b) Plant, Materials, or workmanship not being under this Agreement and the Specifications and Standards;
- (c) improper maintenance during construction of the Project Highway by the Contractor; and/ or
- (d) failure by the Contractor to comply with any other obligation under this Agreement.

17.4 Contractor’s failure to rectify Defects

If the Contractor fails to repair or rectify such Defect or deficiency within the period specified in Clause 17.2, the Authority shall be entitled to get the same repaired, rectified, or remedied at the Contractor’s cost to make the Project Highway conform to the Specifications and Standards and the provisions of this Agreement. All costs consequent thereon shall, after due consultation with the Authority and the Contractor, be determined by the Authority’s Engineer. The cost so determined and

an amount equal to 20% (twenty percent) of the cost as Damages shall be recoverable by the Authority from the Contractor and may be deducted by the Authority from any monies due to the Contractor.

17.5 Extension of Defects Liability Period

The Defects Liability Period shall be deemed to be extended till the identified Defects under Clause 17.2 have been remedied or rectified.

Article 18

Authority's Engineer

18.1 Authority's Engineer

- (i) **The Project Manager/Dy. Project Manger of the concerned BCU, UPSBC** shall act as the "Authority's Engineer".
- (ii) **The Project Manager/Dy. Project Manger of the concerned BCU, UPSBC** will be responsible for the overall supervision and monitoring of the execution of the project as the representative of the owner of the project. The Authority's Engineer assists the Authority in carrying out the functions as detailed under clause 18.2. As such, an officer of the Authority is vested with all such powers and responsibilities as are enjoined upon the Authority's Engineer and is fully competent to issue any instructions for proper monitoring and supervision of the project, either by himself or through the Authority's Engineer. Instructions issued by the concerned officer of the Authority shall have the same effect as that of the Authority's Engineer in terms of this Agreement. Wherever such concerned officer issues any instructions or notice to the Contractor, he shall endorse a copy thereof to the Authority's Engineer.
- (iii) The Authority shall notify the replacement of the Authority's Engineer to the Contractor, if any.
- (iv) The staff of the Authority's Engineer shall include suitably qualified engineers and other professionals who are competent to assist the Authority's Engineer in carrying out its duties.

18.2 Duties and authority of the Authority's Engineer

- (i) The Authority's Engineer shall perform the duties and exercise the authority under the provisions of this Agreement and substantially under the terms of reference ("**Terms of Reference**" or "**TOR**") outlined in Annexure-I of Schedule N, but subject to obtaining prior written approval of the Authority before determining:
 - (a) any time Extension;
 - (b) any additional cost to be paid by the Authority to the Contractor;
 - (c) the Termination Payment;
 - (d) issuance of Completion Certificate; or
 - (e) any other matter which is not specified in (a), (b), (c), or (d) above and which creates financial liability on either Party.
- (ii) No decision or communication of the Authority's Engineer shall be effective or valid unless it is accompanied by an attested true copy of the approval of the Authority for and in respect of any matter specified in Clause 18.2 (i).
- (iii) The Authority's Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement.

Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month. For the avoidance of doubt, the Authority's Engineer shall include in its report, compliance with the recommendations of the Safety Consultant.

18.3 Delegation by the Authority's Engineer

- (i) The Authority's Engineer may, by order in writing, delegate any of his duties and responsibilities to suitably qualified and experienced personnel who are accountable to the Authority's Engineer, or may revoke any such delegation, under intimation to the Authority and the Contractor. Provided, however, that the Authority's Engineer shall be responsible and liable for all actions and omissions of such personnel.
- (ii) Any failure of the Authority's Engineer to disapprove any work, Plant, or Materials shall not constitute approval, and shall, therefore, not prejudice the right of the Authority to reject the work, Plant, or Materials, which is not under the provisions of this Agreement and the Specifications and Standards.
- (iii) Notwithstanding anything stated in Clause 18.3 (i) above, the Authority's Engineer shall not delegate the authority to refer any matter for the Authority's prior approval wherever required under the provisions of Clause 18.2.

18.4 Instructions of the Authority's Engineer

- (i) The Authority's Engineer may issue instructions for remedying any Defect(s) to the Contractor. The Contractor shall take such instructions from the Authority's Engineer, or from an assistant to whom appropriate authority has been delegated under Clause 18.3.
- (ii) The instructions issued by the Authority's Engineer shall be in writing. However, if the Authority's Engineer issues any oral instructions to the Contractor, it shall confirm the oral instructions in writing within 2 (two) working days of issuing them.
- (iii) In case the Contractor does not receive the confirmation of the oral instructions within the time specified in Clause 18.4 (ii), the Contractor shall seek the written confirmation of the oral instructions from the Authority's Engineer. The Contractor shall obtain an acknowledgment from the Authority's Engineer of the communication seeking written confirmation. In case of failure of the Authority's Engineer or its delegated assistant to reply to the Contractor within 2 (two) days of the receipt of the communication from the Contractor, the Contractor may not carry out the instructions.
- (iv) In case of any dispute on any of the instructions issued by the delegated assistant, the Contractor may refer the dispute to the Authority's Engineer, who shall then confirm, reverse, or vary the instructions within 3 (three) business days of the dispute being referred.

18.5 Determination by the Authority's Engineer

- (i) The Authority's Engineer shall consult with each Party in an endeavor to reach an agreement wherever this Agreement provides for the determination of any matter by

the Authority's Engineer. If such agreement is not achieved, the Authority's Engineer all make a fair determination under this Agreement having due regard to all relevant circumstances. The Authority's Engineer shall give notice to both the Parties of each agreement or determination, with supporting particulars.

- (ii) Each Party shall give effect to each agreement or determination made by the Authority's Engineer under the provisions of this Agreement. Provided, however, that if any Party disputes any instruction, decision, direction, or determination of the Authority's Engineer, the Dispute shall be resolved under the Dispute Resolution Procedure.

18.6 Remuneration of the Authority's Engineer

The remuneration, costs, and expenses of the Authority's Engineer shall be paid by the Authority.

18.7 Termination of the Authority's Engineer

- (i) The Authority may, in its discretion, replace the Authority's Engineer at any time. However, the Authority shall ensure that alternative arrangements for the appointment of another Authority's Engineer or designation of its officer as the Authority Engineer for the intervening period are made simultaneously.
- (ii) If the Contractor has reasons to believe that the Authority's Engineer is not discharging its duties and functions under the provisions of this Agreement, it may make a written representation to the Authority and seek termination of the appointment of the Authority's Engineer. Upon receipt of such representation, the Authority shall hold a tripartite meeting with the Contractor and the Authority's Engineer and make best efforts for an amicable resolution of the representation. If the appointment of the Authority's Engineer is terminated hereunder, the Authority shall appoint forthwith another Authority's Engineer under Clause 18.1 and 18.7 (i).

Part IV

Financial Covenants

Article 19

Payments

19.1 Contract Price

- (i) The Authority shall make payments to the Contractor for the Works based on the lump sum price accepted by the Authority in consideration of the obligations specified in this Agreement for an amount of INR..... (Amount as quoted by the bidder exclusive of GST + GST amount as applicable) (the “**Contract Price**”), which shall be subject to adjustments under the provisions of this Agreement. For the avoidance of doubt, the Parties expressly agree that the Contract Price shall not include the cost of Maintenance, which shall be paid separately under the provisions of Clause 19.7. The Parties further agree that save and except as provided in this Agreement, the Contract Price shall be valid and effective until the issue of the Completion Certificate.
- (ii) The Contract Price includes all duties, taxes, royalty, cess, charges, and fees that may be levied in accordance with the laws and regulations in force as on the Base Date on the Contractor's equipment, Plant, Materials, and supplies acquired for this Agreement and on the services performed under this Agreement. Nothing in this Agreement shall relieve the Contractor from its responsibility to pay any tax including any tax that may be levied in India on profits made by it in respect of this Agreement.
- (iii) The Contract Price shall not be adjusted for any change in costs stated in Clause 19.1 (ii) above, except as stated in Clauses 19.10 and 19.17.
- (iv) The Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs unless otherwise provided for in this Agreement.
- (v) Unless otherwise stated in this Agreement, the Contract Price covers all the Contractor's obligations for the Works under this Agreement and all things necessary for the Construction and the remedying of any Defects in the Project Highway.
- (vi) All payments under this Agreement shall be made in Indian Rupees.

19.2 Advance Payment

- (i) The Authority shall make an interest-bearing advance payment (the “**Advance Payment**”) @ “**Bank Rate + 3%**”, equal to 10 % (ten percent) of the Contract Price, exclusively for mobilization expenses. The Advance Payment for mobilization expenses shall be made in two installments each equal to 5% (five percent) of the Contract Price. The second 5% (five percent) mobilization advance would be released after the submission of the utilization certificate by the Contractor for the first 5% (five percent) advance already released earlier.
- (ii) In addition to the above, the Authority shall make an additional interest-bearing Advance Payment against newly purchased key Construction equipment required for

the works as per the agreed Construction program and brought to the site, if so requested by the Contractor subject to the same terms and conditions specified for Advance Payment for mobilization expenses in this Agreement. The maximum of such advance shall be 5% (five percent) of the Contract Price against Bank Guarantee. This advance shall be further subject to the condition that:

- (a) such new equipment is considered by the Authority's Engineer to be necessary for the works and
- (b) these new equipment should be procured in the name of the Contractor and be verified by the Authority's Engineer to have been brought to the site.

The Advance Payment for mobilization expenses and acquisition of key new Construction equipment would be deemed as an interest-bearing advance at the applicable interest rate (@ "Bank rate + 3%"), to be compounded annually on a reducing balance basis. The interest would be recovered along with the recovery of mobilization Advance Payment as per the provision laid down for the mobilization advance recovery.

- (iii) The Contractor may apply to the Authority for the first installment of the Advance Payment at any time after the Appointed Date, along with an irrevocable and unconditional guarantee from a Bank for an amount equivalent to 110% (one hundred and ten percent) of such installment, substantially in the form provided at Annex-III of Schedule-G, to remain effective till the full repayment thereof.
- (iv) At any time, after 60 (sixty) days from the Appointed Date, the Contractor may apply to the Authority for the second installment of the Advance Payment along with an irrevocable and unconditional guarantee from a Bank for an amount equivalent to 110% (one hundred and ten percent) of such installment, substantially in the form provided at Annex-III of Schedule-G, to remain effective till the complete repayment thereof.

The Contractor has the option of splitting the Bank Guarantee against Advance Payment for mobilization expenses into parts, each not less than 2.75% (two point seven five percent) of the Contract Price. Each part of the guarantee shall remain effective till full repayment of such part advance corresponding to this bank guarantee. Such part of the Bank Guarantee shall be returned to the Contractor on recovery under the Agreement of the full amount of such part guarantee within 30 (thirty) days of the said recovery.

- (v) The Advance Payment shall be paid by the Authority to the Contractor within 15 (fifteen) days of the receipt of its respective requests under the provisions of Clause 19.2.
- (vi) The Advance Payment shall be repaid through percentage deductions from the stage payments determined by the Authority's Engineer under Clause 19.5, as follows:
 - (a) deductions shall commence in the first Stage Payment Statement;

- (b) deductions shall be made at the rate of 15% (fifteen percent) of each Stage Payment Statement until the advance payment has been repaid; provided that the advance payment shall be completely repaid before the time when 80% (eighty percent) of the Schedule Construction Period is over;
 - (c) if total certified stage payments (excluding the Advance Payment and deductions and repayments of retention) do not exceed 20% (twenty percent) of the Contract Price within [50% of the Scheduled Construction Period] from the Appointed Date then the Advance Payment including interest shall be recovered by encashment of the Bank Guarantee for the Advance Payment.
- (vii) If the Advance Payment has not been fully repaid before Termination under Clause 21.7 or Article 23, as the case may be, the whole of the balance then outstanding shall immediately become due and payable by the Contractor to the Authority. Without prejudice to the provisions of Clause 19.2 (vi), in the event of Termination for Contractor Default, the Advance Payment shall be deemed to carry interest @ “**Bank Rate+5%**” per annum from the date of Advance Payment to the date of recovery by encashment of the Bank Guarantee for the Advance Payment. For the avoidance of doubt, the aforesaid interest shall be payable on the unrecovered balance.
- (viii) However for the construction of railway span (Main Bridge), if the contractor shows his interest for obtaining advance payment for procurement of materials, in the interest of work and progress, UPSBC Ltd may provide 75% secured advance against submission of proforma invoice.

19.3 Procedure for estimating the payment for the Works

- (i) The Authority shall make interim payments to the Contractor as certified by the Authority’s Engineer on completion of a stage, in a length, number, or area as specified and valued under the proportion of the Contract Price assigned to each item and its stage in Schedule-H.
- (ii) The Contractor shall base its claim for an interim payment for the stages completed till the end of the month for which the payment is claimed, valued under Clause 19.3 (i), supported with necessary particulars and documents under this Agreement.
- (iii) Any reduction in the Contract Price arising out of Change of Scope or the works withdrawn under Clause 8.3 shall not affect the amounts payable for the items or stage payments thereof which are not affected by such Change of Scope or withdrawal. For avoidance of doubt and by way of illustration, the Parties agree that if the amount assigned to Major Bridges is reduced from Rs. 100 crore to Rs. 80 crore owing to Change of Scope or withdrawal of work, the reduction in payment shall be restricted to relevant payments for Major Bridges only and the payment due in respect of all other stage payments under the item Major Bridges shall not be affected in any manner. The Parties further agree that the adjustments arising out of the aforesaid modifications shall be carried out in a manner that the impact of such modifications is restricted to the said Change of Scope or withdrawal, as the case may be, and does not alter the payments due for and in respect of items or stage payments which do not form part of such Change of Scope or withdrawal.

19.4 Stage Payment Statement for Works

The Contractor shall submit a statement (the “**Stage Payment Statement**”), in 3 (three) copies, by the 7th (seventh) day of the month to the Authority’s Engineer in the form outlined in Schedule-O, showing the amount calculated under Clause 19.3 to which the Contractor considers himself entitled for completed stage(s) of the Works. The Stage Payment Statement shall be accompanied by the progress reports and any other supporting documents. The Contractor shall not submit any claim for payment of incomplete stages of work.

19.5 Stage Payment for Works

- (i) Within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor under Clause 19.4, the Authority’s Engineer shall broadly determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment against the Stage Payment Statement, pending issue of the Interim Payment Certificate by the Authority’s Engineer. Within 10 (ten) days of the receipt of the recommendation of the Authority’s Engineer, the Authority shall make electronic payment directly to the Contractor’s bank account.
- (ii) Within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, the Authority’s Engineer shall determine and deliver to the Authority and the Contractor an IPC certifying the amount due and payable to the Contractor, after adjusting the payments already released to the Contractor against the said statement. For the avoidance of doubt, the Parties agree that the IPC shall specify all the amounts that have been deducted from the Stage Payment Statement and the reasons therefore.
- (iii) In cases where there is a difference of opinion as to the value of any stage, the Authority’s Engineer’s view shall prevail and interim payments shall be made to the Contractor on this basis; provided that the foregoing shall be without prejudice to the Contractor’s right to raise a Dispute.
- (iv) The Authority’s Engineer may, for reasons to be recorded, withhold from payment:
 - (a) the estimated value of work or obligation that the Contractor has failed to perform under this Agreement and the Authority’s Engineer had notified the Contractor; and
 - (b) the estimated cost of rectification of work done is not under this Agreement.
- (v) Payment by the Authority shall not be deemed to indicate the Authority’s acceptance, approval, consent, or satisfaction with the work done.

19.6 Deleted.

19.7 Deleted.

19.8 Payment of Damages

- (i) The Contractor may claim Damages due and payable to it under the provisions of this Agreement.
- (ii) The Authority's Engineer shall issue the IPC within 15 (fifteen) days of the receipt of the claim under Clause 19.8 (i), after making adjustments under the provisions of this Agreement. The Authority shall pay to the Contractor the amount due under any IPC within 30 (thirty) days from the date of the submission of the claim under Clause 19.8. In the event of the failure of the Authority to make payment to the Contractor within the specified time, the Authority shall be liable to pay to the Contractor interest thereon and the provisions of Clause 19.9 shall apply *mutatis mutandis* thereto.

19.9 Deleted.

19.10 Deleted.

19.11 Deleted.

19.12 Deleted.

19.13 Final Payment Statement

- (i) Within 60 (sixty) days after receiving the Completion Certificate under Clause 12.2, the Contractor shall submit to the Authority's Engineer for consideration 6 (six) copies of a Final Payment Statement (the "**Final Payment Statement**") for Works, with supporting documents showing in detail, in the form prescribed by the Authority's Engineer:
 - (a) the summary of Contractor's Stage Payment claims for Works as submitted under Clause 19.4;
 - (b) the amounts received from the Authority against each claim; and
 - (c) any further sums which the Contractor considers due to it from the Authority.

If the Authority's Engineer disagrees with or cannot verify any part of the Final Payment Statement, the Contractor shall submit such further information as the Authority's Engineer may reasonably require. The Authority's Engineer shall deliver to the Authority:

 - i. an IPC for those parts of the Final Payment Statement that are not in dispute, along with a list of disputed items that shall then be settled under the provisions of Article 26; or
 - ii. a Final Payment Certificate under Clause 19.15 if there are no disputed items.
- (ii) If the Authority's Engineer does not prescribe the form referred to in Clause 19.13 (i) within 15 (fifteen) of the date of issue of the Completion Certificate, the Contractor shall submit the statement in such form as it deems fit.
- (iii)

19.14 Discharge

Upon submission of the Final Payment Statement for Works under Clause 19.13, the Contractor shall give to the Authority, with a copy to the Authority's Engineer, a written discharge confirming that the total of the Final Payment Statement represents full and final settlement of all monies due to the Contractor in respect of this Agreement for all the Works arising out of this Agreement, except for any monies due to either Party on account of any Defect. Provided that such discharge shall become effective only after the payment due has been made under the Final Payment Certificate issued under Clause 19.15.

19.15 Final Payment Certificate

- (i) Within 30 (thirty) days after receipt of the Final Payment Statement for Works under Clause 19.13, and the written discharge under Clause 19.14, and there being no disputed items of claim, the Authority's Engineer shall deliver to the Authority, with a copy to the Contractor, a final payment certificate (the "**Final Payment Certificate**") stating the amount which, in the opinion of the Authority's Engineer, is finally due under this Agreement or otherwise. For the avoidance of doubt, before issuing the Final Payment Certificate, the Authority's Engineer shall ascertain from the Authority all amounts previously paid by the Authority and for all sums to which the Authority is entitled, the balance, if any, due from the Authority to the Contractor or from the Contractor to the Authority, as the case may be.
- (ii) The Authority shall, under the provisions of Clause 19.9, pay to the Contractor the amount which is stated as being finally due in the Final Payment Certificate.

19.16 Deleted

19.17 Change in law

- (i) If as a result of Change in Law, the Contractor suffers any additional costs in the execution of the Works or relation to the performance of its other obligations under this Agreement, the Contractor shall, within 15 (fifteen) days from the date it becomes reasonably aware of such addition in cost, notify the Authority with a copy to the Authority's Engineer of such additional cost due to Change in Law.
- (ii) If as a result of Change in Law, the Contractor benefits from any reduction in costs for the execution of this Agreement or under the provisions of this Agreement, either Party shall, within 15 (fifteen) days from the date it becomes reasonably aware of such reduction in cost, notify the other Party with a copy to the Authority's Engineer of such reduction in cost due to Change in Law.
- (iii) The Authority's Engineer shall, within 15 (fifteen) days from the date of receipt of the notice from the Contractor or the Authority, determine any addition or reduction to the Contract Price, as the case may be, due to the Change in Law.

19.18 Correction of Interim Payment Certificates

The Authority's Engineer may by an Interim Payment Certificate make any correction or modification in any previous Interim Payment Certificate issued by the Authority's Engineer.

19.19 Authority's claims

If the Authority considers itself to be entitled to any payment from the Contractor under any Clause of this Agreement, it shall give notice and particulars to the Contractor 20 (twenty) days before making the recovery from any amount due to the Contractor and shall take into consideration the representation, if any, made by the Contractor in this behalf, before making such recovery.

19.20 Deleted

Article 20

Insurance

20.1 Insurance for Works and Maintenance

- (i) The Contractor shall effect and maintain at its own cost the insurances specified in Schedule-P and as per the requirements under the Applicable Laws.
- (ii) Subject to the provisions of Clause 21.6, the Authority and the Contractor shall, under its obligations as provided for in this Agreement, be liable to bear the cost of any loss or damage that does not fall within the scope of this Article 20 or cannot be recovered from the insurers.
- (iii) Subject to the exceptions specified in Clause 20.1 (iv) below, the Contractor shall save and except as provided for in this Agreement, fully indemnify, hold harmless, and defend the Authority from and against any and all losses, damages, costs, charges and/or claims concerning:
 - (a) the death of or injury to any person; or
 - (b) the loss of or damage to any property (other than the Works);
that may arise out of or in consequence of any breach by the Contractor of this Agreement during the execution of the Works or the remedying of any defects therein.
- (iv) Notwithstanding anything stated above in Clause 20.1 (iii), the Authority shall fully indemnify the Contractor from and against any and all losses, damages, costs, charges, proceedings, and/or claims arising out of or with respect to:
 - (a) the use or occupation of land or any part thereof by the Authority;
 - (b) the right of the Authority to execute the Works, or any part thereof, on, over, under, in, or through any land;
 - (c) the damage to property which is the unavoidable result of the execution and completion of the Works, or the remedying of any Defects therein, in accordance with this Agreement; and
 - (d) the death of or injury to persons or loss of or damage to property resulting from any act or neglect of the Authority, its agents, servants, or other contractors, not being employed by the Contractor.

Provided that, in the event of any injury or damage as a result of the contributory negligence of the Contractor, the Authority shall be liable to indemnify the Contractor from and against any and all losses, damages, costs, charges, proceedings, and/or claims to the extent as may be proportionately determined to be the liability of the Authority, its servants or agents or other contractors not associated with the Contractor in such injury or damage.

- (v) Without prejudice to the obligations of the Parties as specified under Clauses 20.1 (iii) and 20.1 (iv), the Contractor shall maintain or effect such third-party insurances as may be required under the Applicable Laws.
- (vi) The Contractor shall provide to the Authority, within 30 days of the Appointed Date, evidence of professional liability insurance maintained by its Design Director and/or consultants to cover the risk of professional negligence in the design of Works. The professional liability coverage shall be for a sum of not less than [3% (three percent)] of the Contract Price and shall be maintained until the end of the Defects Liability Period.

20.2 Notice to the Authority

No, later than 15 (fifteen) days after the date of this Agreement, the Contractor shall by notice furnish to the Authority, in reasonable detail, information in respect of the insurance that it proposes to effect and maintain under Article 20. Within 15 (fifteen) days of receipt of such notice, the Authority may require the Contractor to effect and maintain such other insurances as may be necessary pursuant hereto, and in the event of any difference or disagreement relating to any such insurance, the Dispute Resolution Procedure shall apply.

20.3 Evidence of Insurance Cover

- (i) All insurance obtained by the Contractor under Article 20 shall be maintained with insurers on terms consistent with Good Industry Practice. Within 10 (ten) days from the Appointed Date, the Contractor shall furnish to the Authority notarized true copies of the certificate(s) of insurance, copies of insurance policies, and premia payment receipts in respect of such insurance, and no such insurance shall be canceled, modified, or allowed to expire or lapse until the expiration of at least 45 (forty-five) days after notice of such proposed cancellation, modification or non-renewal has been delivered by the Contractor to the Authority. The Contractor shall act under the directions of the Authority. Provided that the Contractor shall produce to the Authority the insurance policies in force and the receipts for payment of the current premia.
- (ii) The Contractor shall ensure the adequacy of the insurance at all times under the provisions of this Agreement.

20.4 Remedy for failure to insure

If the Contractor shall fail to effect and keep in force all insurances for which it is responsible pursuant hereto, the Authority shall have the option to either keep in force any such insurances, and pay such premia and recover the costs thereof from the Contractor, or in the event of computation of a Termination Payment, treat an amount equal to the Insurance Cover as deemed to have been received by the Contractor.

20.5 Waiver of subrogation

All insurance policies in respect of the insurance obtained by the Contractor under this Article 20 shall include a waiver of any and all rights of subrogation or recovery of the insurers there under against, inter alia, the Authority, and its assigns, successors, undertakings and their subsidiaries, Affiliates, employees, insurers and underwriters, and of any right of the insurers to any set-off or counterclaim or any other deduction, whether by attachment or otherwise, in respect of any liability of any such person insured under any such policy or in any way connected with any loss, liability or obligation covered by such policies of insurance.

20.6 Contractor's waiver

The Contractor hereby further releases assigns and waives any and all rights of subrogation or recovery against, inter alia, the Authority and its assigns, undertakings and their subsidiaries, Affiliates, employees, successors, insurers, and underwriters, which the Contractor may otherwise have or acquire in or from or in any way connected with any loss, liability or obligation covered by policies of insurance maintained or required to be maintained by the Contractor pursuant to this Agreement (other than third party liability insurance policies) or because of deductible clauses in or inadequacy of limits of any such policies of insurance.

20.7 Cross liabilities

Any such insurance maintained or effected in pursuance of Article 20 shall include a cross-liability clause such that the insurance shall apply to the Contractor and to the Authority as separately insured.

20.8 Accident or injury to workmen

Notwithstanding anything stated in this Agreement, it is hereby expressly agreed between the Parties that the Authority shall not be liable for or in respect of any damages or compensation payable to any workman or other person in the employment of the Contractor or Sub-contractor, save and except as for death or injury resulting from any act, omission or willful default of the Authority, its agents or servants. The Contractor shall indemnify and keep indemnified the Authority from and against all such claims, proceedings, damages, costs, charges, and expenses whatsoever in respect of the above save and except for those acts, omissions, or willful defaults for which the Authority shall be liable.

20.9 Insurance against accidents for workmen

The Contractor shall effect and maintain during the Agreement such insurances as may be required to insure the Contractor's personnel and any other persons employed by it on the Project Highway from and against any liability incurred in pursuance of this Article 20. Provided that for this Clause 20.9, the Contractor's personnel/any person employed by the Contractor shall include the Subcontractor and its personnel. It is further provided that, in respect of any persons employed by any Sub-contractor, the Contractor

obligations to insure as aforesaid under Clause 20.9 shall be discharged if the Sub-contractor shall have insured against any liability in respect of such persons in such manner that the Authority is indemnified under the policy. The Contractor shall require such Sub-contractor to produce before the Authority when required, such policy of insurance and the receipt for payment of the current premium within 10 (ten) days of such demand being made by the Authority.

20.10 Application of insurance proceeds

The proceeds from all insurance claims, except for life and injury, shall be applied for any necessary repair, reconstruction, reinstatement, replacement, improvement, delivery, or installation of the Project Highway and the provisions of this Agreement in respect of construction of works shall apply *mutatis mutandis* to the works undertaken out of the proceeds of insurance.

20.11 Compliance with policy conditions

Each Party hereby expressly agrees to fully indemnify the other Party from and against all losses and claims arising from its failure to comply with conditions imposed by the insurance policies affected under this Agreement.

20.12 General Requirements of Insurance Policies

The Contractor must:

- (a) immediately deposit copies of the policies or certificates of any insurance which it is required to effect under the Contract, together with receipts for the premiums;
- (b) effect all insurances for which the Contractor is responsible with an insurer approved by the Authority;
- (c) make no material changes to the terms of any insurance without the Authority's approval;
- (d) in all respects comply with any conditions stipulated in the insurance policies which the Contractor is required to effect under the Agreement or which the Authority has effected in relation to the Facility and notified to the Contractor; and shall provide all assistance to the Authority in the application form, and finalization of, such comprehensive insurance package;
- (e) regardless of the extent of settlement of claims by the underwriters or the time taken for settlement of claims, the Contractor shall make good any loss, or damage at its own cost promptly;
- (f) provide all assistance to the Authority in the application form, and finalization of, such comprehensive insurance package;
- (g) pay the Contractor's share of the insurance premiums for insurance premiums allocated under such comprehensive insurance package policy to

the insurance directly to the insurance provider promptly on demand. In case the Contractor fails to make such payment in time, the Authority may elect to pay the Contractor's share and adjust it against amounts payable to the Contractor under this Agreement;

- (h) in the case of the occurrence of any event leading to an insurance claim, promptly follow the procedures specified by the insurance provider, and provide full cooperation and access to the insurance provider or its representative, to settle the claim expeditiously;
- (i) require all the Sub-Contractors providing equipment and materials or services to the Contractor or the Authority to obtain, maintain, and keep in force during the time in which they are involved in the performance of the Works hereunder insurance coverage consistent with the Contractor's insurance obligations hereunder and the Contractor shall also be responsible for fulfillment of this requirement; and
- (j) the required insurance coverage and the Contractor's obligations-referred to shall in no way affect or limit the Contractor's liability concerning its performance of the Works. Nothing in this Section shall limit or relieve the Contractor of its liabilities and obligations under this Agreement.

Part V

Force Majeure and Termination

Article 21

Force Majeure

21.1 Force Majeure

As used in this Agreement, the expression “**Force Majeure**” or “**Force Majeure Event**” shall mean the occurrence in India of any or all Non-Political Events, Indirect Political Events and Political Events, as defined in Clauses 21.2, 21.3, and 21.4 respectively, if it affects the performance by the Party claiming the benefit of Force Majeure (the “**Affected Party**”) of its obligations under this Agreement and which act or event (i) is beyond the reasonable control of the Affected Party, and (ii) the Affected Party could not have prevented or overcome by exercise of due diligence and following Good Industry Practice, and (iii) has Material Adverse Effect on the Affected Party.

21.2 Non-Political Event

A Non-Political Event shall mean one or more of the following acts or events:

- (a) act of God, epidemic, extremely adverse weather conditions, lightning, earthquake, landslide, cyclone, flood, volcanic eruption, chemical or radioactive contamination or ionizing radiation, fire or explosion (to the extent of contamination or radiation or fire or explosion originating from a source external to the Site);
- (b) strikes or boycotts (other than those involving the Contractor, Subcontractors, or their respective employees/ representatives, or attributable to any act or omission of any of them) interrupting supplies and services to the Project Highway for a continuous period of 24 (twenty-four) hours and an aggregate period exceeding 10 (ten) days in an Accounting Year, and not being an Indirect Political Event outlined in Clause 21.3;
- (c) any failure or delay of a Sub-contractor but only to the extent caused by another Non-Political Event;
- (d) any judgment or order of any court of competent jurisdiction or statutory authority made against the Contractor in any proceedings for reasons other than (i) failure of the Contractor to comply with any Applicable Law or Applicable Permit, or (ii) on account of breach of any Applicable Law or Applicable Permit or of any contract, or (iii) enforcement of this Agreement, or (iv) exercise of any of its rights under this Agreement by the Authority;
- (e) the discovery of geological conditions, toxic contamination, or archaeological remains on the Site that could not reasonably have been expected to be discovered through a site inspection; or
- (f) any event or circumstances of a nature analogous to any of the foregoing.

21.3 Indirect Political Event

An Indirect Political Event shall mean one or more of the following acts or events:

- (a) an act of war (whether declared or undeclared), invasion, armed conflict or act of a foreign enemy, blockade, embargo, riot, insurrection, terrorist or military action, civil commotion, or politically motivated sabotage;
- (b) industry-wide or State-wide strikes or industrial action for a continuous period of 24 (twenty-four) hours and exceeding an aggregate period of 10 (ten) days in an Accounting Year;
- (c) any civil commotion, boycott, or political agitation which prevents construction of the Project Highway by the Contractor for an aggregate period exceeding 10 (ten) days in an Accounting Year;
- (d) any failure or delay of a Sub-contractor to the extent caused by any Indirect Political Event;
- (e) any Indirect Political Event that causes a Non-Political Event; or
- (f) any event or circumstances of a nature analogous to any of the foregoing.

21.4 Political Event

A Political Event shall mean one or more of the following acts or events by or on account of any Government Instrumentality:

- (a) Change in Law, only if consequences thereof cannot be dealt with under and under the provisions of Clause 19.17;
- (b) compulsory acquisition in the national interest or expropriation of any Project Assets or rights of the Contractor or of the Sub-Contractors;
- (c) unlawful or unauthorized or without jurisdiction revocation of, or refusal to renew or grant without valid cause, any clearance, license, permit, authorization, no objection certificate, consent, approval or exemption required by the Contractor or any of the Sub-contractors to perform their respective obligations under this Agreement; provided that such delay, modification, denial, refusal or revocation did not result from the Contractor's or any Sub-contractors inability or failure to comply with any condition relating to grant, maintenance or renewal of such clearance, license, authorization, no objection certificate, exemption, consent, approval or permit;
- (d) any failure or delay of a Sub-contractor but only to the extent caused by another Political Event; or
- (e) any event or circumstances of a nature analogous to any of the foregoing.

21.5 Duty to report Force Majeure Event

- (i) Upon occurrence of a Force Majeure Event, the Affected Party shall by notice report such occurrence to the other Party forthwith. Any notice pursuant hereto shall include full particulars of:

- (a) the nature and extent of each Force Majeure Event which is the subject of any claim for relief under this Article 21 with evidence in support thereof;
 - (b) the estimated duration and the effect or probable effect which such Force Majeure Event is having or will have on the Affected Party's performance of its obligations under this Agreement;
 - (c) the measures which the Affected Party is taking or proposes to take for alleviating the impact of such Force Majeure Event; and
 - (d) any other information relevant to the Affected Party's claim.
- (ii) The Affected Party shall not be entitled to any relief for or in respect of a Force Majeure Event unless it shall have notified the other Party of the occurrence of the Force Majeure Event as soon as reasonably practicable, and in any event no later than 10 (ten) days after the Affected Party knew, or ought reasonably to have known, of its occurrence, and shall have given particulars of the probable material effect that the Force Majeure Event is likely to have on the performance of its obligations under this Agreement.
- (iii) For so long as the Affected Party continues to claim to be materially affected by such Force Majeure Event, it shall provide the other Party with regular (and not less than weekly) reports containing the information as required by Clause 21.5 (i), and such other information as the other Party may reasonably request the Affected Party to provide.

21.6 Effect of Force Majeure Event on the Agreement

- (i) Upon the occurrence of any Force Majeure after the Appointed Date, the costs incurred and attributable to such event and directly relating to this Agreement (the "**Force Majeure costs**") shall be allocated and paid as follows:
 - (a) upon occurrence of a Non-Political Event, the Parties shall bear their respective Force Majeure costs and neither Party shall be required to pay to the other Party any costs thereof;
 - (b) upon occurrence of an Indirect Political Event, all Force Majeure costs attributable to such Indirect Political Event, and not exceeding the Insurance Cover for such Indirect Political Event, shall be borne by the Contractor, and to the extent Force Majeure costs exceed such Insurance Cover, one half of such excess amount shall be reimbursed by the Authority to the Contractor for the Force Majeure events; and
 - (c) upon occurrence of a Political Event, all Force Majeure costs attributable to such Political Event shall be reimbursed by the Authority to the Contractor.
 - (d) For the avoidance of doubt, Force Majeure costs may include costs directly attributable to the Force Majeure Event, but shall not include debt repayment obligations, if any, of the Contractor.
- (ii) Save and except as expressly provided in this Article 21, neither Party shall be liable

in any manner whatsoever to the other Party in respect of any loss, damage, cost, expense, claims, demands, and proceedings relating to or arising out of the occurrence or existence of any Force Majeure Event or exercise of any right pursuant hereto.

- (iii) Upon the occurrence of any Force Majeure Event during the Construction Period, the Project Completion Schedule for and in respect of the affected Works shall be extended on a day-for-day basis for such period as the performance of the Contractor's obligations is affected on account of the Force Majeure Event or its subsisting effects.

21.7 Termination Notice for Force Majeure Event

- (i) If a Force Majeure Event subsists for 60 (sixty) days or more within a continuous period of 120 (one hundred and twenty) days, either Party may at its discretion terminate this Agreement by issuing a Termination Notice to the other Party without being liable in any manner whatsoever, save as provided in this Article 21, and upon the issue of such Termination Notice, this Agreement shall, notwithstanding anything to the contrary contained herein, stand terminated forthwith; provided that before issuing such Termination Notice, the Party intending to issue the Termination Notice shall inform the other Party of such intention and grant 15 (fifteen) days to make a representation, and may after the expiry of such 15 (fifteen) days period, whether or not it is in receipt of such representation, in its sole discretion issue the Termination Notice.

21.8 Termination Payment for Force Majeure Event

- (i) In the event of this Agreement being terminated on account of a Non-Political Event, the Termination Payment shall be an amount equal to the sum payable under Clause 23.5.

Provided that in the event Termination occurs during the Maintenance Period, the Authority's Engineer shall only determine the value of Works associated with Maintenance.

- (ii) If Termination is on account of an Indirect Political Event, the Termination Payment shall include:
 - (a) any sums due and payable under Clause 23.5; and
 - (b) the reasonable cost, as determined by the Authority's Engineer, of the Plant and Materials procured by the Contractor and transferred to the Authority for use in Construction or Maintenance, only if such Plant and Materials are in conformity with the Specifications and Standards;

Provided that in the event Termination occurs during the Maintenance Period, the Authority's Engineer shall only determine the value of Works associated with Maintenance.

- (iii) If Termination is on account of a Political Event, the Authority shall make a Termination Payment to the Contractor in an amount that would be payable under Clause 23.6 (ii) as if it were an Authority Default.

21.9 Dispute resolution

If the Parties are unable to agree in good faith about the occurrence or existence of a Force Majeure Event, such Dispute shall be finally settled under the Dispute Resolution Procedure; provided that the burden of proof as to the occurrence or existence of such Force Majeure Event shall be upon the Party claiming relief and/ or excuse on account of such Force Majeure Event.

21.10 Excuse from the performance of obligations

If the Affected Party is rendered wholly or partially unable to perform its obligations under this Agreement because of a Force Majeure Event, it shall be excused from performance of such of its obligations to the extent it is unable to perform on account of such Force Majeure Event; provided that:

- (a) the suspension of performance shall be of no greater scope and no longer duration than is reasonably required by the Force Majeure Event;
- (b) the Affected Party shall make all reasonable efforts to mitigate or limit damage to the other Party arising out of or as a result of the existence or occurrence of such Force Majeure Event and to cure the same with due diligence; and
- (c) when the Affected Party can resume the performance of its obligations under this Agreement, it shall give to the other Party notice to that effect and shall promptly resume the performance of its obligations hereunder.

Article 22

Suspension of Contractor's Rights

22.1 Suspension upon Contractor Default

Upon occurrence of a Contractor Default, the Authority shall be entitled, without prejudice to its other rights and remedies under this Agreement including its rights of Termination hereunder, to (i) suspend carrying out of the Works or Maintenance or any part thereof, and (ii) carry out such Works or Maintenance itself or authorize any other person to exercise or perform the same on its behalf during such suspension (the “**Suspension**”). Suspension hereunder shall be effective forthwith upon issue of notice by the Authority to the Contractor and may extend up to a period not exceeding 90 (ninety) days from the date of issue of such notice.

22.2 Authority to act on behalf of the Contractor

During the period of Suspension hereunder, all rights and liabilities vested in the Contractor under the provisions of this Agreement shall continue to vest therein and all things done or actions taken, including expenditure incurred by the Authority for discharging the obligations of the Contractor under and under this Agreement shall be deemed to have been done or taken for and on behalf of the Contractor and the Contractor undertakes to indemnify the Authority for all costs incurred during such period. The Contractor hereby licenses and sub-licenses respectively, the Authority or any other person authorized by it under Clause 22.1 to use during Suspension, all Intellectual Property belonging to or licensed to the Contractor concerning the Project Highway and its design, engineering, construction, and maintenance, and which is used or created by the Contractor in performing its obligations under the Agreement.

22.3 Revocation of Suspension

- (i) In the event that the Authority shall have rectified or removed the cause of Suspension within a period not exceeding 60 (sixty) days from the date of Suspension, it shall revoke the Suspension forthwith and restore all rights of the Contractor under this Agreement. For the avoidance of doubt, the Parties expressly agree that the Authority may, at its discretion, revoke the Suspension at any time, whether or not the cause of Suspension has been rectified or removed hereunder.
- (ii) Upon the Contractor having cured the Contractor Default within a period not exceeding 60 (sixty) days from the date of Suspension, the Authority shall revoke the Suspension forthwith and restore all rights of the Contractor under this Agreement.

22.4 Termination

- (i) At any time during the period of Suspension under this Article 22, the Contractor may by notice require the Authority to revoke the Suspension and issue a Termination

Notice. The Authority shall, within 15 (fifteen) days of receipt of such notice, terminate this Agreement under and under Article 23.

- (ii) Notwithstanding anything to the contrary contained in this Agreement, if Suspension is not revoked within 90 (ninety) days from the date of Suspension hereunder, the Agreement shall, upon expiry of the aforesaid period, be deemed to have been terminated by mutual agreement of the Parties and all the provisions of this Agreement shall apply, *mutatis mutandis*, to such Termination as if a Termination Notice had been issued by the Authority upon occurrence of a Contractor Default.

Article 23

Termination

23.1 Termination for Contractor Default

- (i) Save as otherwise provided in this Agreement, if any of the defaults specified below shall have occurred, and the Contractor fails to cure the default within the Cure Period set forth below, or where no Cure Period is specified, then within a Cure Period of 60 (sixty) days, the Contractor shall be deemed to be in default of this Agreement (the “**Contractor Default**”), unless the default has occurred solely as a result of any breach of this Agreement by the Authority or due to Force Majeure. The defaults referred to herein shall include:
- (a) the Contractor fails to provide, extend, or replenish, as the case may be, the Performance Security under this Agreement;
 - (b) after the replenishment or furnishing of fresh Performance Security under Clause 7.3, the Contractor fails to cure, within a Cure Period of 30 (thirty) days, the Contractor Default for which the whole or part of the Performance Security was appropriated;
 - (c) the Contractor does not achieve the latest outstanding Project Milestone due under the provisions of Schedule-J, subject to any Time Extension, and continues to be in default for 45 (forty-five) days;
 - (d) the Contractor abandons or manifests an intention to abandon the construction or Maintenance of the Project Highway without the prior written consent of the Authority;
 - (e) the Contractor fails to proceed with the Works under the provisions of Clause 10.1 or stops Works and/or the Maintenance for 30 (thirty) days without reflecting the same in the current program and such stoppage has not been authorized by the Authority’s Engineer;
 - (f) the Project Completion Date does not occur within the period specified in Schedule-J for the Scheduled Completion Date, or any extension thereof;
 - (g) the Contractor fails to rectify any Defect, the non-rectification of which shall have a Material Adverse Effect on the Project, within the time specified in this Agreement or as directed by the Authority’s Engineer;
 - (h) the Contractor subcontracts the Works or any part thereof in violation of this Agreement or assigns any part of the Works or the Maintenance without the prior approval of the Authority;
 - (i) the Contractor creates any Encumbrance in breach of this Agreement;
 - (j) an execution levied on any of the assets of the Contractor has caused a Material Adverse Effect;

- (k) the Contractor is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for the Contractor or for the whole or material part of its assets that has a material bearing on the Project;
- (l) the Contractor 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 Authority, a Material Adverse Effect;
- (m) a resolution for winding up or insolvency of the Contractor is passed, or any petition for winding up or insolvency of the Contractor is admitted by a court of competent jurisdiction and a provisional liquidator or receiver or interim resolution professional, as the case may be, is appointed and such order has not been set aside within 90 (ninety) days of the date thereof or the Contractor is ordered to be wound up by court except for amalgamation or reconstruction; provided that, as part of such amalgamation or reconstruction, the entire property, assets, and undertaking of the Contractor are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of the Contractor under this Agreement; and provided that:
 - i. the amalgamated or reconstructed entity has the capability and experience necessary for the performance of its obligations under this Agreement; and
 - ii. the amalgamated or reconstructed entity has the financial standing to perform its obligations under this Agreement and has credit worthiness at least as good as that of the Contractor as at the Appointed Date;
- (n) any representation or warranty of the Contractor herein contained which is, as of the date hereof, found to be false or the Contractor is at any time hereafter found to be in breach or non-compliance thereof;
- (o) the Contractor submits to the Authority any statement, notice, or other document, in written or electronic form, which has a material effect on the Authority's rights, obligations, or interests and which is false in material particulars;
- (p) the Contractor has failed to fulfill any obligation, for which failure Termination has been specified in this Agreement; or
- (q) the Contractor commits a default in complying with any other provision of this Agreement if such a default causes a Material Adverse Effect on the Project or the Authority.
- (r) gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission, or other thing of value, as an inducement or reward:
 - i. for doing or forbearing to do any action concerning the Contract, or
 - ii. for showing or forbearing to show favour or disfavour to any person in relation to the Contract,
 or if any of the Contractor's personnel, agents, or subcontractors gives or offers to give (directly or indirectly) to any person any such inducement or

reward as is described in this subparagraph (s). However, lawful inducements and rewards to the Contractor's Personnel shall not entitle termination.

- (ii) Without prejudice to any other rights or remedies which the Authority may have under this Agreement, upon occurrence of a Contractor Default, the Authority shall be entitled to terminate this Agreement by issuing a Termination Notice to the Contractor; provided that before issuing the Termination Notice, the Authority shall by a notice inform the Contractor of its intention to issue such Termination Notice and grant 15 (fifteen) days to the Contractor to make a representation, and may after the expiry of such 15 (fifteen) days, whether or not it receives such representation, issue the Termination Notice.
- (iii) The following shall apply in respect of cure of any of the defaults and/ or breaches of the Agreement:
 - (a) The Cure Period shall commence from the date of the notice by the Authority to the Contractor asking the latter to cure the breach or default specified in such notice;
 - (b) The Cure Period provided in the Agreement shall not relieve the Contractor from liability for Damages caused by its breach or default;
 - (c) The Cure Period shall not in any way be extended by any period of suspension under the Agreement;
 - (d) If the cure of any breach by the Contractor requires any reasonable action by the Contractor that must be approved by the Authority hereunder the applicable Cure Period (and any liability of the Contractor for damages incurred) shall be extended by the period taken by the Authority to accord its required approval.
- (iv) After termination of this Agreement for Contractor Default, the Authority may complete the Works and/or arrange for any other entities to do so. The Authority and these entities may then use any Materials, Plant and equipment, Contractor's documents, and other design documents made by or on behalf of the Contractor.

23.2 Termination for Authority Default

- (i) If any of the defaults specified below shall have occurred, and the Authority fails to cure such default within a Cure Period of 90 (ninety) days or such longer period as has been expressly provided in this Agreement, the Authority shall be deemed to be in default of this Agreement (the "**Authority Default**") unless the default has occurred as a result of any breach of this Agreement by the Contractor or due to Force Majeure. The defaults referred to herein shall include:
 - (a) the Authority commits a material default in complying with any of the provisions of this Agreement and such default has a Material Adverse Effect on the Contractor;
 - (b) the Authority has failed to make payment of any amount due and payable to the Contractor within the period specified in this Agreement;

- (c) the Authority has failed to provide, within a period of 180 (one hundred and eighty) days from the Appointed Date, the environmental clearances required for construction of the Project Highway;
 - (d) the Authority becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with its creditors, or carries on business under a receiver, trustee, or manager for the benefit of its creditors, or if any act is done or event occurs which (under Applicable Laws) has a similar effect;
 - (e) the Authority repudiates this Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by this Agreement;
 - (f) the Authority's Engineer fails to issue the relevant Interim Payment Certificate within 60 (sixty) days after receiving a statement and supporting documents; or
 - (g) the whole work is suspended by the Authority beyond 120 (one hundred twenty) days for any reason which is not attributed to the Contractor.
- (ii) Without prejudice to any other right or remedy which the Contractor may have under this Agreement, upon occurrence of an Authority Default, the Contractor shall be entitled to terminate this Agreement by issuing a Termination Notice to the Authority; provided that before issuing the Termination Notice, the Contractor shall by a notice inform the Authority of its intention to issue the Termination Notice and grant 15 (fifteen) days to the Authority to make a representation, and may after the expiry of such 15 (fifteen) days, whether or not it receives such representation, issue the Termination Notice.

If on the consideration of the Authority's representation or otherwise, the contractor does not issue the Termination Notice on such 15th (fifteenth) day and prefers to continue with the project, it is deemed that the cause of action of the Termination Notice has been condoned by the Contractor and he would be deemed to have waived any claim and forfeited any right to any other remedy on that count or concerning such action or omission.

23.3 Termination for the Authority's convenience

Notwithstanding anything stated hereinabove, the Authority may terminate this Agreement for convenience. The termination shall take effect 30 (thirty) days from the date of notice provided to the Contractor.

23.4 Requirements after Termination

Upon Termination of this Agreement under the terms of Article 23, the Contractor shall comply with and conform to the following:

- (a) deliver all relevant records, reports, Intellectual Property, and other licenses pertaining to the Works, Maintenance, and other design documents;
- (b) transfer and/or deliver all Applicable Permits to the extent permissible under Applicable Laws; and
- (c) vacate the Site within 15 (fifteen) days.

23.5 Valuation of Unpaid Works

- (i) Within 45 (forty-five) days after Termination under Clause 23.1, 23.2, or 23.3, as the case may be, has taken effect, the Authority's Engineer shall proceed under Clause 18.5 to determine as follows the valuation of unpaid Works (the "**Valuation of Unpaid Works**"):
 - (a) value of the completed stage of the Works, less payments already made;
 - (b) reasonable value of the partially completed stages of works as on the date of Termination, only if such works conform with the Specifications and Standards; and
 - (c) value of Maintenance, if any, for completed months, less payments already made, and shall adjust from the sum thereof (i) any other amounts payable or recoverable, as the case may be, under the provisions of this Agreement; and (ii) all taxes due to be deducted at source.
- (ii) The Valuation of Unpaid Works shall be communicated to the Authority, with a copy to the Contractor, within 30 (thirty) days from the date of Termination.

23.6 Termination Payment

- (i) Upon Termination on account of Contractor's Default under Clause 23.1, the Authority shall:
 - (a) encash and appropriate the Performance Security, Additional Performance Security if any, and Retention Money, or in the event the Contractor has failed to replenish or extend the Performance Security and Additional Performance Security if any, claim the amount stipulated in Clause 7.1, as agreed pre-determined compensation to the Authority for any losses, delays, and cost of completing the Works and Maintenance, if any;
 - (b) encash and appropriate the Bank Guarantee, if any, for and in respect of the outstanding Advance Payment and interest thereon; and
 - (c) pay to the Contractor, by way of Termination Payment, an amount equivalent to the Valuation of Unpaid Works after adjusting any other sums payable or recoverable, as the case may be, under the provisions of this Agreement.
- (ii) Upon Termination on account of an Authority Default under Clause 23.2 or for the Authority's convenience under Clause 23.3, the Authority shall:

- (a) return the Performance Security, Additional Performance Security, and Retention Money forthwith;
 - (b) encash and appropriate the bank guarantee, if any, for and in respect of the outstanding Advance Payment; and
 - (c) pay to the Contractor, by way of Termination Payment, an amount equal to:
 - i. Valuation of Unpaid Works;
 - ii. the reasonable cost of temporary works, as determined by the Authority's Engineer; and
 - iii. 10% (ten percent) of the cost of the Works and Maintenance that are not commenced or not completed,and shall adjust from the sum thereof (i) any other amounts payable or recoverable, as the case may be, under the provisions of this Agreement, and (ii) all taxes due to be deducted at source.
- (iii) Termination Payment shall become due and payable to the Contractor within 30 (thirty) days of a demand being made by the Contractor to the Authority with the necessary particulars, and in the event of any delay, the Authority shall pay interest at Bank Rate + 3% per annum, 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.
- (iv) The Contractor expressly agrees that Termination Payment under this Article 23 shall constitute a full and final settlement of all claims of the Contractor on account of Termination of this Agreement and that it shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

23.7 Other rights and obligations of the Parties

Upon Termination for any reason whatsoever:

- (a) property and ownership in all Materials, Plant and Works and the Project Highway shall, as between the Contractor and the Authority, vest in the Authority in whole; provided that the foregoing shall be without prejudice to Clause 23.6;
- (b) risk of loss or damage to any Materials, Plant, or Works, and the care and custody thereof shall pass from the Contractor to the Authority; and
- (c) the Authority shall be entitled to restrain the Contractor and any person claiming through or under the Agreement from entering upon the Site or any part of the Project, which have not been vested in the Authority under the provisions of this Agreement.

23.8 Survival of rights

Notwithstanding anything to the contrary contained in this Agreement any Termination under the provisions of this Agreement shall be without prejudice to the accrued rights of either Party including its right to claim and recover money damages, insurance proceeds, security deposits, and other rights and remedies, which it may have in law or Agreement. All rights and obligations of either Party under this Agreement, including Termination Payments, shall survive the Termination to the extent such survival is necessary for giving effect to such rights and obligations.

23.9 Foreclosure with mutual consent

- (i) Without prejudice to any provision of this Agreement, the Authority and Contractor may foreclose this Agreement by mutual consent in circumstances which do not constitute either party's default without any liability or consequential future liability for either party.
- (ii) Should a Party intend to foreclose this Agreement by mutual consent, the intending Party shall issue a notice to the other Party, and upon issuance of such notice, the other Party may within 15 days from receipt of such notice either agree to such foreclosure or raise objection(s) to the same by intimating either of the two possible positions to the intending Party in writing.
- (iii) In either case of the other Party agreeing to the proposed foreclosure or otherwise, the Parties may negotiate the proposed foreclosure and sign a Supplementary Agreement for foreclosure to the main Contract Agreement within 30 (thirty) days of the date agreed by both Parties. Foreclosure shall not come into effect unless and otherwise Supplementary Agreement is signed.
- (iv) Any attempt or endeavor for foreclosure by mutual agreement shall be without prejudice to the rights and obligations of the Parties herein and the factum of such an attempt or exercise shall not stop either of the Parties from discharging their contractual obligations under this Agreement.
- (v) For the avoidance of doubt, it is clarified that such foreclosure will be without prejudice to the Contractor and shall not affect the Contractor in any way if it wishes to bid in future projects of the Authority.

Part VI

Other Provisions

Article 24

Assignment and Charges

24.1 Restrictions on assignments and charges

This Agreement shall not be assigned by the Contractor to any person, save and except with the prior consent in writing of the Authority, which consent the Authority shall be entitled to decline without assigning any reason.

24.2 Hypothecation of Materials or Plant

Notwithstanding the provisions of Clause 24.1, the Contractor may pledge or hypothecate to its lenders, any Materials or Plant before their incorporation in the Works. Further, the Contractor may, by written notice to the Authority, assign its right to receive payments under this Agreement either absolutely or by way of charge, to any person providing financing to the Contractor in connection with the performance of the Contractor's obligations under this Agreement. The Contractor acknowledges that any such assignment by the Contractor shall not relieve the Contractor from any obligations, duty, or responsibility under this Agreement.

Article 25

Liability and Indemnity

25.1 General indemnity

- (i) The Contractor will indemnify, defend, save, and hold harmless the Authority and its officers, servants, agents, Government Instrumentalities, and Government-owned and/or controlled entities/enterprises, (the “**Authority Indemnified Persons**”) against any and all suits, proceedings, actions, demands and third party claims for any loss, damage, cost and expense of whatever kind and nature, whether arising out of any breach by the Contractor of any of its obligations under this Agreement or from any negligence under the Agreement, including any errors or deficiencies in the design documents, or tort or on any other ground whatsoever, except to the extent that any such suits, proceedings, actions, demands, and claims have arisen due to any negligent act or omission, or breach or default of this Agreement on the part of the Authority Indemnified Persons.

25.2 Indemnity by the Contractor

- (i) Without limiting the generality of Clause 25.1, the Contractor shall fully indemnify, hold harmless, and defend the Authority and the Authority Indemnified Persons from and against any and all loss and/or damages arising out of or concerning:
 - (a) failure of the Contractor to comply with Applicable Laws and Applicable Permits;
 - (b) payment of taxes required to be made by the Contractor in respect of the income or other taxes of the Sub-contractors, suppliers, and representatives; or
 - (c) non-payment of amounts due because of Materials or services furnished to the Contractor or any of its Sub-contractors which are payable by the Contractor or any of its Sub-contractors.
- (ii) Without limiting the generality of the provisions of this Article 25, the Contractor shall fully indemnify, hold harmless, and defend the Authority Indemnified Persons from and against any and all suits, proceedings, actions, claims, demands, liabilities, and damages which the Authority Indemnified Persons may hereafter suffer, or pay because of any demands, claims, suits or proceedings arising out of claims of infringement of any domestic or foreign patent rights, copyrights or other intellectual property, proprietary or confidentiality rights concerning any materials, information, design or process used by the Contractor or by the Sub-contractors in performing the Contractor’s obligations or in any way incorporated in or related to the Project. If in any such suit, action, claim, or proceedings, a temporary restraint order or preliminary injunction is granted, the Contractor shall make every reasonable effort, by giving a satisfactory bond or otherwise, to secure the revocation or suspension of the injunction or restraint order. If, in any such suit, action, claim, or proceedings, the Project Highway, or any part thereof or comprised therein, is held to constitute

an infringement and its use is permanently enjoined, the Contractor shall promptly make every reasonable effort to secure for the Authority a license, at no cost to the Authority, authorizing the continued use of the infringing work. If the Contractor is unable to secure such license within a reasonable time, the Contractor shall, at its own expense, and without impairing the Specifications and Standards, either replace the affected work, or part, or process thereof with non-infringing work or part or process or modify the same so that it becomes non-infringing.

25.3 Notice and contest of claims

If either Party receives a claim or demand from a third party in respect of which it is entitled to the benefit of an indemnity under this Article 25 (the “**Indemnified Party**”) it shall notify the other Party (the “**Indemnifying Party**”) within 15 (fifteen) days of receipt of the claim or demand and shall not settle or pay the claim without the prior approval of the Indemnifying Party, which approval shall not be unreasonably withheld or delayed. If the Indemnifying Party wishes to contest or dispute the claim or demand, it may conduct the proceedings in the name of the Indemnified Party, subject to the Indemnified Party being secured against any costs involved, to its reasonable satisfaction.

25.4 Defense of claims

- (i) The Indemnified Party shall have the right, but not the obligation, to contest, defend, and litigate any claim, action, suit, or proceeding by any third party alleged or asserted against such Party in respect of, resulting from, related to or arising out of any matter for which it is entitled to be indemnified hereunder, and reasonable costs and expenses thereof shall be indemnified by the Indemnifying Party. If the Indemnifying Party acknowledges in writing its obligation to indemnify the Indemnified Party in respect of loss to the full extent provided by this Article 25, the Indemnifying Party shall be entitled, at its option, to assume and control the defense of such claim, action, suit or proceeding, liabilities, payments and obligations at its expense and through the counsel of its choice; provided it gives prompt notice of its intention to do so to the Indemnified Party and reimburses the Indemnified Party for the reasonable cost and expenses incurred by the Indemnified Party before the assumption by the Indemnifying Party of such defense. The Indemnifying Party shall not be entitled to settle or compromise any claim, demand, action, suit, or proceeding without the prior written consent of the Indemnified Party unless the Indemnifying Party provides such security to the Indemnified Party as shall be reasonably required by the Indemnified Party to secure the loss to be indemnified hereunder to the extent so compromised or settled.
- (ii) If the Indemnifying Party has exercised its rights under Clause 25.3, the Indemnified Party shall not be entitled to settle or compromise any claim, action, suit, or proceeding without the prior written consent of the Indemnifying Party (which consent shall not be unreasonably withheld or delayed).

- (iii) If the Indemnifying Party exercises its rights under Clause 25.3, the Indemnified Party shall nevertheless have the right to employ its counsel, and such counsel may participate in such action, but the fees and expenses of such counsel shall be at the expense of the Indemnified Party, when and as incurred, unless:
 - (a) the employment of counsel by such party has been authorized in writing by the Indemnifying Party; or
 - (b) the Indemnified Party shall have reasonably concluded that there may be a conflict of interest between the Indemnifying Party and the Indemnified Party in the conduct of the defense of such action; or
 - (c) the Indemnifying Party shall not have employed independent counsel reasonably satisfactory to the Indemnified Party, to assume the defense of such action and shall have been so notified by the Indemnified Party; or
 - (d) the Indemnified Party shall have reasonably concluded and specifically notified the Indemnifying Party either:
 - i. that there may be specific defenses available to it that are different from or additional to those available to the Indemnifying Party; or
 - ii. that such claim, action, suit or proceeding involves or could have a material adverse effect upon it beyond the scope of this Agreement:

Provided that if Sub-clauses (b), (c), or (d) of this Clause 25.4 (iii) shall be applicable, the counsel for the Indemnified Party shall have the right to direct the defense of such claim, demand, action, suit or proceeding on behalf of the Indemnified Party, and the reasonable fees and disbursements of such counsel shall constitute legal or other expenses hereunder.

25.5 Survival on termination

The provisions of this Article 25 shall survive Termination.

Article 26

Dispute Resolution

26.1 Dispute Resolution

- (i) Any dispute, difference, or controversy of whatever nature howsoever arising under or out of or concerning this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the “**Dispute**”) shall, in the first instance, be attempted to be resolved amicably under the conciliation procedure outlined in Clause 26.2.
- (ii) The Parties agree to use their best efforts for resolving all Disputes arising under or in respect of this Agreement promptly, equitably, and in good faith and further agree to provide each other with reasonable access during normal business hours to all non-privileged records, information, and data about any Dispute.

26.2 Conciliation

In the event of any Dispute between the Parties, either Party may call upon the Authority’s Engineer or such other person as the Parties may mutually agree upon (the “**Conciliator**”) to mediate and assist the Parties in arriving at an amicable settlement thereof. Failing mediation by the Conciliator or without the intervention of the Conciliator, either Party may require such Dispute to be referred to the Chairman of the Authority and the Chairman of the Board of Directors of the Contractor for amicable settlement, and upon such reference, the said persons shall meet no later than 7 (seven) business days from the date of reference to discuss and attempt to amicably resolve the Dispute. If such meeting does not take place within the 30 (thirty) business day period or the Dispute is not amicably settled within 30 (thirty) days of the meeting or the Dispute is not resolved as evidenced by the signing of written terms of settlement within 30 (thirty) days of the notice in writing referred to in Clause 26.1.1 or such longer period as may be mutually agreed by the Parties, either Party may refer the Dispute to arbitration under the provisions of Clause 26.3 but before resorting to such arbitration, the parties agree to explore conciliation by the Conciliation Committees of Independent Experts set up by the Authority under the procedure decided by the panel of such experts and notified by the Authority on its website including its subsequent amendments. In the event of the conciliation proceedings being successful, the parties to the dispute would sign the written settlement agreement and the conciliators would authenticate the same. Such a settlement agreement would then be binding on the parties in terms of Section 73 of the Arbitration Act. In case of failure of the conciliation process even at the level of the Conciliation Committee, either party may refer the Dispute to arbitration under the provisions of Clause 26.3.

26.3 Arbitration

- (i) Any dispute that remains unresolved between the parties through the mechanisms available/ prescribed in the Agreement, irrespective of any claimed value, which has not been agreed upon/ reached settlement by the parties, will be referred to the

Arbitral Tribunal as per the Arbitration and Conciliation Act.

- (ii) Deleted
- (iii) The Arbitral Tribunal shall make a reasoned award (the “Award”). Any Award made in any arbitration held under Article 26 shall be final and binding on the Parties as from the date it is made, and the Contractor and the Authority agree and undertake to carry out such Award without delay.
- (iv) The Contractor and the Authority agree that an Award may be enforced against the Contractor and/or the Authority, as the case may be, and their respective assets wherever situated.
- (v) This Agreement and the rights and obligations of the Parties shall remain in full force and effect, pending the Award in any arbitration proceedings hereunder. Further, the parties unconditionally acknowledge and agree that notwithstanding any dispute between them, each Party shall proceed with the performance of its respective obligations, pending resolution of the Dispute under this Article.
- (vi) In the event the Party against whom the Award has been granted challenges the Award for any reason in a court of law, it shall make an interim payment to the other Party for an amount equal to 75% (seventy-five percent) of the Award, pending final settlement of the Dispute. The aforesaid amount shall be paid forthwith upon furnishing an irrevocable Bank Guarantee for a sum equal to 120 % (one hundred and twenty percent) of the aforesaid amount. Upon final settlement of the Dispute, the aforesaid interim payment shall be adjusted and any balance amount due to be paid or returned, as the case may be, shall be paid or returned with interest calculated at the rate of 10% (ten percent) per annum from the date of interim payment to the date of final settlement of such balance.

26.4 Adjudication by Regulatory Authority, Tribunal or Commission

In the event of the constitution of a statutory regulatory authority, tribunal, or commission, as the case may be, with powers to adjudicate upon disputes between the Contractor and the Authority, all Disputes arising after such constitution shall, instead of reference to arbitration under Clause 26.3, be adjudicated upon by such regulatory authority, tribunal or commission under the Applicable Law and all references to Dispute Resolution Procedure shall be construed accordingly. For the avoidance of doubt, the Parties hereto agree that the adjudication hereunder shall not be final and binding until an appeal against such adjudication has been decided by an appellate tribunal or court of competent jurisdiction, as the case may be, or no such appeal has been preferred within the time specified in the Applicable Law.

Article 27

Miscellaneous

27.1 Governing law and jurisdiction

This Agreement shall be construed and interpreted under and governed by the laws of India, and the courts at Lucknow shall have exclusive jurisdiction over matters arising out of or relating to this Agreement.

27.2 Waiver of immunity

Each Party unconditionally and irrevocably:

- (a) agrees that the execution, delivery, and performance of this Agreement constitute commercial acts done and performed for commercial purposes;
- (b) agrees that, should any proceedings be brought against it or its assets, property, or revenues in any jurisdiction concerning this Agreement or any transaction contemplated by this Agreement, no immunity (whether because of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the Party concerning its assets;
- (c) waives any right of immunity which it or its assets, property, or revenues now have, may acquire in the future, or which may be attributed to it in any jurisdiction; and
- (d) consents generally in respect of the enforcement of any judgment or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement, or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended use of any order or judgment that may be made or given in connection therewith).

27.3 Delayed payments

The Parties hereto agree that payments due from one Party to the other Party under the provisions of this Agreement shall be made within the period set forth therein, and if no such period is specified, within 30 (thirty) days of receiving a demand along with the necessary particulars. In the event of a delay beyond such period, the defaulting Party shall pay interest for the period of delay calculated at a rate equal to Base Rate plus 2 (two) percent, calculated at quarterly rests, and recovery thereof shall be without prejudice to the rights of the Parties under this Agreement including Termination thereof.

27.4 Waiver

- (i) Waiver, including partial or conditional waiver, by either Party of any default by the other Party in the observance and performance of any provision of or obligations under this Agreement: -

- (a) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;
 - (b) shall not be effective unless it is in writing and executed by a duly authorized representative of the Party; and
 - (c) shall not affect the validity or enforceability of this Agreement in any manner.
- (ii) Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions, and provisions of this Agreement or any obligation there under nor time or other indulgence granted by a Party to the other Party shall be treated or deemed as a waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

27.5 Liability for review of Documents and Drawings

Except to the extent expressly provided in this Agreement:

- (a) no review, comment, or approval by the Authority or the Authority's Engineer of any Document or Drawing submitted by the Contractor nor any observation or inspection of the construction, or maintenance of the Project Highway nor the failure to review, approve, comment, observe or inspect hereunder shall relieve or absolve the Contractor from its obligations, duties, and liabilities under this Agreement, the Applicable Laws and Applicable Permits; and
- (b) the Authority shall not be liable to the Contractor because of any review, comment, approval, observation, or inspection referred to in Sub-clause (a) above.

27.6 Exclusion of implied warranties etc.

This Agreement expressly excludes any warranty, condition, or other undertaking implied at law or by custom or otherwise arising out of any other agreement between the Parties or any representation by either Party not contained in a binding legal agreement executed by both Parties.

27.7 Survival

- (i) Termination shall:
 - (a) not relieve the Contractor or the Authority, as the case may be, of any obligations hereunder which expressly or by implication survive Termination hereof; and
 - (b) except as otherwise provided in any provision of this Agreement expressly limiting the liability of either Party, not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of, or caused by, acts or omissions of such Party before the effectiveness of such Termination or arising out of such Termination.

- (ii) All obligations surviving Termination shall only survive for 3 (three) years following the date of such Termination.

27.8 Entire Agreement

This Agreement and the Schedules together constitute a complete and exclusive statement of the terms of the agreement between the Parties on the subject hereof, and no amendment or modification hereto shall be valid and effective unless such modification or amendment is agreed to in writing by the Parties and duly executed by persons especially empowered in this behalf by the respective Parties. All prior written or oral understandings, offers, or other communications of every kind about this Agreement are abrogated and withdrawn. For the avoidance of doubt, the Parties hereto agree that any obligations of the Contractor arising from the Request for Qualification or Request for Proposals, as the case may be, shall be deemed to form part of this Agreement and treated as such.

27.9 Severability

If for any reason whatever, any provision of this Agreement is or becomes invalid, illegal, or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal, or unenforceable, the validity, legality, or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith to agree to one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to the Dispute Resolution Procedure set forth under this Agreement or otherwise.

27.10 No partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, or partnership between the Parties, or to impose any partnership obligation or liability upon either Party, and neither Party shall have any right, power, or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

27.11 Third parties

This Agreement is intended solely for the benefit of the Parties and their respective successors and permitted assigns, and nothing in this Agreement shall be construed to create any duty to, the standard of care concerning, or any liability to, any person not a Party to this Agreement.

27.12 Successors and assigns

This Agreement shall be binding upon, and inure to the benefit of the Parties and their respective successors and permitted assigns.

27.13 Notices

Any notice or other communication to be given by any Party to the other Party under or in connection with the matters contemplated by this Agreement shall be in writing and shall:

- (a) in the case of the Contractor, be given by facsimile or e-mail and by letter delivered by hand to the address given and marked for the attention of the person set out below or to such other person as the Contractor may from time to time designate by notice to the Authority; provided that notices or other communications to be given to an address outside [Delhi] may, if they are subsequently confirmed by sending a copy thereof by registered acknowledgment due, air mail or by courier, be sent by facsimile or e-mail to the person as the Contractor may from time to time designate by notice to the Authority;

[***]

- (b) in the case of the Authority, be given by facsimile or e-mail and by letter delivered by hand and be addressed to the [Chairman] of the Authority with a copy delivered to the Authority Representative or such other person as the Authority may from time to time designate by notice to the Contractor; provided that if the Contractor does not have an office in [Delhi] it may send such notice by facsimile or e-mail and by registered acknowledgment due, air mail or by courier; and
- (c) any notice or communication by a Party to the other Party, given in accordance herewith, shall be deemed to have been delivered when in the normal course of post it ought to have been delivered and in all other cases, it shall be deemed to have been delivered on the actual date and time of delivery; provided that in the case of facsimile or e-mail, it shall be deemed to have been delivered on the working day following the date of its delivery.

27.14 Language

All notices required to be given by one Party to the other Party and all other communications, Documentation, and proceedings which are in any way relevant to this Agreement shall be in writing and English language.

27.15 Counterparts

This Agreement may be executed in two counterparts, each of which, when executed and delivered, shall constitute an original of this Agreement.

27.16 Confidentiality

The Parties shall treat the details of this Agreement as private and confidential, except to the extent necessary to carry out obligations under it or to comply with Applicable Laws. The Contractor shall not publish, permit to be published, or disclose any

particulars of the Works in any trade or technical paper or elsewhere without the previous agreement of the Authority.

27.17 Copyright and Intellectual Property rights

- (i) As between the Parties, the Contractor shall retain the copyright and other Intellectual Property rights in the Contractor's documents and other design documents made by (or on behalf of) the Contractor. The Contractor shall be deemed (by signing this Agreement) to give to the Authority a non-terminable transferable non-exclusive royalty-free license to copy, use, and communicate the Contractor's documents, including making and using modifications of them. This license shall:
 - (a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works;
 - (b) entitle any person in proper possession of the relevant part of the Works to copy, use, and communicate the Contractor's documents to complete, operate, maintain, alter, adjust, repair, and demolish the Works; and
 - (c) in the case of Contractor's documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by this Agreement, including replacements of any computers supplied by the Contractor.
- (ii) The Contractor's documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied, or communicated to a third party by (or on behalf of) the Authority for purposes other than those permitted under this Clause 27.17.
- (iii) As between the Parties, the Authority shall retain the copyright and other intellectual property rights in this Agreement and other documents made by (or on behalf of) the Authority. The Contractor may, at its cost, copy, use, and obtain communication of these documents for this Agreement. They shall not, without the Authority's consent, be copied, used, or communicated to a third party by the Contractor, except as necessary for the contract.

27.18 Limitation of Liability

- (i) Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract, or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with this Agreement, save and except as provided under Articles 23 and 25.
- (ii) The total liability of one Party to the other Party under and under the provisions of this Agreement, save and except as provided in Articles 23 and 25, shall not exceed the Contract Price. For the avoidance of doubt, this Clause shall not limit the liability in any case of fraud, deliberate default, or reckless misconduct by the defaulting Party.

27.19 Care and Supply of Documents

- (i) Each of the Contractor's documents shall be in the custody and care of the Contractor, unless and until taken over by the Authority. Unless otherwise stated in the Agreement, the Contractor shall supply to the Authority 2 (two) copies of each of the Contractor's documents.
- (ii) The Contractor shall keep, on the Site, a copy of the Agreement, publication named in the Authority's requirements, the Contractor's documents, and variations and other communications given under the Agreement. The Authority's personnel shall have the right of access to all these documents at all reasonable times.
- (iii) If a Party becomes aware of an error or defect of a technical nature in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other party of such error or defect.

27.20 Authority's Use of Contractor's Documents.

- (i) As between the Parties, the Contractor shall retain the copyright and other Intellectual Property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.
- (ii) The Contractor hereby gives to the Authority a non-terminable transferable nonexclusive royalty-free license to copy, use, and communicate the Contractor's Documents, including making and using modifications of them. This license shall:
 - (a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,
 - (b) entitle any person in proper possession of the relevant part of the Works to copy, use, and communicate the Contractor's Documents to complete, operate, maintain, alter, adjust, repair, and demolish the Works, and
 - (c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contractor, including replacements of any computers supplied by the Contractor.
- (iii) The Contractor's Documents and other design documents made by or on behalf of the Contractor shall not, without the Contractor's consent, be used, copied, or communicated to a third party by (or on behalf of) the Authority for purposes other than those permitted under this Sub-Clause.

27.21 Contractor's Use of Authority's Documents

As between the Parties, the Authority shall retain the copyright and other intellectual property rights in the Authority's requirements and other Documents made by (or on behalf of) the Authority. The Contractor may, at its cost copy, use, and obtain

communication of these documents for the Agreement. They shall not without the Authority's consent, be copied, used, or communicated to a third party by the Contractor, except as necessary for the Agreement.

27.22 Access to the Site by Others

The Contractor shall, at all times, afford access to the Site to the authorized representatives of the Authority, the Authority's Engineer, and anyone else authorized by the Authority to access the site and to the persons duly authorized by any Governmental Agency having jurisdiction over the Project, including those concerned with safety, security or environmental protection to inspect the Project Highway and to investigate any matter within their authority and upon reasonable notice, the Contractor shall provide to such persons reasonable assistance necessary to carry out their respective duties and functions with minimum disruption to the construction, operation and maintenance of the Project Highway consistent with the purpose for which such persons have gained such access to the Site.

27.23 Term

This Agreement shall come into force and effect from the date first hereinabove written and shall remain in force and effect till the Termination Date i.e. the Parties perform all their respective obligations or is terminated by any of the Parties for the reasons and in the manner provided for in the Agreement.

27.24 Amendments

The Agreement may not be supplemented, amended, modified, or changed except by an instrument in writing signed by the Contractor and the Authority and expressed to be a supplement, modification, or change to the Agreement.

27.25 Representation and Bribes

The Contractor represents and warrants to the Authority that:

- (a) No representation or warranty by the Contractor contained herein or in any other document furnished by it to the Authority, or to any Governmental Instrumentality concerning Applicable Permits contains or will contain any untrue statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading; and
- (b) It warrants that no sums, in cash or kind, have been paid or will be paid by or on behalf of the Contractor, to any person by way of fees, commission, or otherwise for securing or entering into the Contractor for influencing or attempting to influence any officer or employee of the Authority or GOI in connection therewith.

27.26 No Agency

The Agreement does not constitute either Party as the agent, partner, or legal representative of the other for any purposes whatsoever, and neither Party shall have any express or implied right or authority to assume or to create any obligation or responsibility on behalf of or in the name of the other Party.

Schedules

Schedule - A

(See Clauses 2.1 and 8.1)

Site of the Project

Construction of 02 lane ROB in lieu of LC 37 C at Km 54/15-16 of RAC-SPC Rail Section of Northern Railway on Chandra - Bargavan Road in District Sitapur.

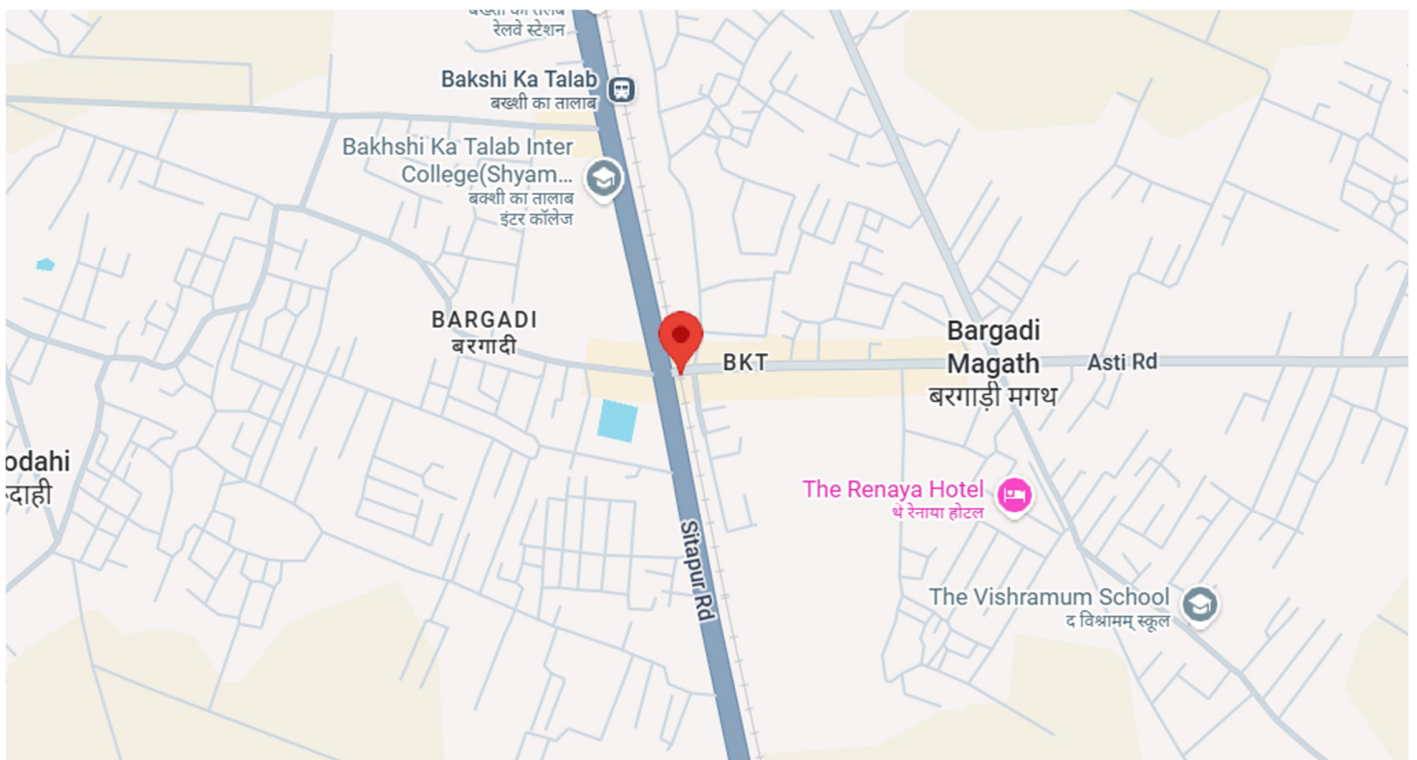
- (i) Site of the Project Highway/Bridge shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.
 - (ii) The dates of handing over the Right of Way to the Contractor are specified in Annex-II of this Schedule-A.
 - (iii) An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2 (i) of this Agreement.
 - (iv) The GAD of the Project Highway/Bridge are specified in Annex-III. The proposed profile of the Project Highways/Bridge shall be followed by the contractor with minimum FRL as indicated in the GAD. The Contractor, however, improve/ upgrade the Road/Bridge Profile as indicated in Annex-III based on site/design requirement.
 - (v) The status of the environment clearances obtained or awaited is given in Annex-IV.
-

Annex- I
(Schedule-A)

Site

**Construction of R.O.B. At NE Railway Level X-ing No. 16-C AT KM 19/2-3 between
Mohibullapur - BKT Railway Station on BKT - Asti Road in Distt. Lucknow**

Latitude 26°59'02.8"N Longitude 80°55'20.3"E



Annex-II
(As per Clause 8.3 (i))

(Schedule-A)

Dates for providing Right of Way of Construction Zone

S. No.	Work Detail	Date
1	90% ROW	On the appointed date.
2	Remaining 10% ROW	After 90 days from the appointed date

Annex - III

(Schedule-A)

Alignment Plans/GAD

The alignment of the Project Highway/ROB is enclosed as GAD. Finished road level /formation level of the bridge indicated in the GAD shall be followed by the contractor as minimum FRL. In any case, the finished road level of the project highway shall not be less than those indicated in the GAD. The contractor shall, however, improve/upgrade the Road profile as indicated in Annex-III based on site/design requirement/as per railway requirement.

Encl: GAD/Alignment Plan

Annex - IV *(Schedule-A)*

Environment Clearances

NO clearance required

Schedule – B

(See Clause 2.1)

Development of the Project Highway/Major Bridge

1. Development of the Project Highway/Bridge

Development of the Project Highway/Bridge shall include Construction of R.O.B. At NE Railway Level X-ing No. 16-C AT KM 19/2-3 between Mohibullapur - BKT Railway Station on BKT - Asti Road in Distt. Lucknow, as described in this Schedule-B and in Schedule-C. The GAD of the Project on the location is specified as appended in **Annex-III of Schedule A** and shall be deemed to be part of this Schedule B.

2. Work

Engineering Procurement and Construction (EPC) of Construction of R.O.B. At NE Railway Level X-ing No. 16-C AT KM 19/2-3 between Mohibullapur - BKT Railway Station on BKT - Asti Road in Distt. Lucknow, in the State of Uttar Pradesh, including installation of road furniture, crash barrier & Parapet Wall, etc as described in Annex-I of this Schedule-Band in Schedule-C.

3. Specifications and Standards

The Project Highway/ROB shall be designed and constructed in conformity with the Specifications and Standards specified in Annex-I of Schedule-D.

Annex-I

(Schedule-B)

UPSBC (EPC R1 July 24)

Description of Highway Project/ROB

1. Construction of New ROB:

- (i) The Project Highway/ROB shall be constructed on the existing alignment unless otherwise specified by the Authority and shown in the alignment plans specified in Annex-III of Schedule-A. Geometric deficiencies, if any, in the existing horizontal and vertical profiles shall be corrected as per the prescribed standards for plain/rolling terrain to the extent land is available.
- (ii) Width of Carriageway

The formation width of ROB (16.80 m) & its approaches shall be follow typical cross sections as enclosed to this Schedule B. The paved carriageway shall be [2x7.50 m] wide in accordance with the typical cross section's drawings.

2. GEOMETRIC DESIGN AND GENERAL FEATURES

2.1. General

Geometric design and general features of the Project Highway shall be in accordance with Section 2 of the Manual of Specification and Standards for 2 Lanning of Highways with paved shoulder - IRC:SP:73-2018.

2.2. Design Speed

The design speed shall be as specified in Clause 2.2 of the Manual IRC: SP: 73-2018 and Schedule D.

2.3. Improvement of the existing road geometrics

In the following stretches, where improvement of the existing road geometrics to the prescribed standards is not possible, the existing road geometrics shall be improved to the extent possible within the given right of way and proper road signs and safety measures shall be provided:

2.4. Right of way

Refer to paragraph 2.3 of the Manual. The right of way is available as per Plan & profile.

2.5. Service Roads/RCC Drain:

S.No.	Location	Length	Width
1	Service Road	-	10.00m /3.75 m
2	RCC Drain	-	1.50 m/ 1.00 m

2.6. Details of New ROB over Rly crossing No. 16 C to be constructed:

1	ROB (Railway Portion)		
1.1	Span Arrangement	-	-
1.2	Vertical Clearance	-	-
1.3	Width of Super Structure	-	-
1.4	Skew Angle	-	-
1.5	The formation level of ROB		As per GAD approved by the Railways
2	Viaduct Portion		
(a)	Assi Side		
2.1	Minimum Viaduct length from A1 to CP1 to be constructed	167.000 m	2x7.50 m (Carriageway)+0.80 (Median)+2x0.50 m (Crash Barrier) = 16.80m
(b)	Lucknow Side		
2.2	Minimum Viaduct length from A2 to CP2 to be constructed	203.000 m	2x7.50 m (Carriageway)+0.80 (Median)+2x0.50 m (Crash Barrier) = 16.80m
3	Approach Road With RE Wall/Retaining Wall		
3.1 (a)	Assi Side	134.340 m	2x7.50 m (Carriageway)+0.80 (Median)+2x0.50 m (Crash Barrier) = 16.80m
3.1 (b)	Lucknow Side	144.930 m	2x7.50 m (Carriageway)+0.80 (Median)+2x0.50 m (Crash Barrier) = 16.80m
3.2	Gradient	1:30	As per GAD
3.3	Valley Curve	24 m	As per GAD
3.4	Summit Curve	24 m	As per GAD
4	Total Length of ROB	649.270 m	Excluding Railway span
5	Length of Service Road	NIL	As per Clause 2.5 of Schedule B
6	Length of View Cutter	-	As per Clause 2.5 of Schedule B
7	Stair Case		As per GAD
8	Service Road		
a	Lucknow Side	10.00 m Wide Both Side	
b	Asti Side	3.75 m Wide Both Side	

Note:

1. No major change in span arrangement given in tentative GAD as appended in Schedule A shall be entertained unless it is required as per constraint(s) and approved by Authority. Any excess financial implication due to required such changes shall be borne by the EPC contractor and any saving, if any, shall be adjusted accordingly.
2. Any variation in the length specified as above in this Clause of Schedule-B shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.
3. The formation level of the bridge indicated in the tentative GAD shall be followed by the contractor as minimum FRL. In any case, the finished road level of the project highway shall not be less than those indicated in the tentative GAD. The contractor shall, however, improve/upgrade the Road profile as indicated in Annex-III based on site/design requirement.
4. The approval of GAD along with detail designs and drawings for the Railway Portion are solely under obligations of the EPC Contractor at their own cost and risk. It is under solely responsibilities of the EPC Contractor. However, the submission shall be within the 30 days from the date of start. If any changes/modifications in specifications/drawings, suggested by the Railway Authority is binding to the contractor and the same shall not be constituted under Change of Scope pursuant to Article 13 in case of Railway portion comprises in GAD. The GAD along with detailed designs and drawings are required to be attested by the IIT only at contractor's cost only. The rate quoted by the contractor shall be fixed & no claim in increase of weight of Steel/any components shall be entertained later on.
5. The Contractor shall bear all expenses related to material testing (including third-party testing), RDSO charges/fees, third-party testing of the steel structure by agencies nominated by the railways, load testing, and any other charges payable to the Railways and supervision charges within the Railway Portion. Furthermore, the contractor shall be responsible for utility shifting at their own cost for any utilities falling within the foundation, substructure, superstructure areas in the railway portion.
6. The Super Structure of Railway spans shall be Steel structure so that minimum interruption to the traffic is caused. The rail traffic permission from the Railway Authority shall be applicable which exclusively borne by the contractor.
7. Proper Steel plate barricades (Conventional in Metro projects) with a height of 2 to 3 meters are required to be installed at the site for entire construction period, as the work is located in a densely populated area. These barricades are essential to ensure public safety, prevent unauthorized access, and maintain smooth pedestrian and traffic movement during construction. In case of non-compliance by the contractor, an equivalent reduction shall be made from the contractor's payment if the work shall be performed by the other agency, in accordance with the Agreement.
8. RCC Crash barrier shall be provided with hand rail in accordance with IRC: 5-2015 and relevant provisions.

3. PAVEMENT DESIGN OF APPROACH ROAD ON EITHER SIDE OF MAJOR BRIDGE

3.1. Type of Pavement

The flexible pavement shall be designed for the Main carriageway and Service/Slip Roads as per section 5 of Manual and in conformity with the IRC: 37-2018 for the minimum **design life of 20 years**. The crust composition for Main carriageway & service road, entry/ exit ramps shall be not less than as given below:

UPSBC (EPC R1, July 24)

Sr.No.	Description of item	Minimum pavement Composition of Flexible Pavement (mm) for Main Carriageway
1	Bituminous Concrete (BC)	40
2	Dense Bituminous Concrete (DBM)	80
3	Wet Mix Macadam (WMM)	250
4	Granular Sub base (GSB)	200
Sr.No.	Description of item	Minimum pavement Composition of Flexible Pavement (mm) for Service Road
1	Bituminous Concrete (BC)	40
2	Dense Bituminous Concrete (DBM))	110
3	Wet Mix Macadam (WMM)	250
4	Granular Sub base (GSB)	200

3.2. Design Traffic

Notwithstanding anything to the contrary contained in this Agreement or the Manual, the concessionaire shall design the pavement for Main Carriageway minimum design traffic of 8 M or as per the actual traffic at the time of construction whichever is higher.

4. DESIGN OF STRUCTURES

3.1 General

All structures shall be designed and constructed in accordance with section 7 of the Manual and shall conform to the cross-sectional features and other details specified therein.

3.2 Foundation

All piers shall be supported on group of piles as per Vetted Design by IIT connected by solid pile cap, the spacing of piles should be considered in relation to the nature of the ground, their behavior in groups and the execution.

The pile shaft cannot be continued to act as a pier and such pile system shall not be allowed.

3.3 Substructure/Superstructure

The **Substructure/Superstructure** shall be designed and constructed in accordance with section 7 of the Manual and shall conform to the cross-sectional features and other details specified therein.

5. DRAINAGE SYSTEM FOR BRIDGE DECKS

An effective drainage system for bridge decks shall be provided as specified in the Manual.

6. TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORKS

The traffic control devices and road safety works shall be provided in accordance with Section 9 of the Manual. The reflective sheeting shall be provided in accordance with section 9.2.3 of the Manual and in conformity with the IRC: 67-2022.

7. ROADSIDE FURNITURE

Roadside furniture like Road Boundary Stones, km/Hectometer Stones, Railings, Traffic Impact Attenuators, and Delineators and overhead cantilever structure, painting, median marker, **View cutter/safety Mesh** in Rly portion etc shall be provided in accordance with the provisions of Section 9 of the manual.

8. RETAINING/RE WALLS & PROTECTION WORKS

Provide Retaining/RE walls with filter media in approaches to structures and at any other locations as per site conditions to contain the project facility within the available right of way as per the cross section provisions mentioned in Schedule-B conforming to Schedule "D".

Approaches to Fly-over shall be confined by RE walls only (due to land/utility/space constraint) and in any case no free slope will be permitted. In addition, RCC Breast wall of

suitable dimensions (Length, width, height) shall be designed and provided to facilitate slip roads within the available right of way.

UPSBC (EPC R1 July 24) **Note:** Any additional length required as per site conditions shall not constitute a Change of Scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

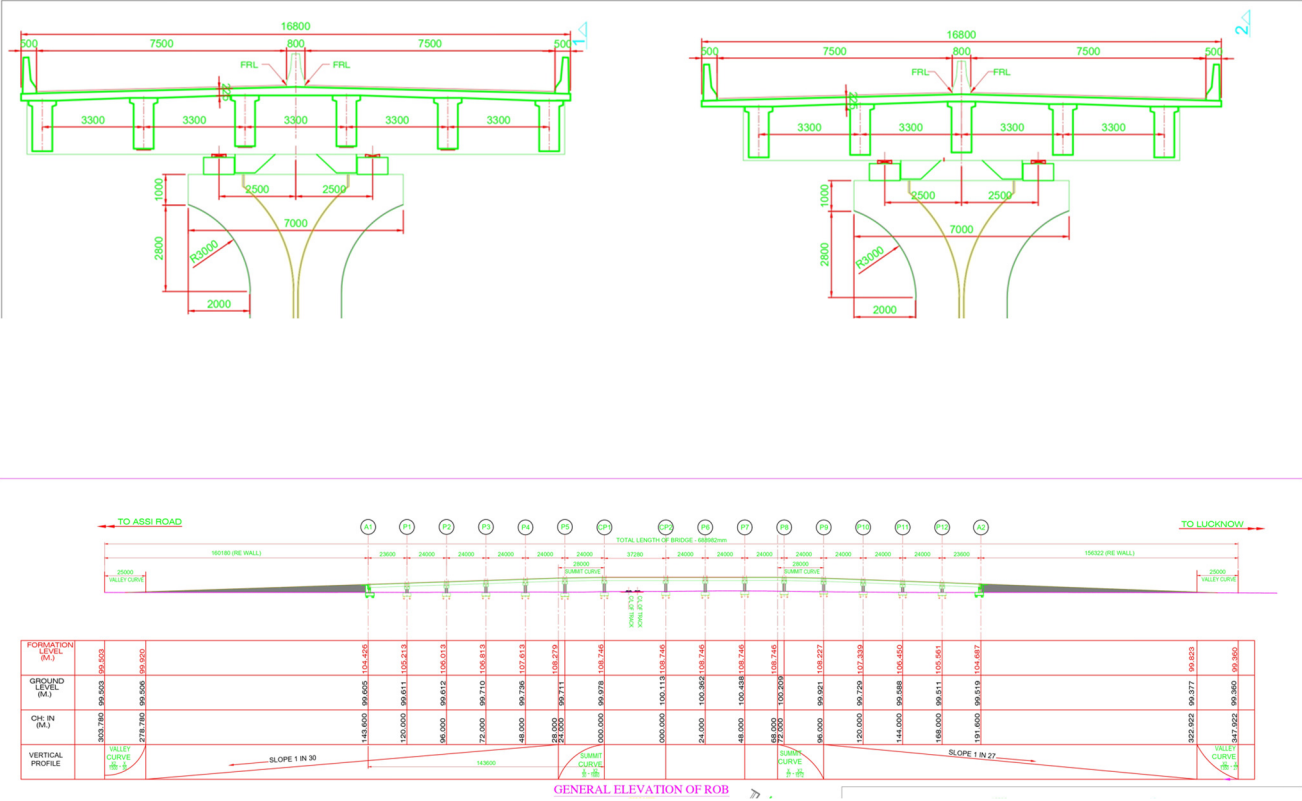
9. USE OF FLY-ASH

Use of fly-ash shall be considered in the construction as per latest NHAI guidelines/Policy circular's/MOEF guidelines dated 27/08/2018, No. 24028/14/2018-H.

10. CHANGE OF SCOPE

Any variations in the lengths specified in this Schedule-B shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

Typical Sections



(Schedule B-1)

1. The shifting of utilities and felling of trees shall be carried out by the Contractor. The cost of the same shall be borne by the Authority. The details of utilities are as follows:

Sr. No	Type of Utility	Unit	Quantity	Location/stretch (LHS/RHS)
A	Electrical Utilities			
A1	Electrical Poles	Nos.		
A2	Electrical cables	meters		
A3	Transformers	Nos.		
-	-----	--		
-	-----	--		
B	Water/Sewage pipeline			
B1	Sewage	meters		
B2	Water supply	meters		
-	-----	--		
-	-----	--		
C	Felling of Trees	Nos.		

Schedule – C

(See Clause 2.1)

Project Facilities

1. Project Facilities

The Contractor shall construct the Project Facilities in accordance with the provisions of this Agreement. Such Project Facilities shall include:

- (a) Toll plaza[s]; Nil
- b) Road side furniture; **As per manual such as cat eyes , 1 no. edge lines, delineators, and minimum 1 no. overhead signage**
- (c) Pedestrian facilities; Nil
- (d) Tree plantation; Nil
- (e) Truck lay-byes; Nil
- (f) Bus-bays and bus shelters; Nil
- (g) Street Lighting

SCHEDULE - D

SPECIFICATIONS AND STANDARDS

1 Construction

The Contractor shall comply with the Specifications and Standards outlined in Annex-I of this Schedule-D for the construction of the Project Highway.

2 Design Standards

The Project Highway including Project Facilities shall conform to the design requirements set out in the following documents:

- Manual of Specifications and Standards for Four Laning of Highways (IRC: SP: 84) and/or Two Laning of Highways (IRC: SP: 73) referred to herein as the Manual as applied to the proposed highway.
- IRC:SP: 88-2019
- **IRC:SP: 90-2010**
- IRC: 99-2018 & IRC:SP 102-2014
- IRC: SP 21-2009
- IRC: SP 55-2014
- IRC: SP: 113-2018
- IRC: SP 119-2015

Design standards are included in the tables below.

S. No	Description	Design Code
1.	Geometric Designs & standards	IRC:38 Guidelines for the design of horizontal curves
		IRC: SP-23 – Vertical curves for Highways
		IRC:39 – Standards for Road rail level crossings
		IRC:64– Capacity of Roads in Rural Areas
		IRC:66 – Sight Distance on Rural Highways
		IRC:73 – Geometric Design Standards for Rural (non-urban) Highways
		IRC:75 – Guidelines for design of High Embankment
		IRC:86 – Geometric Design standards for urban roads in plains
		IRC:106 – Guidelines on the capacity of urban roads in plain areas
2.	Design of Pavement	IRC:37 – Guidelines for Design of Flexible Pavement
		IRC:58 – Guidelines for Design of Rigid Pavements
		IRC:115 – Guidelines for strengthening of flexible pavements
3.	Junctions/Intersections/ interchanges	IRC:65- Traffic Rotaries
		IRC:92 - Guidelines for Design of Interchanges
		IRC: SP:41 – Design of At grade junctions
4.	Kilometer stones, 200m stones, and boundary pillar	IRC:81 – Type Design for Highway kilometer stones
		IRC:26 -Type design for 200m stones
		IRC:25 -Type design for boundary stones
5.	Traffic Signs	IRC:31 – Route marker signs for state routes
		IRC:67 – Code of practice for road signs
		IRC:79– Recommended practice for Road Traffic signs
		IRC:SP:31 – Road Traffic signs

S. No	Description	Design Code
6.	Road Markings	IRC:35 – Code of practice for road markings, road delineators
7.	Ancillary Works	IRC:80 – Type design for pick-up bus stops on Rural Highways IRC: SP: 12 – Guidelines on the provision of parking areas.
8.	Drainage	IRC: SP:42 – Guidelines on Road Drainage IRC: SP:50 – Guidelines on urban drainage
9.	Safety Measures	IRC:103 – Guidelines for pedestrian facilities IRC:SP:44 – Highway Safety Code IRC: SP:55 – Guidelines for safety in construction zones
10.	Bridges and Structures	IRC: 5 – Standard Specification and Code of Practice for Road Bridges, Section 1 – General Features of Design IRC: 6 – Standard specifications and code of practice for Road bridges (Section: II) Loads and Load combinations IRC: 21 – Standard Specification and Code of Practice for Road bridges, Section III – Cement Concrete (Plain and reinforced) IRC: 112 – Code of practice for concrete road bridges IRC: SP:13– Guidelines for the design of small bridges and culverts IRC: 78 – Standard Specification and Code of Practice for Road Bridges, Section VII – Foundation and Substructure IRC: 83- (Part I) – Standard Specification and Code of Practice for Road bridges, Section IX – Bearing, Part I: Roller & Rocker Bearing IRC: 83- (Part II) – Standard Specification and Code of Practice for Road bridges, Section IX – Bearing, Part II: Elastomeric Bearings IRC: 83- (Part III) – Standard Specification and Code of Practice for Road bridges, Section IX – Bearings, Part III: POT, PIN, Metallic Guide and Plane Sliding Bearings IRC: 89 - Guidelines for design and construction of River Training and Control Works for Road Bridges IRC: SP:35 – Guidelines for inspection and Maintenance of Bridges IRC: SP: 40 – Guidelines on Repair, Strengthening, and Rehabilitation of Concrete Bridges. IRC: SP: 114 – Guidelines for seismic design of road bridges
		IRC: SP:65-2018: Guidelines for Design and Construction of Segmental Bridges (First Revision)
		66-2016: Guidelines for Design of Continuous Bridges (First Revision)

Annex - I**(Schedule-D)****Specifications and Standards for Construction****1 Specifications and Standards**

All Materials, works, and construction operations shall conform to the Manual, and MORTH Specifications for Road and Bridge Works 5th Revision 2013. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Employer's Representative.

2 Deviations from the Specifications and Standards

- 2.1 The terms "Concessionaire", "Independent Engineer" and "Concession Agreement" used in the Manual shall be deemed to be substituted by the terms "EPC Contractor", "Employer's Representative" and "Agreement" respectively.
- 2.2 Notwithstanding anything to the contrary contained in Paragraph 1 above, the following specifications and standards shall apply to the project highway, and for purposes of this agreement; the aforesaid specifications and standards shall be deemed to be amended to the extent set forth below. Measures shall be provided to mitigate safety and other hazards arising from each of the following deviations from the Specifications and Standards. Measures to mitigate safety hazards shall address any recommendations contained in the Road Safety Audit Reports.

Sl. No.	Clause No.	Description	Deviation
1	Clause 2.2	Design Speed: Ruling or minimum Design speed shall be followed	The minimum design speed shall be 80 kmph and as per Plan & Profile drawing as appended in Schedule A.
2	Clause 2.6	Type and width of Shoulders	The type and Width of shoulders shall be as per the Typical cross sections appended in Schedule B.
3	Clause 2.17 of IRC: SP:87-2019	Typical Cross Sections	Typical Cross Sections shall be as per the Typical cross sections as appended in Schedule B.
4	Clause 2.9.3	Superelevation shall be limited to 7 Percent	Superelevation shall be limited to 4% (four Percent) in built-up areas
5	Clause 2.9.4	Radius of Horizontal Curves	The minimum radius of Horizontal curves shall be as per the alignment plan shown in the Plan and profile drawings as appended in Schedule A.
6	Clause 2.9.5	Sight distance, stopping sight distance, and overtaking sight distance	Where sight distance requirements cannot be met as per the Manual, proper road signs and safety measures shall be provided for safe regulation of fast-moving, slow-moving, and pedestrian traffic.
7	Clause 2.9.6.2	Gradient	1:30 due to constraints.
8	Clause 3.2	At grade junction	The junction shall be designed to the

Sl. No.	Clause No.	Description	Deviation
			maximum extent as per the typical layout plan within RoW as appended in Schedule A.
9	Clause 4.2	Road Embankment: Principles for the height of the embankment	The minimum FRL shall be followed as per the drawing appended in Schedules A & B.
10	Clause 5.2 & 5.2.1	Provision of Flexible or Rigid pavement	The type of Pavement shall be flexible.
11	Clause 5.4.1 (i)	Design period of Flexible Pavement	Flexible Pavement shall be designed for a minimum design period of 20 years.
12	Clause 5.11	Earthen Shoulders	Earthen Shoulders on either side of the road shall be of selected earth with MDD not less than 17.5 kN/cu.m. and 4-day soaked CBR of min 9% at min 97% of dry density, placed on top of granular sub-base (that is an extension from pavement upto the daylight). The PI and LL shall not exceed 6 and 25 respectively. The remaining portion shall conform to section 300 of MoRTH Specifications.
13	Clause 7.3 (ii)	Deck Width of bridges	The deck width of bridges shall be as per TCS appended in Schedule B.
14	Clause 9.8	Pedestrian facilities	As per TCS annexed with schedule B.
15	Clause 12.11, 12.10 & 12.15	Location	As directed and finalized by the Authority.
16	MoRTH Specification no. 501.3, 505 & 507	Hot mix plant for Bituminous Mixes	All bituminous courses (bituminous base course/wearing course) shall be carried out using a type Hot Mix Plant of 100-120 TPH capacity having a minimum output of 75 TPH.

- 1.3 Any deviations from standards shall require advanced approval by the Authority's Engineer. The Contractor shall also prepare a Table of Deviations for deviations from standards which lists each deviation, location, justification, and other relevant information.
- 1.4 In the absence of any definite provisions on any particular issue in the aforesaid Specifications, reference may be made to the latest codes and Specifications of IRC, BIS, BS, ASTM, AASHTO, and CAN/CSA in that order. Where even these are silent, the construction and completion of the works shall conform to sound engineering practice as approved by the Authority Engineer / Authority.

Schedule - E

(See Clauses 2.1 and 14.2)

Maintenance Requirements

1. Maintenance Requirements

- (i) The Contractor shall, at all times maintain the Project Highway under the provisions of this Agreement, Applicable Laws, and Applicable Permits.
- (ii) The Contractor shall repair or rectify any Defect or deficiency outlined in Paragraph 2 of this Schedule-E within the time limit specified therein and any failure in this behalf shall constitute non-fulfillment of the Maintenance obligations by the Contractor. Upon the occurrence of any breach hereunder, the Authority shall be entitled to effect a reduction in monthly lump sum payment as outlined in Clause 14.6 of this Agreement, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.
- (iii) All Materials works, and construction operations shall conform to the MORTH Specifications for Road and Bridge Works and the relevant IRC publications. Where the specifications for a work are not given, Good Industry Practice shall be adopted.

[Specify all the relevant documents]

2. Repair/rectification of Defects and deficiencies

The obligations of the Contractor in respect of Maintenance Requirements shall include repair and rectification of the Defects and deficiencies specified in Annex - I of this Schedule-E within the time limit set forth therein.

3. Other Defects and deficiencies

In respect of any Defect or deficiency not specified in Annex - I of this Schedule-E, the Authority's Engineer may, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration concerning the Specifications and Standards and any deviation or deterioration beyond the permissible limit shall be repaired or rectified by the Contractor within the time limit specified by the Authority's Engineer.

4. Extension of time limit

Notwithstanding anything to the contrary specified in this Schedule-E, if the nature and extent of any Defect or deficiency justifies more time for its repair or rectification than the time specified herein, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Authority's Engineer and conveyed to the Contractor and the Authority with reasons thereof.

5. Emergency repairs/restoration

Notwithstanding anything to the contrary contained in this Schedule-E, if any Defect, deficiency, or deterioration in the Project Highway poses a hazard to safety or risk of property damage, the Contractor shall promptly take all reasonable measures for eliminating or minimizing such danger.

6. Daily inspection by the Contractor

The Contractor shall, through its engineer, undertake a daily visual inspection of the Project Highway and maintain a record thereof in a register to be kept in such form and manner as the Authority's Engineer may specify. Such record shall be kept in the safe custody of the Contractor and shall be open to inspection by the Authority and the Authority's Engineer at any time during office hours.

7. Pre-monsoon inspection / Post-monsoon inspection

The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts, and drainage systems before [1st June] every year under the guidelines contained in IRC: SP35. A report of this inspection together with details of proposed maintenance works as required based on this inspection shall be sent to the Authority's Engineer before the [10th of June] every year. The Contractor shall complete the required repairs before the onset of the monsoon and send to the Authority's Engineer a compliance report. Post-monsoon inspection shall be done by the [30th September] and the inspection report together with details of any damages observed and proposed action to remedy the same shall be sent to the Authority's Engineer.

8. Repairs on account of natural calamities

All damages occurring to the Project Highway on account of a Force Majeure Event or willful default or neglect of the Authority shall be undertaken by the Authority at its own cost. The Authority may instruct the Contractor to undertake the repairs at the rates agreed between the Parties.

Annex – I

(Schedule-E)

Repair/rectification of Defects and deficiencies

The Contractor shall repair and rectify the Defects and deficiencies specified in this Annex-I of Schedule-E within the time limit set forth in the table below.

Table -1: Maintenance Criteria for Pavements:

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/ Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
Flexible Pavement (Pavement of MCW, Service Road, approach	Potholes	Nil	< 0.1 % of area and subject to limit of 10 mm in depth	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC 82: 2015 and Distress Identification Manual for Long Term Pavement Performance Program, FHWA 2003 (http://www.tfhrc.com/pavement/ltp/reports/03031/)	24-48 hours	MORT&H Specification 3004.2

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/ Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
s of Grade structure, approaches of connecting roads, slip roads, lay byes etc. as applicable)	Cracking	Nil	< 5 % subject to limit of 0.5 sqm for any 50 m length	Daily			7-15 days	MORT&H Specification 3004.3
	Rutting	Nil	< 5 mm	Daily	Straight Edge		15 -30 days	MORT&H Specification 3004.2
	Corrugations and Shoving	Nil	< 0.1 % of area	Daily	Length Measurement Unit like		2-7 days	IRC:82- 2015

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/ Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
	Bleeding	Nil	< 1 % of area	Daily	Scale, Tape, odometer etc.		3-7 days	MORT&H Specification 3004.4
	Raveling / Stripping	Nil	< 1 % of area	Daily			7-15 days	IRC:82- 2015 read with IRC SP 81
	Edge Deformation/ Breaking	Nil	< 1 m for any 100 m section and width < 0.1 m at any location, restricted to 30 cm from the edge	Daily			7- 15 days	IRC:82- 2015

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/ Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
	Roughness BI	2000 mm/km	2400 mm/km	Bi-Annually	Class I Profilometer SCRIM (Sideway-force Coefficient Routine Investigation Machine or equivalent)	Class I Profilometer: ASTM E950 (98) :2004 –Standard Test Method for measuring Longitudinal Profile of Travelled Surfaces with Accelerometer Established Inertial Profiling Reference ASTM E1656 -94: 2000- Standard Guide for Classification of Automatic Pavement Condition Survey Equipment	180 days	IRC:82- 2015
	Skid Number	60SN	50SN	Bi-Annually			180 days	BS: 7941-1: 2006
	Pavement Condition Index	3	2.1	Bi-Annually			180 days	IRC:82- 2015

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/ Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
	Other Pavement Distresses			Bi-Annually			2-7 days	IRC:82- 2015
	Deflection/ Remaining Life			Annually	Falling Weight Deflectometer	IRC 115: 2014	180 days	IRC:115- 2014
Rigid Pavement (Pavement of MCW, Service Road, Grade structure,	Roughness BI	2200m m/km	2400mm / km	Bi-Annually	Class I Profilometer	ASTM E950 (98) :2004 and ASTM E1656 - 94: 2000	180 days	IRC: SP:83- 2008
	Skid	Skid Resistance no. at different speed of vehicles		Bi-Annually	SCRIM (Sideway-force	IRC: SP:83- 2008	180 days	IRC: SP:83- 2008

Asset Type	Performanc e Parameter	Level of Service (LOS)		Frequency of Inspect ion	Tools/ Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
	approach es of connectin g roads, slip roads, lay byes etc. as applicable)	Minimum SN	Traffic Speed (Km/h)		Coefficient Routine Investigation Machine or equivalent)			
		36	50					
		33	65					
		32	80					
		31	95					
		31	110					

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/ Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
Embankment/ Slope	Edge drop at shoulders	Nil	40m m	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC	7-15 days	MORT&H Specification 408.4
	Slope of camber/cross fall	Nil	<2% variation in prescribed slope of camber /cross fall	Daily			7-15 days	MORT&H Specification 408.4
	Embankment Slopes	Nil	<15 % variation in prescribe	Daily			7-15 days	MORT&H Specification 408.4

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/ Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
			side slope					
	Embankment Protection	Nil	Nil	Daily	NA		7-15 days	MORT&H Specification
	Rain Cuts/ Gullies in slope	Nil	Nil	Daily Specially During Rainy Season	NA		7-15 days	MORT&H Specification

In addition to the above performance criterion, the contractor shall strictly maintain the rigid pavements as per requirements in the following table

Table -2: **Maintenance Criteria for Rigid Pavements:**

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
CRACKING						
1	Single Discrete Cracks Not intersecting with any joint	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	Not applicable
			1	w < 0.2 mm. hair cracks		
			2	w = 0.2 - 0.5 mm, discernible from slow-moving car	Seal without delay	Seal, and stitch if L > 1m. Within 7days
			3	w = 0.5 - 1.5 mm, discernible from fast-moving car		

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
2	Single Transverse (or Diagonal) Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	4	w = 1.5 - 3.0 mm	Seal, and stitch if L > 1 m.	Staple or Dowel Bar Retrofit, FDR for affected portion.
			5	w > 3 mm.	Within 7 days	Within 15days
			0	Nil, not discernible	No Action	
			1	w < 0.2 mm, hair cracks	Route and seal with epoxy.	Staple or Dowel Bar Retrofit.
			2	w = 0.2 - 0.5 mm, discernible from slow vehicle	Within 7 days	Within 15days
			3	w = 0.5 - 3.0 mm, discernible from fast vehicle	Route, seal and stitch, if L > 1 m. Within 7 days	

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			4	$w = 3.0 - 6.0 \text{ mm}$	Dowel Bar Retrofit. Within 15 days	Full Depth Repair Dismantle and reconstruct affected. Portion with norms and specifications See Para 5.5 & 9.2
			5	$w > 6 \text{ mm}$, usually associated with spalling, and/or slab rocking under traffic	Not Applicable, as it may be full depth	Within 15days
			0	Nil, not discernible	No Action	
3	Single Longitudinal Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	1	$w < 0.5 \text{ mm}$, discernible from slow moving vehicle	Seal with epoxy, if $L > 1 \text{ m}$. Within 7 days	Staple or dowel bar retrofit. Within 15days

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			2	w = 0.5 - 3.0 mm, discernible from fast vehicle	Route seal and stitch, if L > 1 m. Within 15 days	-
			3	w = 3.0 - 6.0 mm	Staple, if L > 1 m. Within 15 days	Partial Depth Repair with stapling. Within 15 days
			4	w = 6.0 - 12.0 mm, usually associated with spalling	Not Applicable, as it may be full depth	
			5	w > 12 mm, usually associated with spalling, and/or slab rocking under traffic		Full Depth Repair Dismantle and reconstruct affected portion as per norms and specifications -

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
						See Para 5.6.4 Within 15 days
4	Multiple Cracks intersecting with one or more joints	w = width of crack	0	Nil, not discernible	No Action	-
			1	$w < 0.2$ mm, hair cracks	Seal, and stitch if $L > 1$ m.	
			2	$w = 0.2 - 0.5$ mm. discernible from slow vehicle	Within 15 days	
			3	$w = 0.5 - 3.0$ mm, discernible from fast vehicle	Full depth repair within 15 days	Dismantle, Reinstall sub base, Reconstruct whole slab as per specifications within 30 days
			4	$w = 3.0 - 6.0$ mm panel broken into 2 or 3 pieces		
			5	$w > 6$ mm and/or panel broken		

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
				into more than 4 pieces		
5	Corner Break	w = width of crack L = length of crack	0	Nil, not discernible	No Action	-
			1	w < 0.5 mm; only 1 corner broken	Seal with low viscosity epoxy to	Seal with epoxy seal with epoxy
			2	w < 1.5 mm; L < 0.6 m, only one corner broken	secure broken parts Within 7 days	Within 7days
			3	w < 1.5 mm; L < 0.6 m, two corners broken	Partial Depth (Refer Figure 8.3 of IRC: SP: 83-2008) Within 15 days	Full depth repair
			4	w > 1.5 mm; L > 0.6 m or three corners broken		
			5	three or four corners broken		Reinstate sub-base, and reconstruct the

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
						slab as per norms and specifications within 30days
	Punchout (Applicable to Continuous Reinforced Concrete Pavement (CRCP) only)	w = width of crack L = length (m/m ²)	0	Nil, not discernible		No Action
			1	$w < 0.5 \text{ mm}; L < 3 \text{ m/m}^2$	Not Applicable, as it may be full depth	Seal with low viscosity epoxy to secure broken parts.
			2	either $w > 0.5 \text{ mm}$ or $L < 3 \text{ m/m}^2$		Within 15days
			3	$w > 1.5 \text{ mm}$ and $L < 3 \text{ m/m}^2$		
			4	$w > 3 \text{ mm}$, $L < 3 \text{ m/m}^2$ and deformation		Full depth repair - Cut out and replace damaged area taking care not to damage reinforcement.
			5	$w > 3 \text{ mm}$, $L > 3 \text{ m/m}^2$ and deformation		Within 30days

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
Surface Defects						
7	Ravelling or Honeycomb surface type	$r = \frac{\text{area damaged surface}}{\text{total surface of slab}} (\%)$ $h = \text{maximum depth of damage}$	0	Nil, not discernible	Short Term No action.	Long Term Not Applicable
			1	$r < 2 \%$	Local repair of areas damaged	
			2	$r = 2 - 10 \%$	and liable to be damaged. Within 15 days	
			3	$r = 10-25\%$	Bonded Inlay, 2 or 3 slabs if	
			4	$r = 25 - 50 \%$	affecting.	

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
					Within 30 days	
			5	$r > 50\%$ and $h > 25 \text{ mm}$	Reconstruct slabs, 4 or more slabs if affecting. Within 30 days	
8	Scaling	$r = \frac{\text{damaged surface}}{\text{total surface of slab}} (\%)$ $h = \text{maximum depth of damage}$	0	Nil, not discernible	Short Term No action.	Long Term
			1	$r < 2 \%$	Local repair of areas damaged	Not Applicable
			2	$r = 2 - 10 \%$	and liable to be damaged. Within 7 days	

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
			3	r = 10 - 20%	Bonded Inlay within 15 days	
			4	r = 20 - 30 %		
			5	r > 30 % and h > 25 mm	Reconstruct slab within 30 days	
9	Polished Surface/Glazing	t = texture depth, sand patch test	0		No action.	Not Applicable
			1	t > 1 mm		
			2 '	t = 1 - 0.6 mm	Monitor rate of deterioration	
			3	t = 0.6 - 0.3 mm		
			4	t = 0.3 - 0.1 mm		

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			5	$t < 0.1 \text{ mm}$	Diamond Grinding if affecting 50% or more slabs in a continuous stretch of minimum 5 km. Within 30 days	
10	Popout (Small Hole) Pothole Refer Para 8.4	n = number/ m^2 d = diameter h = maximum depth	0	$d < 50 \text{ mm}; h < 25 \text{ mm}; n < 1 \text{ per } 5 \text{ m}^2$	No action.	Not Applicable
			1	$d = 50 - 100 \text{ mm}; h < 50 \text{ mm}; n < 1 \text{ per } 5 \text{ m}^2$	Partial depth repair 65 mm deep.	
			2	$d = 50 - 100 \text{ mm}; h > 50 \text{ mm}; n < 1 \text{ per } 5 \text{ m}^2$	Within 15 days	

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			3	$d = 100 - 300 \text{ mm}; h < 100 \text{ mm}; n < 1 \text{ per } 5 \text{ m}^2$	Partial depth repair 110mm	
			4	$d = 100 - 300 \text{ mm}; h > 100 \text{ mm}; n < 1 \text{ per } 5 \text{ m}^2$	i.e. 10 mm more than the depth of the hole. Within 30 days	
			5	$d > 300 \text{ mm}; h > 100 \text{ mm}; n > 1 \text{ per } 5 \text{ m}^2$	Full depth repair. Within 30 days	

Joint Defects						
11	Joint Seal Defects	loss or damage L = Length as % total joint length	0	Difficult to discern.	Short Term	Long Term
					No action.	Not Applicable
			1	Discernible, L< 25% but of little immediate consequence with regard to ingress of water or trapping incompressible material.	Clean joint, inspect later.	
			3	Notable. L > 25% insufficient protection against ingress of water and trapping incompressible material.	Clean and reapply sealant in selected locations. Within 7 days	
			5	Severe; w > 3 mm negligible\protection against ingress of water and trapping incompressible material	Clean, widen and reseal the joint. Within 7 days	

12	Spalling of Joints	w = width on either side of the joint L = length of spalled portion (as % joint length)	0	Nil, not discernible	No action.	Not Applicable
			1	w < 10 mm	Apply low viscosity epoxy resin/ mortar in cracked portion.	
			2	w = 10 - 20 mm, L < 25%	Within 7 days	
			3	w = 20 - 40 mm, L > 25%	Partial Depth Repair. Within 15 days	
			4	w = 40 - 80 mm, L > 25%	30 - 50 mm deep, h = w + 20% of w, within 30 days	
			5	w > 80 mm, and L > 25%	50 - 100 mm deep repair. H = w + 20% of w. Within 30 days	

13	Faulting (or Stepping) in Cracks or Joints	f = difference of level	0	not discernible, < 1 mm	No action.	No action.
			1	f < 3 mm		
			2	f = 3 - 6 mm	Determine cause and observe, take action for diamond grinding	Replace the slab as appropriate.
			3	f = 6 - 12 mm	Diamond Grinding	Within 30days
			4	f = 12 - 18 mm	Raise sunken slab.	Replace the slab as appropriate. Within 30days
			5	f > 18 mm	Strengthen subgrade and sub-base by grouting and raising sunken slab	
14	Blowup or Buckling	h = vertical displacement from normal profile	0	Nil, not discernible	Short Term	Long Term
					No Action	
			1	h < 6 mm		
			2	h = 6 - 12 mm	Install Signs to Warn Traffic	

			3	h = 12 - 25 mm	within 7 days	
			4	h > 25 mm	Full Depth Repair. Within 30 days	
			5	shattered slabs, ie 4 or more pieces	Replace broken slabs. Within 30 days	
15	Depression	h = negative vertical displacement from normal profile L=length	0	Not discernible, h < 5 mm	No action.	Not Applicable
			1	h = 5 - 15 mm		
			2	h = 15-30 mm, Nos <20% joints	Install Signs to Warn Traffic within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Strengthen subgrade. Reinstate pavement at normal level	

			5	h > 100 mm	if L < 20 m. Within 30 days	
16	Heave	h = positive vertical displacement from normal profile. L = length	0	Not discernible. h < 5 mm	Short Term	Long Term
					No action.	
			1	h = 5 - 15 mm	Follow up.	
			2	h = 15 - 30 mm, Nos <20% joints	Install Signs to Warn Traffic within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Stabilise subgrade. Reinstate pavement at normal level if length < 20 m. Within 30 days	
			5	h > 100 mm		
17	Bump	h = vertical	0	h < 4 mm	No action	

		displacement from normal profile	1	$h = 4 - 7 \text{ mm}$	Grind, in case of new construction within 7 days	Construction Limit for New Construction.
			3	$h = 7 - 15 \text{ mm}$	Grind, in case of ongoing Maintenance within 15 days	Replace in case of new construction. Within 30days
			5	$h > 15 \text{ mm}$	Full Depth Repair. Within 30 days	Full Depth Repair. Within 30days
18	Lane Shoulder Dropoff	to $f = \text{difference of level}$	0	Nil, not discernible $< 3\text{mm}$	Short Term	Long Term
					No action.	
			1	$f = 3 - 10 \text{ mm}$	Spot repair of shoulder within 7 days	
			2	$f = 10 - 25 \text{ mm}$		
			3	$f = 25 - 50 \text{ mm}$	Fill up shoulder	

			4	f = 50 - 75 mm	within 7 dayss	For any 100 m stretch Reconstruct shoulder, if affecting 25% or more of stretch. Within 30days
			5	f > 75 mm		
Drainage						
19	Pumping	quantity of fines and water expelled through open joints and cracks Nos	0	not discernible	No Action	
			1 to 2	slight/ occasional Nos < 10%	Repair cracks and joints Without delay.	Inspect and repair sub-drainage at distressed sections and upstream.
			3 to 4	appreciable/ Frequent 10 - 25%	Lift or jack slab within 30 days.	
		Nos/100 m stretch	5	abundant, crack development > 25%	Repair distressed pavement sections. Strengthen subgrade and subbase. Replace slab. Within 30 days	

20	Ponding	Ponding on slabs due to blockage of drains	0-2	No discernible problem	No action.	Action required to stop water damaging foundation within 30 days.
			3 to 4	Blockages observed in drains, but water flowing	Clean drains etc within 7 days, Follow up	
			5	Ponding, accumulation of water observed	-do-	

Table -3: Maintenance Criteria for Safety Related Items and Other Furniture Items:

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Highway	Availability of Safe Sight Distance	As per IRC SP :84-2014, a minimum of safe stopping sight distance shall be available throughout.			Monthly	Manual Measurements with Odometer along with video/ image backup	Removal of obstruction within 24 hours, in case of sight line affected by temporary objects such as trees, temporary encroachments. In case of permanent structure or design deficiency: Removal of obstruction/improvement of deficiency at the earliest Speed Restriction boards and suitable traffic calming measures such as transverse bar marking, blinkers, etc. shall be applied during the period of rectification.		IRC:SP 84-2014
		Design Speed, kmph	Desirable Minimum Sight Distance (m)	Safe Stopping Sight Distance (m)					
		100	360	180					
		80	260	130					
Pavement Marking	Wear	<70% of marking remaining			Bi-Annually	Visual Assessment as per Annexure-F of IRC:35-2015	Re - painting	Cat-1 Defect – within 24 hours Cat-2 Defect – within 2 months	IRC:35-2015

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards	
	Day time Visibility	During expected life Service Time Cement Road - 130mcd/m ² /lux Bituminous Road - 100mcd/m ² /lux	Monthly	As per Annexure-D of IRC:35-2015	Re - painting	Cat-1 Defect – within 24 hours Cat-2 Defect – within 2 months	IRC:35-2015	
	Night Time Visibility	<u>Initial and Minimum Performance for Dry Retro reflectivity during night time:</u>		As per Annexure-E of IRC:35-2015	Re - painting	Cat-1 Defect – within 24 hours Cat-2 Defect – within 2 months	IRC:35-2015	
		Design Speed	(RL) Retro Reflectivity (mcd/m ² /lux)					
			Initial (7 days)					Minimum Threshold level (TL) & warranty period required up to 2 years
		Up to 65	200					80
		65 - 100	250					120
		Above 100	350					150
		<u>Initial and Minimum Performance for Night Visibility under wet condition (Retro reflectivity):</u>						

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		Initial 7 days Retro reflectivity: 100 mcd/m ² /lux Minimum Threshold Level: 50 mcd/m ² /lux					
	Skid Resistance	Initial and Minimum performance for Skid Resistance: Initial (7days): 55BPN Min. Threshold: 44BPN *Note: shall be considered under urban/city traffic condition encompassing the locations like pedestrian crossings, bus bay, bus stop, cycle track intersection delineation, transverse bar markings etc	Bi-Annually	As per Annexure-G of IRC:35-2015		Within 24 hours	IRC:35-2015
Road Signs	Shape and Position	Shape and Position as per IRC:67-2012. Signboard should be clearly visible for the design speed of the section.	Daily	Visual with video/image backup	Improvement of shape, in case if shape is damaged. Relocation as per requirement	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 15 Days in case of Gantry/Cantilever Sign boards	IRC:67-2012
	Retro reflectivity	As per specifications in IRC:67-2012	Bi-Annually	Testing of each	change of signboard	48 hours in case of Mandatory	RC:67-2012

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
				signboard using Retro Reflectivity Measuring Device. In accordance with ASTM D 4956-09.		Signs, Cautionary and Informatory Signs (Single and Dual post signs) 1 Month in case of Gantry/Cantilever Sign boards	
Kerb	Kerb Height	As per IRC 86:1983 depending upon type of Kerb	Bi-Annually	Use of distance measuring tape	Raising Kerb Height	Within 1 Month	RC 86:1983
	Kerb Painting	<u>Functionality</u> : Functioning of Kerb painting as intended	Daily	Visual with video/image backup	Kerb Repainting	Within 7-days	RC 35:2015
Other Road Furniture	Reflective Pavement Markers (Road Studs)	Numbers and Functionality as per specifications in IRC:SP:84-2014 and IRC:35-2015, unless specified in Schedule-B.	Daily	Counting	New Installation	Within 2 months	IRC:SP:84-2014, IRC:35-2015
	Pedestrian Guardrail	<u>Functionality</u> : Functioning of guardrail as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:SP:84-2014
	Traffic Safety Barriers	<u>Functionality</u> : Functioning of Safety Barriers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014, IRC:119-2015
	End Treatment of	<u>Functionality</u> : Functioning of End Treatment as intended	Daily	Visual with video/image	Rectification	Within 7 days	IRC:SP:84-2014,

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Traffic Safety Barriers			backup			IRC:119-2015
	Attenuators	<u>Functionality:</u> Functioning of Attenuators as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP-2014, IRC:119-2015
	Guard Posts and Delineators	<u>Functionality:</u> Functioning of Guard Posts and Delineators as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC: 79 - 1981
	Overhead Sign Structure	Overhead sign structure shall be structurally adequate	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:67-2012
	Traffic Blinkers	<u>Functionality:</u> Functioning of Traffic Blinkers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC: SP:84-2014
Highway Lighting System	Highway Lights	Illumination: Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC: SP:84-2014
		No major failure in the lighting system	Daily	-	Rectification of failure	24 hours	IRC:SP:84- 2014
		No minor failure in the lighting system	Monthly	-	Rectification of failure	8 hours	IRC:SP:84- 2014
	Toll Plaza Canopy Lights	Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:84- 2014
		No major/minor failure in the lighting system	Daily	-	Rectification of failure	8 hours	IRC:SP:84- 2014

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Trees and Plantation including median plantation	Obstruction in a minimum head-room of 5.5 m above carriageway or obstruction in visibility of road signs	No obstruction due to trees	Monthly	Visual with video/image backup	Removal of trees	Immediate	IRC:SP:84- 2014
	Deterioration in health of trees and bushes	Health of plantation shall be as per requirement of specifications & instructions issued by Authority from time to time	Daily	Visual with video/image backup	Timely watering and treatment. Or Replacement of Trees and Bushes.	Within 90 days	IRC: SP:84- 2014
	Vegetation affecting sight line and road structures	Sight line shall be free from obstruction by vegetation	Daily	Visual with video/image backup	Removal of Trees	Immediate	IRC: SP 84- 2014
Rest Areas	Cleaning of toilets	-	Daily	-	-	Every 4 hours	
	Defects in electrical, water and sanitary installations	-	Daily	-	Rectification	24 hours	

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Other Project Facilities and Approach roads	Damage or deterioration in Approach Roads, pedestrian facilities, truck lay-bys, bus-bays, bus-shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and other works		Daily	-	Rectification	15 days	IRC:SP 84-2014

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Pipe/box/slab culverts	Free waterway/unobstructed flow section	85% of culvert normal flow area to available.	2 times in a year (before and after rainy season)	Inspection by Bridge Engineer as per IRC SP: 35-1990 and recording of depth of silting and area of vegetation.	Cleaning silt up soils and debris in culvert barrel after rainy season, removal of bushes and vegetation, U/s of barrel, under barrel and D/s of barrel before rainy season.	15 days before onset of monsoon and within 30 days after end of rainy season.	IRC 5-2015, IRC SP:40-1993 and IRC SP:13-2004
	Leak-proof expansion joints if any	No leakage through expansion joints	Bi-Annually	Physical inspection of expansion joints as per IRC SP: 35-1990 if any, for leakage strains on walls at joints.	Fixing with sealant suitably	30 days or before onset of rains whichever comes earlier	IRC SP:40-1993 and IRC SP:69-2011
	Structurally sound	Spalling of concrete not more than 0.25 sqm	Bi-Annually	Detailed inspection of all components of culvert as per IRC SP:35-1990 and recording the defects	Repairs to spalling, cracking, delamination, rusting shall be followed as per IRC:SP:40-1993.	15 days	IRC SP 40-1993 and MORTH Specifications clause 2800
		Delamination of concrete not more than 0.25 sq.m.					
		Cracks wider than 0.3 mm not more than 1m aggregate length					

	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 sqm, damage to solid apron (concrete apron) not more than 1 sqm	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-1993 and IRC:SP:13-2004.
Bridges including ROB's Flyover etc. as applicable	Riding quality or user comfort	No pothole in wearing coat on bridge deck	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC or wearing coat	15 days	MORT&H Specification 2811
Bridge -Super Structure	Bumps	No bump at expansion joint	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC on either side of expansion joints, profile correction course on approach slab in case of settlement to approach embankment	15 days	MORT&H Specification 3004.2 & 2811.
	User safety (condition of crash barrier and guard rail)	No damaged or missing stretch of crash barrier or pedestrian hand railing	Daily	Visual inspection and detailed condition survey as per IRC SP: 35-1990.	Repairs and replacement of safety barriers as the case may be	3days	IRC: 5-1998, IRC SP: 84-2014 and IRC SP: 40-1993.

	Rusted reinforcement	Not more than 0.25 sq.m	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out the repairs to affected concrete portion with epoxy mortar / concrete.	15 days	IRC SP: 40-1993 and MORTH Specification 1600.
	Spalling of Concrete	Not more than 0.50 sq.m					
	Delamination	Not more than 0.50 sq.m					
	Cracks wider than 0.30 mm	Not more than 1m total length	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting with epoxy mortar, investigating causes for cracks development and carry out necessary rehabilitation.	48 Hours	IRC SP: 40-1993 and MORTH Specification 2800.
	Rainwater seepage through deck slab	Leakage - nil	Quarterly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting of deck slab at leakage areas, waterproofing, repairs to drainage spouts	1 months	MORTH specifications 2600 & 2700.
	Deflection due to permanent loads and	Within design limits.	Once in every 10 years for spans more	Load test method	Carry out major rehabilitation works on bridge to retain original design loads capacity	6 months	IRC SP: 51-1999.

	live loads		than 40 m				
	Vibrations in bridge deck due to moving trucks	Frequency of vibrations shall not be more than 5 Hz	Once in every 5 years for spans more than 30m and every 10 years for spans between 15 to 30 m	Laser displacement sensors or laser vibro-meters	Strengthening of super structure	4 months	AASHTO LRFD specifications
	Leakage in Expansion joints	No damage to elastomeric sealant compound in strip seal expansion joint, no leakage of rain water through expansion joint in case of buried and asphalt plug and copper strip joint.	Bi-Annually	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge Inspection Unit	Replace of seal in expansion joint	15 days	MORTH specifications 2600 and IRC SP: 40-1993.
	Debris and dust in strip seal	No dust or debris in expansion joint	Monthly	Detailed condition survey as per IRC SP:35-1990 using	Cleaning of expansion joint gaps thoroughly	3 days	MORTH specification s 2600 and

	expansion joint	gap.		Mobile Bridge Inspection Unit			IRC SP: 40-1993.
	Drainage spouts	No down take pipe missing/broken below soffit of the deck slab. No silt, debris, clogging of drainage spout collection chamber.	Monthly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Cleaning of drainage spouts thoroughly. Replacement of missing/broken down take pipes with a minimum pipe extension of 500mm below soffit of slab. Providing sealant around the drainage spout if any leakages observed.	3 days	MORTH specification 2700.
Bridge-substructure	Cracks/spalling of concrete/rusted steel	No cracks, spalling of concrete and rusted steel	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out repairs to substructure by grouting/guniting and micro concreting depending on type of defect noticed	30 days	IRC SP: 40-1993 and MORTH specification 2800.

	Bearings	Delamination of bearing reinforcement not more than 5%, cracking or tearing of rubber not more than 2 locations per side, no rupture of reinforcement or rubber	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	In case of failure of even one bearing on any pier/abutment, all the bearings on that pier/abutment shall be replaced, in order to get uniform load transfer on to bearings.	3 months	MORTH specification 2810 and IRC SP: 40-199.
Bridge Foundations	Scouring around foundations	Scouring shall not be lower than maximum scour level for the bridge	Bi-Annually	Condition survey and visual inspection as per IRC SP:35-1990 using Mobile Bridge Inspection Unit. In case of doubt, use Underwater camera for inspection of deep wells in major Rivers.	Suitable protection works around pier/abutment	1 month	IRC SP: 40-1993, IRC 83-2014, MORTH specification 2500
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching.	30 days after defect observation or 2	IRC: SP 40-1993 and IRC:SP:13-2004.

		sq.m, damage to solid apron (concrete apron) not more than 1 sq.m				weeks before onset of rainy season whichever is earlier.	
Note: Any Structure during the entire contract period which is found that does not complies with all requirements of this Table will be prepared, rehabilitated or even reconstructed under the scope of the contractor.							

Table 4: Maintenance Criteria for Structures and Culverts:

Table 5: Maintenance Criteria for Hill Roads

In addition to above, for hill roads the following provisions for maintenance is also to done.

Hill Roads		
(i)	Damage to Retaining wall/ Breast wall	7 (Seven) days
(ii)	Landslides requiring clearance	12 (Twelve) hours
(iii)	Snow requiring clearance	24 (Twenty-Four) hours

Note: For all tables 1 to 5 above, latest BIS & IRC standards (even those not indicated herewith) along with MoRTH specifications shall be binding for all maintenance activities.

A. Flexible Pavement

Nature of Defect or deficiency		Time limit for repair/rectification
(b) Granular earth shoulders, side slopes, drains and culverts		
(i)	Variation by more than 1 % in the prescribed slope of camber/cross fall (shall not be less than the camber on the main carriageway)	7 (seven) days
(ii)	Edge drop at shoulders exceeding 40 mm	7 (seven) days
(iii)	Variation by more than 15% in the prescribed side (embankment) slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (seven) days
(v)	Damage to or silting of culverts and side drains	7 (seven) days
(vi)	Desilting of drains in urban/semi- urban areas	24 (twenty-four) hours
(vii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
(c) Road side furniture including road sign and pavement marking		
(i)	Damage to shape or position, poor visibility or loss of retro- reflectivity	48 (forty-eight) hours
(ii)	Painting of km stone, railing, parapets, crash barriers	As and when required/ Once every year
(iii)	Damaged/missing signs road requiring replacement	7 (seven) days
(iv)	Damage to road mark ups	7 (seven) days
(d) Road lighting		
(i)	Any major failure of the system	24 (twenty-four) hours
(ii)	Faults and minor failures	8 (eight) hours
(e) Trees and plantation		

Nature of Defect or deficiency		Time limit for repair/rectification
(i)	Obstruction in a minimum head- room of 5 m above carriageway or obstruction in visibility of road signs	24 (twenty-four) hours
(ii)	Removal of fallen trees from carriageway	4 (four) hours
(iii)	Deterioration in health of trees and bushes	Timely watering and treatment
(iv)	Trees and bushes requiring replacement	30 (thirty) days
(v)	Removal of vegetation affecting sight line and road structures	15 (fifteen) days
(f) Rest area		
(i)	Cleaning of toilets	Every 4 (four) hours
(ii)	Defects in electrical, water and sanitary installations	24 (twenty-four) hours
(g) [Toll Plaza]		
(h) Other Project Facilities and Approach roads		
(i)	Damage in approach roads, pedestrian facilities, truck lay- byes, bus-bays, bus-shelters, cattle crossings, [Traffic Aid Posts, Medical Aid Posts] and service roads	15 (fifteen) days
(ii)	Damaged vehicles or debris on the road	4 (four) hours
(iii)	Malfunctioning of the mobile crane	4 (four) hours
Bridges		
(a) Superstructure		
(i)	Any damage, cracks, spalling/ scaling Temporary measures Permanent measures	within 48 (forty-eight) hours within 15 (fifteen) days or as specified by the Authority's Engineer
(b) Foundations		

Nature of Defect or deficiency		Time limit for repair/ rectification
(i)	Scouring and/or cavitation	15 (fifteen) days
(c) Piers, abutments, return walls and wing walls		
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days
(d) Bearings (metallic) of bridges		
(i)	Deformation, damages, tilting or shifting of bearings	15 (fifteen) days Greasing of metallic bearings once in a year
(e) Joints		
(i)	Malfunctioning of joints	15 (fifteen) days
(f) Other items		
(i)	Deforming of pads in elastomeric bearings	7 (seven) days
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (immediately within 24 hours if posing danger to safety)
(iv)	Rain-cuts or erosion of banks of the side slopes of approaches	7 (seven) days
(v)	Damage to wearing coat	15 (fifteen) days
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds	30 (thirty) days
(vii)	Growth of vegetation affecting the structure or obstructing the waterway	15 (fifteen) days
(g) Hill Roads		
(i)	Damage to retaining wall/breast wall	7 (seven) days
(ii)	Landslides requiring clearance	12 (twelve) hours

Nature of Defect or deficiency		Time limit for repair/ rectification
(iii)	Snow requiring clearance	24 (twenty-four) hours

[Note: Where necessary, the Authority may modify the time limit for repair/rectification, or add to the nature of Defect or deficiency before issuing the bidding document, with the approval of the competent authority.]

Schedule - F

(See Clause 4.1 (vii)(a))

Applicable Permits

1. Applicable Permits

- (i) The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits:
 - (a) Permission of the State Government for extraction of boulders from quarry;
 - (b) Permission of Village Panchayats and Pollution Control Board for installation of crushers;
 - (c) license for the use of explosives;
 - (d) Permission of the State Government for drawing water from river/reservoir;
 - (e) license from the inspector of factories or other competent Authority for setting up the batching plant;
 - (f) Clearance of Pollution Control Board for setting up batching plant;
 - (g) Clearance of Village Panchayats and Pollution Control Board for setting up asphalt plant;
 - (h) Permission of Village Panchayats and State Government for borrowing earth; and
 - (i) Any other permits or clearances required under Applicable Laws.
- (ii) Applicable Permits, as required, relating to environmental protection and conservation shall have been procured by the Authority under the provisions of this Agreement.

Schedule – G

(See Clauses 7.1 and 19.2)

Annex-I

(See Clause 7.1)

Form of Bank Guarantee

[Performance Security/Additional Performance Security]

[GM/CPM UPSBC] WHEREAS:

- (A) _____ [name and address of contractor] (hereinafter called the “**Contractor**”) and [name and address of the authority], (hereinafter called the “**Authority**”) have entered into an agreement (hereinafter called the “**Agreement**”) for the construction of the on Engineering, Procurement, and Construction (the “**EPC**”) basis, subject to and under the provisions of the Agreement
- (B) The Agreement requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and under the Agreement, during the {Construction Period/ Defects Liability Period and Maintenance Period} (as defined in the Agreement) in a sum of Rs..... cr. (Rupeescrore) (the “**Guarantee Amount**”).
- (C) We, through our branch at (the “**Bank**”) have agreed to furnish this bank guarantee (*hereinafter called the “**Guarantee**”*) by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor’s obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and under the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an officer not below the rank of

[CPM/GM UPSBC], that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final, and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor, and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfillment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfillment, compliance, and/or performance of all or any of the obligations of the Contractor under the Agreement.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority shall be forfeited and

the Bank shall be relieved from its liabilities hereunder.

8. The Guarantee shall cease to be in force and effect on ****\$. Unless a demand or claim under this Guarantee is made in writing before the expiry of the Guarantee, the Bank shall be discharged from its liabilities hereunder.
9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
10. Any notice by way of request, demand, or otherwise hereunder may be sent by post addressed to the Bank at its above-referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority under the provisions of the Agreement.

Signed and sealed this day of, 20..... at..... SIGNED,
SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

- (i) The bank guarantee should contain the name, designation, and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number, and other details of the head office of the Bank as

Annex – II

(Schedule - G)

(See Clause 19.2)

Form for Guarantee for Advance Payment

[GM/CPM UP SBC]

WHEREAS:

- (A) [name and address of contractor] (hereinafter called the “**Contractor**”) has executed an agreement (hereinafter called the “**Agreement**”) with the [name and address of the authority], (hereinafter called the “**Authority**”) for the construction of the on Engineering, Procurement and Construction (the “**EPC**”) basis, subject to and under the provisions of the Agreement
- (B) Under Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest bearing @*Bank Rate + 3%* advance payment (hereinafter called “**Advance Payment**”) equal to 10% (ten percent) of the Contract Price; and that the Advance Payment shall be made in two installments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equivalent to 110% (one hundred and ten percent) of such installment to remain effective till the full repayment of the installment of the Advance Payment as security for compliance with its obligations under the Agreement. The amount of {first/second} installment of the Advance Payment is Rs ----- cr. (Rupees crore) and the amount of this Guarantee is Rs. ----- cr. (Rupees ----- crore) (the “**Guarantee Amount**”)\$.
- (C) We, through our branch at (the “**Bank**”) have agreed to furnish this bank guarantee (*hereinafter called the “Guarantee*”) for the Guarantee Amount.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid installment of the Advance Payment under and under the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
A letter from the Authority, under the hand of an officer not below the rank of [GM/CPM UPSBC], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the

installment of the Advance Payment under and under the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

- 2 To give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor, and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
- 3 It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
- 4 The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
- 5 This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.
- 6 Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
- 7 The Guarantee shall cease to be in force and effect on ****,\$ Unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder.

- 8 The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
- 9 Any notice by way of request, demand, or otherwise hereunder may be sent by post addressed to the Bank at its above-referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
- 10 This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority under the provisions of the Agreement.

Signed and sealed this day of, 20..... at SIGNED,
SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)
(Name)
(Designation)
(Code Number)
(Address)

NOTES:

- (i) The bank guarantee should contain the name, designation, and code number of the officer(s) signing the guarantee.

\$ Insert a date being 90 (ninety) days after the end of one year from the date of payment of the Advance payment to the Contractor (under Clause 19.2 of the Agreement).

- (ii) The address, telephone number, and other details of the head office of the Bank as well as of the issuing branch should be mentioned on the cover letter of the issuing branch.
- _____

SCHEDULE-H

See Clauses 10.1 (iv) and 19.3

Contract Price Weightage**1.1** The contract price for this agreement is **Rs. (excluding GST)***1.2 Proportions of the tentative schedule-H Contract Price for different Stages of Construction of the Project Highway shall be considered.*

Item	Weightage in Percentage to the contract Price	Stage of Payment	Percentage Weightages
1	2	3	4
1. Approach Road works	14.87%	A- Construction of Approach Road (Flexible pavement)	14.87%
		Solid Fill Portion (ROB Approach)	
		(a) Assi Side	
		i) - Earthwork + Sub grade	
		ii) – R.E Wall + GSB + Friction Slab	
		iii) - WMM + Bituminous work + Approach Slab	
		(b) Lucknow Side	
		i) - Earthwork + Sub grade	
		ii) – R.E Wall + GSB + Friction Slab	
		iii) - WMM + Bituminous work + Approach Slab	
		(c) Crash Barrier + Hand Rail (Both Side) -2%	
	12.36%	B- Construction of Service road (Flexible pavement)	12.36%
		(a) Assi Side	
		(i) Earthwork + GSB + WMM	
		(ii) Bituminous Work + PCC Kerb + W-Beam Crash Barrier.	
		(b) Lucknow Side	
		(i) Earthwork + GSB + WMM	
		(ii) Bituminous Work + PCC Kerb + W-Beam Crash Barrier.	
2. ROB/ elevated sections/ flyovers		New ROB	
		II- Viaduct PWD Portion –	

<div>UPSBC (EPC R1 July 24)</div> <div>Item</div>	<div>Weightage in Percentage to the contract Price</div>	<div>Stage of Payment</div>	<div>Percentage Weightages</div>
1	2	3	4
including viaducts, if any	60%	(i) Foundation	60%
		(ii)Sub Structure	
		(iii)Super Structure i/c Bearing	
		(iv)Wearing Coat i/c Expansion Joint	
		(v)Miscellaneous work	
3. Other works	12.77%	(i) Road side drains	12.77%
		(ii) Road markings + Road Signage + Gantry Sign Board + Painting (RE Wall, Concrete structure, Crash Barrier, Kerb etc.) + km stones + safety devices like transverse rumble strip, pedestrian guard rail, overhead traffic signs lighting etc., view cutter, stair case, safety, electrical work, utility shifting of electrical, sewer & water.	

Note - If any work executed by UPSBCL before the award of the tender, it shall be duly verified and deducted from the 1st running bill of the contractor

1.3 The procedure for estimating the value of work done :

Stage of Payment	Payment Procedure
1	2
II- Viaduct PWD Portion	
(i) Foundation	Cost of each foundation shall be determined on pro-rata basis with respect to the total number of foundation in viaduct portion excluding common foundation. Payment against foundation shall be made on pro- rata basis on completion of a stage i.e. not less than 25% of the scope of foundation on viaduct portion. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Sub Structure	Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of the viaduct portion subject to completion of atleast one sub-structures of abutments / piers upto abutment / pier cap level.
(iii) Super Structure i/c Bearing	Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified.
(iv) Wearing Coat i/c Expansion Joint	Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified in viaduct portion.
(v) Miscellaneous work (Crash Barrier + Railing with mesh + Hand Rail + Interlocking paver block + Weep Holes + Drain Pipe	Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.

Stage of Payment	Payment Procedure
1	2
A- Construction of Approach Road (Flexible pavement) - Solid Fill Portion (ROB Approach)	
(a) Assi Side	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length
i) - RE Wall + Earthwork	
ii) - Sub grade + GSB + Friction Slab	
iii) - WMM + Bituminous work + Approach Slab	
(b) Lucknow Side	
i) - RE Wall + Earthwork	
ii) - Sub grade + GSB + Friction Slab	
iii) - WMM + Bituminous work + Approach Slab	

Stage of Payment	Payment Procedure
1	2
(c) Crash Barrier + Hand Rail (Both Side)	
B- Construction of Service road (Flexible pavement)	
(a) Assi Side	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length
(i) Earthwork + GSB + WMM	
(ii) Bituminous Work + PCC Kerb + W-Beam Crash Barrier.	
(b) Lucknow Side	
(i) Earthwork + GSB + WMM	
(ii) Bituminous Work + PCC Kerb + W-Beam Crash Barrier.	

1.3.3 Other works

Stage of Payment	Payment Procedure
1	2
Other works	
(i) Road side drains	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 10 % (ten per cent) of the total length.
(ii) Road markings + Road Signage + Gantry Sign Board + Painting (RE Wall, Concrete structure, Crash Barrier, Kerb etc.) + km stones + safety devices like transverse rumble strip, pedestrian guard rail, overhead traffic signs etc.	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 50 % (Fifty percent) of the total length.
(iii) Rain Water Harvesting	Payment shall be made on pro rata basis for each completed facilities.
(iv) Stair Case	Payment shall be made on pro rata basis for each completed facilities.

Schedule - I

(See Clause 10.2 (iv))

Drawings

1. Drawings

In compliance with the obligations outlined in Clause 10.2 of this Agreement, the Contractor shall furnish to the Authority's Engineer, free of cost, all Drawings listed in Annex-I of this Schedule-I.

2. Additional Drawings

If the Authority's Engineer determines that for discharging its duties and functions under this Agreement, it requires any drawings other than those listed in Annex-I, it may by notice require the Contractor to prepare and furnish such drawings forthwith. Upon receiving a requisition to this effect, the Contractor shall promptly prepare and furnish such drawings to the Authority's Engineer, as if such drawings formed part of Annex-I of this Schedule-I.

Annex-I

(Schedule-I)

List of Drawings

A minimum list of the drawings of the various components/ elements of the Project Highway and project facilities required to be submitted by the Contractors is given below:

- a) Drawings of horizontal alignment, vertical profile, and detailed cross sections.
- b) Drawings of cross-drainage works.
- c) Drawings of Major intersections, Major bridges, Grade Separated Structures, Viaducts, etc.
- d) Drawing of road furniture including traffic signage, marking, safety barriers, etc.
- e) Drawing of traffic diversion plan.
- f) Drawing as per instruction of Authority's Engineer.
- g) General arrangement showing the area of base camp and administrative block.
- h) General arrangement showing electrical works.

Schedule - J

(See Clause 10.3 (ii))

Project Completion Schedule

1. Project Completion Schedule

During the Construction period, the Contractor shall comply with the requirements outlined in this Schedule-J for each of the Project Milestones and the Scheduled Completion Date. Within 15 (fifteen) days of the date of each Project Milestone, the Contractor shall notify the Authority of such compliance along with necessary particulars thereof.

2. Project Milestone-I

- (i) Project Milestone-I shall occur on the date falling on the **120 days** from the Appointed Date (the “**Project Milestone- I**”).
- (ii) Before the occurrence of Project Milestone-I, the Contractor shall have commenced construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than **10% (ten percent)** of the Contract Price.

3. Project Milestone-II

- (i) Project Milestone-II shall occur on the date falling on the **240 days** from the Appointed Date (the “**Project Milestone- II**”).
- (ii) Before the occurrence of Project Milestone-II, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than **40% (thirty-five percent)** of the Contract Price.

4. Project Milestone-III

- (i) Project Milestone-III shall occur on the date falling on the **360 days** from the Appointed Date (the “**Project Milestone- III**”).
- (ii) Before the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 70% (seventy percent) of the Contract Price.

5. Scheduled Completion Date

- (i) The Scheduled Completion Date shall occur on **the 548 days** from the Appointed Date.
- (ii) On or before the Scheduled Completion Date, the Contractor shall have completed construction under this Agreement.

6. Extension of time

Upon extension of any or all of the aforesaid Project Milestones or the Scheduled Completion Date, as the case may be, under and under the provisions of this Agreement, the Project Completion Schedule shall be deemed to have been amended accordingly.

Schedule - K

(See Clause 12.1 (ii))

Tests on Completion

1. Schedule for Tests

- (i) The Contractor shall, no later than 30 (thirty) days before the likely completion of construction, notify the Authority's Engineer and the Authority of its intent to subject the Project Highway to Tests, and no later than 10(ten) days before the actual date of Tests, furnish to the Authority's Engineer and the Authority detailed inventory and particulars of all works and equipment forming part of Works.
- (ii) The Contractor shall notify the Authority's Engineer of its readiness to subject the Project Highway to Tests at any time after 10 (ten) days from the date of such notice, and upon receipt of such notice, the Authority's Engineer shall, in consultation with the Contractor, determine the date and time for each Test and notify the same to the Authority who may designate its representative to witness the Tests. The Authority's Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted under Article 12 and this Schedule-K.

2. Tests

- (i) Visual and physical test: The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include [***].
- (ii) Riding quality test: The riding quality of each lane of the carriageway shall be checked with the help of a Network Survey Vehicle (NSV) fitted with the latest equipment and the maximum permissible roughness for purposes of this Test shall be [2,000 (two thousand)] mm for each kilometer.
- (iii) Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted under the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Nondestructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges with a span of 15 (fifteen) meters or more shall also be subjected to load testing.
- (iv) The contractor shall perform control test of bridges & roads on regular basis from any reputed I.I.T/N.I.T/NABL accredited laboratory as per codal provisions. A comprehensive quality control report from any I.I.T, approved by authority, shall be submitted on quarterly basis by the contractor at his own cost.
- (v) Other tests: The Authority's Engineer may require the Contractor to carry out or cause to be carried additional tests, under Good Industry Practice, for determining the compliance of the Project Highway with Specifications and Standards, except tests as specified in clause 5, but shall include measuring the reflectivity of road markings and

road signs; and measuring the illumination level (lux) of lighting using requisite testing equipment.

- (vi) Environmental audit: The Authority's Engineer shall carry out a check to determine conformity of the Project Highway with the environmental requirements outlined in Applicable Laws and Applicable Permits.
- (vii) Safety Audit: The Authority's Engineer shall carry out, or cause to be carried out, a safety audit to determine conformity of the Project Highway with the safety requirements and Good Industry Practice.

3. Agency for Conducting Tests

All Tests outlined in this Schedule-K shall be conducted by the Authority's Engineer or such other agency or person as it may specify in consultation with the Authority.

4. Completion Certificate

Upon successful completion of Tests, the Authority's Engineer shall issue the Completion Certificate under the provisions of Article 12.

- 5. The Authority Engineer will carry out tests with the following equipment at his own cost in the presence of the contractor's representative.

Sr. No.	Key metrics of Asset	Equipment to be used	Frequency of condition survey
1	Surface defects of pavement	Network Survey Vehicle (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
2	Roughness of pavement	Network Survey Vehicle (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
3	Strength of pavement	Falling Weight De-flectometer (FWD)	At least once a year
4	Bridges	Mobile Bridge Inspection Unit (MBU)	At least twice a year (As per survey months defined for the state basis rainy season)
5	Road signs	Retro-reflectometer	At least twice a year (As per survey months defined for the state basis rainy season)

The first testing with the help of NSV shall be conducted at the time of issue of the Completion Certificate.

Schedule - L

(See Clause 12.2)

Completion Certificate

- 1 I, (Name of the Authority's Engineer), acting as the Authority's Engineer, under and under the Agreement dated(the "Agreement"), for [Construction of the] (the "Project Highway") on Engineering, Procurement, and Construction...(EPC) basis through (Name of Contractor), hereby certify that the Tests under Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safely and reliably placed in service of the Users thereof.
- 2 It is certified that, in terms of the aforesaid Agreement, all works forming part of Project Highway have been completed, and the Project Highway is hereby declared fit for entry into operation on this the day of 20..., Scheduled Completed Date for which was the day of20....

SIGNED, SEALED AND DELIVERED

For and on behalf of the Authority's Engineer by:

(Signature)

(Name)

(Designation) (Address)

Schedule - M

(See Clauses 14.6, 15.2 and 19.7)

Payment Reduction for Non-Compliance

1. Payment reduction for non-compliance with the Maintenance Requirements

- (i) Monthly lump sum payments for maintenance shall be reduced in the case of non-compliance with the Maintenance Requirements outlined in Schedule E.
- (ii) Any deduction made on account of non-compliance with the Maintenance Requirements shall not be paid even after compliance subsequently. The deductions shall continue to be made every month until compliance is done.
- (iii) The Authority's Engineer shall calculate the amount of payment reduction based on weightage in percentage assigned to non-conforming items as given in Paragraph 2.

2. Percentage reductions in lump sum payments on a monthly basis

- (i) The following percentages shall govern the payment reduction:

S. No.	Item/Defect/Deficiency	Percentage
(a)	Carriageway/Pavement	
(i)	Potholes, cracks, and other surface defects	15%
(ii)	Repairs of Edges, Rutting	5%
(b)	Road, Embankment, Cuttings, Shoulders	
(i)	Edge drop, inadequate cross fall, undulations, settlement, potholes, ponding, obstructions	10%
(ii)	Deficient slopes, rain cuts, disturbed pitching, vegetation growth, pruning of trees	5%
(c)	Bridges and Culverts	
(i)	De-silting, cleaning, vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to foundations	20%
(ii)	Any Defects in superstructures, bearings, and sub-structures	10%

S. No.	Item/Defect/Deficiency	Percentage
(iii)	Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers	5%
(d)	Roadside Drains	
(i)	Cleaning and repair of drains	5%
(e)	Road Furniture	
(i)	Cleaning, painting, and replacement of road signs, delineators, road markings, 200 m/km/5 th km stones	5%
(f)	Miscellaneous Items	
(i)	Removal of dead animals, broken down/accident vehicles, fallen trees, road blockades, or malfunctioning mobile crane	10%
(ii)	Any other Defects under paragraph 1.	5%
(g)	Defects in Other Project Facilities	5%

- (ii) The amount to be deducted from the monthly lump-sum payment for non-compliance with a particular item shall be calculated as under:

$$R = \frac{P}{100} \times (M1 \text{ or } M2) \times \frac{L1}{L}$$

Where,

P= Percentage of particular item/Defect/deficiency for deduction

M1= Monthly lump-sum payment under para 1.2 above of this Schedule

M2= Monthly lump-sum payment under para 1.2 above of this Schedule

L1= Non-complying length L = Total length of the road,

R= Reduction (the amount to be deducted for non-compliance for a particular item/Defect/deficiency)

The total amount of reduction shall be arrived at by summation of reductions for such items/Defects/deficiency or non-compliance.

For any Defect in a part of one kilometer, the non-conforming length shall be taken as one kilometer.

Schedule - N

(See Clause 18.1 (i))

TOR of Authority's Engineer

1. Terms of Reference

The Terms of Reference for the Authority's Engineer (the "**TOR**") shall substantially conform with Annex 1 to this Schedule N.

Annex – I

(Schedule - N)

Terms of Reference for Authority's Engineer

1. Scope

- (i) This TOR shall apply to the construction and maintenance of the Project Highway.

2. Definitions and interpretation

- (i) The words and expressions beginning with or in capital letters and not defined herein but defined in the Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Agreement.
- (ii) References to Articles, Clauses, and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be references to the Articles, Clauses, and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.
- (iii) The rules of interpretation stated in Article 1 of the Agreement shall apply, mutatis mutandis, to this TOR.

3. General

- (i) The Authority's Engineer shall discharge its duties in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.
- (ii) The Authority's Engineer shall perform the duties and exercise the authority under the provisions of this Agreement, but subject to obtaining prior written approval of the Authority before determining:
 - (a) any Time Extension;
 - (b) any additional cost to be paid by the Authority to the Contractor;
 - (c) the Termination Payment; or
 - (d) issuance of Completion Certificate or
 - (e) any other matter which is not specified in (a), (b), (c), or (d) above and which creates a financial liability on either Party.
- (iii) The Authority's Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month.
- (iv) The Authority's Engineer shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority's

prior approval under the provisions of Clause 18.2.

- (v) The Authority's Engineer shall aid and advise the Authority on any proposal for a Change of Scope under Article 13.
- (vi) In the event of any disagreement between the Parties regarding the meaning, scope, and nature of Good Industry Practice, as outlined in any provision of the Agreement, the Authority's Engineer shall specify such meaning, scope, and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

4. Construction Period

- (i) During the Construction Period, the Authority's Engineer shall review and approve the Drawings furnished by the Contractor along with supporting data, including the geotechnical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant under the provisions of Clause 10.1 (vi). The Authority's Engineer shall complete such review and approval and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however, that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended up to 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.
- (ii) The Authority's Engineer shall review and approve any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving such Drawings.
- (iii) The Authority's Engineer shall review and approve the Quality Assurance Plan submitted by the Contractor and shall convey its comments to the Contractor within 21 (twenty-one) days stating the modifications, if any, required thereto.
- (iv) The Authority's Engineer shall complete the review and approval of the methodology proposed to be adopted by the Contractor for executing the Works, and convey its comments to the Contractor within 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.
- (v) The Authority's Engineer shall grant written approval to the Contractor, where necessary, for the interruption and diversion of the flow of traffic in the existing lane(s) of the Project Highway for purposes of maintenance during the Construction Period under the provisions of Clause 10.4.
- (vi) The Authority's Engineer shall review the monthly progress report furnished by the Contractor and send its comments thereon to the Authority and the Contractor within 7 (seven) days of receipt of such report.
- (vii) The Authority's Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies.

In particular, the Authority's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.

- (viii) The Authority's Engineer shall conduct the pre-construction review of manufacturer's test reports and standard samples of manufactured Materials, and such other Materials as the Authority's Engineer may require.
- (ix) To determine that the Works conform to Specifications and Standards, the Authority's Engineer shall require the Contractor to carry out or cause to be carried out, tests at such time and frequency and in such manner as specified in the Agreement and under Good Industry Practice for quality assurance. For purposes of this Paragraph 4 (ix), the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the "Quality Control Manuals") or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.
- (x) The Authority's Engineer shall test check at least 50 (fifty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.
- (xi) The timing of tests referred to in Paragraph 4 (ix) and the criteria for acceptance/rejection of their results shall be determined by the Authority's Engineer under the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its quality assurance under Good Industry Practice.
- (xii) If the results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Authority's Engineer shall require the Contractor to carry out remedial measures.
- (xiii) The Authority's Engineer may instruct the Contractor to execute any work that is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event, or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.
- (xiv) In the event that the Contractor fails to achieve any of the Project Milestones, the Authority's Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority's Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority's Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.
- (xv) The Authority's Engineer shall obtain from the Contractor a copy of all the Contractor's quality control records and documents before the Completion Certificate is issued under Clause 12.2.

- (xvi) The authority's Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measures, the Authority's Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.
- (xvii) If the Contractor carries out any remedial measures to secure the safety of suspended works and Users and requires the Authority's Engineer to inspect such works, the Authority's Engineer shall inspect the suspended works within 3 (three) days of receiving such notice, and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.
- (xviii) The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate, as the case may be. For carrying out its functions under Paragraph 4 (xviii) and all matters incidental thereto, the Authority's Engineer shall act under and under the provisions of Article 12 and Schedule K.

5. Maintenance Period

- (i) The Authority's Engineer shall aid and advise the Contractor in the preparation of its monthly Maintenance Programme and for this purpose carry out a joint monthly inspection with the Contractor.
- (ii) The Authority's Engineer shall undertake regular inspections, at least once every month, to evaluate compliance with the Maintenance Requirements and submit a Maintenance Inspection Report to the Authority and the Contractor.
- (iii) The Authority's Engineer shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, to determine that the Project Highway conforms with the Maintenance Requirements. It shall monitor and review the results of such tests and the remedial measures, if any, taken by the Contractor on this behalf.
- (iv) In respect of any defect or deficiency referred to in Paragraph 3 of Schedule- E, the Authority's Engineer shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration concerning the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.
- (v) The Authority's Engineer shall examine the request of the Contractor for closure of any lane(s) of the Project Highway for undertaking maintenance/repair thereof and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Authority's Engineer shall monitor the reopening of such lane(s), and in case of delay, determine the Damages payable by the Contractor to the Authority under Clause 14.5.

6. Determination of costs and time

- (i) The Authority's Engineer shall determine the costs, and/or their reasonableness, that

are required to be determined by it under the Agreement.

- (ii) The Authority's Engineer shall determine the period Extension that is required to be determined by it under the Agreement.
- (iii) The Authority's Engineer shall consult each Party in every case of determination under the provisions of Clause 18.5.

7. Payments

- (i) The Authority's Engineer shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority's Engineer under the provisions of Clause 10.2 (iv) (d).
- (ii) Authority's Engineer shall -
 - (a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor under Clause 19.4, determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment, pending issue of the Interim Payment Certificate; and
 - (b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable to the Contractor, after adjustments under the provisions of Clause 19.10.
- (iii) The Authority's Engineer shall, within 15 (fifteen) days of receipt of the Monthly Maintenance Statement from the Contractor under Clause 19.6, verify the Contractor's monthly statement and certify the amount to be paid to the Contractor under the provisions of the Agreement.
- (iv) The Authority's Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance under the provisions of Clause 19.16.

8. Other duties and functions

The Authority's Engineer shall perform all other duties and functions as specified in the Agreement.

9. Miscellaneous

- (i) A copy of all communications, comments, instructions, Drawings, or Documents sent by the Authority's Engineer to the Contractor under this TOR, and a copy of all the test results with comments of the Authority's Engineer thereon, shall be furnished by the Authority's Engineer to the Authority forthwith.
- (ii) The Authority's Engineer shall retain at least one copy of each of all Drawings and Documents received by it, including 'as-built' Drawings, and keep them in its safe custody.

- (iii) Within 90 (ninety) days of the Project Completion Date, the Authority's Engineer shall obtain a complete set of as-built Drawings, in 2 (two) hard copies and microfilm form or such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities; and shall hand them over to the Authority against receipt thereof.
- (iv) The Authority's Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.
- (v) The Authority's Engineer shall inform the Authority and the Contractor of any event of the Contractor's Default within one week of its occurrence.

Schedule - 0

(See Clauses 19.4 (i), 19.6 (i), and 19.8 (i))

Forms of Payment Statements

1. Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

- (a) the estimated amount for the Works executed under Clause 19.3 (i) after the last claim;
- (b) amounts reflecting adjustments in price for the aforesaid claim;
- (c) the estimated amount of each Change of Scope order executed after the last claim;
- (d) amounts reflecting adjustment in price, if any, for (c) above under the provisions of Clause 13.2 (iii) (a);
- (e) total of (a), (b), (c), and (d) above;
- (f) Deductions:
 - i. Any amount to be deducted under the provisions of the Agreement except taxes;
 - ii. Any amount towards deduction of taxes; and
 - iii. Total of (i) and (ii) above.
- (g) Net claim: (e) – (f) (iii);
- (h) The amounts received by the Contractor up to the last claim:
 - i. For the Works executed (excluding Change of Scope orders);
 - ii. For Change of Scope Orders, and
 - iii. Taxes deducted

2. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

- (a) the monthly payment admissible under the provisions of the Agreement;
- (b) the deductions for maintenance work not done;
- (c) net payment for maintenance due, (a) minus (b);
- (d) amounts reflecting adjustments in price under Clause 19.12; and
- (e) amount towards the deduction of taxes

3. Contractor's claim for Damages

Note: The Contractor shall submit its claims in a form acceptable to the Authority.

Schedule - P

(See Clause 20.1)

Insurance

1. Insurance during the Construction Period

- (i) The Contractor shall effect and maintain at its own cost, from the Appointed Date till the date of issue of the Completion Certificate, the following insurances for any loss or damage occurring on account of Non-Political Event of Force Majeure, malicious act, accidental damage, explosion, fire, and terrorism:
 - (a) insurance of Works, Plant, and Materials and an additional sum of [15 (fifteen)] percent of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature; and
 - (b) insurance for the Contractor's equipment and Documents brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.
- (ii) The insurance under sub-para (a) and (b) of paragraph 1(i) above shall cover the Authority and the Contractor against all loss or damage from any cause arising under paragraph 1.1 other than risks that are not insurable at commercial terms.

2. Insurance for Contractor's Defects Liability

The Contractor shall effect and maintain insurance cover of not less than 15% of the Contract Price for the Works from the date of issue of the Completion Certificate until the end of the Defects Liability Period for any loss or damage for which the Contractor is liable and which arises from a cause occurring before the issue of the Completion Certificate. The Contractor shall also maintain other insurances for maximum sums as may be required under the Applicable Laws and Good Industry Practice.

3. Insurance against injury to persons and damage to property

- (i) The Contractor shall insure against its liability for any loss, damage, death or bodily injury, or damage to any property (except things insured under Paragraphs 1 and 2 of this Schedule or to any person (except persons insured under Clause 20.9), which may arise out of the Contractor's performance of this Agreement. This insurance shall be for a limit per occurrence of not less than the amount stated below with no limit on the number of occurrences.

The insurance cover shall be not **less than Rs. 15 lacs**.

- (ii) The insurance shall be extended to cover liability for all loss and damage to the Authority's property arising out of the Contractor's performance of this Agreement excluding:
 - (a) the Authority's right to have the construction works executed on, over, under, in, or through any land, and to occupy this land for the Works; and
 - (b) damage which is an unavoidable result of the Contractor's obligations to execute the Works.

(iii) **Insurance to be in joint names**

The insurance under paragraphs 1 to 3 above shall be in the joint names of the Contractor and the Authority.

Schedule-Q

(See Clause 14.10)

Tests on Completion of Maintenance Period

1. Riding Quality test:

Riding quality test: The riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be [2,200 (two thousand and two hundred only)] mm for each kilometer.

2. Visual and physical test:

The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include measurement of cracking, rutting, stripping, and potholes and shall be as per the requirement of maintenance mentioned in Schedule-E.

Schedule-R

(See Clause 14.10)

Taking Over Certificate

I, (Name and designation of the Authority's Representative) under and under the Agreement dated..... (the "**Agreement**"), for [Construction of the] (the "**Project Highway**") on Engineering, Procurement, and Construction (EPC) basis through.

(Name of Contractor), hereby certify that the Tests on completion of Maintenance Period under Article 14 of the Agreement has been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement and I hereby certify that the Authority has taken over the Project Highway from the Contractor on this day.....

SIGNED, SEALED AND DELIVERED

(Signature)

(Name and designation of Authority's Representative)

(Address)

******* End of the Document *******

GEOTECHNICAL REPORT

ISO/IEC 17025 Accredited Testing Laboratory by NABL



2026

ASL- 140

PROJECT: SUB-SOIL INVESTIGATION FOR
CONSTRUCTION OF RAILWAY OVER BRIDGE AT
RAILWAY L.C.-16C SITUATED ON BAKSHI KA
TALAB - ASTI ROAD, LUCKNOW.

SUBMITTED TO:

UTTAR PRADESH STATE BRIDGE
CORPORATION LTD. BRIDGE
CORPORATION, UNIT-1



ARUN SOIL LAB PRIVATE LIMITED

Geotech & Material Consultants for Civil Engineering Projects

Registered Office: E-11, First Floor, Lekhraj Market-I,
Indira Nagar, Lucknow- 226016

Main Laboratory: 636/110, Budh Vihar, Takrohi,
Indira Nagar, Lucknow-227105

Mob: 9415025566, 9415501637

Email: arunsoillab.asl@gmail.com, info@arunsoillab.com

"QUALITY CONSCIOUSNESS IS OUR CORE CONCEPT"



ISO/IEC 17025 Accredited Laboratory
(NABL accredited lab)

ARUN SOIL LAB PVT LTD

Geotech Investigation Report No. **ASL-140-2026**

ACKNOWLEDGEMENT

PROJECT: SUB-SOIL INVESTIGATION FOR CONSTRUCTION OF RAILWAY OVER BRIDGE AT RAILWAY L.C.-16C SITUATED ON BAKSHI KA TALAB - ASTI ROAD, LUCKNOW.

CLIENT: - UTTAR PRADESH STATE BRIDGE CORPORATION LTD. BRIDGE CORPORATION, UNIT-1

Subject: - Geotechnical Investigation Report

Dear Sir,

The investigation ends up with conclusions and recommendations relevant to the findings in addition to the laboratory test results, also attached herewith.

We look forward for further co-operation if any, whenever required. For any further clarification concerning the report, please contact us at your convenience.

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



ISO/IEC 17025 Accredited Laboratory
(NABL accredited lab)

ARUN SOIL LAB PVT LTD

Geotech Investigation Report No. **ASL-140-2026**

CONTENTS

1. INTRODUCTION	1
2. PLANING AND DETAILS OF THE SOIL TEST REPORT	1-2
3. SUMMARY OF FIELD WORK	2
4. GOOGLE EARTH IMAGE	3
5. REFERENCES	4
6. LIQUEFACTION	5-7
6.1. LIQUEFACTION ASSESMENT	7
7. METHODOLOGY OF INVESTIGATION	8
a. STANDARD PENETRATION TEST (SPT)	8
b. UNDISTURBED SOIL SAMPLES (UDS)	9
8. LABORATORY TESTS	10
9. CLASSIFICATION AND ABBREVIATIONS	11
10. SUB SURFACE CONDITION	12
a. GENERAL NATURE OF SOIL STRATA	12
b. SPT VALUES	12
c. WATER TABLE	12
11. HARMFUL SALT	13
12. CALCULATION METHODOLOGY	14-17
13. RECOMMENDATIONS	18-19
14. BEARING CAPACITY CALCULATIONS	ANNEXURE-I
15. LIQUEFACTION ANALYSIS	ANNEXURE-II
16. RESULTS SHEETS	ANNEXURE-III
17. BORE-LOG CHARTS	ANNEXURE-IV
18. TRIAXIAL SHEAR / DIRECT SHEAR GRAPHS	ANNEXURE-V
19. CONSOLIDATION GRAPH	ANNEXURE-VI
20. SITE PHOTOGRAPH	ANNEXURE-VII

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



GEOTECHNICAL INVESTIGATION REPORT FOR “PROPOSED CONSTRUCTION OF RAILWAY OVER BRIDGE AT RAILWAY L.C.-16C SITUATED ON BAKSHI KA TALAB - ASTI ROAD, LUCKNOW.”

1. INTRODUCTION

The object of the investigation was to study the geo-technical properties of soil both in field and laboratory and determine safe allowable pressure for the foundation soil. In order to collect data and achieve the project objectives, studies and site Investigations were conducted. Main purpose of these studies was to obtain the relevant geotechnical design data including sub-surface profile (soil/rock interface), classification, behavior, and engineering properties, i.e., Density, strength and compressibility of sub-surface soil, groundwater table and its fluctuation, the potential occurrence of contaminated ground or groundwater that might be hazardous to the durability of construction material. The investigation was planned through boreholes/field tests (SPT), collections of disturbed / un-disturbed soil samples, collection of water samples, relevant laboratory tests.

The report includes the field investigation, laboratory testing, analysis and interpretations of the test results by Geo-technical expert with assessment and recommendations for the properties essential to the design of foundations.

2. PLANING AND DETAILS OF THE SOIL TEST REPORT

Recommendation of the suitable and economical foundation type and dimensions for the structure based on boreholes done at site to assess the penetration resistance (SPT) of soil and obtain soil samples, both disturb and undisturbed (wherever possible) for classification tests and



other laboratory tests for determining index and engineering properties of soil and ground water location.

All locations & Ground levels of boreholes were given by client for Field investigations, field tests, sampling and laboratory testing as per relevant IS / IRC / MORTH specifications under the instructions of Contractor, Client, and Design Consultant.

3. SUMMARY OF FIELD WORK

The field investigation work at this site was carried out from 06/04/2026 to 13/04/2026. The following investigation work was carried out on 04 borehole of diameter 150 mm were made within the proposed layout of the structure.

Bore Hole No.	Borehole Coordinate (m)		Depth of Bore Hole	Field Work Start date	Field Completion Start date
	Easting	Northing			
01	492425	2984691	40	06/04/2026	07/04/2026
02	492396	2984689	40	08/04/2026	09/04/2026
03	492262	2984573	40	09/04/2026	11/04/2026
04	492273	2984534	40	11/04/2026	13/04/2026

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



ISO/IEC 17025 Accredited Laboratory
(NABL accredited lab)

ARUN SOIL LAB PVT LTD
Geotech Investigation Report No. **ASL-140-2026**

4. GOOGLE EARTH IMAGE

The project area is located in the Indian state of Uttar Pradesh.



Figure 1: Google Earth Image of the Area

ARUN SOIL LAB PVT. LTD.
(Geotech & Material Consultants for Civil Engineering Projects)
E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016
Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38
arunsoillab.asl@gmail.com; info@arunsoillab.com



5. REFERENCES

All field work was carried out in accordance with the latest addition of the applicable code of practice / procedures as laid down by the Bureau of Indian Standards. List of applicable codes are as below.

Field Investigation		
Sl. No.	Particular of Properties	Ref: IS Code
1.	Sub-Surface Investigation for foundation	IS 1892-2021
2.	Standard Penetration Test	IS 2131-1981
3.	Collection of Un-disturbed Sample	IS 2132-1986

Laboratory Test		
Sl. No.	Particular of Properties	Ref: IS Code
1.	Sieve Analysis / Hydrometer	IS 2720 (Part IV)
2.	Natural Moisture Content / Bulk / Dry Density	IS 2720 (Part II)
3.	Specific Gravity	IS 2720 (Part III)
4.	Liquid Limit/Plastic Limit/Plasticity Index	IS 2720 (Part V)
5.	Direct Shear Test	IS 2720 (Part XIII)
6.	Unconfined Compressive Strength test	IS 2720 (Part X)
7.	Unconsolidated Un-drained Tri-axial Test	IS 2720 (Part XI)
8.	Consolidation Test	IS 2720 (Part XV)
9.	Chemical Analysis on soil Sample / Water Sample	IS 2720 & IS 3025

Bearing Capacity		
Sl. No.	Particular of Properties	Ref: IS Code
1.	Bearing Capacity Calculation	IS 6403
2.	Settlement	IS 8009 (Part I)
3.	Maximum Permissible Settlement	IS 1904
4.	Pile Capacity Calculation	IS 2911 (Part 1/Sec 2)



6. Liquefaction:

Liquefaction is the sudden loss of shear strength of the loose fine-grained sands due to earthquake-induced vibration under saturated conditions.

Assessment of liquefaction potential of foundation strata is made as per approach proposed by IRC: SP: 114 / IS: 1893 from the SPT data and peak ground acceleration likely to occur at the site as per code. In this method, cyclic shear stress likely to be induced in the foundation strata by an Earthquake is first evaluated. Next threshold cyclic shear stress, which is good enough to cause liquefaction, is determined from SPT data and the empirical relations. Finally, comparison of these two stresses is used in the estimation of liquefaction susceptibility of the foundation strata.

Guidelines from IRC: SP:114 - 2018

Clause 8. 4.3.4 - Liquefaction may occur in case of saturated cohesion-less soil during earthquake vibration.

Clause 8. 4.4 - The evaluation of a liquefaction susceptibility may be omitted when saturated sandy soil are found at depth greater than 20 m from ground surface.

Cyclic Stress Ratio (CSR)

The equivalent average of shear stress τ_{av} likely to be induced in the foundation material due to an earthquake is calculated by using the equation

$$\tau_{av} = 0.65 * \gamma * h * (a_{max} / g) * r_d$$

τ_{av} = equivalent average of shear stress likely to be induced by DBE

γ = Unit weight of foundation material

h = depth at which cyclic shear stress is calculated

a_{max} = maximum surface acceleration

r_d = Stress reduction factor

$$= 1.0 - 0.00765 * h \quad \text{if } h < 9.15 \text{ m}$$

$$= 1.174 - 0.0267 * h \quad \text{if } h = 9.15 \text{ m to } 20 \text{ m}$$

If the equivalent average of shear stress τ_{av} is normalized with the initial effective overburden pressure (σ_o), the term is called seismic demand of soil layer or cyclic stress ratio (CSR).

$$CSR = 0.65 * (\sigma_o / (\sigma_o')) * (a_{max} / g) * r_d$$

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



Cyclic Resistance Ratio (CRR)

It expresses capacity of soil to resist liquefaction. CRR is determined using correlation between corrected blow count $(N_1)_{60}$ and CRR for earthquake of magnitude 7.5. $(N_1)_{60}$ is the SPT blow count corrected to an effective overburden pressure of 100 kpa and to hammer energy efficiency of 60 %. The corrected blow count $(N_1)_{60}$ is determined as follows.

$$(N_1)_{60} = N_m C_N C_E C_H C_B C_R C_S$$

Where,

$$N_m = \text{uncorrected SPT blow count}$$

$$C_E \text{ or } C_{HT} = \text{correction factor for hammer energy ratio,} = 0.75 \text{ (for Donut hammer with rope and pulley), } 1.33 \text{ (for Donut hammer with trip/auto)}$$

$$C_H \text{ or } C_{HW} = \text{correction factor for nonstandard hammer weight} = 0.986$$

$$C_B \text{ or } C_{BD} = \text{Correction factor for borehole dia} = 1.05 \text{ for } 150 \text{ mm dia borehole}$$

$$\begin{aligned} C_R \text{ or } C_{RL} &= \text{Correction factor for rod length} \\ &= 0.75 \text{ for } \leq 3.0 \text{ m} \\ &= 0.80 \text{ for } > 3.0 \text{ m to } 4.0 \text{ m} \\ &= 0.85 \text{ for } > 4.0 \text{ m to } 6.0 \text{ m} \\ &= 0.95 \text{ for } > 6.0 \text{ m to } 10.0 \text{ m} \\ &= 1.0 \text{ for } > 10.0 \text{ m} \end{aligned}$$

$$C_S \text{ or } C_{SS} = \text{correction factor for standard sampler} = 1.0$$

Where,

Correction factor for effective overburden pressure (C_N) is given by the following relation.

$$C_N = \text{Sqrt} (P_a / \sigma_o') \leq 1.70$$

$$\text{Where } P_a = \text{Atmospheric pressure}$$

The value of SPT blow count for soil with fines content (FC) can be adjusted to the equivalent clean sand value of $(N_1)_{60CS}$ as follows:

$$(N_1)_{60CS} = \alpha + \beta (N_1)_{60}$$

where α and β can be determined as follows.

$$\alpha = 0.0 \text{ and } \beta = 1.0 \quad \text{for } FC \leq 5.0 \%$$

$$\alpha = \exp [(1.76 - (190/FC^2))] \quad \text{for } 5.0 \% < FC < 35.0 \%$$

$$\beta = [0.99 + (FC/1000)]$$

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



$\alpha = 5.0$ and $\beta = 1.20$ for $FC \geq 35.0\%$

$CRR_M = 7.5$ is given by the following equation.

$$CRR_{M=7.5} = \frac{1}{34 - (N_1)_{60CS}} + \frac{(N_1)_{60CS}}{135} + \frac{50}{[10 * (N_1)_{60CS} + 45]^2} - \frac{1}{200}$$

Hence the CRR for a particular earthquake magnitude is determined as

$$CRR = CRR_M = 7.5 * MSF * K_\sigma * K_\alpha$$

MSF = magnitude scaling factor given by following equation

$$MSF = \frac{10^{2.24}}{M_W^{2.56}}$$

This factor is required when the magnitude is different than 7.5. The correction for high overburden stresses K_σ is required when overburden pressure is high (depth > 15 m) and can be found using following equation:

Where, σ_{vo} effective overburden pressure and P_a atmospheric pressure is measured in the same units and α is an exponent and its value depends on the relative density D_r . For $D_r = 40$ percent ~ 60 percent, $\alpha = 0.8 \sim 0.7$ and for $D_r = 60$ percent ~ 80 percent, $\alpha = 0.7 \sim 0.6$. The correction static shear stresses K_α is required only for sloping ground and is not required in routine engineering practice. Therefore, in the scope of this standard, value of K_α shall be assumed unity.

The factor of safety against liquefaction, FSL, is given as

$$FSL = CRR/CSR$$

The value of CSR and CRR are computed at different depth and depth susceptible to liquefaction is determined. Liquefaction is probable when FSL is less than 1.0.

6.1. LIQUEFACTION ASSESSMENT

The site is non-liquefiable as the type of soil met at the site does not possess those intrinsic soil properties which are susceptible to liquefaction.

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com

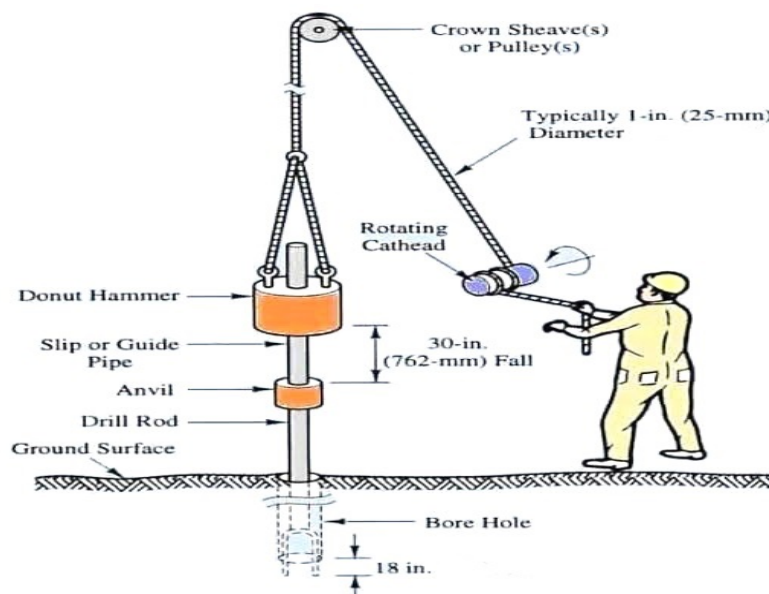


7. METHODOLOGY OF INVESTIGATION:

The investigation was planned to obtain the subsurface stratification in the proposed project site and collect soil samples for laboratory testing to determine the engineering properties such as shear strength, along with basic engineering classification of the subsurface stratum to arrive at the foundation design parameters.

Standard Penetration Test (SPT)

Conducted in the boreholes at every 1.50 m interval and change of strata as per specifications. Standard split spoon sampler attached to lower end of drill rods was driven in the boreholes by means of standard hammer of 63.50 kg falling freely from a height of 75 cm. The sampler was driven 45 cm as per specifications and number of blows required for each 15 cm penetration was recorded. The number of blows for the first 15 cm penetration was not taken into account as it is considered seating drive. The number of blows for next 30 cm penetration was designated as SPT 'N' value. Wherever the total penetration was less than 45 cm, the number of blows & the depth penetrated is incorporated in respective bore logs. Disturbed Soil samples obtained from standard split spoon sampler were collected in polythene bags of suitable size. These samples were properly sealed, labeled, recorded and carefully transported to laboratory for testing.



DIAGRAMMATIC OF SPT

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



CONSISTENCY / RELATIVE DENSITY OF SOIL WITH SPT VALUES AS PER IRC: 75-2015

CORRELATION FOR CLAY/PLASTIC SILT		CORRELATION FOR SAND/NON-PLASTIC SILT	
Consistency	Penetration Value	Relative Density	Penetration Value
Very Soft	0 to 2 Blows	Very loose	0 to 4 Blows
Soft	2 to 4 Blows	Loose	5 to 10 Blows
Medium Stiff	4 to 8 Blows	Medium	11 to 30 Blows
Stiff	8 to 15 Blows	Dense	31 to 50 Blows
Very Stiff	15 to 30 Blows	Very Dense	Above 50
Hard	Above 30		

UNDISTURBED SAMPLE (UDS):

Collected from the boreholes at every 1.50 m interval & change of strata as per sampling specifications, in thin-walled sampling tubes of 100 mm dia. and 450 mm length. These sampling tubes after retrieval from the boreholes were properly waxed and sealed at both ends. These were carefully labeled and transported to the laboratory for testing. UDS wherever slipped during lifting, were duly marked in the bore logs as well in the soil profile.



ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



8. LABORATORY TESTS:

The following laboratory tests were conducted to determine the engineering characteristics of sub-soils:

Natural moisture contents were determined by oven drying method as per IS 2720 (Part II)-1973. The results have been reported in result sheet attached.

Dry and Bulk density of soil strata were obtained using Shelby tubes in accordance with IS 2720 (Part XXIX)-1975. The results have been reported in result sheet attached.

Particle size analysis test by hydrometer method were performed in accordance with IS 2720 (Part IV) - 1965 on the part of soil samples obtained after the sieve analysis. The results have been reported in result sheet attached.

Atterberg Limits' tests were performed in accordance with IS 2720 (Part V) - 1985 and results have been reported in result sheet attached.

Specific gravity tests were performed in accordance with IS 2720 (Part III Section1) -1980 and the results have been reported in result sheet attached.

Triaxial Compression Test under Unconsolidated Un-drained (UU) condition as per IS: 2720 (Part-XI)-2011 were performed on the undisturbed soil samples obtained during the field investigation. The results have been reported in result sheet attached.

Direct shear tests were performed as per IS 2720 (Part XIII)-2015, on the undisturbed soil samples obtained during the field investigation. The results and the density of samples have been reported in result sheet attached.

Consolidation tests were performed as per IS 2720 (Part XV)-1986, on the undisturbed soil samples obtained during the field investigation. The result in the form of compression index (Cc) is reported in result sheet attached.

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

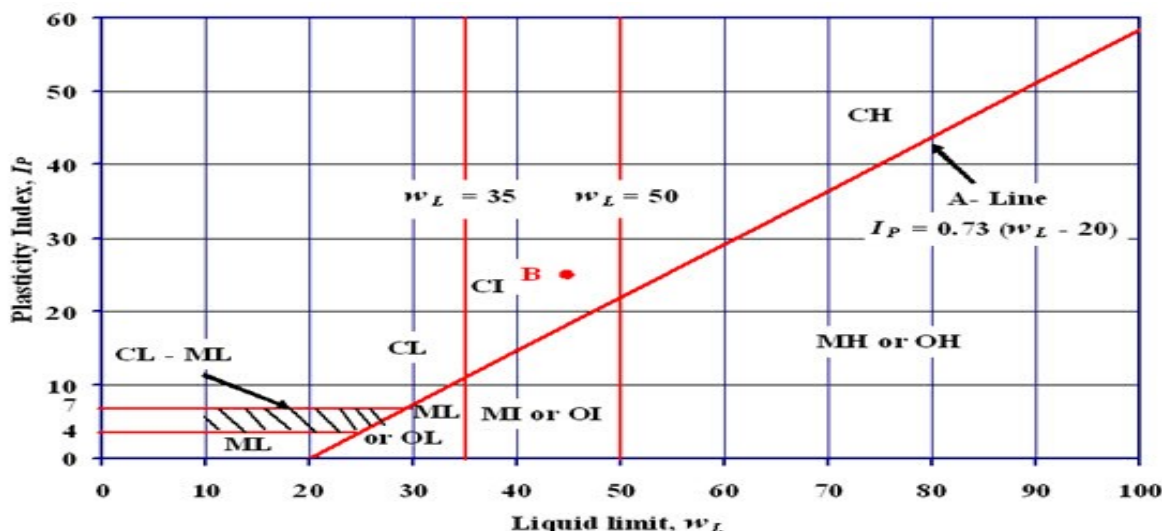
E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



9. CLASSIFICATION OF SOIL



FOR COHESIVE SOIL	
Plasticity	Liquid Limit
Low Plastic	<35
Medium Plastic	35 to 50
High Plastic	>50

FOR NON-COHESIVE SOIL	
Soil Classification	% Passing on IS Sieve 0.075 mm
ML	>50
SM	13-49
SM-SP	5-12
SP	1-4

ABBREVIATIONS

- CL - SILTY CLAY OF LOW PLASTICITY
- CI - SILTY CLAY OF MEDIUM PLASTICITY
- CH - SILTY CLAY OF HIGH PLASTICITY
- ML - CLAYEY SILT OF LOW PLASTICITY
- CL-ML - CLAYEY SILT OF LOW PLASTICITY
- MI - CLAYEY SILT OF MEDIUM PLASTICITY
- SC - CLAYEY SAND
- GL - GROUND LEVEL
- ML - SANDY SILT
- SM - SILTY SAND
- SM-SP - POORLY GRADED SAND-SILT MIXTURE
- SW/SP - WELL/POORLY GRADED SAND
- GSF - GENERAL SHEAR FAILURE
- LSF - LOCAL SHEAR FAILURE
- ISF - INTERMEDIATE SHEAR FAILURE
- BGL - BELOW GROUND LEVEL

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



10. SUB SURFACE CONDITION

The results of lab tests and bore hole log charts of bore holes indicate that the strata at the site is found to comprise of both cohesive soil and non-cohesive soil.

The cohesive type soil comprises of silty clay soil of low and medium plasticity and compressibility belonging to 'CL' and 'CI' group of IS classification and having 95 to 98 percent material finer than 75 microns.

The non-cohesive type soil comprises of sandy silt 'ML' and silty sand 'SM' group of IS classification and having 18 to 63 percent material finer than 75 microns.

The results of classification tests indicate that the natural soil stratum present at the Site is found to comprise of both fine-grained soils (clayey soils) and coarse-grained soils (sandy soil).

S.P.T. VALUES

The S.P.T. values obtained in the respective clayey layer region present as per bore-log charts enclosed are found to range from 5 to 27 indicating 'Medium Stiff' to 'Stiff' consistency.

The S.P.T. values obtained in the respective sandy layer region present as per bore-log charts enclosed are found to range from 21 to 89 'Medium' to 'Very Dense' relative density.

WATER TABLE

Water Table at the Site was observed at a depth of 14.60 and 16.05 metre below ground level on the day of soil investigation. However, the existing water table may rise upto ground level in the post-monsoon period. Therefore, a water table at a depth of 0.00 metre below ground level has been adopted for calculation purposes.

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



11. HARMFUL SALT ANALYSIS

Soil samples obtained from 0.00-0.50 meter, 1.00-1.45 meter and 1.45-1.90 meter depth below ground level from 04 bore holes were tested for the presence of harmful salts like Carbonates, Bicarbonates, Chlorides, Sulphates & pH test.

TABLE NO. 1

BORE HOLE NO.	DEPTH IN METER'S	CARBONAT ES %	BICARBONAT ES %	CHLORID ES %	SULPHAT ES %	pH
01	0.00-0.50	NIL	0.134	0.023	NIL	7.52
	1.00-1.45	NIL	0.101	0.026	NIL	7.61
	1.45-1.90	NIL	0.151	0.030	NIL	7.34
02	0.00-0.50	NIL	0.101	0.013	NIL	7.96
	1.00-1.45	NIL	0.134	0.017	NIL	7.48
	1.45-1.90	NIL	0.168	0.020	NIL	7.52
03	0.00-0.50	NIL	0.201	0.033	NIL	7.22
	1.00-1.45	NIL	0.134	0.036	NIL	7.36
	1.45-1.90	NIL	0.101	0.040	NIL	7.15
04	0.00-0.50	NIL	0.084	0.026	NIL	7.01
	1.00-1.45	NIL	0.151	0.030	NIL	7.12
	1.45-1.90	NIL	0.134	0.017	NIL	7.31

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



12. CALCULATION METHODOLOGY

A. ANALYSIS OF OPEN FOUNDATION

The allowable bearing capacity of the sub soil strata has been computed from shear & settlement consideration as per IS: 6403-1981, IS: 1904-1976 & IS: 8009 Part-I 1976. The details of foundation analysis are given in the subsequent pages.

From Shear Failure Criteria:

Net Safe Bearing capacity from Shear Failure consideration has been computed in accordance with IS: 6403-1981. A factor of safety of 2.5 is selected based on clause 706.3.1.1.1 of IRC 78-2014 to estimate the net safe bearing capacity from ultimate net bearing capacity.

The ultimate net bearing capacity in case of general shear failure is given by following expression,

$$q_{nu} = cN_c S_c d_c i_c + q(N_q - 1)S_q d_q i_q + \frac{1}{2} B \gamma N_\gamma S_\gamma d_\gamma i_\gamma \times W'$$

The ultimate net bearing capacity in case of local shear failure is given by following expression,

$$q'_{nu} = \frac{2}{3} cN'_c S_c d_c i_c + q(N'_q - 1)S_q d_q i_q + \frac{1}{2} B \gamma N'_\gamma S_\gamma d_\gamma i_\gamma \times W'$$

Where,

Bearing Capacity Factors	Depth Factors	Shape Factors	Inclination Factors	Water Table Correction
N_c	D_c	S_c	I_c	
N_q	D_q	S_q	I_q	W'
N_γ	D_γ	S_γ	I_γ	

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



From Settlement Failure Criteria:

Allowable Bearing Pressure from Settlement Failure consideration has been computed in accordance with IS: 8009 (Part-I). The magnitude of settlement, when foundation loads are applied, depends upon the compressibility of the underlying strata and rigidity of the substructure.

The Immediate Settlement in cohesion-less soil is estimated using SPT value as per IS: 8009 (Part-I). Zone of influence below foundation has been considered up to 1.5 times the width of the foundation.

The Consolidation settlement in cohesive soil is estimated as per IS: 8009 (Part-I). Zone of influence below foundation has been considered up to 1.5 times the width of the foundation.

Consolidation Settlement:

$$S = \sum \frac{C_c H_i}{1 + e_o} \log \left(\frac{P_o + \Delta P}{P_o} \right)$$

Design Parameters for Settlement Failure Criteria as follows:

Immediate Settlement:

For the Calculation of the Immediate Settlement using the graph of Settlement unit pressure from standard penetration test as per IS 8009 Part 1/ Sec 2 (Fig. 9).

Total settlement S_t =

$$S_t = (\text{Consolidation Settlement} + \text{Immediate Settlement}) \times \text{Rigidity factor} \times \text{Depth Correction}$$

Note: Permissible settlement is governed from Table 1 of IS: 1904 – 1986.

****Rigidity factor taken as 0.80**

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



B. CAPACITY OF PILE

AXIAL CAPACITY OF PILE IN SOIL

Axial load carrying capacity of pile is initially determined by calculating resistance from end bearing at toe/tip or wall friction/skin friction along pile surface or both. Based on soil data, the ultimate load carrying capacity (Q_u) is given by;

$$Q_u = R_u + R_f$$

where;

R_u = Ultimate base resistance,

R_f = Ultimate shaft resistance

$$R_u = A_p (1/2 D \cdot Y \cdot N_Y + P_d \cdot N_q) + A_p N_c C_p$$

A_p = cross-sectional area of pile tip, in m^2 ;

D = diameter of pile shaft, in m

Y = effective unit weight of the soil, in t/m^3

N_q & N_y = bearing capacity factors depending upon the angle of internal friction

N_c = bearing capacity factor, usually taken as 9

C_p = average cohesion at pile tip, in t/m^2

P_d = effective overburden pressure at pile tip in t/m^2

$$R_f = \sum (K_s \cdot P_{di} \cdot \tan \delta) A_{si} + \sum (\alpha \cdot c \cdot A_s) A_{si}$$

K_s = coefficient of earth pressure

P_{Di} = effective overburden pressure for the i^{th} layer, in t/m^2 along
the embedment of pile for the layer

δ = angle of wall friction between pile and soil in degrees.

It may be taken equal to angle of internal friction of soil

A_{si} = surface area of pile shaft in m^2

α = adhesion factor

c = average cohesion in t/m^2 throughout the embedded length of pile\

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



PARAMETER REFERENCES

K = Value of K may be taken as 1.50 as per IRC 78 (Clause 709.3.1)

α = Reduction factor depending upon consistency of soil.

Self-Weight of Pile = Surface area of Circle multiply with density of concrete.

Safe Pile Capacity = (Total ultimate pile capacity / Factor of safety) – (Self weight of Pile) (as per P.C. Varghese clause 9.10)

****Self weight of pile difference of weight of volume of concrete in the Pile including 10% void factor & that of weight of volume of soil replaced.**

UPLIFT CAPACITY OF PILE IN SOIL

The Ultimate uplift capacity may be calculated with the expression of shaft resistance/skin friction only, of the static formulae for compression loads and applying a reduction factor of 0.70 on the same. The weight of pile shall also be taken as acting against uplift (Clause 709.3.6.2 of IRC: 78-2014).

LATERAL LOAD CAPACITY

The Lateral Load Capacity of Pile is computed in accordance with Clause 6.5.2 of IS: 2911 (Part 1/Sec 2)-2010.

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



13. RECOMMENDATIONS FOR PROPOSED CONSTRUCTION OF RAILWAY OVER BRIDGE AT RAILWAY L.C.-16C SITUATED ON BAKSHI KA TALAB - ASTI ROAD, LUCKNOW.

SAFE PILE CAPACITY

Bore Hole	Pile Diametre	Pile Length Below Cut-off Level	Pile Cut-off Length	Safe Pile Capacity (compression)	Safe Pile Capacity (Uplift)	Load Capacity of Pile (Lateral)	Depth of fixity
	(mm)	(m)	(m)	(Tonnes)	(Tonnes)	(Tonnes)	(m)
						Fixed Head	Fixed Head
	1200	24.00	2.30	500.05	248.48	63.50	8.863
		26.00		552.52	288.90		
		28.00		605.76	329.32		
		30.00		658.48	369.74		
	1200	24.00	2.30	638.11	272.13	55.67	9.260
		26.00		698.30	317.77		
		28.00		819.20	364.09		
		30.00		881.82	411.42		
	1200	24.00	2.30	483.68	240.82	58.10	9.130
		26.00		534.84	280.33		
		28.00		626.39	320.43		
		30.00		679.91	361.44		
	1200	24.00	2.30	524.05	264.17	57.65	9.165
		26.00		576.89	304.86		
		28.00		777.78	347.45		
		30.00		837.53	392.88		

However, the Final Ultimate Bearing Capacity of the Pile must be adopted only after performing Pile Load Test on Test Pile constructed at the Site as per IS: 2911(Part-4)-1985 and actual design load requirements of the Proposed Structure.

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



ISO/IEC 17025 Accredited Laboratory
(NABL accredited lab)

ARUN SOIL LAB PVT LTD

Geotech Investigation Report No. **ASL-140-2026**

NOTE: -

The above recommendations are based on the field investigation data results and the laboratory tests results of the samples collected from the test locations and our experience in this regard. If the actual sub soil conditions during excavation for the foundations differ from that has been reported, a reference should be made to us for suggestions.

Further, the recommendations are based on the assumptions as mentioned in the Report and the designer of the Structure should take into consideration all the factors required as per codes. The recommendations should be taken as guidelines for the designer.

Er. Sushil Yadav
B.Tech. (Civil)
ASSISTANT ENGINEER
ARUN SOIL LAB PVT. LTD.

Er. Anurag Kapoor
B.Tech. (Civil), M. Tech (Geotech)
PGDM (Finance), LM - IGS & IRC
VICE CHAIRMAN
ARUN SOIL LAB Pvt. Ltd.

ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com

ANNEXURE-I
BEARING CAPACITY CALCULATIONS

SAFE LOAD CARRYING CAPACITY OF BORED CAST IN SITU PILES [AS PER IRC 78: 2014]																												
ESTIMATION OF VERTICAL COMPRESSIVE AND UPLIFT LOAD CARRYING CAPACITY OF BORED CAST IN-SITU CONCRETE PILE																												
Parameters of Pile					BORE HOLE					1					(Assumed)													
					ASL																							
					Pile Diameter (mm)					Ground Water Table (m)					(Conservative side)													
					Pile Cut off Length Below G.(m)	1200	230	100,000	Reduced Level of Borehole (m)	Average Void Factor (%)	0.00	10.00	20.00	X	Pile Diameter	FOS in Compression	FOS in Uplift	Grade of Concrete (M)										
Calculation sheet for Vertical Compressive and Uplift Load Carrying Capacity																												
Layer no	Type of Soil Layer	Pile Length Below Cut off Level	Rt. of Layer Top	Rt. of Layer Bottom	Thickness of Layer	Cohesion	Angle of Internal Friction	Bulk Density	Submerged Bulk Density	Effective Overburden Pressure	Cumulative Effective Overburden Pressure at pile tip	Bearing Capacity Factor			Total Ultimate End Bearing Capacity	Factors for Skin Friction				Skin friction in layer	Self Weight of pile	Difference in Weight of Displaced Soil and RCC	Ultimate shaft resistance	Total ultimate pile capacity	Safe Pile Capacity (compression)	Safe Pile Capacity (Uplift)		
		(m)	(m)	(m)	(m)	Kg/cm2	°	(gms/cc)	(kN/m3)	(kN/m2)	(kN/m2)	Pd	Nc	Nq	Nγ	Ru	K	Pdi	tan δ	Asi	α	(kN)	W	W'	Rf	Qu= Ru+ Rf	(kN)	(Tonnes)
1	CLAY	1.70	97.700	96.000	1.70	0.34	5	1.94	9.24	15.71	15.71	9	2.80	0.45	398.63	1.50	7.85	0.09	6.41	0.4	93.8	24.2	6.47	93.77	492.40	19.42	5.10	
2	CLAY	3.20	96.000	94.500	1.50	0.34	5	1.94	9.24	13.86	29.56	9	2.80	0.45	442.52	1.50	22.63	0.09	5.65	0.4	93.7	45.6	12.17	187.47	629.98	24.45	9.92	
3	CLAY	4.70	94.500	93.000	1.50	0.34	5	1.94	9.24	13.86	43.42	9	2.80	0.45	486.40	1.50	36.49	0.09	5.65	0.30	84.8	67.0	17.88	272.23	758.63	29.12	14.48	
4	CLAY	6.70	93.000	91.000	2.00	0.39	7	2.02	10.02	20.05	63.47	9	3.52	0.71	654.45	1.50	53.45	0.12	7.54	0.30	162.4	95.5	23.71	434.66	1089.11	42.00	21.97	
5	SAND	7.70	91.000	90.000	1.00	0.00	27	1.84	8.21	8.21	71.68	9	12.73	14.47	1112.79	1.50	67.58	0.51	3.77	0.0	194.7	109.7	28.67	629.37	1742.16	68.13	28.95	
6	SAND	9.20	90.000	88.500	1.50	0.00	27	1.84	8.21	12.32	84.00	9	12.73	14.47	1290.19	1.50	77.84	0.51	5.65	0.0	336.4	131.1	36.11	965.80	2255.99	88.33	40.70	
7	SAND	10.70	88.500	87.000	1.50	0.00	27	1.84	8.21	12.32	96.32	9	12.73	14.47	1467.59	1.50	90.16	0.51	5.65	0.0	389.7	152.5	43.56	1355.48	2823.07	110.70	53.98	
8	SAND	12.20	87.000	85.500	1.50	0.00	27	1.84	8.21	12.32	108.64	9	12.73	14.47	1644.99	1.50	102.48	0.51	5.65	0.0	442.9	173.9	51.00	1798.40	3443.40	135.25	68.77	
9	SAND	13.70	85.500	84.000	1.50	0.00	27	1.84	8.21	12.32	120.96	9	12.73	14.47	1822.39	1.50	114.80	0.51	5.65	0.0	496.2	195.2	58.45	2294.58	4116.97	161.96	85.08	
10	SAND	15.20	84.000	82.500	1.50	0.00	27	1.84	8.21	12.32	133.28	9	12.73	14.47	1999.80	1.50	127.12	0.51	5.65	0.0	549.4	216.6	65.89	2844.00	4843.80	190.85	102.92	
11	SAND	16.70	82.500	81.000	1.50	0.00	27	1.83	8.10	12.15	145.44	9	12.73	14.47	2173.70	1.50	139.36	0.51	5.65	0.0	602.3	238.0	73.52	3446.31	5620.01	221.73	122.26	
12	SAND	18.20	81.000	79.500	1.50	0.00	27	1.83	8.10	12.15	157.59	9	12.73	14.47	2348.69	1.50	151.51	0.51	5.65	0.0	654.8	259.4	81.14	4101.15	6449.84	254.80	143.11	
13	SAND	19.70	79.500	78.000	1.50	0.00	30	1.77	7.55	11.32	168.91	9	21.65	22.40	4251.00	1.50	163.25	0.58	5.65	0.0	799.5	280.7	89.71	4900.64	9151.64	364.12	168.09	
14	SAND	21.20	78.000	76.500	1.50	0.00	30	1.77	7.55	11.32	180.24	9	21.65	22.40	4528.28	1.50	174.58	0.58	5.65	0.0	854.9	302.1	98.28	5755.58	10283.86	409.43	194.66	
15	SAND	24.00	76.500	73.700	2.80	0.00	30	1.77	7.55	21.14	201.37	9	21.65	22.40	5045.87	1.50	190.81	0.58	10.56	0.0	1744.3	342.0	114.27	7499.85	12545.72	500.05	248.48	
16	SAND	24.20	73.700	73.500	0.20	0.00	30	1.77	7.55	1.51	201.37	9	21.65	22.40	5045.87	1.50	201.37	0.58	0.75	0.0	131.5	344.9	115.41	7631.34	12677.21	505.30	252.52	
17	SAND	26.00	73.500	71.700	1.80	0.00	30	1.77	7.55	13.59	201.37	9	21.65	22.40	5045.87	1.50	201.37	0.58	6.79	0.0	1183.4	370.5	125.69	8814.76	13860.63	552.52	288.90	
18	SAND	27.20	71.700	70.500	1.20	0.00	30	1.77	7.55	9.06	201.37	9	21.65	22.40	5045.87	1.50	201.37	0.58	4.52	0.0	788.9	387.6	132.54	9603.70	14649.57	584.00	313.15	
19	SAND	28.00	70.500	69.700	0.80	0.00	30	1.88	8.63	6.91	201.37	9	21.65	22.40	5062.38	1.50	201.37	0.58	3.02	0.0	526.0	399.0	136.13	10129.67	15192.05	605.76	329.32	
20	SAND	30.00	69.700	67.700	2.00	0.00	30	1.88	8.63	17.27	201.37	9	21.65	22.40	5062.38	1.50	201.37	0.58	7.54	0.0	1314.9	427.5	145.10	11444.58	16506.96	658.48	369.74	
21	SAND	31.70	67.700	66.000	1.70	0.00	30	1.88	8.63	14.68	201.37	9	21.65	22.40	5062.38	1.50	201.37	0.58	6.41	0.0	1117.7	451.7	152.72	12562.26	17624.63	703.29	404.09	
22	SAND	33.20	66.000	64.500	1.50	0.00	30	1.88	8.63	12.95	201.37	9	21.65	22.40	5062.38	1.50	201.37	0.58	5.65	0.0	986.2	473.1	159.45	13548.44	18610.82	742.82	434.41	
23	SAND	34.70	64.500	63.000	1.50	0.00	33	1.91	8.95	13.43	201.37	9	36.82	35.19	8599.79	1.50	201.37	0.65	5.65	0.0	1109.3	494.5	165.63	14657.71	23257.50	931.72	468.24	
24	SAND	36.20	63.000	61.500	1.50	0.00	33	1.91	8.95	13.43	201.37	9	36.82	35.19	8599.79	1.50	201.37	0.65	5.65	0.0	1109.3	515.9	171.82	15766.97	24366.77	976.33	502.07	
25	SAND	37.70	61.500	60.000	1.50	0.00	33	1.91	8.95	13.43	201.37	9	36.82	35.19	8599.79	1.50	201.37	0.65	5.65	0.0	1109.3	537.2	178.00	16876.24	25476.03	1020.95	535.90	

SAFE LOAD CARRYING CAPACITY OF BORED CAST IN SITU PILES [AS PER IRC 78: 2014]																											
ESTIMATION OF VERTICAL COMPRESSIVE AND UPLIFT LOAD CARRYING CAPACITY OF BORED CAST IN-SITU CONCRETE PILE																											
Parameters of Pile		BORE HOLE				2																					
		Pile Diameter (mm)		Pile Cut off Length Below G.L(m)		Ground Water Table (m)				(Conservative side)																	
		1200	2.30			Average Void Factor (%)		0.00		10.00		20.00		X		Pile Diameter		FOS in Compression			FOS in Uplift			Grade of Concrete (M)			
		100.000				Critical Depth (Pd Level)												(Assumed)									
Calculation sheet for Vertical Compressive and Uplift Load Carrying Capacity																											
Layer no	Type of Soil Layer	Pile Length Below Cut-off Level	Rt. of Layer Top	Rt. of Layer Bottom	Thickness of Layer	Cohesion	Angle of Internal Friction	Bulk Density	Submerged Bulk Density	Effective Overburden Pressure	Cumulative Effective Overburden Pressure at pile tip	Bearing Capacity Factor				Total Ultimate End Bearing Capacity	Factors for Skin Friction				Skin friction in layer	Self Weight of pile	Difference in Weight of Displaced Soil and RCC	Ultimate shaft resistance	Total ultimate pile capacity	Safe Pile Capacity (compression)	Safe Pile Capacity (Uplift)
												Nc	Nq	Nγ	Ru		K	Pdi	tan δ	Asi							
		(m)	(m)	(m)	(m)	Kg/cm2	°	(gms/cc)	(kN/m3)	(kN/m2)	(kN/m2)										(kN)	(kN)	(kN)	(kN)	(Tonnes)	(Tonnes)	
1	CLAY	1.70	97.700	96.000	1.70	0.34	10	1.91	8.93	15.19	15.19	9	4.60	1.22	432.52	1.50	7.59	0.18	6.41	0.4	100.0	24.2	7.05	100.03	532.56	21.00	5.28
2	CLAY	3.20	96.000	94.500	1.50	0.34	10	1.91	8.93	13.40	28.59	9	4.60	1.22	502.25	1.50	21.89	0.18	5.65	0.4	109.6	45.6	13.26	209.68	711.93	27.69	10.55
3	CLAY	4.70	94.500	93.000	1.50	0.47	8	1.97	9.50	14.25	42.84	9	3.88	0.86	671.94	1.50	35.72	0.14	5.65	0.4	148.9	67.0	18.52	358.57	1030.51	40.14	16.94
4	CLAY	6.20	93.000	91.500	1.50	0.47	8	1.97	9.50	14.25	57.09	9	3.88	0.86	734.47	1.50	49.97	0.14	5.65	0.4	165.9	88.4	23.77	524.45	1258.92	48.92	23.82
5	CLAY	7.70	91.500	90.000	1.50	0.47	8	1.97	9.50	14.25	71.34	9	3.88	0.86	797.01	1.50	64.22	0.14	5.65	0.30	156.3	109.7	29.03	680.74	1477.74	57.31	30.42
6	CLAY	9.20	90.000	88.500	1.50	0.47	8	1.97	9.50	14.25	85.59	9	3.88	0.86	859.54	1.50	78.47	0.14	5.65	0.30	173.3	131.1	34.28	854.01	1713.55	66.40	37.51
7	SAND	10.70	88.500	87.000	1.50	0.00	29	1.84	8.27	12.40	98.00	9	18.14	19.34	2118.86	1.50	91.79	0.55	5.65	0.0	431.6	152.5	41.63	1285.61	3404.47	134.61	51.98
8	SAND	12.20	87.000	85.500	1.50	0.00	29	1.84	8.27	12.40	110.40	9	18.14	19.34	2373.30	1.50	104.20	0.55	5.65	0.0	489.9	173.9	48.97	1775.52	4148.82	164.23	68.11
9	SAND	13.70	85.500	84.000	1.50	0.00	29	1.84	8.27	12.40	122.80	9	18.14	19.34	2627.73	1.50	116.60	0.55	5.65	0.0	548.2	195.2	56.32	2323.75	4951.48	196.21	85.92
10	SAND	15.20	84.000	82.500	1.50	0.00	29	1.84	8.27	12.40	135.20	9	18.14	19.34	2882.17	1.50	129.00	0.55	5.65	0.0	606.5	216.6	63.66	2930.29	5812.46	230.58	105.38
11	SAND	16.70	82.500	81.000	1.50	0.00	32	1.89	8.72	13.08	148.28	9	30.85	30.21	5352.13	1.50	141.74	0.62	5.65	0.0	751.3	238.0	70.25	3681.57	9033.71	361.30	128.99
12	SAND	18.20	81.000	79.500	1.50	0.00	32	1.89	8.72	13.08	161.36	9	30.85	30.21	5808.48	1.50	154.82	0.62	5.65	0.0	820.6	259.4	76.83	4502.18	10310.67	412.71	154.57
13	SAND	19.70	79.500	78.000	1.50	0.00	32	1.89	8.72	13.08	174.44	9	30.85	30.21	6264.83	1.50	167.90	0.62	5.65	0.0	889.9	280.7	83.42	5392.13	11656.96	466.95	182.13
14	SAND	21.20	78.000	76.500	1.50	0.00	32	1.89	8.72	13.08	187.52	9	30.85	30.21	6721.18	1.50	180.98	0.62	5.65	0.0	959.3	302.1	90.01	6351.40	13072.58	524.02	211.68
15	SAND	24.00	76.500	73.700	2.80	0.00	32	1.89	8.72	24.42	211.94	9	30.85	30.21	7573.04	1.50	199.73	0.62	10.56	0.0	1976.1	342.0	102.30	8327.54	15900.58	638.11	272.13
16	SAND	24.20	73.700	73.500	0.20	0.00	32	1.89	8.72	1.74	211.94	9	30.85	30.21	7573.04	1.50	211.94	0.62	0.75	0.0	149.8	344.9	103.18	8477.32	16050.36	644.13	276.69
17	SAND	26.00	73.500	71.700	1.80	0.00	32	1.89	8.72	15.70	211.94	9	30.85	30.21	7573.04	1.50	211.94	0.62	6.79	0.0	1348.0	370.5	111.08	9825.34	17398.38	698.30	317.77
18	SAND	27.20	71.700	70.500	1.20	0.00	32	1.89	8.72	10.46	211.94	9	30.85	30.21	7573.04	1.50	211.94	0.62	4.52	0.0	898.7	387.6	116.35	10724.03	18297.06	734.42	345.16
19	SAND	28.00	70.500	69.700	0.80	0.00	33	1.90	8.85	7.08	211.94	9	36.82	35.19	9037.36	1.50	211.94	0.65	3.02	0.0	622.6	399.0	119.74	11346.68	20384.04	819.20	364.09
20	SAND	30.00	69.700	67.700	2.00	0.00	33	1.90	8.85	17.70	211.94	9	36.82	35.19	9037.36	1.50	211.94	0.65	7.54	0.0	1556.6	427.5	128.22	12903.30	21940.66	881.82	411.42
21	SAND	31.70	67.700	66.000	1.70	0.00	33	1.90	8.85	15.05	211.94	9	36.82	35.19	9037.36	1.50	211.94	0.65	6.41	0.0	1323.1	451.7	135.42	14226.43	23263.79	935.06	451.64
22	SAND	33.20	66.000	64.500	1.50	0.00	33	1.90	8.85	13.28	211.94	9	36.82	35.19	9037.36	1.50	211.94	0.65	5.65	0.0	1167.5	473.1	141.78	15393.90	24431.25	982.03	487.14
23	SAND	34.70	64.500	63.000	1.50	0.00	33	1.90	8.85	13.28	211.94	9	36.82	35.19	9037.36	1.50	211.94	0.65	5.65	0.0	1167.5	494.5	148.13	16561.36	25598.72	1029.00	522.63
24	SAND	36.20	63.000	61.500	1.50	0.00	33	1.90	8.85	13.28	211.94	9	36.82	35.19	9037.36	1.50	211.94	0.65	5.65	0.0	1167.5	515.9	154.49	17728.83	26766.19	1075.96	558.12
25	SAND	37.70	61.500	60.000	1.50	0.00	34	1.95	9.28	13.92	211.94	9	43.95	41.06	10793.64	1.50	211.94	0.67	5.65	0.0	1212.6	537.2	160.11	18941.42	29735.06	1196.48	594.91

SAFE LOAD CARRYING CAPACITY OF BORED CAST IN SITU PILES [AS PER IRC 78: 2014]											
ESTIMATION OF VERTICAL COMPRESSIVE AND UPLIFT LOAD CARRYING CAPACITY OF BORED CAST IN-SITU CONCRETE PILE											
Parameters of Pile			BORE HOLE			Ground Water Table (m)			FOS in Compression		
			3			Average Void Factor (%)			FOS in Uplift		
			ASL			Critical Depth (Pd Level)			Grade of Concrete (M)		
									(Assumed)		

SAFE LOAD CARRYING CAPACITY OF BORED CAST IN SITU PILES [AS PER IRC 78: 2014]																											
ESTIMATION OF VERTICAL COMPRESSIVE AND UPLIFT LOAD CARRYING CAPACITY OF BORED CAST IN-SITU CONCRETE PILE																											
Parameters of Pile		Pile Diameter (mm)				Ground Water Table (m)				FOS In Compression				FOS In Uplift				(Assumed)									
		1200		2.30		Average Void Factor (%)		0.00		10.00		FOS in Uplift		3.50		Grade of Concrete (M)							35				
		Pile Cut off Length Below G.L(m)		BORE HOLE		Critical Depth (Pd Level)		20.00		20.00																	
		Reduced Level of Borehole (m)		4																							
ASL																											
Calculation sheet for Vertical Compressive and Uplift Load Carrying Capacity																											
Layer no	Type of Soil Layer	Pile Length Below Cut off Level	Rt. of Layer Top (m)	Rt. of Layer Bottom (m)	Thickness of Layer	Cohesion Kg/cm2	Angle of Internal Friction °	Bulk Density (gms/cc)	Submerged Bulk Density (kN/m3)	Effective Overburden Pressure (kN/m2)	Cumulative Effective Overburden Pressure at Pile tip (kN/m2)	Bearing Capacity Factor				Total Ultimate End Bearing Capacity (kN)	Factors for Skin Friction				Skin friction in layer (kN)	Self Weight of pile (kN)	Difference in Weight of Displaced Soil and RCC (kN)	Ultimate shaft resistance (kN)	Total Ultimate pile capacity (kN)	Safe Pile Capacity (compression) (Tonnes)	Safe Pile Capacity (Uplift) (Tonnes)
												Nc	Nq	Nγ	Ru		K	Pdi (kN/m2)	tan δ	Asi (m2)							
1	CLAY	1.70	97.700	96.000	1.70	0.34	8	1.97	9.48	16.11	16.11	9	3.88	0.86	422.31	1.50	8.06	0.14	6.41	0.4	98.0	24.2	6.01	98.04	520.35	20.61	5.22
2	CLAY	3.20	96.000	94.500	1.50	0.34	8	1.97	9.48	14.22	30.33	9	3.88	0.86	484.69	1.50	23.22	0.14	5.65	0.4	104.6	45.6	11.30	202.63	687.33	26.88	10.35
3	CLAY	4.70	94.500	93.000	1.50	0.46	7	1.98	9.62	14.43	44.76	9	3.52	0.71	651.02	1.50	37.54	0.12	5.65	0.30	117.1	67.0	16.36	319.77	970.79	37.93	15.83
4	CLAY	6.20	93.000	91.500	1.50	0.46	7	1.98	9.62	14.43	59.18	9	3.52	0.71	708.45	1.50	51.97	0.12	5.65	0.30	132.2	88.4	21.41	451.93	1160.39	45.15	21.75
5	SAND	7.70	91.500	90.000	1.50	0.00	28	1.84	8.27	12.40	71.59	9	15.20	16.72	1324.16	1.50	65.39	0.53	5.65	0.0	294.9	109.7	28.76	746.83	2071.00	81.54	32.31
6	SAND	9.20	90.000	88.500	1.50	0.00	28	1.84	8.27	12.40	83.99	9	15.20	16.72	1537.33	1.50	77.79	0.53	5.65	0.0	350.8	131.1	36.10	1097.67	2635.00	103.79	44.47
7	SAND	10.70	88.500	87.000	1.50	0.00	28	1.84	8.27	12.40	96.39	9	15.20	16.72	1750.49	1.50	90.19	0.53	5.65	0.0	406.8	152.5	43.45	1504.44	3254.93	128.33	58.23
8	SAND	12.20	87.000	85.500	1.50	0.00	28	1.84	8.27	12.40	108.79	9	15.20	16.72	1963.65	1.50	102.59	0.53	5.65	0.0	462.7	173.9	50.79	1967.15	3930.80	155.15	73.59
9	SAND	13.70	85.500	84.000	1.50	0.00	28	1.84	8.27	12.40	121.20	9	15.20	16.72	2176.81	1.50	115.00	0.53	5.65	0.0	518.6	195.2	58.14	2485.80	4662.61	184.25	90.55
10	SAND	15.20	84.000	82.500	1.50	0.00	28	1.84	8.27	12.40	133.60	9	15.20	16.72	2389.97	1.50	127.40	0.53	5.65	0.0	574.6	216.6	65.48	3060.38	5450.35	215.63	109.10
11	SAND	16.70	82.500	81.000	1.50	0.00	32	1.89	8.72	13.08	146.68	9	30.85	30.21	5296.21	1.50	140.14	0.62	5.65	0.0	742.8	238.0	72.07	3803.17	9099.38	363.79	132.46
12	SAND	18.20	81.000	79.500	1.50	0.00	32	1.89	8.72	13.08	159.76	9	30.85	30.21	5752.56	1.50	153.22	0.62	5.65	0.0	812.1	259.4	78.65	4615.29	10367.85	414.86	157.80
13	SAND	19.70	79.500	78.000	1.50	0.00	30	1.76	7.43	11.15	170.91	9	21.65	22.40	4298.16	1.50	165.34	0.58	5.65	0.0	809.7	280.7	87.42	5424.98	9723.14	387.67	183.07
14	SAND	21.20	78.000	76.500	1.50	0.00	30	1.76	7.43	11.15	182.06	9	21.65	22.40	4571.22	1.50	176.49	0.58	5.65	0.0	864.3	302.1	96.19	6289.28	10860.50	433.16	209.90
15	SAND	24.00	76.500	73.700	2.80	0.00	30	1.76	7.43	20.82	202.88	9	21.65	22.40	5080.93	1.50	192.47	0.58	10.56	0.0	1759.5	342.0	112.55	8048.76	13129.68	524.05	264.17
16	SAND	24.20	73.700	73.500	0.20	0.00	30	1.76	7.43	1.49	202.88	9	21.65	22.40	5080.93	1.50	202.88	0.58	0.75	0.0	132.5	344.9	113.72	8181.23	13262.16	529.33	268.24
17	SAND	26.00	73.500	71.700	1.80	0.00	30	1.76	7.43	13.38	202.88	9	21.65	22.40	5080.93	1.50	202.88	0.58	6.79	0.0	1192.3	370.5	124.24	9373.48	14454.41	576.89	304.86
18	SAND	27.20	71.700	70.500	1.20	0.00	30	1.76	7.43	8.92	202.88	9	21.65	22.40	5080.93	1.50	202.88	0.58	4.52	0.0	794.8	387.6	131.25	10168.32	15249.24	608.59	329.28
19	SAND	28.00	70.500	69.700	0.80	0.00	33	1.83	8.14	6.51	202.88	9	36.82	35.19	8643.04	1.50	202.88	0.65	3.02	0.0	596.0	399.0	135.28	10764.34	19407.38	777.78	347.45
20	SAND	30.00	69.700	67.700	2.00	0.00	33	1.83	8.14	16.29	202.88	9	36.82	35.19	8643.04	1.50	202.88	0.65	7.54	0.0	1490.1	427.5	145.36	12254.40	20897.44	837.53	392.88
21	SAND	31.70	67.700	66.000	1.70	0.00	33	1.83	8.14	13.84	202.88	9	36.82	35.19	8643.04	1.50	202.88	0.65	6.41	0.0	1266.6	451.7	153.92	13520.95	22163.99	888.31	431.49
22	SAND	33.20	66.000	64.500	1.50	0.00	33	1.83	8.14	12.21	202.88	9	36.82	35.19	8643.04	1.50	202.88	0.65	5.65	0.0	1117.5	473.1	161.49	14638.50	23281.54	933.12	465.55
23	SAND	34.70	64.500	63.000	1.50	0.00	33	1.83	8.14	12.21	202.88	9	36.82	35.19	8643.04	1.50	202.88	0.65	5.65	0.0	1117.5	494.5	169.05	15756.05	24399.08	977.93	499.62
24	SAND	36.20	63.000	61.500	1.50	0.00	33	1.83	8.14	12.21	202.88	9	36.82	35.19	8643.04	1.50	202.88	0.65	5.65	0.0	1117.5	515.9	176.62	16873.59	25516.63	1022.74	533.69
25	SAND	37.70	61.500	60.000	1.50	0.00	34	1.87	8.58	12.86	202.88	9	43.95	41.06	10323.47	1.50	202.88	0.67	5.65	0.0	1160.7	537.2	183.44	18034.33	28357.81	1137.93	568.99

ARUN SOIL LAB PVT. LTD.

LATERAL LOAD CAPACITY OF PILE

Lateral Load Capacity of Pile
[As per IS : 2911(Part 1/Sec 2)-2010, Second Revision and IRC : 78-2024]

Borehole No.	1						Reduced Level of Borehole Top:	100.00	
Type of Strata:		SAND					Pile Cut off Level:	97.70	
Grade of Concrete	M35						Scour Depth:	0.00	m
Water Table Level Below EGL(m)(Assumed) =	0.00						Scour Level:	-	-
Average 'N' Value =	20.05	Average Cohesion(kg/cm ²) =	-				Liquefaction Depth:	0.00	m
Embedded Length of Pile, L _e (m) =	20.00	f _{ck} (N/mm ²) =	35.00	Dia of Pile(m)	=	1.20			
Ground Level/Borehole Level:	100.000								
Pile Cap Bottom Level/Cut off Level:	97.700								
Max of Liquefaction & Scour Depth	0.000	m							
Modulus of Elasticity of Pile E _p (MN/m ²)	=	5000v _{f_{ck}}	N/mm ²	=	29580.3989	MN/m ²			
Moment of Inertia I (m ⁴)	=	πD ⁴ /64	m ⁴	=	0.1017876	m ⁴			
Modulus of Subgrade Reaction, η _n (MN/m ³) for Sand and Normally Consolidated Clays	=	2.84720	MN/m ³						
Modulus of Subgrade Reaction, k ₁ (MN/m ³) for Cohesive Soil	=	-	MN/m ³						
K (MN/m ³) for Cohesive Soil	=	-	MN/m ³						
Relative Stiffness Factor for Sand and Normally Consolidated Clay, T (m)	=	5v(EI/η _n)	=	4.02580	m				
Relative Stiffness Factor for Preloaded Clays, R (m)	=	4v(EI/KB)	=	-	m				
Behaviour of Pile(Long, Short, Intermediate)		LONG (ELASTIC) PILE							
L ₁ ' or 'e'	=	0.000	m						
L ₁ /T or L ₁ /R	=	0.000000							
i) For Fixed Head Pile									
L _f /T or L _f /R	=	2.202					From Fig. 4 (IS: 2911 Part/Sec 2)-2010		
Depth to Point of Fixity (L _f or Z _f)	=	8.863	m						
Equivalent length of Cantiliver, (L)	=	8.863	m						
Pile Deflection at Scour Level/Liquefaction Level	=	1% of Pile Dia	=	0.012	m				
Pile Deflection at Pile Head	=	0.0120	m						
Lateral Load Capacity, H =	12 EI Y/(e + z _f) ³	=	622.72	kN	=	63.50	Tonnes		
ii) For Free Head Pile									
L _f /T or L _f /R =	1.900								
Depth to Point of Fixity (L _f or Z _f)	=	7.648	m						
Equivalent Length of Cantiliver, (L)	=	7.648	m						
Pile Deflection at Scour Level/Liquefaction Level	=	1% of Pile Dia	=	0.012	m				
Pile Deflection at Pile Head	=	0.0120	m						
Lateral Load Capacity, H =	3 EI Y/(e + z _f) ³	=	242.32	kN	=	24.71	Tonnes		

ARUN SOIL LAB PVT. LTD.

LATERAL LOAD CAPACITY OF PILE

Lateral Load Capacity of Pile

[As per IS : 2911(Part 1/Sec 2)-2010, Second Revision and IRC : 78-2024]

Borehole No.	2						Reduced Level of Borehole Top:	100.00	
Type of Strata:		SAND					Pile Cut off Level:	97.70	
Grade of Concrete	M35						Scour Depth:	0.00	m
Water Table Level Below EGL(m)(Assumed) =	0.00						Scour Level:	-	-
Average 'N' Value =	16.16	Average Cohesion(kg/cm ²) =	-				Liquefaction Depth:	0.00	m
Embedded Length of Pile, L _e (m) =	20.00	f _{ck} (N/mm ²) =	35.00	Dia of Pile(m)	=	1.20			
Ground Level/Borehole Level:	100.000								
Pile Cap Bottom Level/Cut off Level:	97.700								
Max of Liquefaction & Scour Depth	0.000	m							
Modulus of Elasticity of Pile E _p (MN/m ²)	=	5000v _{f_{ck}}	N/mm ²	=	29580.3989	MN/m ²			
Moment of Inertia I (m ⁴)	=	πD ⁴ /64	m ⁴	=	0.1017876	m ⁴			
Modulus of Subgrade Reaction, η _s (MN/m ³) for Sand and Normally Consolidated Clays	=	2.28704	MN/m ³						
Modulus of Subgrade Reaction, k ₁ (MN/m ³) for Cohesive Soil	=	-	MN/m ³						
K (MN/m ³) for Cohesive Soil	=	-	MN/m ³						
Relative Stiffness Factor for Sand and Normally Consolidated Clay, T (m)	=	5v(EI/η _s)	=	4.20620	m				
Relative Stiffness Factor for Preloaded Clays, R (m)	=	4v(EI/KB)	=	-	m				
Behaviour of Pile(Long, Short, Intermediate)		LONG (ELASTIC) PILE							
L ₁ ' or 'e'	=	0.000	m						
L ₁ /T or L ₁ /R	=	0.000000							
i) For Fixed Head Pile									
L _f /T or L _f /R	=	2.202					From Fig. 4 (IS: 2911 Part/Sec 2)-2010		
Depth to Point of Fixity (L _f or Z _f)	=	9.260	m						
Equivalent length of Cantiliver, (L)	=	9.260	m						
Pile Deflection at Scour Level/Liquefaction Level	=	1% of Pile Dia	=	0.012	m				
Pile Deflection at Pile Head	=	0.0120	m						
Lateral Load Capacity, H =	12 EI Y/(e + z _f) ³	=	545.98	kN	=	55.67	Tonnes		
ii) For Free Head Pile									
L _f /T or L _f /R =	1.900								
Depth to Point of Fixity (L _f or Z _f)	=	7.991	m						
Equivalent Length of Cantiliver, (L)	=	7.991	m						
Pile Deflection at Scour Level/Liquefaction Level	=	1% of Pile Dia	=	0.012	m				
Pile Deflection at Pile Head	=	0.0120	m						
Lateral Load Capacity, H =	3 EI Y/(e + z _f) ³	=	212.46	kN	=	21.66	Tonnes		

ARUN SOIL LAB PVT. LTD.

LATERAL LOAD CAPACITY OF PILE

Lateral Load Capacity of Pile

[As per IS : 2911(Part 1/Sec 2)-2010, Second Revision and IRC : 78-2024]

Borehole No.	3					Reduced Level of Borehole Top:	100.00	
Type of Strata:		SAND				Pile Cut off Level:	97.70	
Grade of Concrete	M35					Scour Depth:	0.00	m
Water Table Level Below EGL(m)(Assumed) =	0.00					Scour Level:	-	-
Average 'N' Value =	17.33	Average Cohesion(kg/cm ²) =	-			Liquefaction Depth:	0.00	m
Embedded Length of Pile, L _e (m) =	20.00	f _{ck} (N/mm ²) =	35.00	Dia of Pile(m) =	1.20			
Ground Level/Borehole Level:	100.000							
Pile Cap Bottom Level/Cut off Level:	97.700							
Max of Liquefaction & Scour Depth	0.000	m						
Modulus of Elasticity of Pile E _p (MN/m ²) =		5000v _{f_{ck}}	N/mm ²	=	29580.3989	MN/m ²		
Moment of Inertia I (m ⁴) =		πD ⁴ /64	m ⁴	=	0.1017876	m ⁴		
Modulus of Subgrade Reaction, η _s (MN/m ³) for Sand and Normally Consolidated Clays	=	2.45552		MN/m ³				
Modulus of Subgrade Reaction, k ₁ (MN/m ³) for Cohesive Soil	=	-		MN/m ³				
K (MN/m ³) for Cohesive Soil	=	-		MN/m ³				
Relative Stiffness Factor for Sand and Normally Consolidated Clay, T (m)	=	5v(EI/η _s)		=	4.14680	m		
Relative Stiffness Factor for Preloaded Clays, R (m)	=	4v(EI/KB)		=	-	m		
Behaviour of Pile(Long, Short, Intermediate)		LONG (ELASTIC) PILE						
L ₁ ' or 'e'	=	0.000	m					
L ₁ /T or L ₁ /R	=	0.000000						
i) For Fixed Head Pile								
L _f /T or L _f /R	=	2.202				From Fig. 4 (IS: 2911 Part/Sec 2)-2010		
Depth to Point of Fixity (L _f or Z _f)	=	9.130	m					
Equivalent length of Cantilever, (L)	=	9.130	m					
Pile Deflection at Scour Level/Liquefaction Level	=	1% of Pile Dia		=	0.012	m		
Pile Deflection at Pile Head	=	0.0120	m					
Lateral Load Capacity, H =	12 EI Y/(e + z _f) ³	=	569.78	kN	=	58.10	Tonnes	
ii) For Free Head Pile								
L _f /T or L _f /R =	1.900							
Depth to Point of Fixity (L _f or Z _f)	=	7.878	m					
Equivalent Length of Cantilever, (L)	=	7.878	m					
Pile Deflection at Scour Level/Liquefaction Level	=	1% of Pile Dia		=	0.012	m		
Pile Deflection at Pile Head	=	0.0120	m					
Lateral Load Capacity, H =	3 EI Y/(e + z _f) ³	=	221.72	kN	=	22.61	Tonnes	

ARUN SOIL LAB PVT. LTD.

LATERAL LOAD CAPACITY OF PILE

Lateral Load Capacity of Pile

[As per IS : 2911(Part 1/Sec 2)-2010, Second Revision and IRC : 78-2024]

Borehole No.	4					Reduced Level of Borehole Top:	100.00	
Type of Strata:		SAND				Pile Cut off Level:	97.70	
Grade of Concrete	M35					Scour Depth:	0.00	m
Water Table Level Below EGL(m)(Assumed) =	0.00					Scour Level:	-	-
Average 'N' Value =	17	Average Cohesion(kg/cm ²) =	-			Liquefaction Depth:	0.00	m
Embedded Length of Pile, L _e (m) =	20.00	f _{ck} (N/mm ²) =	35.00	Dia of Pile(m) =	1.20			
Ground Level/Borehole Level:	100.000							
Pile Cap Bottom Level/Cut off Level:	97.700							
Max of Liquefaction & Scour Depth	0.000	m						
Modulus of Elasticity of Pile E _p (MN/m ²) =		5000v _{f_{ck}} N/mm ²	=	29580.3989	MN/m ²			
Moment of Inertia I (m ⁴) =		πD ⁴ /64 m ⁴	=	0.1017876	m ⁴			
Modulus of Subgrade Reaction, η _s (MN/m ³) for Sand and Normally Consolidated Clays	=	2.40800		MN/m ³				
Modulus of Subgrade Reaction, k ₁ (MN/m ³) for Cohesive Soil	=	-		MN/m ³				
K (MN/m ³) for Cohesive Soil	=	-		MN/m ³				
Relative Stiffness Factor for Sand and Normally Consolidated Clay, T (m)	=	5v(EI/η _s)	=	4.16300	m			
Relative Stiffness Factor for Preloaded Clays, R (m)	=	4v(EI/KB)	=	-	m			
Behaviour of Pile(Long, Short, Intermediate)		LONG (ELASTIC) PILE						
L ₁ ' or 'e'	=	0.000		m				
L ₁ /T or L ₁ /R	=	0.000000						
i) For Fixed Head Pile								
L _f /T or L _f /R	=	2.202				From Fig. 4 (IS: 2911 Part/Sec 2)-2010		
Depth to Point of Fixity (L _f or Z _f)	=	9.165		m				
Equivalent length of Cantiliver, (L)	=	9.165		m				
Pile Deflection at Scour Level/Liquefaction Level	=	1% of Pile Dia	=	0.012	m			
Pile Deflection at Pile Head	=	0.0120		m				
Lateral Load Capacity, H =	12 EI Y/(e + z _f) ³	=	563.15	kN	=	57.42	Tonnes	
ii) For Free Head Pile								
L _f /T or L _f /R =	1.900							
Depth to Point of Fixity (L _f or Z _f)	=	7.908		m				
Equivalent Length of Cantiliver, (L)	=	7.908		m				
Pile Deflection at Scour Level/Liquefaction Level	=	1% of Pile Dia	=	0.012	m			
Pile Deflection at Pile Head	=	0.0120		m				
Lateral Load Capacity, H =	3 EI Y/(e + z _f) ³	=	219.14	kN	=	22.35	Tonnes	

ANNEXURE-II
LIQUEFACTION ANALYSIS



ARUN SOIL LAB PVT LTD

Typical Computation of Liquefaction Potential as per IRC:SP- 114 / IS- 1893

BOREHOLE NO.		1	Water table assumed for Calculation: 0.00 m																													
Depth below EGL, m	Type of Strata	Observed SPT Value	Saturated density (t/m³)	Submerged Density (t/m³)	Fine Content (%)	Earthquake Zone	Peak ground acceleration a _{max} /g	Earth quake magnitude (Mw)	Stress reduction coefficient (rd)	Total overburden pressure (σ _o), t/m²	Effective overburden (σ _o '), t/m²	Cyclic Stress ratio (CSR)	C _n	CE or CHT	CH or CHW	CB or CBD	CR or CRL	CS or CSS	SPT corrected (N) ₆₀	α	β	(N) _{60cs}	CRR _{M = 7.5}	Relative Density, Dr%	f	K _d	K _s	MSF	CRR	FOS	Conclusion	
1.50	CI	6	1.91	0.91	98	III	0.16	6.50	0.99	2.87	1.37	0.22	1.70	1.33	1.000	1.05	0.75	1.00	10.68	5.00	1.20	17.82	0.19	NA	NA	1.00	1.00	1.44	0.27	>1.0	Non Liquefiable	
3.00	CI	11	1.94	0.94	97	III	0.16	6.50	0.98	5.74	2.74	0.21	1.70	1.33	1.000	1.05	0.85	1.00	22.20	5.00	1.20	31.64	NA	NA	NA	1.00	1.00	1.44	NA	>1.0	Non Liquefiable	
4.50	CI	14	1.94	0.94	97	III	0.16	6.50	0.97	8.66	4.16	0.21	1.55	1.33	1.000	1.05	0.95	1.00	28.80	5.00	1.20	39.57	NA	NA	NA	1.00	1.00	1.44	NA	>1.0	Non Liquefiable	
6.00	CI	20	1.94	0.94	98	III	0.16	6.50	0.95	11.57	5.57	0.21	1.34	1.33	1.000	1.05	0.95	1.00	35.55	5.00	1.20	47.66	NA	NA	NA	1.00	1.00	1.44	NA	>1.0	Non Liquefiable	
7.50	CI	22	1.94	0.94	98	III	0.16	6.50	0.94	14.48	6.98	0.20	1.20	1.33	1.000	1.05	0.95	1.00	34.93	5.00	1.20	46.91	NA	NA	NA	1.00	1.00	1.44	NA	>1.0	Non Liquefiable	
9.00	ML-NP	27	1.84	0.84	61	III	0.16	6.50	0.93	17.40	8.40	0.20	1.09	1.33	1.000	1.05	1	1.00	41.15	5.00	1.20	54.38	NA	76.15	0.62	1.00	1.44	1.44	NA	>1.0	Non Liquefiable	
10.50	ML-NP	29	1.84	0.84	61	III	0.16	6.50	0.89	20.15	9.65	0.19	1.02	1.33	1.000	1.05	1	1.00	41.22	5.00	1.20	54.46	NA	76.22	0.62	1.00	1.44	1.44	NA	>1.0	Non Liquefiable	
12.00	ML-NP	22	1.84	0.84	58	III	0.16	6.50	0.85	22.91	10.91	0.19	0.96	1.33	1.000	1.05	1	1.00	29.41	5.00	1.20	40.30	NA	63.68	0.68	0.97	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
13.50	ML-NP	30	1.84	0.84	58	III	0.16	6.50	0.81	25.67	12.17	0.18	0.91	1.33	1.000	1.05	1	1.00	37.98	5.00	1.20	50.58	NA	72.98	0.64	0.93	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
15.00	ML-NP	31	1.84	0.84	60	III	0.16	6.50	0.77	28.42	13.42	0.17	0.86	1.33	1.000	1.05	1	1.00	37.37	5.00	1.20	49.84	NA	72.37	0.64	0.90	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
16.50	ML-NP	33	1.84	0.84	60	III	0.16	6.50	0.73	31.18	14.68	0.16	0.83	1.33	1.000	1.05	1	1.00	38.04	5.00	1.20	50.65	NA	73.04	0.63	0.87	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
18.00	ML-NP	36	1.83	0.83	54	III	0.16	6.50	0.69	33.93	15.93	0.15	0.79	1.33	1.000	1.05	1	1.00	39.83	5.00	1.20	52.79	NA	74.83	0.63	0.84	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
19.50	ML-NP	30	1.83	0.83	54	III	0.16	6.50	0.65	36.67	17.17	0.15	0.76	1.33	1.000	1.05	1	1.00	31.97	5.00	1.20	43.36	NA	66.97	0.67	0.83	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
21.00	SM	36	1.77	0.77	48	III	0.16	6.50	0.61	39.41	18.41	0.14	0.74	1.33	1.000	1.05	1	1.00	37.05	5.00	1.20	49.46	NA	72.05	0.64	0.80	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
22.50	SM	39	1.77	0.77	48	III	0.16	6.50	0.57	42.07	19.57	0.13	0.71	1.33	1.000	1.05	1	1.00	38.93	5.00	1.20	51.72	NA	73.93	0.63	0.78	1.00	1.44	1.44	NA	>1.0	Non Liquefiable

Note: Values of all Parameters are as per IRC:SP- 114 / IS 1893: 2016

CE or CHT (Correction for hammer energy ratio) = ER/60, ER for Donut hammer with trip/auto System = 80 % , Hence CE =80/60 = 1.33

C_n or C_{HT} (Correction for hammer) = 1.00

Borehole Diameter = 150 mm , Hence C_B or C_{SD} (Correction for Borehole diameter), = 1.05

C_S or C_{SS} (Correction for Standard sampler) = 1.00

K_c Correction for high overburden stress (for effective oberburden pressure>10 T/m2)

K_s Correction for static shear stress is required only for sloping ground

Note:(i)Density in filled-up soil has been taken based on correlation between SPT(N) value and density.



ARUN SOIL LAB PVT LTD

Typical Computation of Liquefaction Potential as per IRC:SP- 114 / IS- 1893

BOREHOLE NO.		2	Water table assumed for Calculation: 0.00 m																												
Depth below EGL, m	Type of Strata	Observed SPT Value	Saturated density (t/m³)	Submerged Density (t/m³)	Fine Content (%)	Earthquake Zone	Peak ground acceleration a _{max} /g	Earth quake magnitude (Mw)	Stress reduction coefficient (rd)	Total overburden pressure (σ _v), t/m²	Effective overburden (σ _v '), t/m²	Cyclic Stress ratio (CSR)	C _n	CE or CHT	CH or CHW	CB or CBD	CR or CRL	CS or CSS	SPT corrected (N ₁₆₀)	α	β	(N ₁) _{60cs}	CRR _{M = 7.5}	Relative Density, Dr%	r	K _d	K _s	MSF	CRR	FOS	Conclusion
1.50	CL	7	1.89	0.89	97	III	0.16	6.50	0.99	2.84	1.34	0.22	1.70	1.33	1.000	1.05	0.75	1.00	12.46	5.00	1.20	19.96	0.21	NA	NA	1.00	1.00	1.44	0.31	>1.0	Non Liquefiable
3.00	CL	10	1.91	0.91	96	III	0.16	6.50	0.98	5.68	2.68	0.22	1.70	1.33	1.000	1.05	0.85	1.00	20.18	5.00	1.20	29.22	0.42	NA	NA	1.00	1.00	1.44	0.61	>1.0	Non Liquefiable
4.50	CL	12	1.91	0.91	96	III	0.16	6.50	0.97	8.55	4.05	0.21	1.57	1.33	1.000	1.05	0.95	1.00	25.03	5.00	1.20	35.03	NA	NA	NA	1.00	1.00	1.44	NA	>1.0	Non Liquefiable
6.00	CI	14	1.97	0.97	97	III	0.16	6.50	0.95	11.41	5.41	0.21	1.36	1.33	1.000	1.05	0.95	1.00	25.25	5.00	1.20	35.30	NA	NA	NA	1.00	1.00	1.44	NA	>1.0	Non Liquefiable
7.50	CI	11	1.97	0.97	97	III	0.16	6.50	0.94	14.37	6.87	0.21	1.21	1.33	1.000	1.05	0.95	1.00	17.61	5.00	1.20	26.13	0.32	NA	NA	1.00	1.00	1.44	0.46	>1.0	Non Liquefiable
9.00	CI	23	1.97	0.97	95	III	0.16	6.50	0.93	17.32	8.32	0.20	1.10	1.33	1.000	1.05	1	1.00	35.22	5.00	1.20	47.26	NA	NA	NA	1.00	1.00	1.44	NA	>1.0	Non Liquefiable
10.50	CI	27	1.97	0.97	95	III	0.16	6.50	0.89	20.27	9.77	0.19	1.01	1.33	1.000	1.05	1	1.00	38.14	5.00	1.20	50.77	NA	NA	NA	1.00	1.00	1.44	NA	>1.0	Non Liquefiable
12.00	ML-NP	25	1.84	0.84	52	III	0.16	6.50	0.85	23.22	11.22	0.18	0.94	1.33	1.000	1.05	1	1.00	32.95	5.00	1.20	44.54	NA	67.95	0.66	0.96	1.00	1.44	NA	>1.0	Non Liquefiable
13.50	ML-NP	27	1.84	0.84	52	III	0.16	6.50	0.81	25.99	12.49	0.18	0.89	1.33	1.000	1.05	1	1.00	33.74	5.00	1.20	45.49	NA	68.74	0.66	0.93	1.00	1.44	NA	>1.0	Non Liquefiable
15.00	ML-NP	30	1.84	0.84	56	III	0.16	6.50	0.77	28.75	13.75	0.17	0.85	1.33	1.000	1.05	1	1.00	35.72	5.00	1.20	47.87	NA	70.72	0.65	0.89	1.00	1.44	NA	>1.0	Non Liquefiable
16.50	ML-NP	31	1.84	0.84	56	III	0.16	6.50	0.73	31.52	15.02	0.16	0.82	1.33	1.000	1.05	1	1.00	35.33	5.00	1.20	47.39	NA	70.33	0.65	0.87	1.00	1.44	NA	>1.0	Non Liquefiable
18.00	SM	34	1.89	0.89	47	III	0.16	6.50	0.69	34.28	16.28	0.15	0.78	1.33	1.000	1.05	1	1.00	37.21	5.00	1.20	49.65	NA	72.21	0.64	0.84	1.00	1.44	NA	>1.0	Non Liquefiable
19.50	SM	38	1.89	0.89	47	III	0.16	6.50	0.65	37.12	17.62	0.14	0.75	1.33	1.000	1.05	1	1.00	39.98	5.00	1.20	52.98	NA	74.98	0.63	0.81	1.00	1.44	NA	>1.0	Non Liquefiable
21.00	SM	35	1.89	0.89	41	III	0.16	6.50	0.61	39.95	18.95	0.13	0.73	1.33	1.000	1.05	1	1.00	35.51	5.00	1.20	47.61	NA	70.51	0.65	0.80	1.00	1.44	NA	>1.0	Non Liquefiable
22.50	SM	38	1.89	0.89	41	III	0.16	6.50	0.57	42.78	20.28	0.13	0.70	1.33	1.000	1.05	1	1.00	37.26	5.00	1.20	49.71	NA	72.26	0.64	0.77	1.00	1.44	NA	>1.0	Non Liquefiable

Note: Values of all Parameters are as per IRC:SP- 114 / IS 1893: 2016

CE or CHT (Correction for hammer energy ratio) = $ER/60$, ER for Donut hammer with trip/auto System = 80 % , Hence $CE = 80/60 = 1.33$

C_n or C_{HT} (Correction for hammer) = 1.00

Borehole Diameter = 150 mm , Hence C_B or C_{SD} (Correction for Borehole diameter), = 1.05

C_s or C_{ss} (Correction for Standard sampler) = 1.00

K_c Correction for high overburden stress (for effective overburden pressure > 10 T/m²)

K_c Correction for static shear stress is required only for sloping ground

Note: (i) Density in filled-up soil has been taken based on correlation between SPT (N) value and density.



ARUN SOIL LAB PVT LTD

Typical Computation of Liquefaction Potential as per IRC:SP- 114 / IS- 1893

BOREHOLE NO.		3	Water table assumed for Calculation: 0.00 m																													
Depth below EGL, m	Type of Strata	Observed SPT Value	Saturated density (t/m³)	Submerged Density (t/m³)	Fine Content (%)	Earthquake Zone	Peak ground acceleration a_{max}/g	Earth quake magnitude (Mw)	Stress reduction coefficient (rd)	Total overburden pressure (σ_0), t/m²	Effective overburden (σ_v), t/m²	Cyclic Stress ratio (CSR)	C_u	CE or CHT	CH or CHW	CB or CBD	CR or CRL	CS or CSS	SPT corrected ($N_{1,60}$)	α	β	(N_1) _{60cs}	CRR _{M = 7.5}	Relative Density, Dr%	r_f	K_d	K_a	MSF	CRR	FOS	Conclusion	
1.50	CI	5	1.89	0.89	96	III	0.16	6.50	0.99	2.84	1.34	0.22	1.70	1.33	1.000	1.05	0.75	1.00	8.90	5.00	1.20	15.68	0.17	NA	NA	1.00	1.00	1.44	0.24	>1.0	Non Liquefiable	
3.00	CL	8	1.92	0.92	95	III	0.16	6.50	0.98	5.67	2.67	0.22	1.70	1.33	1.000	1.05	0.85	1.00	16.14	5.00	1.20	24.37	0.28	NA	NA	1.00	1.00	1.44	0.40	>1.0	Non Liquefiable	
4.50	CL	9	1.92	0.92	95	III	0.16	6.50	0.97	8.55	4.05	0.21	1.57	1.33	1.000	1.05	0.95	1.00	18.76	5.00	1.20	27.51	0.35	NA	NA	1.00	1.00	1.44	0.51	>1.0	Non Liquefiable	
6.00	CL	16	1.92	0.92	95	III	0.16	6.50	0.95	11.43	5.43	0.21	1.36	1.33	1.000	1.05	0.95	1.00	28.81	5.00	1.20	39.58	NA	NA	NA	1.00	1.00	1.44	NA	>1.0	Non Liquefiable	
7.50	CL	17	1.92	0.92	95	III	0.16	6.50	0.94	14.31	6.81	0.21	1.21	1.33	1.000	1.05	0.95	1.00	27.34	5.00	1.20	37.81	NA	NA	NA	1.00	1.00	1.44	NA	>1.0	Non Liquefiable	
9.00	ML-NP	25	1.81	0.81	63	III	0.16	6.50	0.93	17.18	8.18	0.20	1.11	1.33	1.000	1.05	1	1.00	38.60	5.00	1.20	51.31	NA	73.60	0.63	1.00	1.44	1.44	NA	>1.0	Non Liquefiable	
10.50	ML-NP	29	1.81	0.81	63	III	0.16	6.50	0.89	19.90	9.40	0.20	1.03	1.33	1.000	1.05	1	1.00	41.77	5.00	1.20	55.13	NA	76.77	0.62	1.00	1.44	1.44	NA	>1.0	Non Liquefiable	
12.00	ML-NP	23	1.81	0.81	57	III	0.16	6.50	0.85	22.61	10.61	0.19	0.97	1.33	1.000	1.05	1	1.00	31.18	5.00	1.20	42.41	NA	66.18	0.67	0.98	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
13.50	ML-NP	28	1.81	0.81	57	III	0.16	6.50	0.81	25.33	11.83	0.18	0.92	1.33	1.000	1.05	1	1.00	35.95	5.00	1.20	48.14	NA	70.95	0.65	0.94	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
15.00	ML-NP	29	1.81	0.81	63	III	0.16	6.50	0.77	28.05	13.05	0.17	0.88	1.33	1.000	1.05	1	1.00	35.46	5.00	1.20	47.55	NA	70.46	0.65	0.91	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
16.50	ML-NP	31	1.81	0.81	63	III	0.16	6.50	0.73	30.76	14.26	0.16	0.84	1.33	1.000	1.05	1	1.00	36.25	5.00	1.20	48.50	NA	71.25	0.64	0.88	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
18.00	ML-NP	28	1.84	0.84	56	III	0.16	6.50	0.69	33.48	15.48	0.16	0.80	1.33	1.000	1.05	1	1.00	31.43	5.00	1.20	42.72	NA	66.43	0.67	0.86	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
19.50	ML-NP	33	1.84	0.84	56	III	0.16	6.50	0.65	36.24	16.74	0.15	0.77	1.33	1.000	1.05	1	1.00	35.62	5.00	1.20	47.74	NA	70.62	0.65	0.83	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
21.00	SM	36	1.77	0.77	47	III	0.16	6.50	0.61	39.01	18.01	0.14	0.75	1.33	1.000	1.05	1	1.00	37.46	5.00	1.20	49.96	NA	72.46	0.64	0.81	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
22.50	SM	39	1.77	0.77	47	III	0.16	6.50	0.57	41.66	19.16	0.13	0.72	1.33	1.000	1.05	1	1.00	39.34	5.00	1.20	52.21	NA	74.34	0.63	0.79	1.00	1.44	1.44	NA	>1.0	Non Liquefiable

Note: Values of all Parameters are as per IRC:SP- 114 / IS 1893: 2016

CE or CHT (Correction for hammer energy ratio) = ER/60, ER for Donut hammer with trip/auto System = 80 % , Hence CE =80/60 = 1.33

C_u or C_{HV} (Correction for hammer) = 1.00

Borehole Diameter = 150 mm , Hence C_B or C_{60} (Correction for Borehole diameter), = 1.05

C_S or C_{SS} (Correction for Standard sampler) = 1.00

K_0 Correction for high overburden stress (for effective oberburden pressure>10 T/m2)

K_0 Correction for static shear stress is required only for sloping ground

Note:(i)Density in filled-up soil has been taken based on correlation between SPT(N) value and density.



ARUN SOIL LAB PVT LTD

Typical Computation of Liquefaction Potential as per IRC:SP- 114 / IS- 1893

BOREHOLE NO.		4	Water table assumed for Calculation: 0.00 m																												
Depth below EGL, m	Type of Strata	Observed SPT Value	Saturated density (t/m³)	Submerged Density (t/m³)	Fine Content (%)	Earthquake Zone	Peak ground acceleration a _{max} /g	Earth quake magnitude (Mw)	Stress reduction coefficient (rd)	Total overburden pressure (σ _v), t/m²	Effective overburden (σ _{v'}), t/m²	Cyclic Stress ratio (CSR)	C _n	CE or CHT	CH or CHW	CB or CBD	CR or CRL	CS or CSS	SPT corrected (N) ₆₀	α	β	(N ₁) _{60cs}	CRR _{M = 7.5}	Relative Density, Dr%	f	K _d	K _s	MSF	CRR	FOS	Conclusion
1.50	CI	8	1.93	0.93	98	III	0.16	6.50	0.99	2.89	1.39	0.21	1.70	1.33	1.000	1.05	0.75	1.00	14.24	5.00	1.20	22.09	0.24	NA	NA	1.00	1.00	1.44	0.35	>1.0	Non Liquefiable
3.00	CI	10	1.97	0.97	96	III	0.16	6.50	0.98	5.78	2.78	0.21	1.70	1.33	1.000	1.05	0.85	1.00	20.18	5.00	1.20	29.22	0.42	NA	NA	1.00	1.00	1.44	0.61	>1.0	Non Liquefiable
4.50	CL	13	1.97	0.97	97	III	0.16	6.50	0.97	8.73	4.23	0.21	1.54	1.33	1.000	1.05	0.95	1.00	26.53	5.00	1.20	36.83	NA	NA	NA	1.00	1.00	1.44	NA	>1.0	Non Liquefiable
6.00	CL	17	1.98	0.98	96	III	0.16	6.50	0.95	11.68	5.68	0.20	1.33	1.33	1.000	1.05	0.95	1.00	29.94	5.00	1.20	40.92	NA	NA	NA	1.00	1.00	1.44	NA	>1.0	Non Liquefiable
7.50	CL	18	1.98	0.98	96	III	0.16	6.50	0.94	14.65	7.15	0.20	1.18	1.33	1.000	1.05	0.95	1.00	28.25	5.00	1.20	38.90	NA	NA	NA	1.00	1.00	1.44	NA	>1.0	Non Liquefiable
9.00	ML-NP	21	1.84	0.84	58	III	0.16	6.50	0.93	17.62	8.62	0.20	1.08	1.33	1.000	1.05	1	1.00	31.59	5.00	1.20	42.91	NA	66.59	0.67	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
10.50	ML-NP	23	1.84	0.84	58	III	0.16	6.50	0.89	20.38	9.88	0.19	1.01	1.33	1.000	1.05	1	1.00	32.32	5.00	1.20	43.78	NA	67.32	0.66	1.00	1.44	1.44	NA	>1.0	Non Liquefiable
12.00	ML-NP	19	1.84	0.84	61	III	0.16	6.50	0.85	23.14	11.14	0.18	0.95	1.33	1.000	1.05	1	1.00	25.14	5.00	1.20	35.17	NA	54.07	0.73	0.97	1.00	1.44	NA	>1.0	Non Liquefiable
13.50	ML-NP	23	1.84	0.84	61	III	0.16	6.50	0.81	25.90	12.40	0.18	0.90	1.33	1.000	1.05	1	1.00	28.85	5.00	1.20	39.62	NA	62.41	0.69	0.94	1.00	1.44	NA	>1.0	Non Liquefiable
15.00	ML-NP	27	1.84	0.84	57	III	0.16	6.50	0.77	28.66	13.66	0.17	0.86	1.33	1.000	1.05	1	1.00	32.27	5.00	1.20	43.72	NA	67.27	0.66	0.90	1.00	1.44	NA	>1.0	Non Liquefiable
16.50	ML-NP	29	1.84	0.84	57	III	0.16	6.50	0.73	31.42	14.92	0.16	0.82	1.33	1.000	1.05	1	1.00	33.16	5.00	1.20	44.79	NA	68.16	0.66	0.87	1.00	1.44	NA	>1.0	Non Liquefiable
18.00	ML-NP	28	1.89	0.89	52	III	0.16	6.50	0.69	34.18	16.18	0.15	0.79	1.33	1.000	1.05	1	1.00	30.74	5.00	1.20	41.89	NA	65.74	0.67	0.85	1.00	1.44	NA	>1.0	Non Liquefiable
19.50	ML-NP	32	1.89	0.89	52	III	0.16	6.50	0.65	37.01	17.51	0.14	0.76	1.33	1.000	1.05	1	1.00	33.77	5.00	1.20	45.53	NA	68.77	0.66	0.82	1.00	1.44	NA	>1.0	Non Liquefiable
21.00	SM	30	1.76	0.76	32	III	0.16	6.50	0.61	39.84	18.84	0.13	0.73	1.33	1.000	1.05	1	1.00	30.52	4.83	1.17	40.57	NA	65.52	0.67	0.81	1.00	1.44	NA	>1.0	Non Liquefiable
22.50	SM	34	1.76	0.76	32	III	0.16	6.50	0.57	42.48	19.98	0.13	0.71	1.33	1.000	1.05	1	1.00	33.59	4.83	1.17	44.16	NA	68.59	0.66	0.79	1.00	1.44	NA	>1.0	Non Liquefiable

Note: Values of all Parameters are as per IRC:SP- 114 / IS 1893: 2016

CE or CHT (Correction for hammer energy ratio) = $ER/60$, ER for Donut hammer with trip/auto System = 80 % , Hence CE = $80/60 = 1.33$

C_n or C_{HT} (Correction for hammer) = 1.00

Borehole Diameter = 150 mm , Hence C_B or C₆₀ (Correction for Borehole diameter), = 1.05

C_S or C_{SS} (Correction for Standard sampler) = 1.00

K_C Correction for high overburden stress (for effective oberburden pressure>10 T/m2)

K_S Correction for static shear stress is required only for sloping ground

Note:(i)Density in filled-up soil has been taken based on correlation between SPT(N) value and density.

ANNEXURE-III
RESULTS SHEETS

ARUN SOIL LAB PRIVATE LIMITED

[illegible]

Bore Hole No. Total depth of Bore Hole (m)	1		Coordinate				Easting		482425.00		Depth of Water Level (m bgl)		14.60		ARUN SOIL LAB PVT. LTD <div>Estd. 1990</div>																				
	Reduced Level (Assumed)	Type of Sample	SPT Value	SPT Value corrected due to Hammer Energy	SPT Value corrected due to overburden	SPT Value corrected due to dilatancy	% Material Passing IS Sieve				Silt Factor	Atterberg Limits													IS group symbol	Wet Bulk Density		Original Moisture	Dry Bulk Density	Specific Gravity	Void Ratio	Shear Characterisitics		Compression Index	Type of Test
							N	N _E	N ₁	N ₁ ''		4.750 (mm)	2.000 (mm)	0.425 (mm)												0.075 (mm)	LL					PL	PI		
metre	metre	metre	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	25											
23.50 - 23.95	76.500 - 76.050	UD	-	-	-	-	100	100	100	42	-	NON-PLASTIC			SM	-	-	-	-	-	-	-	-	-	-										
24.00 - 24.45	76.000 - 75.550	SPT	37	49.21	36.11	25.56																													
25.50 - 25.95	74.500 - 74.050	SPT	43	57.19	40.83	27.92																													
26.50 - 26.95	73.500 - 73.050	UD	-	-	-	-	100	100	100	44	-	NON-PLASTIC			SM	-	-	-	-	-	-	-	-	-	-										
27.00 - 27.45	73.000 - 72.550	SPT	45	59.85	41.60	28.30																													
28.50 - 28.95	71.500 - 71.050	SPT	49	65.17	44.14	29.57																													
29.50 - 29.95	70.500 - 70.050	UD	-	-	-	-	100	100	100	39	-	NON-PLASTIC			SM	1.88	16.80	1.61	2.58	0.602	-	-			CD										
30.00 - 30.45	70.000 - 69.550	SPT	52	69.16	45.69	30.35																													
31.50 - 31.95	68.500 - 68.050	SPT	55	73.15	47.15	31.08																													
32.50 - 32.95	67.500 - 67.050	UD	-	-	-	-	100	100	100	43	-	NON-PLASTIC			SM	-	-	-	-	-	-	-	-	-	-										
33.00 - 33.45	67.000 - 66.550	SPT	59	78.47	49.37	32.19																													
34.50 - 34.95	65.500 - 65.050	SPT	65	86.45	53.13	34.07																													
35.50 - 35.95	64.500 - 64.050	UD	-	-	-	-	100	100	100	36	-	NON-PLASTIC			SM	1.91	17.36	1.63	2.62	0.607	0	33°	-		CD										
36.00 - 36.45	64.000 - 63.550	SPT	69	91.77	54.99	35.00																													
37.50 - 37.95	62.500 - 62.050	SPT	80	106.4	62.32	38.66																													
38.50 - 38.95	61.500 - 61.050	UD	-	-	-	-	100	100	100	32	-	NON-PLASTIC			SM	-	-	-	-	-	-	-	-	-	-										
39.00 - 39.45	61.000 - 60.550	SPT	85	113.1	64.75	39.88																													
39.50 - 40.00	60.500 - 60.000	SPT	0	0	0.00	0.00																													
				-																															



ARUN SOIL LAB PRIVATE LIMITED

RESULT SHEET

Bore Hole No.		2		Coordinate				Easting		492396.00		Depth of Water Level (m bgl)				14.70		ARUN SOIL LAB PVT. LTD.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Total depth of Bore Hole (m)		40.00						Northing		2984689.00																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
								Elevation		100.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Depth of Bore Hole		Reduced Level (Assumed)		Type of Sample		SPT Value		SPT Value corrected due to Hammer Energy		SPT Value corrected due to overburden		SPT Value corrected due to dilatancy		% Material Passing IS Sieve				Slit Factor		Atterberg Limits				IS group symbol		Wet Bulk Density		Original Moisture		Dry Bulk Density		Specific Gravity		Void Ratio		Shear Characteristics		Compression Index		Type of Test																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
metre	metre																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

Filled up soil upto 0.50mtr below ground level containing aggregate pieces-


RESULT SHEET

Bore Hole No.		2		Coordinate				Easting		492396.00		Depth of Water Level (m bgl)		14.70		ARUN SOIL LAB PVT. LTD.													
Total depth of Bore Hole (m)		40.00						Northing		2984689.00		Commenced on																	
								Elevation		100.000		Completed on																	
Depth of Bore Hole	metre	Reduced Level (Assumed)	metre	Type of Sample	SPT Value	SPT Value corrected due to Hammer Energy	SPT Value corrected due to overburden	SPT Value corrected due to dilatancy	% Material Passing IS Sieve				Silt Factor	Atterberg Limits			IS group symbol	Wet Bulk Density (gms/cc)	Original Moisture %	Dry Bulk Density (gms/cc)	Specific Gravity	Void Ratio (e)	Shear Characteristics		Compression Index (Cc)	Type of Test			
									4.750 (mm)	2.000 (mm)	0.425 (mm)	0.075 (mm)		LL %	PL %	PI %							Cohesion (Kg/sqcm)	Angle of Internal Friction (Ø)					
1		2		3	4	N	N _E	N ₁	N ₁ "	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	25	CD/UU
23.50 - 23.95		76.500 - 76.050	UD	-	-	-	-	-	-	-	100	100	98	37	-	NON-PLASTIC	SM		-	-	-	-	-	-	-	-	-	-	-
24.00 - 24.45		76.000 - 75.550	SPT	42	55.86	40.66	27.83																						
25.50 - 25.95		74.500 - 74.050	SPT	46	61.18	43.32	29.16																						
26.50 - 26.95		73.500 - 73.050	UD	-	-	-	-	-	-	-	100	100	99	36	-	NON-PLASTIC	SM		-	-	-	-	-	-	-	-	-	-	-
27.00 - 27.45		73.000 - 72.550	SPT	49	65.17	44.92	29.96																						
28.50 - 28.95		71.500 - 71.050	SPT	51	67.83	45.54	30.27																						
29.50 - 29.95		70.500 - 70.050	UD	-	-	-	-	-	-	-	100	100	97	34	-	NON-PLASTIC	SM		1.90	19.66	1.59	2.57	0.616	0	33°	-	-	CD	
30.00 - 30.45		70.000 - 69.550	SPT	53	70.49	46.13	30.57																						
31.50 - 31.95		68.500 - 68.050	SPT	56	74.48	47.54	31.27																						
32.50 - 32.95		67.500 - 67.050	UD	-	-	-	-	-	-	-	100	100	96	32	-	NON-PLASTIC	SM		-	-	-	-	-	-	-	-	-	-	-
33.00 - 33.45		67.000 - 66.550	SPT	61	81.13	50.54	32.77																						
34.50 - 34.95		65.500 - 65.050	SPT	67	89.11	54.21	34.61																						
35.50 - 35.95		64.500 - 64.050	UD	-	-	-	-	-	-	-	100	100	97	38	-	NON-PLASTIC	SM		-	-	-	-	-	-	-	-	-	-	-
36.00 - 36.45		64.000 - 63.550	SPT	69	91.77	54.54	34.77																						
37.50 - 37.95		62.500 - 62.050	SPT	76	101.08	58.71	36.86																						
38.50 - 38.95		61.500 - 61.050	UD	-	-	-	-	-	-	-	100	100	98	31	-	NON-PLASTIC	SM		1.95	20.90	1.61	2.57	0.596	0	34°	-	-	CD	
39.00 - 39.45		61.000 - 60.550	SPT	89	118.37	66.93	40.97																						
39.50 - 40.00		60.500 - 60.000	SPT	0	0	0.00	0.00																						
					-	-	-																						



ARUN SOIL LAB PRIVATE LIMITED

100

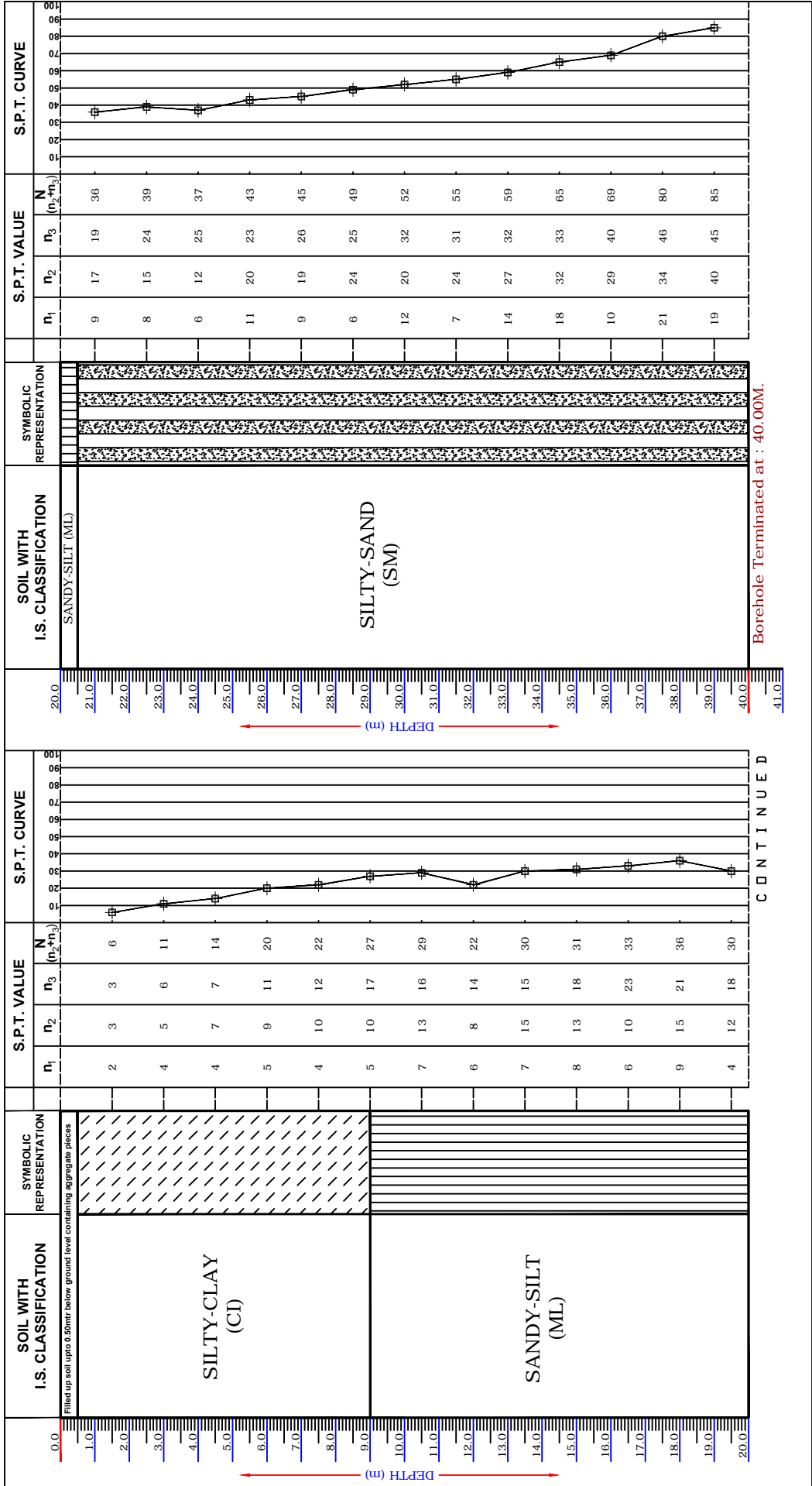
Bore Hole No.		3		Coordinate				Easting		492262.00		Depth of Water Level (m bgl)				16.05		ARUN SOIL LAB PVT. LTD. 																		
Total depth of Bore Hole (m)		40.00						Northing		2984573.00		Completed on																								
								Elevation		100.000																										
Depth of Bore Hole	metre	Reduced Level (Assumed)	Type of Sample	SPT Value		SPT Value corrected due to Hammer Energy		SPT Value corrected due to overburden		% Material Passing IS Sieve				Silt Factor			Atterberg Limits			IS group symbol		Wet Bulk Density		Original Moisture		Dry Bulk Density		Specific Gravity		Void Ratio		Shear Characteristics		Compression Index		Type of Test
				N	N _E	N ₁	N ₁ "	due to dilatancy	4.750 (mm)	2.000 (mm)	0.425 (mm)	0.075 (mm)	%	LL	PL	PI	%	%	(G)	(e)	Cohesion (Kg/sqcm)	Angle of Internal Friction	(Cc)	(e)	(gms/cc)	%	(gms/cc)	(G)	(e)	(Kg/sqcm)	(Ø)	(Cc)	CD/UD			
1	2	metre	3	4				5	6		7	8	9	10	11		12	13	14	15	16	17	18	19	20	21	22	23	25							
23.50 - 23.95		76.500 - 76.050	UD	-	-	-			-		100	100	100	44	-	NON-PLASTIC				SM	-	-	-	-	-	-	-	-	-	-	-	-	-			
24.00 - 24.45		76.000 - 75.550	SPT	41	54.53	40.57	27.79																													
25.50 - 25.95		74.500 - 74.050	SPT	45	59.85	43.34	29.17																													
					-																															
26.50 - 26.95		73.500 - 73.050	UD	-	-	-			-		100	100	100	42	-	NON-PLASTIC				SM	-	-	-	-	-	-	-	-	-	-	-	-	-			
27.00 - 27.45		73.000 - 72.550	SPT	49	65.17	45.97	30.49																													
28.50 - 28.95		71.500 - 71.050	SPT	48	63.84	43.90	29.45																													
					-																															
29.50 - 29.95		70.500 - 70.050	UD	-	-	-			-		100	100	100	37	-	NON-PLASTIC				SM	1.87	16.74	1.60	2.58	0.613	0	31°						CD			
30.00 - 30.45		70.000 - 69.550	SPT	53	70.49	47.24	31.12																													
31.50 - 31.95		68.500 - 68.050	SPT	56	74.48	48.72	31.86																													
					-																															
32.50 - 32.95		67.500 - 67.050	UD	-	-	-			-		100	100	100	41	-	NON-PLASTIC				SM	-	-	-	-	-	-	-	-	-	-	-	-	-			
33.00 - 33.45		67.000 - 66.550	SPT	59	78.47	50.12	32.56																													
34.50 - 34.95		65.500 - 65.050	SPT	66	87.78	54.78	34.89																													
					-																															
35.50 - 35.95		64.500 - 64.050	UD	-	-	-			-		100	100	100	35	-	NON-PLASTIC				SM	1.92	17.23	1.64	2.62	0.598	0	33°						CD			
36.00 - 36.45		64.000 - 63.550	SPT	70	93.1	56.51	35.76																													
37.50 - 37.95		62.500 - 62.050	SPT	80	106.4	63.15	39.08																													
					-																															
38.50 - 38.95		61.500 - 61.050	UD	-	-	-			-		100	100	100	34	-	NON-PLASTIC				SM	-	-	-	-	-	-	-	-	-	-	-	-	-			
39.00 - 39.45		61.000 - 60.550	SPT	84	111.7	64.86	39.93																													
39.50 - 40.00		60.500 - 60.000	SPT	0	0	0.00	0.00																													
					-																															

ANNEXURE-IV
BORELOG CHARTS

BORE-LOG CHART

BOREHOLE NO.: - 01

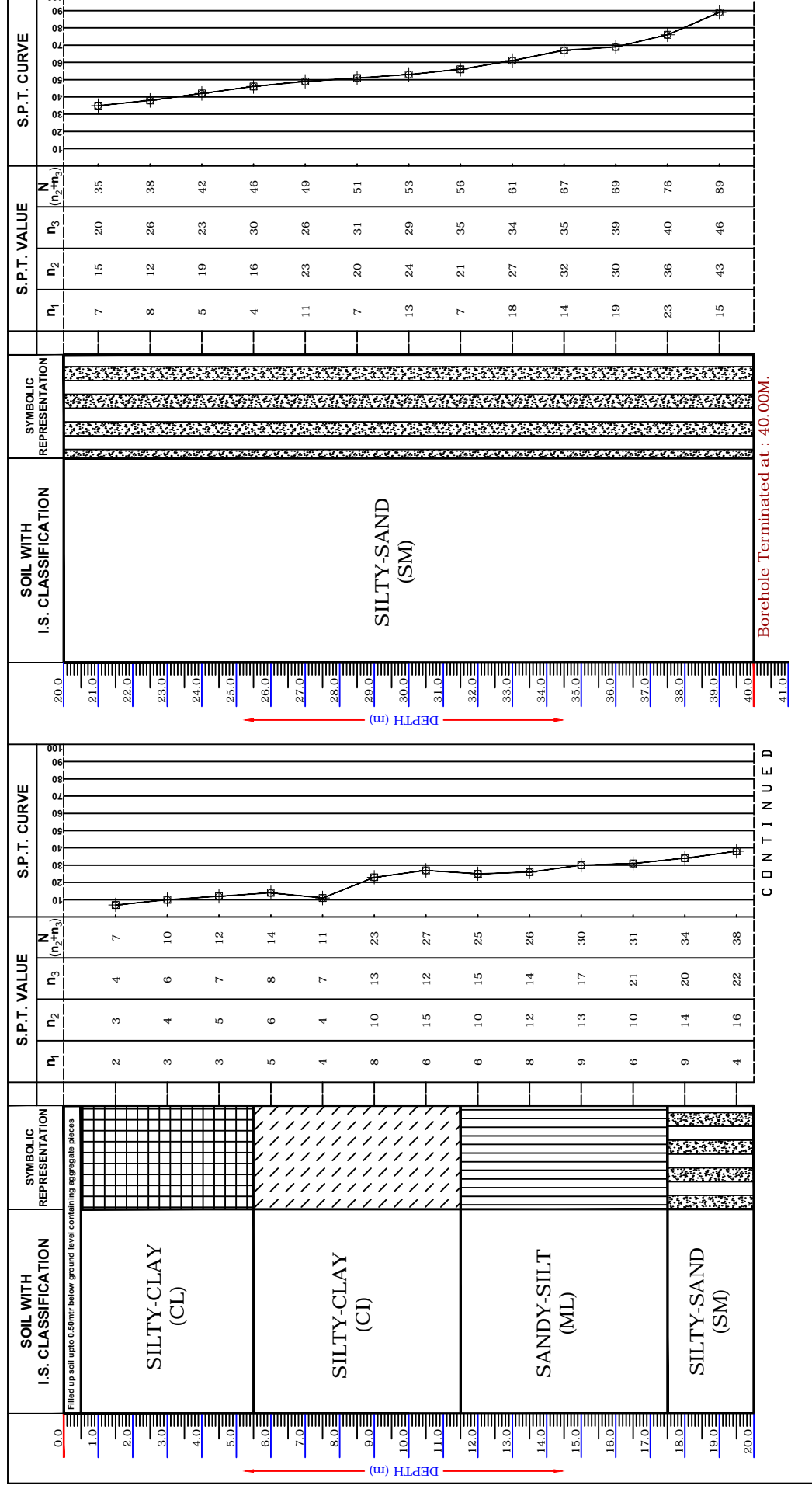
DEPTH OF WATER LEVEL :- 14.60 METRE



BORE-LOG CHART

BOREHOLE NO.:- 02

DEPTH OF WATER LEVEL :- 14.70 METRE



Borehole Terminated at : 40.00M.

CONTINUED

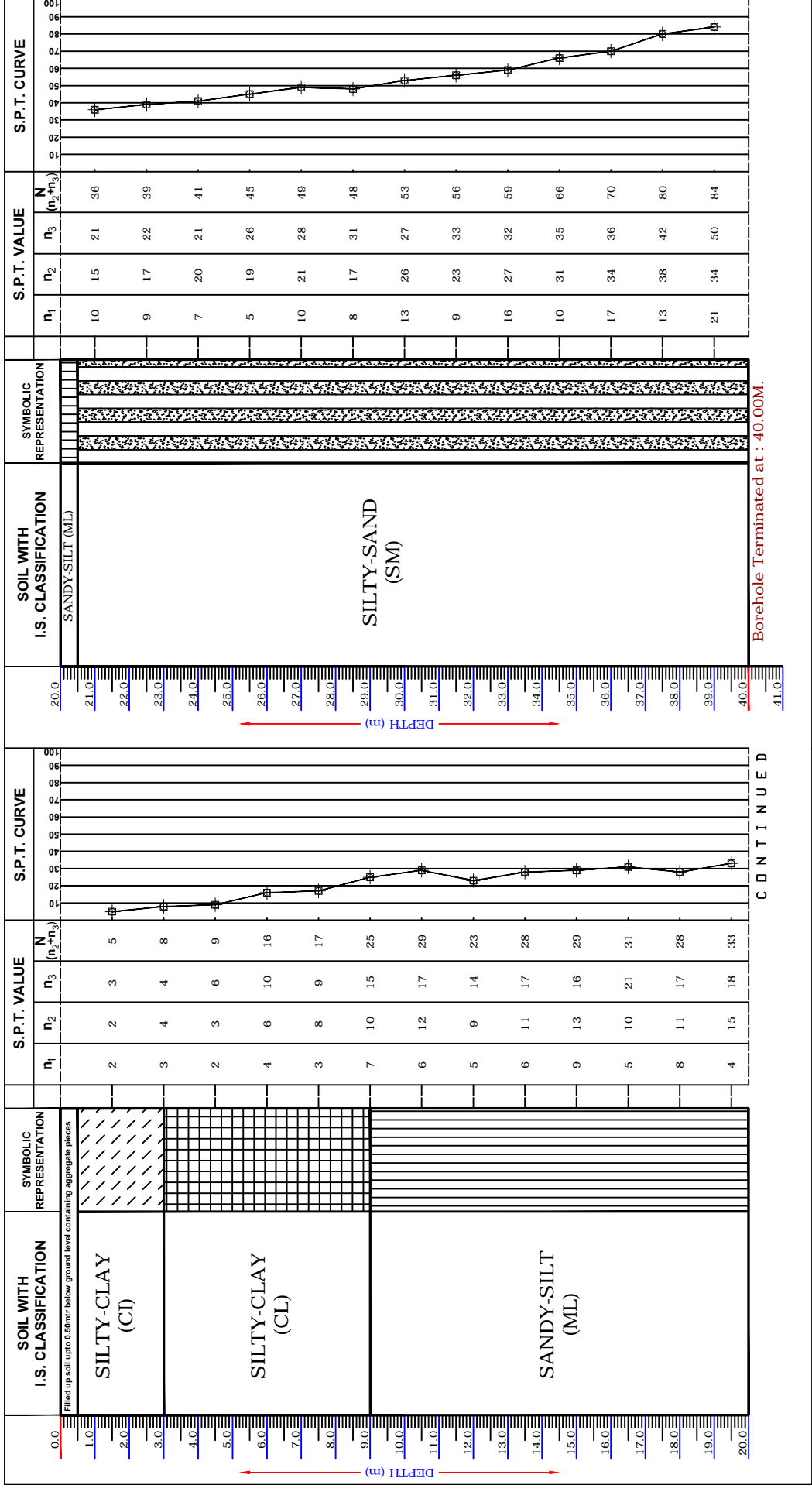
ASL No.: ASL/140/2026



BORE-LOG CHART

BOREHOLE NO.: - 03

DEPTH OF WATER LEVEL :- 16.05 METRE

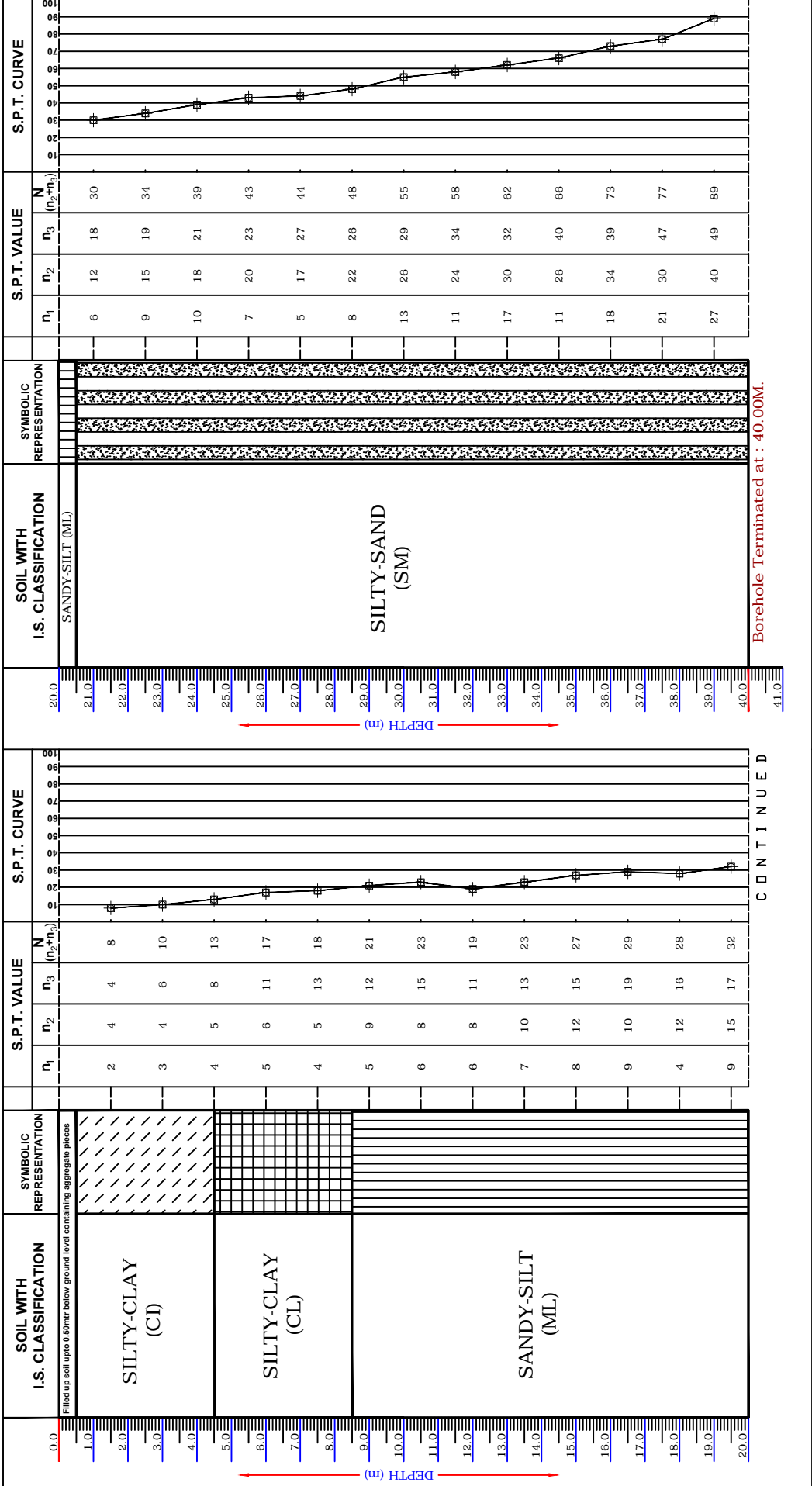


ASL No.: ASL/140/2026

BORE-LOG CHART

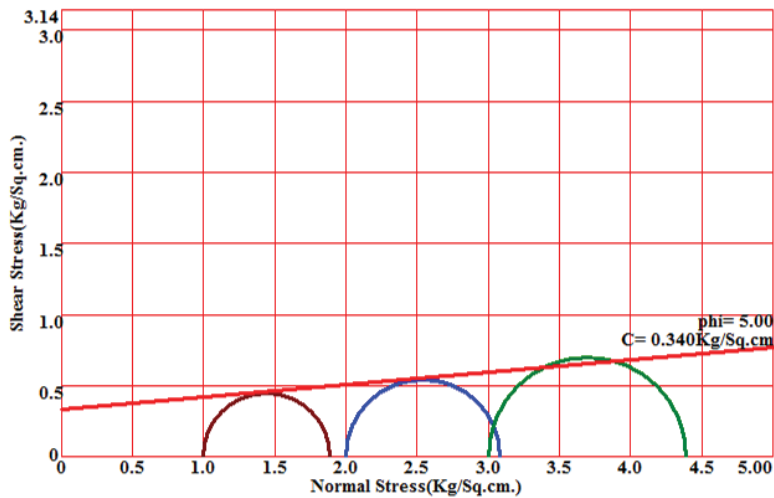
BOREHOLE NO.: - 04

DEPTH OF WATER LEVEL :- 15.90 METRE

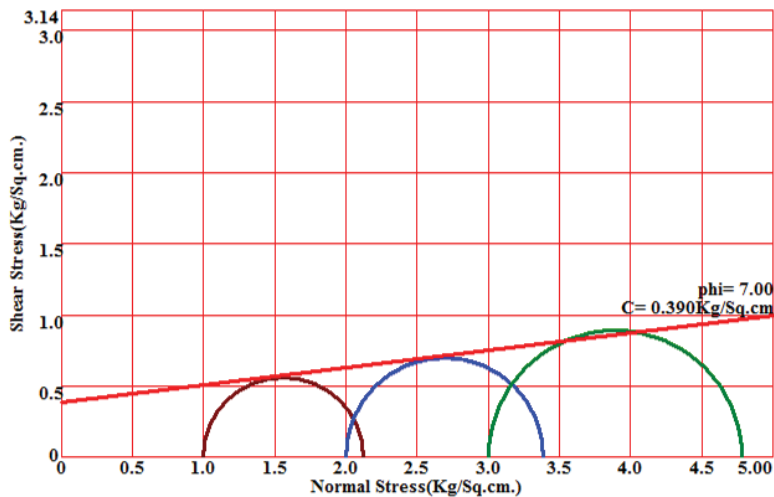


ASL No.: ASL/140/2026

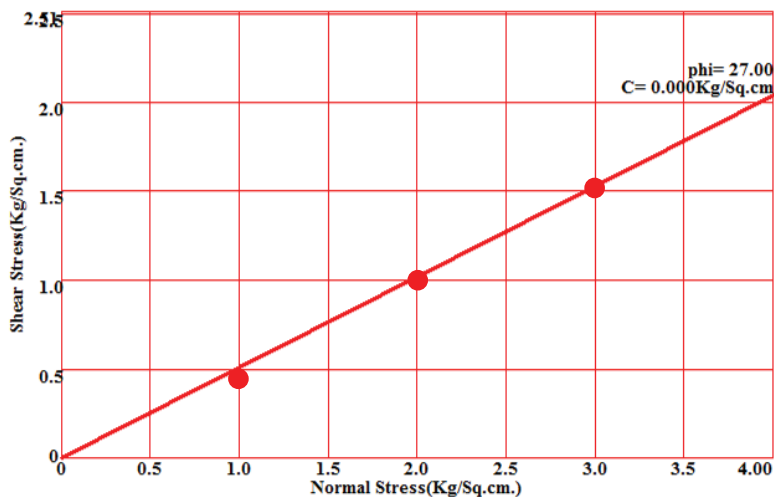
ANNEXURE-V
TRIAXIAL SHEAR / DIRECT SHEAR
GRAPHS



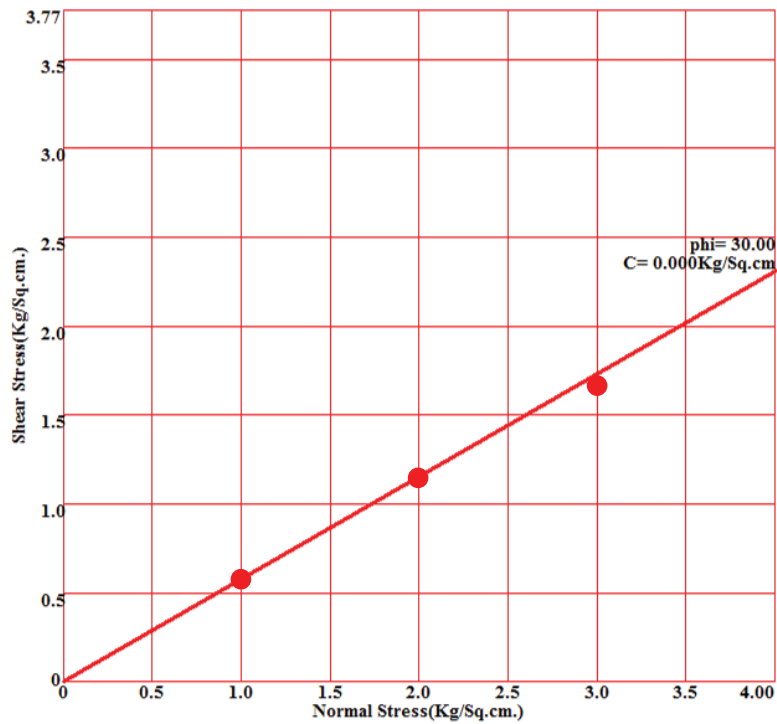
Bore Hole No.= 1
Sample No.= A-1/UD1
Depth= 1.000000M
Type of Test= U.U.



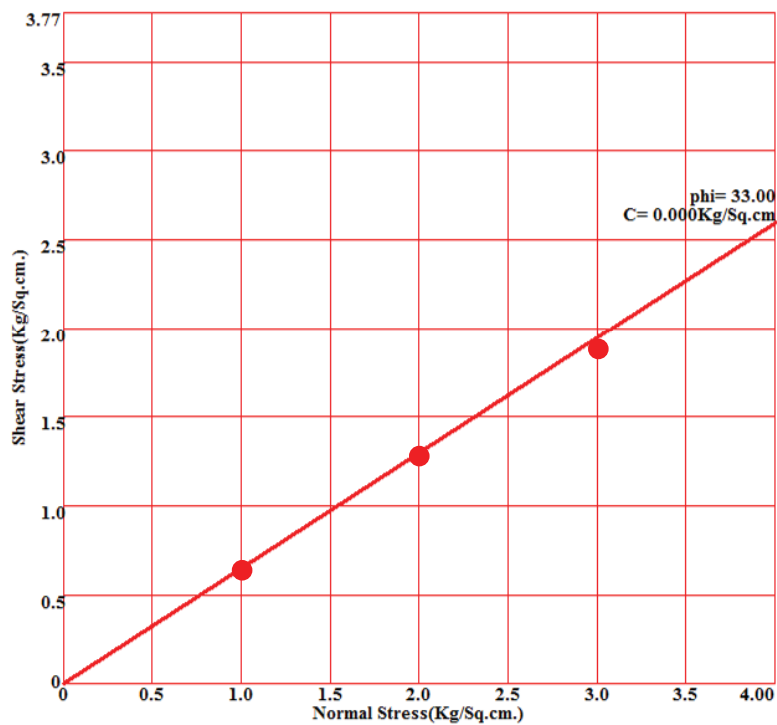
Bore Hole No.= 1
Sample No.= A-1/UD4
Depth= 8.500000M
Type of Test= U.U.



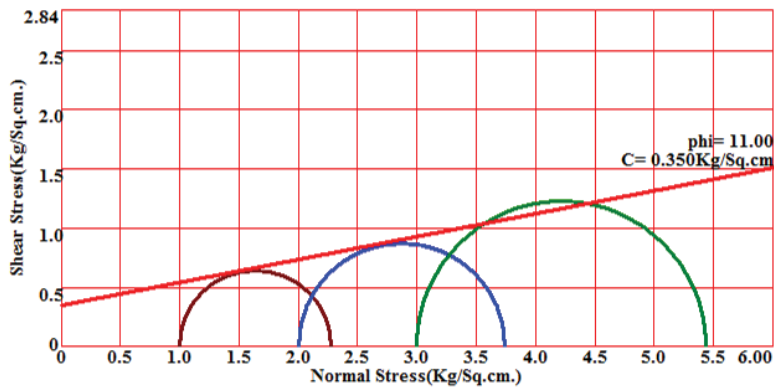
Bore Hole No.= 1
Sample No.= A-1/UD5
Depth= 11.500000M
Type of Test= C.D.



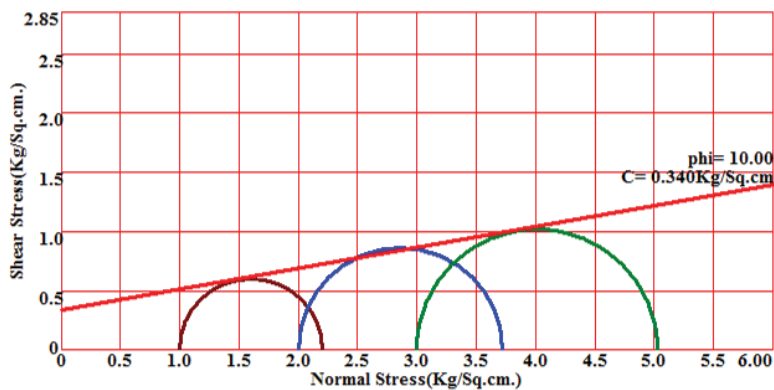
Bore Hole No.= 1
Sample No.= A-1/UD8
Depth= 20.500000M
Type of Test= C.D.



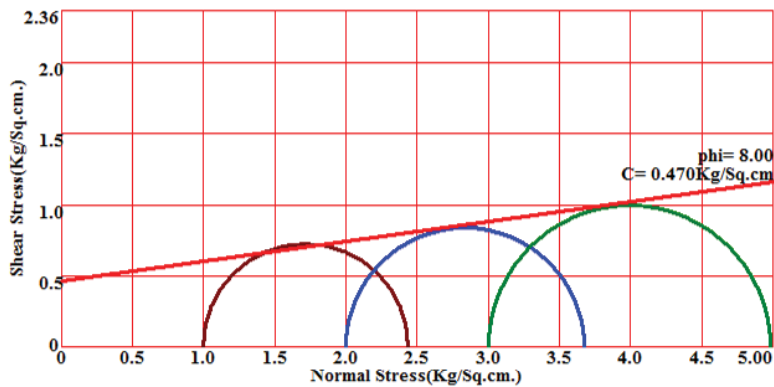
Bore Hole No.= 1
Sample No.= A-1/UD13
Depth= 35.500000M
Type of Test= C.D.



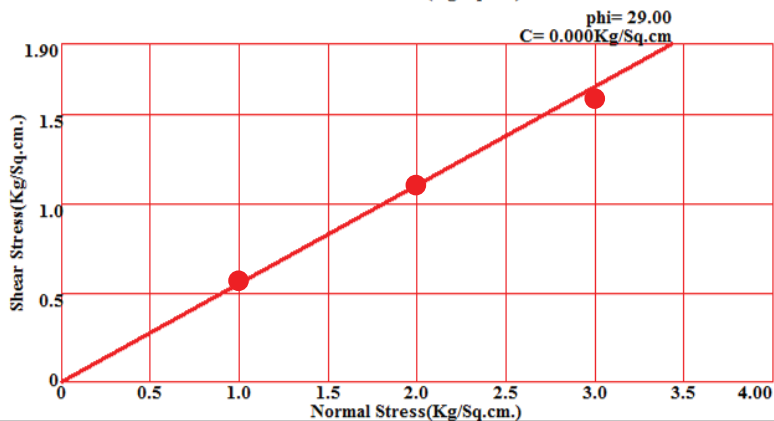
Bore Hole No.= 2
Sample No.= A-2/UD1
Depth= 1.000000M
Type of Test= U.U.



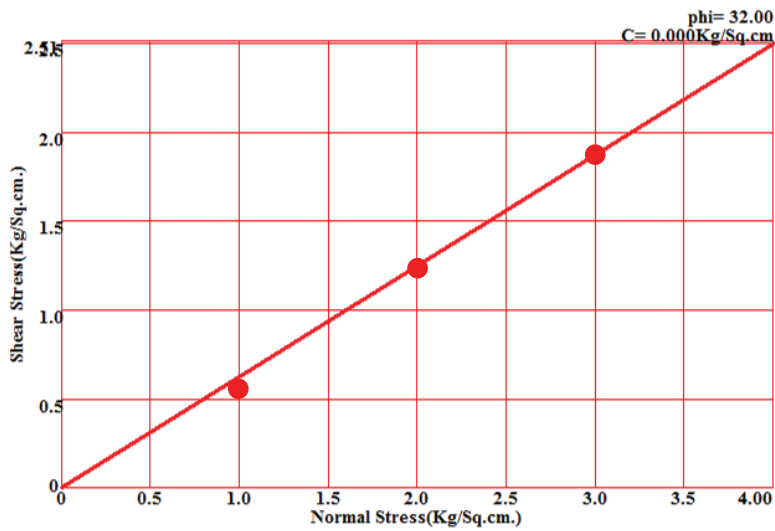
Bore Hole No.= 2
Sample No.= A-2/UD2
Depth= 2.500000M
Type of Test= U.U.



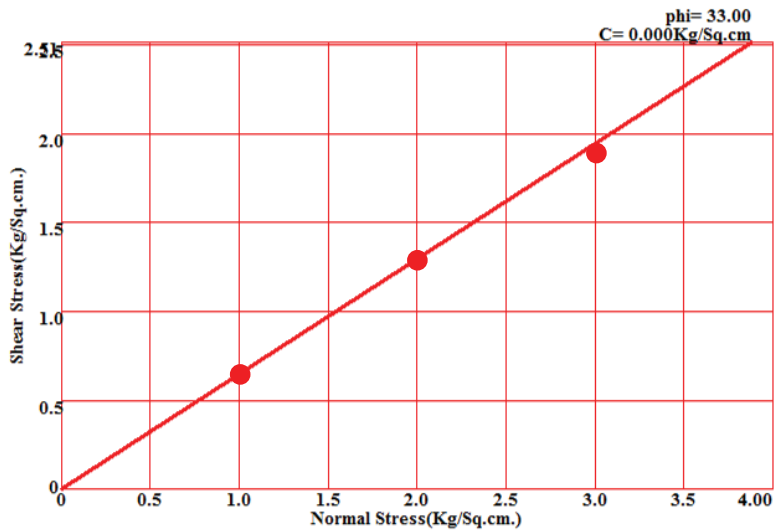
Bore Hole No.= 2
Sample No.= A-2/UD3
Depth= 5.500000M
Type of Test= U.U.



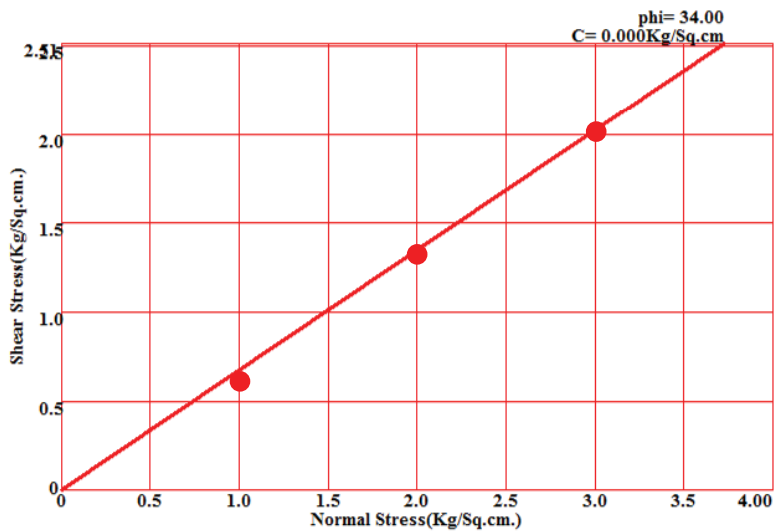
Bore Hole No.= 2
Sample No.= A-2/UD5
Depth= 11.500000M
Type of Test= C.D.



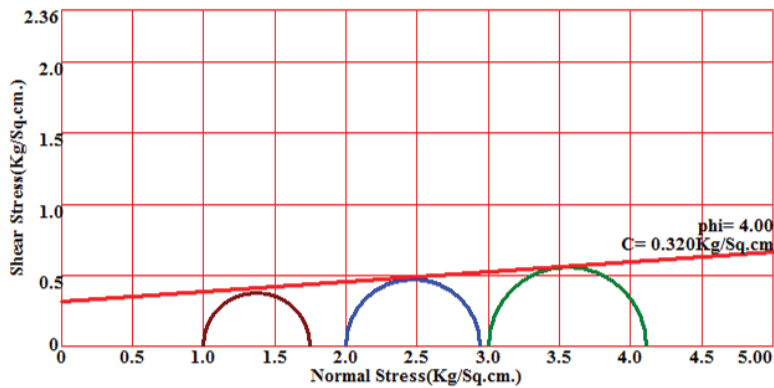
Bore Hole No.= 2
Sample No.= A-2/UD7
Depth= 17.500000M
Type of Test= C.D.



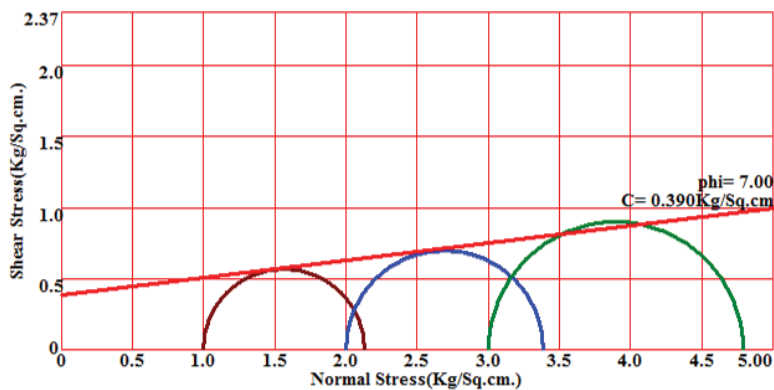
Bore Hole No.= 2
Sample No.= A-2/UD11
Depth= 29.500000M
Type of Test= C.D.



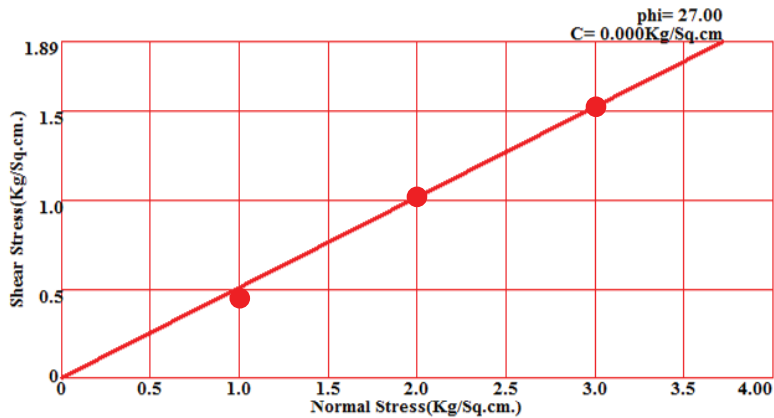
Bore Hole No.= 2
Sample No.= A-2/UD14
Depth= 38.500000M
Type of Test= C.D.



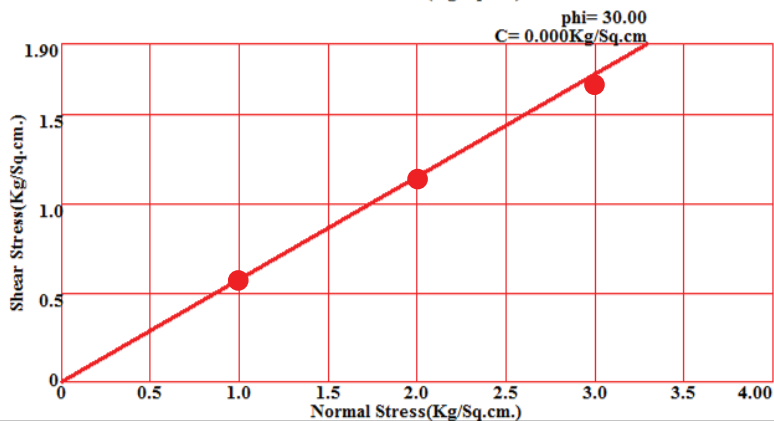
Bore Hole No.= 3
Sample No.= A-3/UD1
Depth= 1.000000M
Type of Test= U.U.



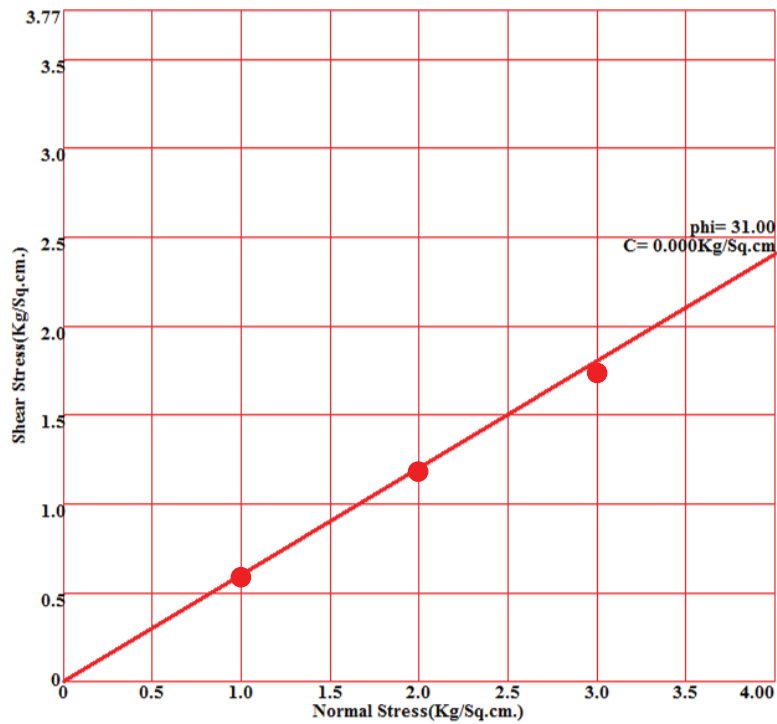
Bore Hole No.= 3
Sample No.= A-3/UD4
Depth= 8.500000M
Type of Test= U.U.



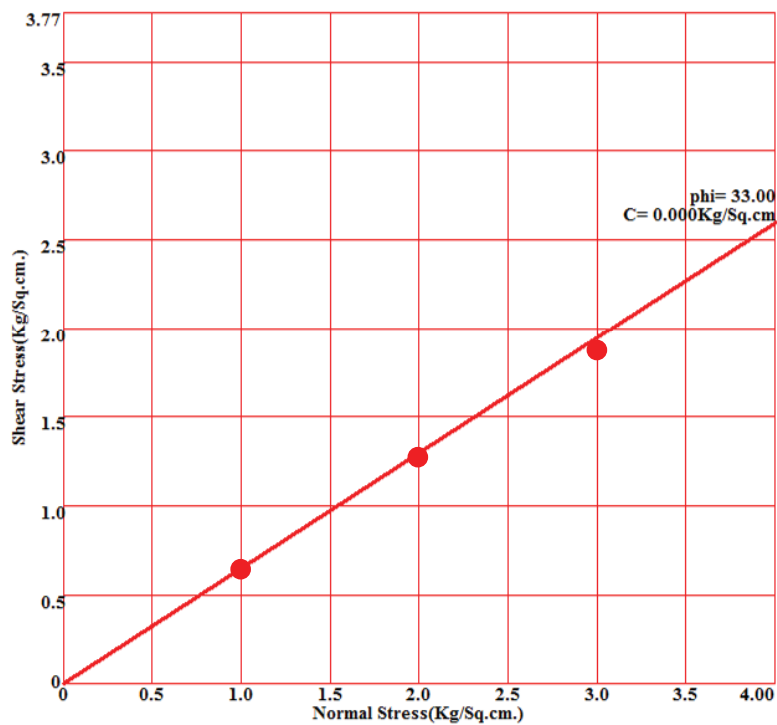
Bore Hole No.= 3
Sample No.= A-3/UD5
Depth= 11.500000M
Type of Test= C.D.



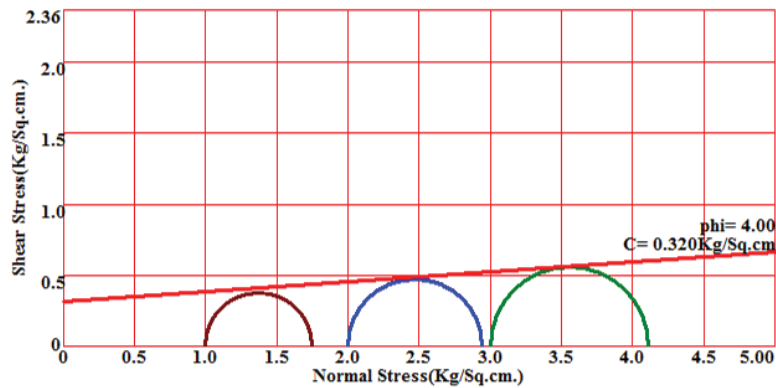
Bore Hole No.= 3
Sample No.= A-3/UD8
Depth= 20.500000M
Type of Test= C.D.



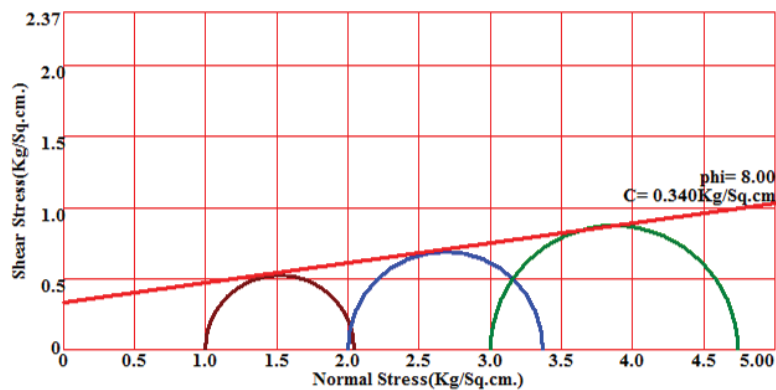
Bore Hole No.= 3
Sample No.= A-3/UD11
Depth= 29.500000M
Type of Test= C.D.



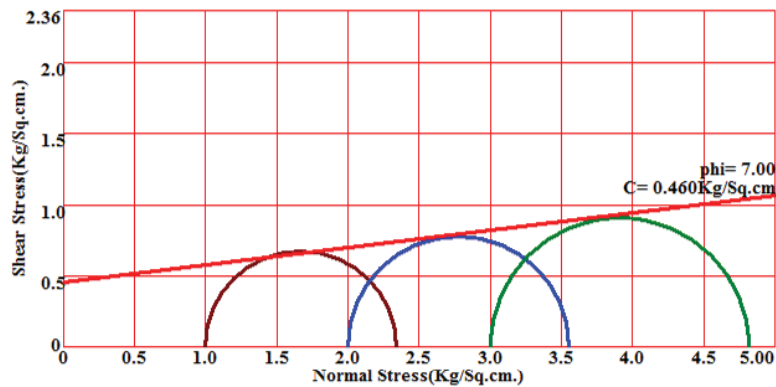
Bore Hole No.= 3
Sample No.= A-3/UD13
Depth= 35.500000M
Type of Test= C.D.



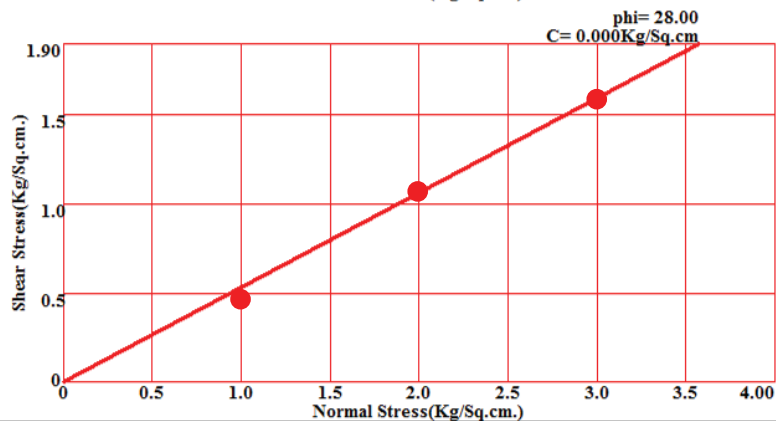
Bore Hole No.= 4
Sample No.= A-4/UD1
Depth= 1.000000M
Type of Test= U.U.



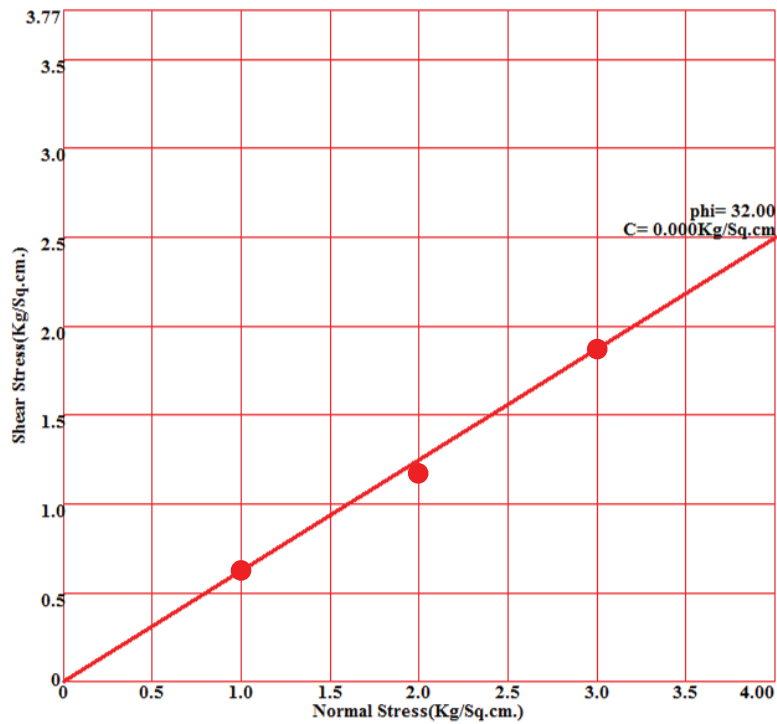
Bore Hole No.= 4
Sample No.= A-4/UD2
Depth= 2.500000M
Type of Test= U.U.



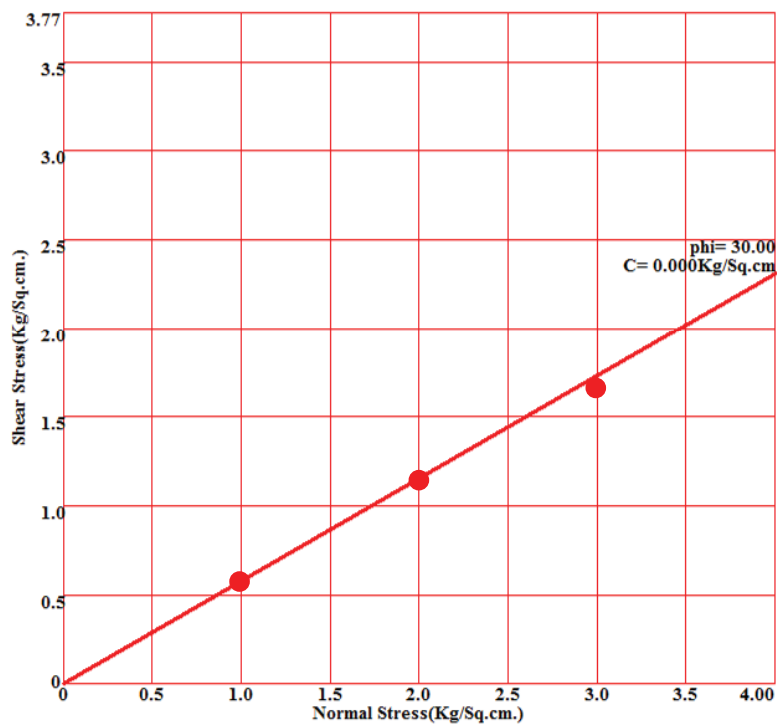
Bore Hole No.= 4
Sample No.= A-4/UD3
Depth= 5.500000M
Type of Test= U.U.



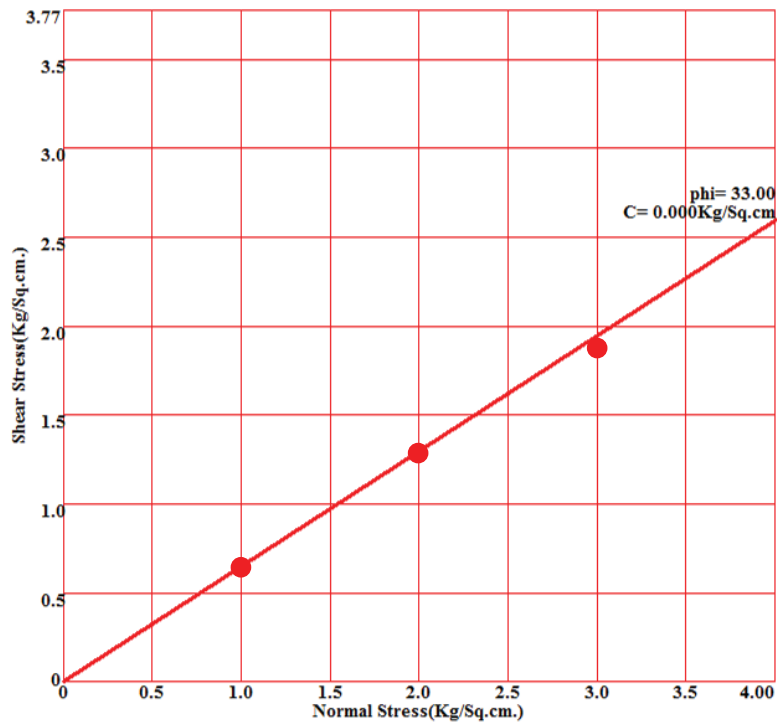
Bore Hole No.= 4
Sample No.= A-4/UD4
Depth= 8.500000M
Type of Test= C.D.



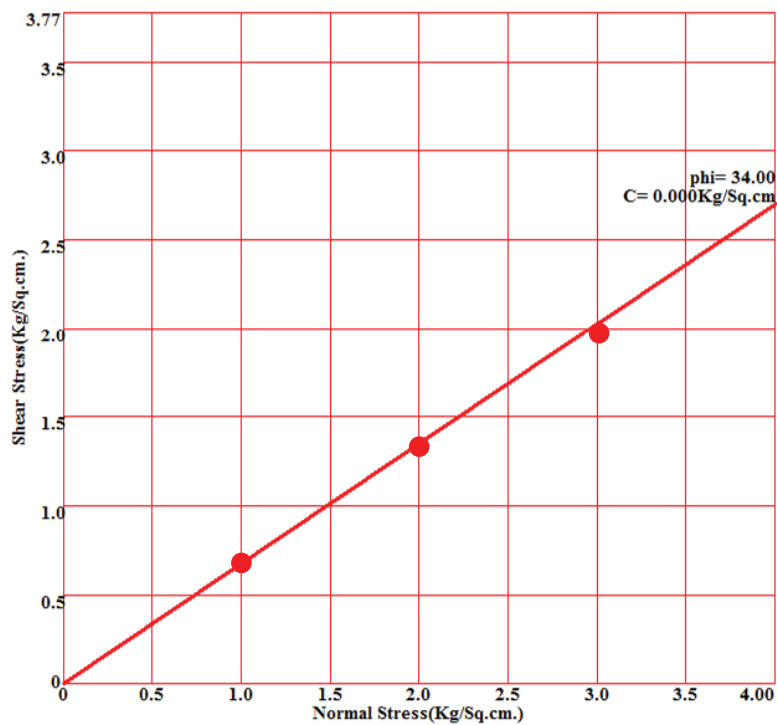
Bore Hole No.= 4
Sample No.= A-4/UD7
Depth= 17.500000M
Type of Test= C.D.



Bore Hole No.= 4
Sample No.= A-4/UD8
Depth= 20.500000M
Type of Test= C.D.

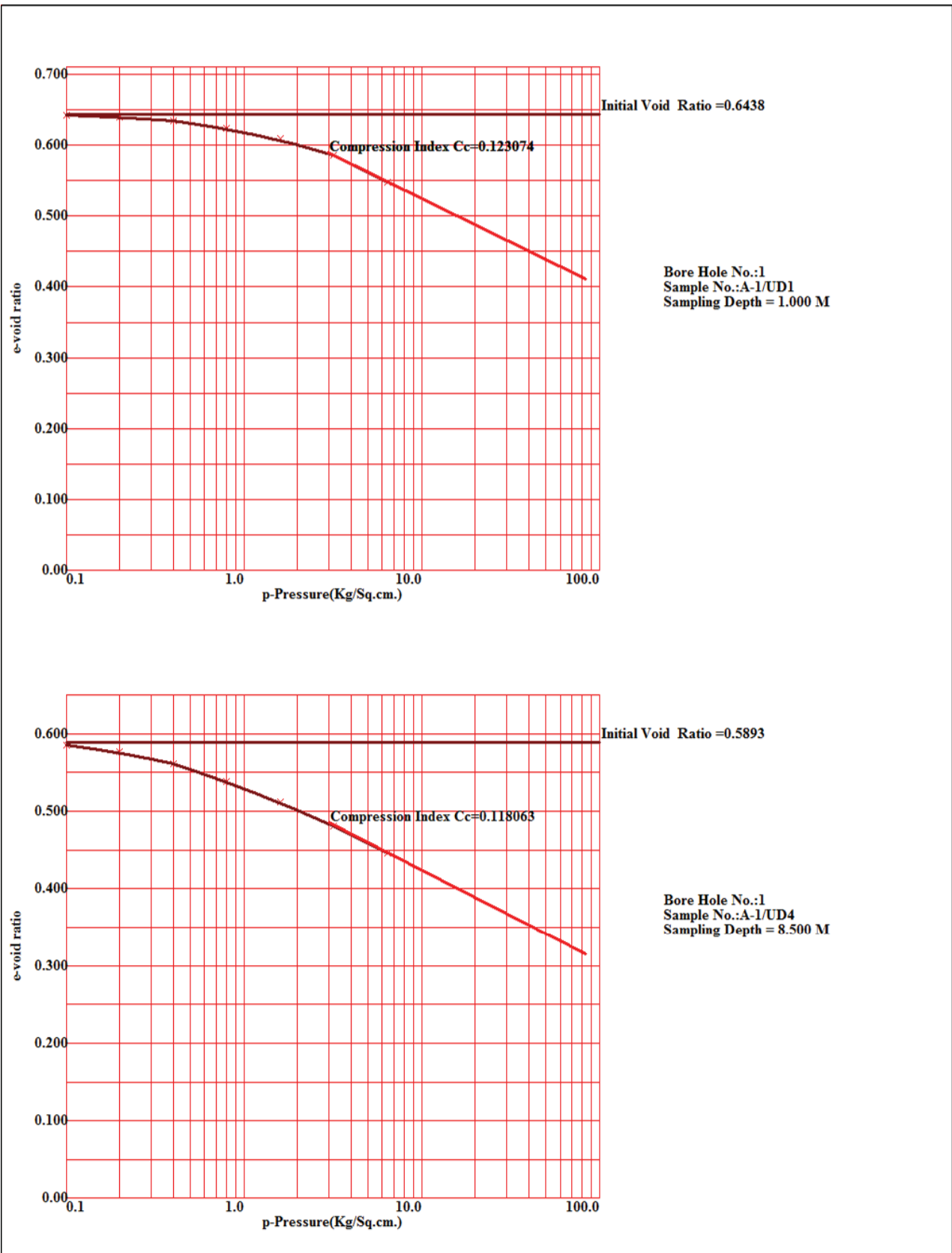


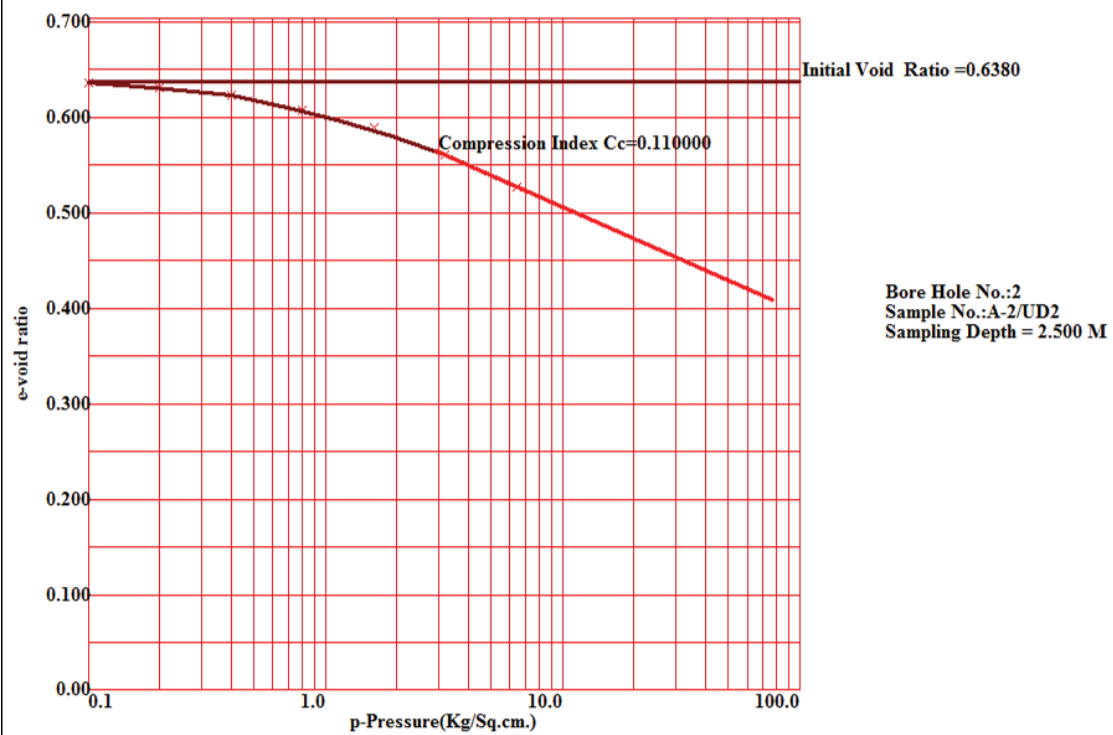
Bore Hole No.= 4
Sample No.= A-4/UD11
Depth= 29.500000M
Type of Test= C.D.

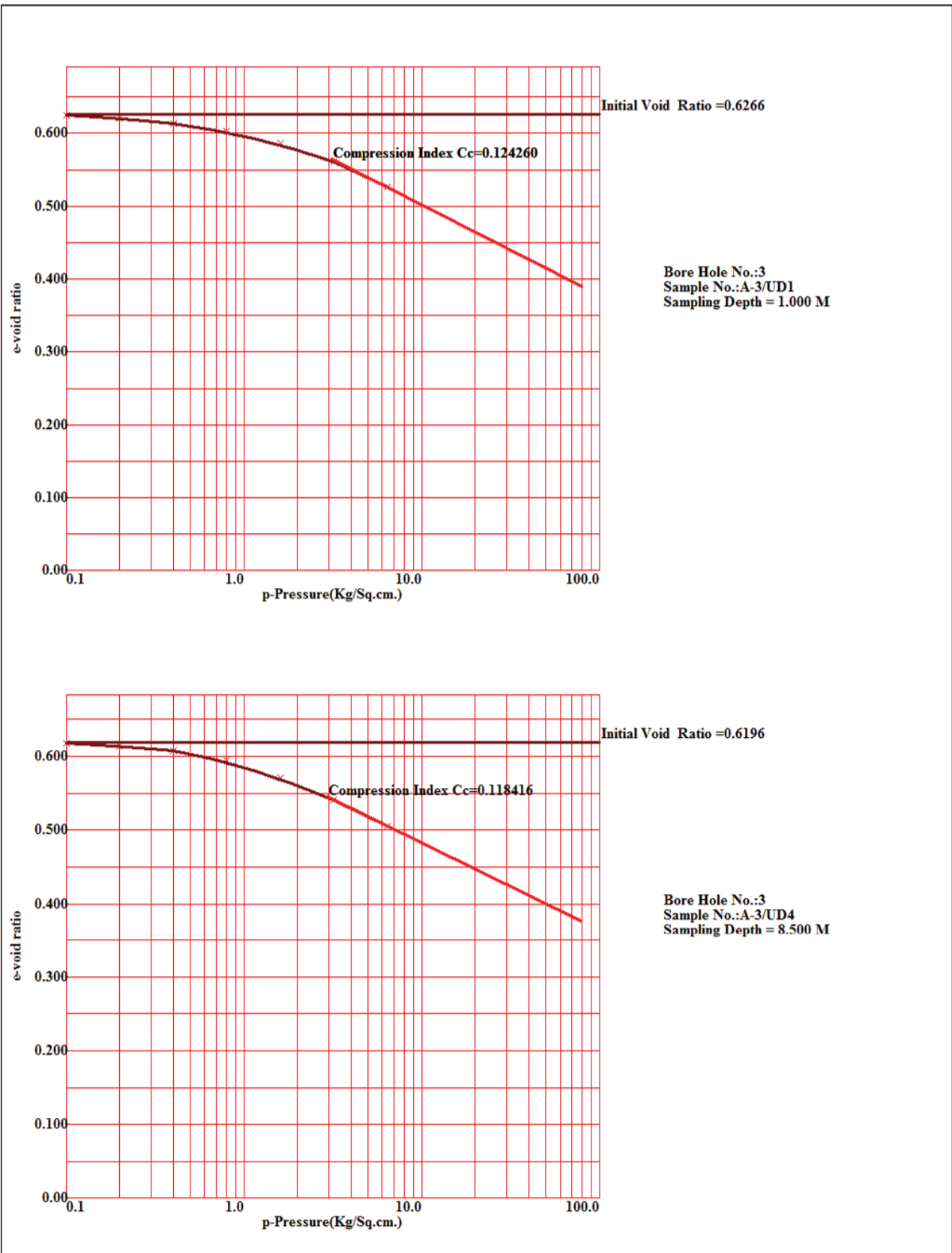


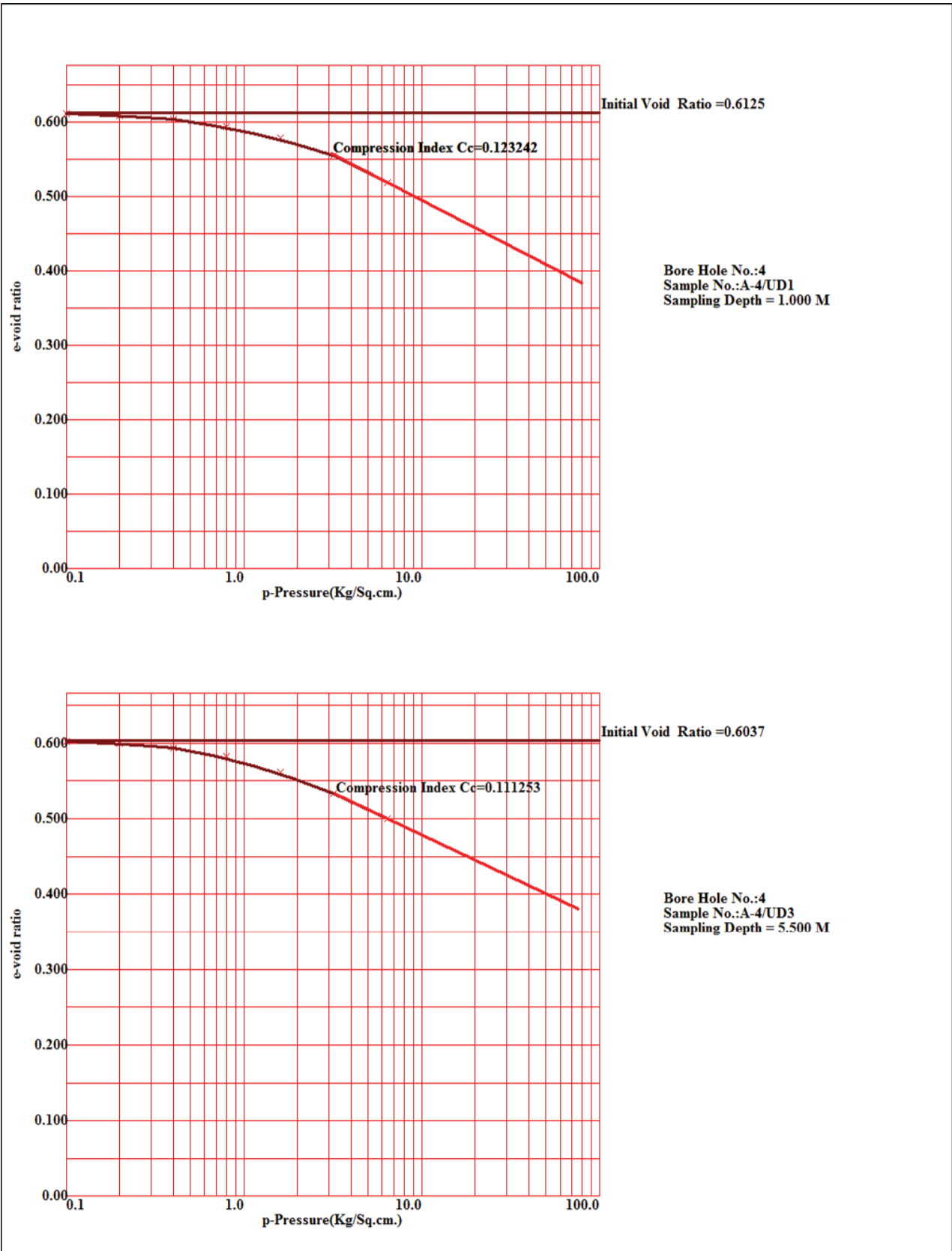
Bore Hole No.= 4
Sample No.= A-4/UD14
Depth= 38.500000M
Type of Test= C.D.

ANNEXURE-VI
CONSOLIDATION GRAPHS









ANNEXURE-VII
SITE PHOTOGRAPHS

SITE PHOTOGRAPHS



ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com

SITE PHOTOGRAPHS



UTM: 44R
492379mE 2984692mN
Elevation: 135.72±1.0 m
Accuracy: 11.81 m
Time: 08-04-2026 13:51
Note: LC 16 C BAKSHI KA TALAB LUCKNOW
BH 02

Powered by NoteCam



UTM: 44R
492386mE 2984691mN
Elevation: 135.72±1.02 m
Accuracy: 9.822 m
Time: 08-04-2026 13:56
Note: LC 16 C BAKSHI KA TALAB LUCKNOW
BH 02

Powered by NoteCam



ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com

SITE PHOTOGRAPHS



ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com

SITE PHOTOGRAPHS



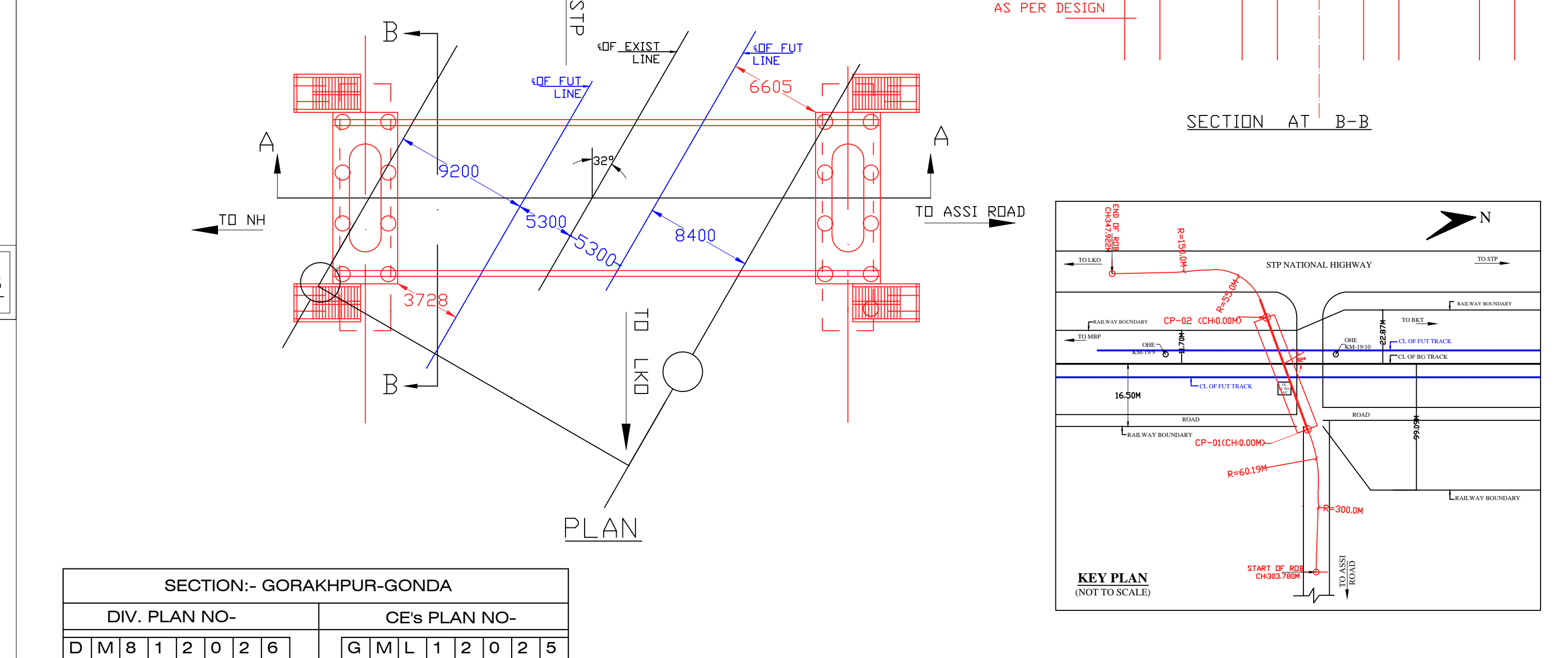
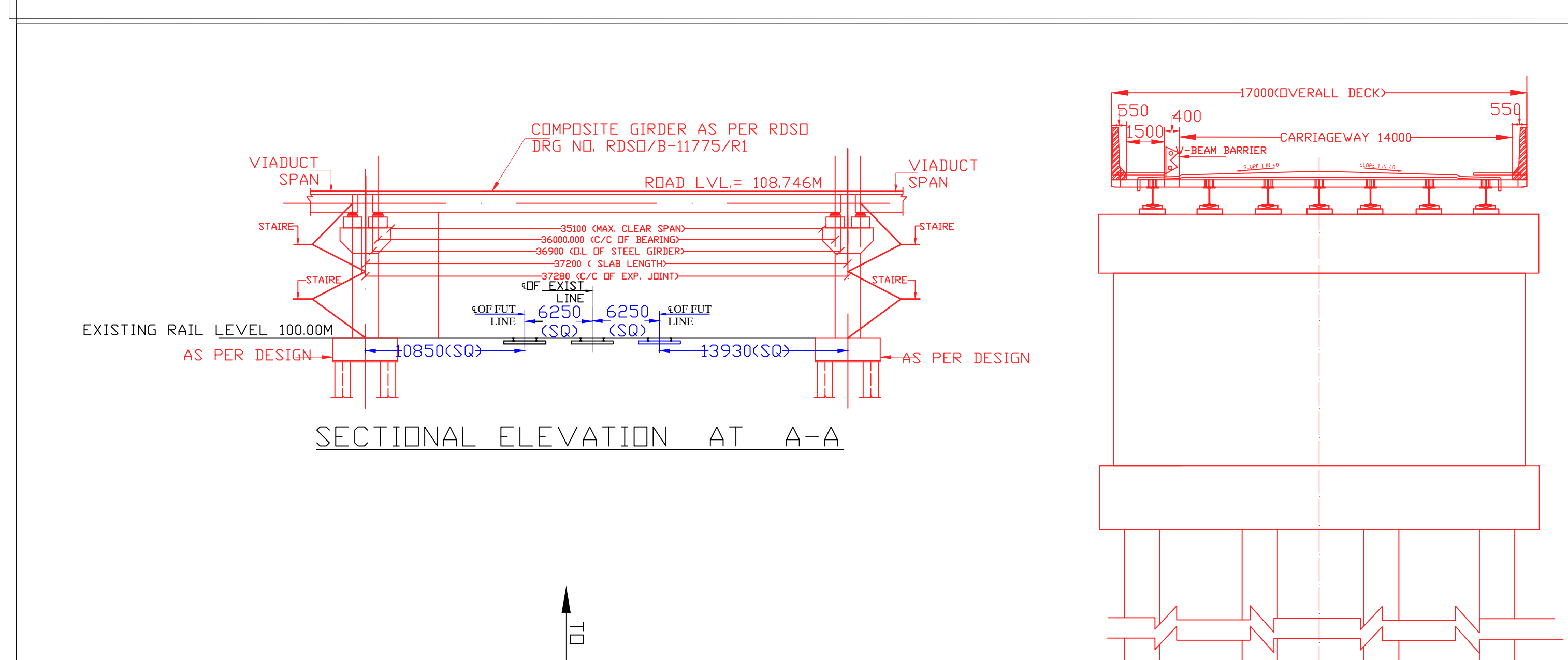
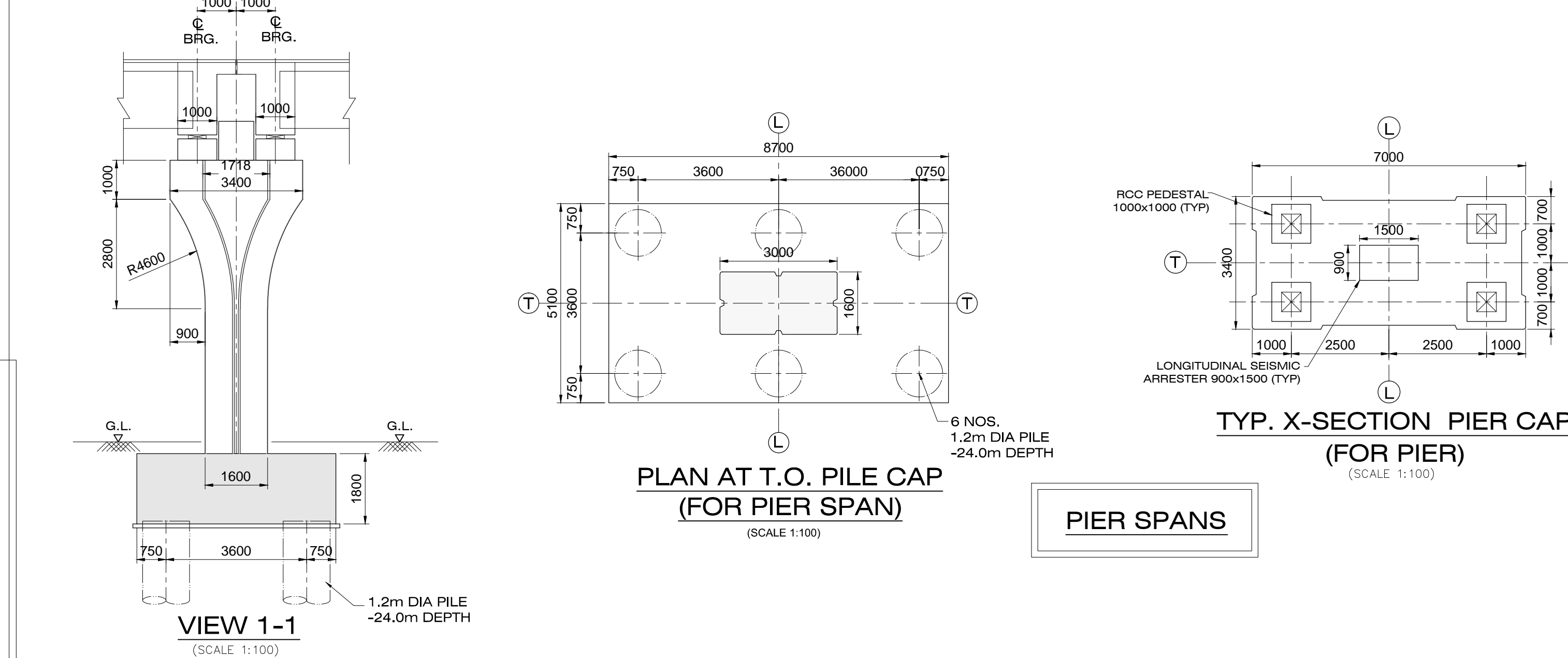
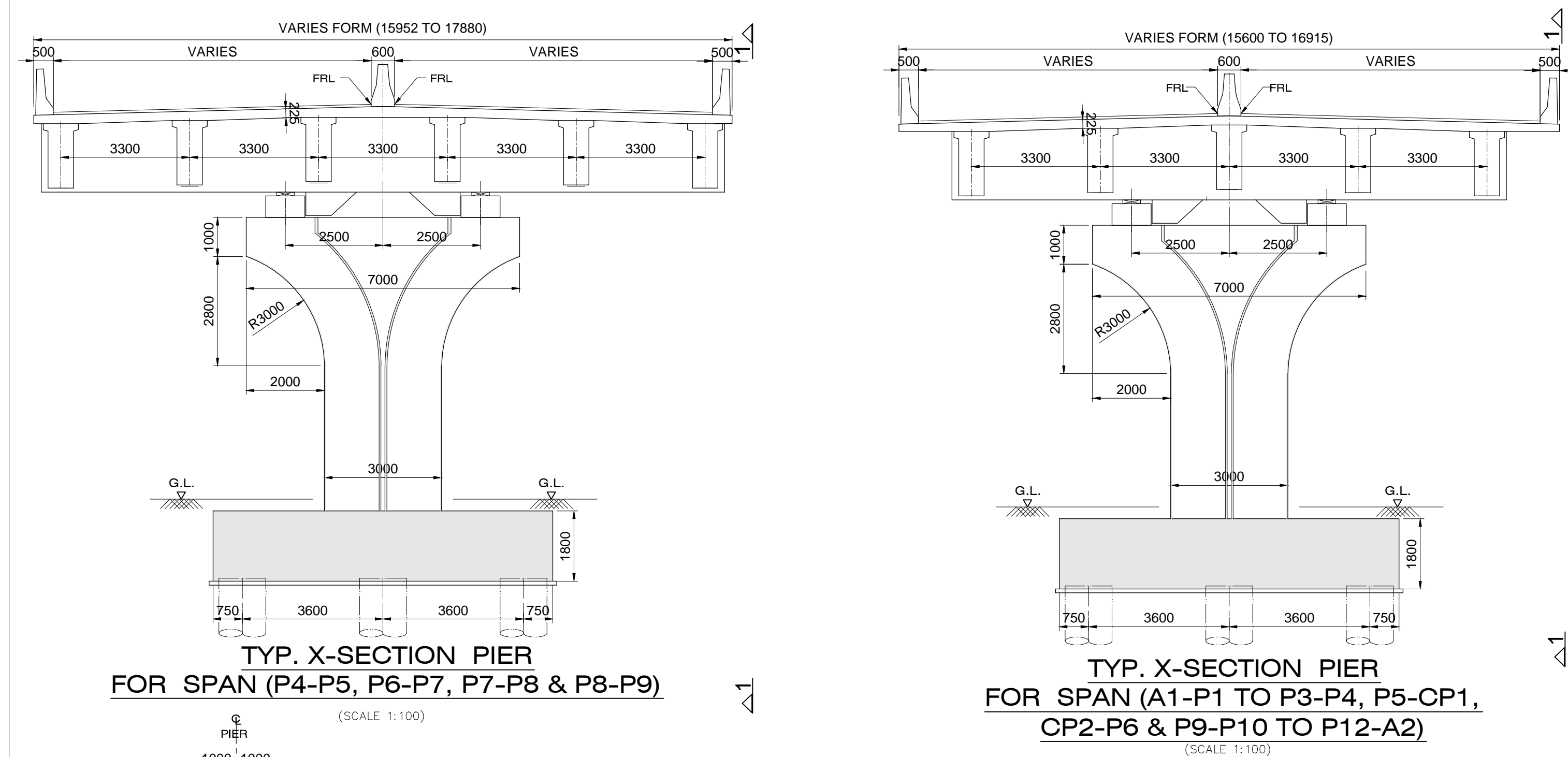
ARUN SOIL LAB PVT. LTD.

(Geotech & Material Consultants for Civil Engineering Projects)

E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016

Phone: 2341943; 4001043; Mobile: 9415025566, 9415501637, 38

arunsoillab.asl@gmail.com; info@arunsoillab.com



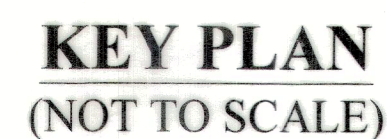
NOTES & CONDITIONS:-

- 1- THIS PROJECT HAS BEEN SANCTIONED VIDE G.O.NO.
- 2- ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED, R.L.'S ARE IN METRE.
- 3- DIMENSION SHOWN IN G.A.D. ARE TENTATIVE AND SUBJECT TO MODIFICATION AT THE TIME OF DETAIL DESIGNED.
- 4- THE BRIDGE IS DESIGNED FOR IRC CLASS 70R LOADING, IRC CLASS A LOADING.
- 5- GRADE OF CONCRETE IN ALL COMPONENTS ARE TENTATIVE WHICH SHALL BE FINALIZED AFTER DETAILED DESIGN. CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH OF CUBES AS FOLLOWS:-
 - (a) LEVELLING COURSE.....M15
 - (b) PIER.....M40
 - (c) BEAM AND PILE CAP.....M35
 - (d) PIER CAP.....M40
 - (e) BEARING.....POT PILE BEARING
 - (f) POT P.C.S. CUM.....M45
 - (g) DECK SLAB.....M45
 - (h) DECK & WARE-H.....M45
 - (i) CRASH BARRIER.....M40
- 6- ALL REINFORCING BARS SHALL BE THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION FE 550D) CONFORMING TO IS:1786 STANDARDS
 - 1) SUPER STRUCTURE, PIER & PIER CAP.....50mm
 - ii) FOUNDATION.....75mm
- 7- PRESTRESSING CABLES SHALL BE COMPRISE OF LOW RELAXATION STRANDS CONFORMING TO IS:14268. 12/13 CABLES SHALL BE USED.
- 8- BACK FILLING MATERIALS SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS.
 - a) $\phi > 30^{\circ}$
 - b) $c < 0$
 - c) $\gamma = 1.87 \text{sq.m}$
- 9- 65mm THICK ASPHALTIC WEARING COAT SHALL BE LAID OVER DECK SLAB.
- 11- STRIP SLAB EXPANSION JOINT SHALL BE PROVIDED AT EVERY PIER, ABUTMENT LOCATION AND POT-PILE BEARING SHALL BE PROVIDED UNDER EACH GIRDER.
- 12- WATER TO BE USED IN CONCRETING, GROUTING & CURING SHALL CONFORM TO CLAUSE 18.4.5 OF IRC: 112-2011.
- 13- VERTICAL LOAD CARRYING CAPACITY OF 120M DIA. AND 2400M LENGTH OF PILE HAS BEEN TAKEN AS 480T. AS APPROVED BY UPSCB.
- 14- MINIMUM CEMENT COVER GRADE OF CONCRETE, CEMENT CONTENT AND MAXIMUM WATER CEMENT RATIO SHALL BE AS PER MODERATE CONDITION OF EXPOSURE AS PER 112-2011.
- 15- ALL GROUND LEVELS AND FORMATION LEVELS SHALL BE VERIFIED AT SITE BY UNIT IN CHARGE AND IF ANY DISCREPANCY IS FOUND REFER TO HEAD OFFICE BEFORE START OF WORK.
- 16- SEISMIC PARAMETERS
SEISMIC ZONE = III
IMPORTANCE FACTOR = 1.2
 $Sa/g = 2.50$
- 17- ALL THE WORK SHALL BE CARRIED OUT AS PER RELEVANT IRC. AND I.S. CODES.
- 18- QUALITY CONTROL SHALL BE CONFORM AS PER IRC: 112-2020 AND RELEVANT I.S. CODE.
- 19- LENGTH OF VIADUCT AND R.E. WALL HAS BEEN SHOWN ALONG THE CENTER LINE OF CARRIAGEWAY OF R.O.B.
- 20- CAMBER SHALL BE PROVIDED IN STRAIGHT PORTION OF THE R.O.B SUPER ELEVATION AND EXTERA WIDENING SHALL BE PROVIDED IN CURVED PORTION AS PER THE CORDAL REQUIREMENT.
- 21- MAX. VEHICULAR SPEED LIMIT = 35.0 km/hr CAUTION BOARD MUST BE PROVIDED FOR SPEED LIMIT AS PER PERMUTING.
- 22- DRAINAGE PIPE SHALL BE PROVIDED AS PER SITE REQUIREMENT TO PROTECT FOUNDATION FROM SEEPAGE OF WATER.

				CONSULTANT		CLIENT:		PROJECT		TITLE		JOB NO. 91		DRG. NO.	
				LIZA BRIDGE CONSULTANT Regd Office: 1688-B, ST. No 39, Aggarwal Colony, Bhatinda (PB) Office: F-65, VW Shopping Plaza Sector-12, Vasundhara, Ghaziabad (U.P.) Contact No. 9717898968, 9810035825 E-Mail: lizabridgeconsultant@gmail.com, Civil_akg@yahoo.com		U.P. STATE BRIDGE CORPORATION LTD. BRIDGE CONSTRUCTION UNIT-I, LUCKNOW. 16-MADAN MOHAN MALVIYA MARG LUCKNOW - 226001		R.O.B. AT LEV. X-ING NO: 16C ON LUCKNOW -SITAPUR RAIL SECTION IN DISTT-LUCKNOW.		GENERAL ARRANGEMENT DRAWING		<div><div><div><div><div><div></div></div></div><div><div><div></div></div></div><div><div><div></div></div></div></div><div><div><div></div></div></div><div><div><div></div></div></div><div><div><div></div></div></div></div><div><div><div></div></div></div><div><div><div></div></div></div><div><div><div></div></div></div></div> <div><div><div></div></div></div> <div><div><div></div></div></div> <div><div><div></div></div></div>		ROB-16C/LUCKNOW-SITAPUR	
NO. DATE				DRN. CHKD. APPD.								SCALE (AS NOTED)			
DESCRIPTIONS R E V I S I O N												DATE. MAY. 2026		REV. R0	










SECTION AT B-B



- PS
50

DIVN. REF.: _____

 Manohar Kumar	 Manohar Kumar	 Manohar Kumar	 Manohar Kumar	 Manohar Kumar	 Manohar Kumar	 Manohar Kumar	Digitally signed by Manohar Kumar Date: 2026.01.07 17:44:29 +05'30"	GAYA BAKHSH SINGH	Digitally signed by GAYA BAKHSH SINGH Date: 2026.01.13 12:40:00 +05'30"
AE/UPSBC	PM/UPSBC	SSE/DRG/GKP	SSE/DESIGN/GKP	SSE/DRG/LJN	SSE/DRG/LJN	SSE/WBNZ		ADEN/L/LJN	