National Highways Authority of India

(Ministry of Road Transport & Highways)
Government of India

(REQUEST FOR QUOTATION)

FOR

Protection Work at CH-58.700 (LHS) and from CH-58.800 to CH-58.850 (LHS) on Zirakpur-Parwanoo Section of NH-5 (Old NH-22) from KM 39.960 to KM 67+550 on BOT Basis in the States of Punjab, Haryana & Himachal Pradesh.

[February, 2026]

Regional Office, Chandigarh,
National Highways Authority of India,
NHAI Building, Sector - 30B, Chandigarh (UT) - 160030,
(Near Sector – 29-30 Traffic Light, Opposite 30 C Market)
Phone no. 0172-2586818

CONTENTS

Volume - I

TITLE

SECTION I. NOTICE INVITING TENDER

SECTION II. INSTRUCTIONS TO BIDDERS & APPENDIX TO BID

SECTION III QUALIFICATION INFORMATION

SECTION IV. FORM OF BANK GUARANTEE, AGREEMENT & LOA

SECTION V. CONDITIONS OF CONTRACT & CONTRACT DATA
SECTION VI. SCOPE OF WORK

SECTION VII TECHNICAL SPECIFICATIONS

SECTION VIII IMPLEMENTATION MANUAL AND MAINTENANCE INTERVENTION LEVELS

VOLUME - II

SECTION IX BILL OF QUANTITIES
+

(SECTION-I)

NOTICE INVITING TENDER

(E-TENDERING MODE ONLY)

Notice Inviting Tender
(National Competitive Bidding through e-Tendering mode only)

NIT No. NHAI/RO-CHD/2025-2026/CHD/74 Date: 03.02.2026

Name of Work:- Protection Work at CH-58.700 (LHS) and from CH-58.800 to CH-58.850 (LHS) on Zirakpur-Parwanoo Section of NH-5 (Old NH-22) from KM 39.960 to KM 67+550 on BOT Basis in the States of Punjab, Haryana & Himachal Pradesh.

The National Highways Authority of India (NHAI) hereby invites bid through e-tendering from Pre-Qualified Empanelled firms/Organizations as per para 5 of NHAI Policy Circular No. 10.2.37/2024 dated 08.07.2024 for [**Protection Work at CH-58.700 (LHS) and from CH-58.800 to CH-58.850 (LHS) on Zirakpur-Parwanoo Section of NH-5 (Old NH-22) from KM 39.960 to KM 67+550 on BOT Basis in the States of Punjab, Haryana & Himachal Pradesh**].

Sl. No.	Section	NH-No.	Length (in km.)	State	Estimated Cost
1	Protection Work at CH-58.700 (LHS) and from CH-58.800 to CH-58.850 (LHS) on Zirakpur-Parwanoo Section of NH-5 (Old NH-22) from KM 39.960 to KM 67+550 on BOT Basis in the States of Punjab, Haryana & Himachal Pradesh.	NH-05 (Old NH-22)	-	Punjab, Haryana & Himachal Pradesh	Rs. 85,37,850/-

Cost of Bid Documents (Non-Refundable) : Rs. 25,000/-

The preliminary requirements (detailed requirements are given in the Bid Document) of bidding firm / contractor for above packages are mentioned as under:

Bid Security	Time for completion
Rs. 0.85 Lacs	06 Months*

*During execution of work, the Authority shall prioritize urgent works and notify the same to the Contractor. For urgent/high priority works, the strict timelines as notified by Authority has to be strictly followed by the Contractor.

Based on the directions issued vide **NHAI Policy Circular No. 10.2.37/2024 dated 08.07.2024,** the instant RFQ is invited by NHAI, RO-Chandigarh. The important points for enabling the bidders to understand this proposal are:

a. As mandated in para 5 of **NHAI Policy Circular No. 10.2.37/2024 dated 08.07.2024,** the empanelment process was initiated by RO Chandigarh to carry urgent works at the risk and cost of the Contractor/Concessionaire.
b. Subsequently, 11 number of firms were empaneled under 4 categories.
c. The instant bid is for carrying out works amounting to Rs. 85,37,850/-. **Hence only the following empaneled agencies/firms are eligible to submit their quotations.:**

Sr. No.	Name of firm
1.	M/s Allone Infra Private Limited, SCO 120, Phase 2 Urban Estate, Patiala, Patiala, Punjab, 147002, Mob:- 9216549449
2.	M/s NSC Projects Pvt. Ltd., L-87, Street No.7C, Mahipalpur Extension, New Delhi-110037, Mob:- 9811012499
3.	M/s Siddharth Construction, 488/512/04 Haveliya Colony Daliganj Lucknow-226020, Mob:- -9554957596
4.	M/s K.G. Gupta Infrastructure Pvt. Ltd., 102, Ravindra Nagar, Old Palasiya,Indore M.P-452001, Mob:- 9826039581
5.	M/s Jbco Infratech Private Limited., #298, Chak Hussain, Deep Nagar Extension, Jalandhar Punjab 144009, Mob:- 9888484303
6.	M/s Gurbachan Singh Constructions Private Limited, SCF-10, Phase-2, Part-2, sUrban Estate, Model Town, Bathinda, Punjab – 151001, Mob:- 9914267777
7.	M/s Gaurav Singh, Village Dear Gujarakiya, Jind Road Assandh-132039, Mob:- 9729005553
8.	M/s A S Patel, F- 8, Smt. Kapilaben J B Shah Mahila Shopping Centre, Near Court, Malpur Road, Modasa Dist Arvalli-383315, Mob:- 9925040316
9.	M/s MD-Infra India Private Limited, Flat No. F-1, 1984 E Ward, Karekar Sankul, Rajarampuri 10th Lane, Kolhapur, Kolhapur, Maharashtra-416008, Mob:- 9423699797
10.	M/s Mahavir Prasad Gupta And Sons, E-165, Shastri Nagar, Delhi-110052, Mob:- 9811816630
11.	M/s Dhingra Brothers (India), PO-Hazara, Old Hoshiarpur Road, Village-Dhadda, Jalandhar-144025, Mob:- 9888496660

It is mandatory for all the bidders to have class-III Digital Signature Certificate **(With Both DSC Components, i.e. Signing & Encryption in the name of authorized signatory (who will sign the Bid))** from any of the licensed Certifying Agency (Bidders can see the list of licensed CA's from the link www.nhai.gov.in / www.cca.gov.in to participate in e-tendering of NHAI.

To participate in the e-bid, it is mandatory for the Applicants to get themselves registered with the NHAI e-Tendering Portal (http://etenders.gov.in) to have a user ID & Password. The amendments /clarifications to the bid document if any will be hosted on the above website.

The detailed tender document can be viewed /downloaded/purchased from the website https://etenders.gov.in from **03.02.2026 to 23.02.2026 (up to11:00 Hrs.).**

The complete Bid Document can be downloaded from the NHAI e-tendering portal free of cost. To participate for bidding, bidders have to pay a non-refundable document fee through online payment made in the Bank Account of Authority as detailed below,

Account Name	**National Highways Authority of India**
Account No	**0385201800065**
Name of Bank	**Canara Bank**
Branch	**Panchkula**
IFSC Code	**CNRB0001624**

The amendments /clarifications to the bid document if any will be hosted on the above website.

The bid should be submitted online in the prescribed format given in the website. No other mode of submission is acceptable.

The authorized signatory holding Power of Attorney shall only be the Digital Signatory. In case authorized signatory holding Power of Attorney and Digital Signatory are not the same, the bid shall be considered non-responsive.

The last date submission of Bid online is **23.02.2026 up to 11:00 Hrs.** (as mentioned on the e-portal only) ("**Bid Due Date**"). The bids would be opened **on 24.02.2026 at 11.30 hrs.** online at **Regional Office, Chandigarh, National Highways Authority of India, NHAI Building, Sector - 30B, Chandigarh (UT) - 160030, (Near Sector – 29-30 Traffic Light, Opposite 30 C Market) 0172-2586818 Mail id - tendersrochandigarh@nhai.org**, representatives of the bidders (maximum of two) who choose to attend, may attend the online opening of the bids at RO NHAI Chandigarh on the date and time as mentioned above. However, such representatives shall be allowed to attend the opening of the bids only if they produce a letter of authority on the letterhead of the bidder, at the time of opening of bids as mentioned above.

The Authority would endeavor to adhere to the following schedule:

Sr. No	Event Description	Date
1.	Sale of e-tenders	03.02.2026 - 23.02.2026 (up to 11:00 Hrs.)
2.	Last date of Submission of e-Tender/bid (Online)	23.02.2026 (up to 11:00 Hrs.)
3.	Opening of bids	24.02.2026 At 11:30 Hrs. (if possible)
4.	Bid Cost (non-refundable)	Rs.25,000/- (Online mode only)

For any clarification, the office as mentioned below may be contacted.

Regional Office, Chandigarh,
National Highways Authority of India,
NHAI Building, Sector - 30B, Chandigarh (UT) - 160030,
(Near Sector – 29-30 Traffic Light, Opposite 30 C Market)
0172-2586818
Mail id - tendersrochandigarh@nhai.org

(SECTION-II)

INSTRUCTIONS TO BIDDERS

& APPENDIX TO BID

Section II
Instructions to Bidders (ITB)

A. General

1. Scope of Bid

13.3 The Employer (i.e. Chairman, National Highways Authority of India) invites bids for "as described in these documents and referred to as "the works". The name and identification number of the works is provided in the Notice Inviting Tender.

1.2 The successful Bidder will be expected to complete the Works by the intended Completion Date specified in the Contract Data (Part I General Conditions of Contract).

1.3 Throughout these bidding documents, the terms "bid" and "tender" and their derivatives (bidder/tenderer, bid/tender, bidding/tendering, etc.) are synonymous.

2. Source of Funds

2.1 The expenditure on this project will be met by the National Highways Authority of India (NHAI).

3. Eligible Bidders

~~**3.1** This Invitation for Bids is open to all bidders meeting the qualification requirements prescribed in this document.~~

3.2 Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices by the Central Government, the State Government or any public undertaking, autonomous body, authority by whatever name called under the Central or the State Government.

d. **Qualification of the Bidder: As per NIT**

4.1 Bids from joint ventures are not allowed.

4.2 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

i. made misleading or false representations in the forms, statements, affidavits and attachments submitted in proof of the qualification requirements; and/or

ii. Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc. or debarring from NHAI work etc.

iii. Tampered the bid document in any manner.

5. One Bid per Bidder

5.1 Each Bidder shall submit only one Bid for the work. A Bidder who submits more than one Bid will cause such bids to be disqualified.

6. Cost of Bidding

6.1 The Bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer will, in no case, be responsible or liable for those costs.

B. Bidding Documents (On line)

7. Content of Bidding Documents

7.1 The set of bidding documents comprises the documents listed below and addenda/corrigendum (if any) issued in accordance with Clause 10:

Volume- I :

38.1 Notice Inviting Tender

38.2 Instructions to Bidders & Appendix to Bid

38.3 Qualification Information

38.4 Forms of Bank Guarantee, Agreement & LOA

38.5 Conditions of Contract & Contract Data

38.6 Scope of work

38.7 Technical Specifications

38.8 Implementation Manual & Maintenance Intervention Levels

Volume – II:

Bill of Quantities:

Bidders will be required to quote a single percentage above/below the overall estimated amount. This percentage would be applicable for all the items of work in the contract for working out the rates for each item of work.

7.2 The bidder is expected to examine carefully all instructions, conditions of contract, contract data, forms, terms, specifications, bill of quantities, etc. in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. Pursuant to clause 21 hereof, bids, which are not substantially responsive to the requirements of the Bid Documents, shall be rejected.

8. Clarifications on Bid Documents

8.1 A prospective Bidder requiring any clarification on the bid document may notify the Employer in writing or by e-mail (scanned copy) at the Employer's address indicated in the Notice Inviting Tender. The Employer will respond to any request for clarification received earlier than 7 days prior to the deadline for submission of bids. Copies of the Employer's response will be hosted on website, or which are required in the opinion of the Employer including a description of the enquiry, but without identifying its source.

8.2.1 The bidder is requested to submit any questions in writing or by email so as to reach the Employer not later than one day before the meeting.

8.2.2 Minutes of the meeting, including the text of the questions raised (without identifying the source of the enquiry) and the responses given will be transmitted without delay on the website. Any modifications of the bid documents as per clause 9, which may become necessary as a result of the pre-bid meeting or which are required in the opinion of the Employer shall be made by the Employer exclusively through the issue of an Addendum/ corrigendum pursuant to Clause 9 and not through the minutes of the pre-bid meeting.

9. Amendment of Bidding Documents

9.1 Before the deadline for submission of bids, the Employer may modify the bidding documents by issuing addenda/corrigendum.

9.2 Any addendum thus issued shall be part of the bidding documents and shall be hosted on the web site of NHAI e-tendering portal.

9.3 To give prospective bidders reasonable time to take an addendum into account in preparing their bids, the Employer shall extend, as necessary, the deadline for submission of bids, in accordance with Clause 16.2.

C. Preparation of Bids

10. Language of Bid

10.1 All documents relating to the Bid shall be in English.

11. Documents Comprising the Bid

11.1 The Financial bid and shall comprise of information submitted in section-III.

11.2 Documents to be submitted

The scanned copies of following documents is required to be uploaded during submission of e-bid on the e-tendering portal of NHAI, As per clause 11.1 above

a) Payment of cost of tender documents i.e., Receipt of transaction/IMPS/NEFT etc.

b) Bid Security and Bid Declaration, in accordance with NIT and Clause 13.

c) Original Power of Attorney (POA) for signing of bid.

d) Original of Integrity Pact.

e) Financial bid

f) A Bidder is required to submit, along with its technical BID, a self- certification that the item offered meets the local content requirement for 'Class – I local Supplier' / 'Class – II local Supplier', as the case may be. The self-certification shall also have details of the location(s) at which the local value addition is made. In case, bidder has not submitted the aforesaid certification the bidder will be treated as 'Non- Local Supplier'.

In the above pretext, the Class – I Local Supplier, Class – II Local Supplier and the Non-Local Supplier are defined as under:

(i) 'Class – I local Supplier' means a supplier or service provider, whose goods, services or works offered for procurement, meets the minimum local content as prescribed for 'Class – I local Supplier' under this Bid Document. The 'local content' requirement to categorize a supplier as 'Class – I local Supplier' is minimum 50%.

(ii) 'Class – II local Supplier' means a supplier or service provider, whose goods, services or works offered for procurement, meets the minimum local content as prescribed for 'Class – II local Supplier' under this Bid Document. The 'local content' requirement to categorize a supplier as 'Class – II local Supplier' is minimum 20%.

(iii) 'Non - local Supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than that prescribed for 'Class – II local supplier' under this Bid Document.

(iv) ‘Local content’ means the amount of value added in India which shall be the total value of item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent

In case of procurement for a value in excess of Rs. 10 crores, the ‘Class – I local supplier’ / ‘Class – II local supplier’ shall provide a certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

11.3 The following documents, which are not submitted with the bid, will be deemed to be part of the bid.

Section	Particulars
ii.	Notice Inviting Tender
iii.	Instruction to the bidders
3.	Conditions of Contract
4.	Contract Data
5.	Scope of work
6.	Technical Specifications
7.	Implementation Manual and Maintenance Intervention Level

12. Bid Validity

12.1 Bids shall remain valid for a period of **120 days** after the deadline date for bid submission specified in Clause 16.A bid valid for a shorter period shall be rejected by the Employer as non-responsive.

12.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders may extend the period of validity for a specified additional period. The request and the bidders' responses shall be made in writing or by email. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid but will be required to extend the validity of his bid security for a period of the extension, and in compliance with Clause 13 in all respects.

13. Earnest Money / Bid Security/ Forfeiture/ Debarment

13.1
The Bidder shall furnish as part of its BID, a BID Security in the form of Insurance Surety Bond (issued by Insurance Company authorized by Insurance Regulatory and Development Authority of India) in the form set forth in Section IV, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (including e-Bank Guarantee) in the form set forth in Section IV issued by nationalized bank, or a Scheduled Bank in India having a net worth of at least Rs. 1,000 crore (Rs. one thousand crore), in favour of the Employer and having a validity period of not less than 180 (one hundred eighty) days from the BID Due Date, inclusive of a claim period of 60 (sixty) days, and may be extended as may be mutually agreed between the Employer and the Bidder from time to time. The Insurance Surety Bond shall be verified from the specific portal created for this purpose. The Bank Guarantee (including e-Bank Guarantee) shall be transmitted through SFMS Gateway to NHAI's Bank. In case the Bank Guarantee / e-Bank Guarantee is issued by a foreign bank outside India, confirmation of the same by any nationalized bank in India is required. A scanned copy of the Insurance Surety Bond, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee / e-Bank Guarantee shall be uploaded on e-procurement portal while applying to the tender.

Further, the bidder has to sign a **Bid Securing Declaration** accepting that if the bidder withdraw or modify its bid during the period of validity i.e. not less than 120 (one hundred twenty) days from the bid due date or if the bidder is awarded the contract and fail to sign the contract or to submit a performance security before the deadline defined in the request for bid documents, the bidder will be suspended for participation in the tending process for the works of MORTH/NHAI/NHIDCL and works under other centrally sponsored

schemes, for a period of 1 (one) year from the bid due date of this work. The Bid Securing Declaration shall be uploaded on e-procurement portal as per the format at Annexure-I (Format for Bid Securing Declaration).

13.2 Any BID not accompanied by the EMD/Bid Security @ 1% of estimated cost and BID Securing Declaration shall be summarily rejected by the Authority as non-responsive.

13.3 The Authority shall be entitled to claim Damages in any of the events specified in Clause 13.4 herein below.

The Bidder, by submitting its BID pursuant to this RFP, shall be deemed to have acknowledged and confirmed that the Authority will not suffer loss/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.

13.4 Bidder shall be suspended from participating in the tendering process for the works of MORTH/NHAI/NHIDCL and works under other centrally sponsored schemes for a period specified under clause 13.1 or clause 12.1 of the RFQ, as the case may be 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) If a Bidder withdraws or modifies its BID after its submission during the period of bid validity;
(b) If the bidder does not accept the correction of bid price pursuant to Clause 26; or
(c) In the case of successful Bidder, if bidder fails within the specified time limit to -
(i) sign the agreement; and/or
(ii) furnish the required Performance Security

13.5 The Bid Security of the unsuccessful Bidders will be returned as promptly as possible but not later than 28 days after issuing LOA to the Selected Bidder.

14. Alternative Proposals by Bidders

14.1 Bidder shall submit offers that fully comply with the requirement of the bidding documents. Conditional offer or alternate offer will not be considered further in the process of evaluation and the bid will be declared non-responsive.

15. Format and Signing of Bid

15.1 The Bidder shall submit e-bid comprising of the documents as described in Clause 11 of the ITB.

D. Submission of Bids

16. Deadline for Submission of Bids

16.1 Complete e-Bid to be uploaded on NHAI e-tender portal before due date & time. i.e. **23.02.2026 (up to 11:00 Hrs.)**

16.2 The Employer may extend the deadline for submission of bids by issuing an amendment in accordance with Clause 9, in which case all rights and obligations of the

Employer and the bidders previously subject to the original deadline will then be subject to the new deadline.

17. Modification and Withdrawal of Bids

34.1 Bidders may modify or withdraw their e-bids before the deadline prescribed in Clause 16.
34.2 No bid may be modified after the deadline for submission of Bids.
34.3 Withdrawal or modification of a Bid between the deadline for submission of bids and the expiration of the original period of bid validity specified in Clause 12.1 above or as extended pursuant to Clause 12.2 shall result in the forfeiture of the Bid security pursuant to Clause 13.

E. Bid Opening and Evaluation

18. Bid Opening

Bid opening shall be carried out in a single stage. 'Financial Bid' of all the bids received online shall be opened on the date and time mentioned which will be notified to such bidders.

18.1 The Employer will open the "Financial Bid" of all the bids received (except those received late), in the presence of the bidders/bidders' representatives who choose to attend at the time, date and place specified in the **NIT**. In the event of the specified date for the submission of bids being declared a holiday for the Employer, the Bids will be opened at the appointed time and location on the next working day.

18.2 In all cases, the amount of Earnest Money, forms and validity shall be announced. Thereafter, the Employer at the opening as the Employer may consider appropriate, will announce the bidders' names and such other details.

18.3 The Employer will prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Clause 18.1.

18.4 (i) the bids accompanied with valid bid security, bid document fee, Tender processing fee will be taken up for evaluation with respect to the Qualification Information and other information furnished in Part I of the bid pursuant to Clause 11.1.

18.5 Financial bid evaluation and declaring of results shall be done based on documents received online after confirmation of payment of cost of tender in Authority's account.

18.6. The Lowest Bidder shall be required to submit original of documents listed below (before issue of LOA by the Authority):

i) Bid Security, in accordance with Clause 13
ii) Original Power of Attorney for signing of Bid, authorizing the signatory of the Bid to commit the Bidder as per Format provided at Section IV.
iii) Original Affidavit duly notarized and undertakings.
iv) Letter of Application form
v) Integrity Pact.
vi) Copy of online receipt towards payment of cost of Bid document of Rs. 25,000/- (Rupees Twenty Five Thousand Only) to "National Highway Authority of India" in designated bank account mentioned in IFB.
vii)

These documents shall be placed in an envelope, which shall be sealed. The envelope containing Original Documents shall

a) be addressed to the Employer at the following address:

Regional Office, Chandigarh,
National Highways Authority of India,
NHAI Building, Sector - 30B, Chandigarh (UT) - 160030,
(Near Sector – 29-30 Traffic Light, Opposite 30 C Market),
Phone no. 0172-2586818

b) bear the following identification:

Bid for Protection Work at CH-58.700 (LHS) and from CH-58.800 to CH-58.850 (LHS) on Zirakpur-Parwanoo Section of NH-5 (Old NH-22) from KM 39.960 to KM 67+550 on BOT Basis in the States of Punjab, Haryana & Himachal Pradesh on item rate (percentage) basis.

18.7 All the bidders (including individual ~~or any of its Joint Venture Members~~) failing to submit original documents required as per Para 11.2 shall be unconditionally debarred from bidding in NHAI projects for a period of five years.

18.8 In case Bidder fails to submit originals as per Para 11.2 the bidding process shall be annulled, and fresh tenders shall be re-invited.

18.9 The Employer shall prepare the minutes of the opening of the Financial Bids.

18.10 Self-Certification

Self- certification by the Bidder that its Bid meets the Local Content requirement for 'Class – I Local supplier'/ 'Class – II Local supplier', as the case may be. The Self-certification shall also have details of the location(s) at which the local value addition is made. In case, bidder do not submit the aforesaid Certification, the bidder will be summarily treated as 'Non Local Supplier'.

In case of procurement for a value in excess of Rs. 10 crores, the 'Class – I Local supplier' / 'Class – II Local supplier' shall have to provide a Certificate from the Statutory Auditor or Cost Auditor of the Company (in case of Companies) or from a practicing Cost Accountant or practicing Chartered Accountant (in respect of Suppliers other than Companies) giving the percentage of Local Content upon Construction of the Project.

Priced bill of quantities to be uploaded by bidder along with percentage (%) format given in the bid document.
Technical bid shall also be submitted online on e-tendering website.

19. Process to be Confidential

19.1 Information relating to the examination, clarification, evaluation, and comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other person not officially concerned with such process until the award to the successful Bidder has been announced. Any attempt by a Bidder to influence the Employer's processing of bids or award decisions may result in the rejection of his Bid

20. Clarification of Bids and Contacting the Employer

20.1. To assist in the examination, evaluation, and comparison of Bids, the Employer may, at his discretion, ask any Bidder for clarification of his-Bid, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, but no change in the price or substance of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids in accordance with Clause 26.

20.2 Subject to sub-clause 25.1, no Bidder shall contact the Employer on any matter relating to his bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Employer, it should do so in writing.

20.3 Any effort by the Bidder to influence the Employer in the Employer's bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidders' bid.

21Examination of Technical Bids and Determination of Responsiveness : Not Applicable

22. Correction of Errors

a. Where there is a discrepancy between the rates in figures and in words, the rate in words will govern.

F. Award of Contract

23. Award Criteria

23.1 Subject to Clause 25, the Employer will empanel the Bidder whose Bid has been determined:

i. to be substantially responsive to the bidding documents.

24 Employer's Right to accept any Bid and to reject any or all Bids

24.1 Notwithstanding Clause 23, the Employer reserves the right to accept or reject any Bid, and to cancel the bidding process and reject all bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Employer's action.

25. Notification of Award

25.1 The bidder whose Bid has been accepted will be notified of the empanelment by the Employer prior to expiration of the Bid validity period by courier/registered letter.

26. Corrupt or Fraudulent Practices

The Employer will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question and will declare the firm ineligible, either indefinitely or for a stated period of time, to bid for any work with National Highways Authority of India, if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for the contract, or in its execution.

For the purpose of this clause, the following terms shall have the meaning hereinafter respectively assigned to them

(i) **" Corrupt practice"** means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (For avoidance of doubt, offering of employment to, or employing, or engaging in any manner whatsoever, directly or indirectly, any official of the Authority who is or has been associated in any manner, directly or indirectly, with Bidding Process, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Authority, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process);
(ii) **"Fraudulent practice"** means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;

The Employer requires the bidders/Contractors to strictly observe the laws against fraud and corruption enforced in India, namely, Prevention of Corruption Act, 1988.

27. DELETED

28. DELETED

29. DELETED

30. Award Criteria

30.1 Subject to Clause 32, the Employer will award the Contract to the Bidder whose Bid has been determined:

30.1 to be substantially responsive to the bidding documents and who has offered the lowest evaluated Bid price.

30.2 Deleted.

31 Employer's Right to Accept any Bid and to Reject any or all Bids

31.1 Notwithstanding Clause 30, the Employer reserves the right to accept or reject any Bid, and to cancel the bidding process and reject all bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Employer's action.

32. Notification of Award and Signing of Agreement

29.2.1 The bidder whose Bid has been accepted will be notified of the award by the Employer prior to expiration of the Bid validity period by courier/ registered letter. This letter (hereinafter and called the "Letter of Acceptance") will state the sum that the Employer will pay to the Contractor in consideration of the execution, completion and maintenance of the Works, and of routine maintenance of roads by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").

32.2. The notification of award will constitute the formation of the Contract, subject only to the furnishing of a performance security in accordance with the provisions of Clause 33.

32.3. The Agreement will incorporate all agreements between the Employer and the successful Bidder. It will be signed by the Employer and the successful Bidder after the performance security is furnished.

32.4 Upon furnishing by the successful Bidder of the Performance Security, the Employer will promptly notify the other Bidders that their Bids have been unsuccessful.

33. Performance Security

33.1 Within Seven (Seven) days of receipt of Letter of Acceptance, the Selected Bidder shall furnish to the Authority in the form of Insurance Surety Bond in the format at Section - IV, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or irrevocable and unconditional Bank Guarantee (including e-Bank Guarantee) from a Bank in the form set forth in Section IV (**the "Performance Security") for an amount equal to 5% (five percent) of its Bid Price**. In case of bids mentioned below, the Selected Bidder, along with the Performance Security, shall also furnish to the Authority in the form of Insurance Surety Bond (issued by Insurance Company authorized by Insurance Regulatory and Development Authority of India in the format at Section - IV), Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or an irrevocable and unconditional Bank Guarantee (including e-Bank Guarantee) from a Bank in the same form given at Appendix-IV 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 tender15% but upto 25% of the Estimated Project Cost, the **Additional Performance Security shall be calculated** @50% of the difference in the (i) Estimated Project Cost (as mentioned in Bid Document)-15% of the Estimated Project Cost and (ii) the Bid Price offered by the selected Bidder.

(B) If the Bid Price offered by the Selected Bidder is lower than 25% of the Estimated Project Cost, the Additional Performance Security shall be calculated @ 5% of the Estimated Project Cost plus 100% of the difference in the (i) Estimated Project Cost - 25% of the Estimated Project Cost and (ii) the Bid Price offered by the Selected Bidder.

~~(ii) Maximum limit of additional Performance Security shall be limited to 5% of the Bid price offered by the Selected Bidder.~~

(iii) This Additional Performance Security shall be treated as part of the Performance Security.

The Selected Bidder shall ensure that the Performance Security and/or Additional Performance Security shall be submitted by the Selected Bidder only and the same shall not be issued on behalf of the Selected Bidder from facility sanctioned to a third party (i.e. third party Performance Security and / or Additional Performance Security shall not be accepted by the Authority

33.2 The performance security and additional performance security shall be either in the form of a Bank Guarantee or fixed deposit Receipts, in the name of the Employer, from a Bank as specified in case of earnest money / bid security.

33.3 Failure of the successful bidder to comply with the requirement of sub-clause 33.1 shall constitute sufficient ground for cancellation of the award and forfeiture of the bid security and debarment for a period as specified in clause 13.

34. Advances

34.1 The Employer will provide Mobilization Advance as provided in Part I General Conditions of Contract.

35. Corrupt or Fraudulent Practices

The Employer will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question and will declare the firm ineligible, either indefinitely or for a stated period of time, to bid for any work with National Highways Authority of India, if it

at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for the contract, or in its execution.

For the purpose of this clause, the following terms shall have the meaning hereinafter respectively assigned to them

a. **" Corrupt practice"** means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (For avoidance of doubt, offering of employment to, or employing, or engaging in any manner whatsoever, directly or indirectly, any official of the Authority who is or has been associated in any manner, directly or indirectly, with Bidding Process, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Authority, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process);

b. **"Fraudulent practice"** means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;

The Employer requires the bidders/Contractors to strictly observe the laws against fraud and corruption enforced in India, namely, Prevention of Corruption Act, 1988.

SECTION III

~~Not Applicable~~

(i) The key equipment to be deployed on contract work.

Name of the Equipment	Quantity	Age (in years)
Hot Mix Plant (Batch Type)	**1 no.**	**-**
Front End Loader (0.6 cum. Bucket capacity)	**1 no.**	**-**
Tandem Roller/ Vibratory Roller	**1 no.**	**-**
Water Tanker (5000 litre capacity) Tractor Trolley / Truck mounted	**1 no.**	**-**
Crane of 25 tones capacity (not more than 2 year old)	**1 no.**	**-**
Route Patrol Vehicle (not more than 2 year old)	**1 no.**	**-**
Ambulance (not more than 2 year old)	**1 no.**	**-**
Emulsion Pressure Distributor	**1 no.**	**-**
Vacuum Sweeping Machine as per detailed specifications given in BOQ	**1 no**	**-**
Hydraulic Excavator	**1 no**	**-**
Dewatering pumps with generator	**2 no**	**-**
Tipper	**5 no**	**-**
All other Machinery/Equipment's to be deployed as per site requirement.		

Note: The bidder must produce the documentary evidence in support of his owning/leased/ rented of the above equipment. In case the bidder proposes to hire or take the above equipment on lease, he should, along with the lease/rent agreement, attach the proof of ownership of these equipment with the company/ entity from whom the equipment are proposed to be hired on lease/ rent.

(ii) The Number of Technical Personnel, Qualifications and Experience will be as following:-

SN	Key Personnel	Qualifying	Experience	No. of personnel
1	Project Manager	B.E. (Civil) + 10 Years Exp. Or Diploma civil + 15 year experience	10 years as Project Manager on Highway, bridge construction , Maintenance works	1
2	~~Dy Project Manager~~	~~B.E. (Civil) + 8 Years Exp.Or Diploma civil + 15 year experience~~	~~5 years as Dy. Project Manager/Manager on Highway, bridg econstruction , Maintenance works~~	~~1~~
3	Site Engineer	B.E. (Civil) + 5 Years Exp.	5 years in road and Bridge construction	1
4	Incident cum, Road property Manager cum Route Operation Manager	Graduate from a recognized University + 5 years' experience	3 years on highway property management and maintenance	1
~~5~~	~~Road Safety Auditor~~	~~Road Safety Audit Certificate from appropriate approved Govt. agecy~~	~~3 Years' Experiences~~	~~1~~
~~6~~	~~Quality cum Material Engineer~~	~~B.E. (Civil) + 5 Years Exp. In relevant field~~	~~5 years in relevant field~~	~~1~~

Note: The detailed and signed **CV's of all the Key** Technical Personnel, recently signed (not older than 3 months from the due date of submission of bid) by the key personnel himself, must be furnished **along with the bid as per** proforma given below. Noncompliance of the above or non-furnishing of the CV as above or conditional deployment of any of the above personnel or proposal to employ lesser number of personnel than above may make the bid non responsive and financial bid may not be opened.

UNDERTAKING

I, the undersigned do hereby undertake that our firm M/s _____ _____ would invest a minimum cash up to 25% of the value of the work during implementation of the Contract towards the working capital.

_____
(Signed by an Authorized Representative of the Firm)

_____
Name of the Representative

_____
Name of Firm

_____
DATE

Note: It should not be later than one month before bid due date.

UNDERTAKING

I, the undersigned do hereby undertake that our firm M/s _____agree to abide by this bid for a period of _____days after the date fixed for receiving the same and it shall be binding on us and may be accepted at any time before the expiration of that period.

_____
(Signed by an Authorized Representative of the Firm)

_____
Name of the Representative

_____
Name of Firm

_____
DATE

Note: It should not be later than one month before bid due date.

AFFIDAVIT*

1. I, the undersigned, do hereby certify that all the statements made in the required attachments aretrue and correct.

2. The undersigned also hereby certifies that neither our firm M/s. _____nor any of its constituent partners have abandoned any work on National Highways in India nor any contract awarded to us for such works has been rescinded, during last five years prior to the date of this application.

3. The undersigned also furnishes undertaking that we are not declared by any court of law as proclaimed offenders, also that we are not convicted under any law for the offences punishable under Indian Penal Code, TADA, POTA, Negotiable Instruments Act or any Labour/employee beneficial legislations.

4. The undersigned hereby authorize(s) and request(s) any bank, person, firm or corporation to furnish pertinent information deemed necessary and requested by Employer to verify this statement or regarding my (our) competence and general reputation.

5. The undersigned understands and agrees that further qualifying information may be requested, and agrees to furnish any such information at the request of the Employer.

_____

Signed by an Authorised Officer of the Firm

Title of Officer

_____

Name of Firm Seal of Firm _____

_____

_____

Date

* To be given on Non-Judicial stamp paper of appropriate value duly signed by authorized notary.

(SECTION-IV)

FORMS OF
BANK GUARANTEES
LOA & AGREEMENT

BID Securing Declaration
(Refer Clauses 13)

I hereby submit a declaration that the bid submitted by the undersigned, on behalf of the bidder, (Name of the bidder), shall not be withdrawn or modified during the period of validity i.e. not less than 120 (one hundred eighty) days from the bid due date.

I, on behalf of the bidder, (Name of the bidder), also accept the fact that in case the bid is withdrawn or modified during the period of its validity or if we fail to sign the contract in case the work is awarded to us or we fall to submit a performance security before the deadline defined in clause 33 of the Request for Quotation (RFQ), then (Name of the bidder) will be suspended for participation in the tendering process for the works of MoRTH/NHAI/NHIDCL and works under other Centrally Sponsored Schemes, for a period of one year from the bid due date of this work.

(Signature of the Authorized Signatory)
(Official - Seal)

Format for Power of Attorney for signing of BID

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 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 *** [Name of the Project] on item rate (percentage) basis or being developed by the National Highways Authority of India (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 Contract Agreement with the Authority.

AND we 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.

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 person

authorized by Board Resolution(in case of Firm/ Company)/ partner in case of

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 NotaryRegistration No. of the Notary

Date:……

Notes:

a. *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.*

b. 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 favour 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 legalised 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 are not required to be legalised by the Indian Embassy if it carries a conforming Appostille certificate.

INTEGRITY PACT FORMAT

(To be executed on the plain paper and submitted along with Technical Bid /Tender documents for tenders having a value of Rs. 5 crore or more. To be signed by the bidder and same signatory competent/authorized to sign the relevant contract on behalf of the NHAI)

(_____Division)
Tender No._____

INTEGRITY PACT

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

THE NATIONAL HIGHWAYS AUTHORITY OF INDIA (NHAI), a statutory body constituted under the National Highways Authority of India Act, 1988, which has been entrusted with the responsibility of development, maintenance and management of National Highways, having its office at G- 5 & 6, Sector-10, Dwarka, New Delhi, hereinafter referred to as "The Principal", which expression shall, unless repugnant to the meaning of contract thereof, include its successors and permitted assigns)

AND

.....herein after referred to as "The Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(s)" and which expression shall unless repugnant to be meaning or context thereof include its successors and permitted assigns.

Preamble

Whereas, the Principal intends to award, under laid down organizational procedure, contract/s for ***** [Name of the Project] on item rate (percentage) basis**. The Principal values full compliance with all relevant laws of the land, rules of land, regulations, economic of resources and of fairness/ transparency in its relations with its Bidder(s) and for Contractor(s)/ Concessionaire(s)/ Consultant(s).

And Whereas in order to achieve these goals, the Principal will appoint an Independent External Monitors (IEMs), who will monitor the tender process and the execution of the contract for compliance with the Principles mentioned above.

And whereas to meet the purpose aforesaid, both the parties have agreed to enter into this Integrity Pact (hereafter referred to as "Integrity Pact") the terms and conditions of which shall also be read as integral part and parcel of the Tender documents and contract between the parties.
Now, therefore, in consideration of mutual covenants stipulated 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 of 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.

2. If the Principal obtains information on the conduct of any of its employees which is a criminal offence 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 Vigilance Officer and in addition can initiate disciplinary actions as per its internal laid down Rules/Regulations.

Article - 2: Commitments of the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s).

The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(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)/ Concessionaire(s)/ Consultant(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)/Concessionaire(s)/Consultant(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 contract, submission or non-submission or bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

c) The Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(s) will not commit any offence 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)/Concessionaire(s)/Consultant(s) of foreign origin shall disclose the name and address of the Agents/ Representatives in India, if any. Similarly, the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) of Indian

Nationality shall furnish the name and address of the foreign principals, if any. Further, details as mentioned in the 'Guidelines on Indian Agents of Foreign Suppliers' shall be disclosed by the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s). Further, all the payments made to the Indian Agent/Representative have to be Indian Rupees only.

e) The Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(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)/Concessionaire(s)/Consultant(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

g) The Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(s) will not bring any outside influence through any Govt. bodies/quarters directly or indirectly on the bidding process in furtherance of his bid.

h) The Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(s) who have signed a Integrity pact shall not approach the court while representing the matter to IEMs and shall wait for their decision in the matter.

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

1) If the Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(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)/Concessionaire(s)/ Consultant(s) from the tender process.

2) If the Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(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)/ Concessionaire(s)/ Consultant(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)/ Concessionaire(s)/ Consultant(s) and the amount of the damage. **The exclusion will be imposed for a minimum period of 6 months and maximum period of 2 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)/Concessionaire(s)/Consultant(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)/Concessionaire(s)/Consultant(s) shall be final and binding on the Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(s), however, the Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(s) can approach IEM(s) appointed for the purpose of this Pact.

6) On occurrence of any sanctions/ disqualification etc. arising out from violation of integrity pact, the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) shall not be entitled for any compensation on this account.

7) Subject to full satisfaction of the Principal, the exclusion of the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) could be revoked by the Principal if the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(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 Arcticle-3, the Principal shall be entitled to suspend the bidder for participation in the tendering process for the works of MoRTH/NHAI/NHIDCL and works under other Centrally Sponsored Schemes for a period of One Year from the bid due date of this work 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 Termination of Contract due to 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 anticorruption/ 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 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)/ Concessionaire(s)/ Consultant(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)/ Concessionaire(s)/ Consultant(s)/ Sub-contractor(s).

If the Principal obtains knowledge of 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 Chief Vigilance Officer.

Article- 8: Independent External Monitor (IEM)

1) The Principal has appointed Smt. Gauri Kumar, IAS (Retd.) and Sh. Ashish Bhauguna, IAS (Retd.) and **Sh. Animesh Chauhan** (Ex-MD & CEO, Oriental Bank of Commerce)as Independent External Monitor (IEM) 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 Chairman, NHAI.

3) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(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)/ Concessionaire(s)/ Consultant(s). The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(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.

4) The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/Contractor(s)/Subcontractor(s) with confidentiality. The Monitor has also signed on 'Non-disclosure of Confidential Information' and of 'Absence of Conflict of Interest'. In case of any conflict of interest arising at a later date, the IEM shall inform Chairman, NHAI and recuse himself/herself from that case.

5) The Principal will provide to the Monitor 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 Bidder/Contractor/Concessionaire/Consultant. The parties offer to the Monitor the option to participate in such meetings.

6) As soon as the Monitor notices, or believes, to notice any transgression as given in Atiicle-2, he may request the Management of the Principal to take corrective action, or to take 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.

7) The Monitor will submit a written report to the Chairman, NHAI 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.

8) If the Monitor has reported to the Chairman, NHAI, a substantiated suspicion of an offence under relevant IPC/PC Act or any other Statutory Acts, and the Chairman, NHAI has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.

9) The word 'Monitor' would include both singular and plural.

Article- 9 Pact Duration

This Pact begins when both parties have legally signed it (in 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 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. Any violation of the same would entail disqualification of the bidder and exclusion from future dealings.

If any claim is made/ lodged during this 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 Chairman of NHAI.

Article - 10 Other Provisions

1) This pact is subject to Indian Law, Place of performance and jurisdiction is the Registered Office of the Principal, i.e. New Delhi.

2) Changes and supplements as well as termination notices need to be made in writing.

3) If the Bidder/Contractor/Concessionaire/Consultant 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) Issue like warranty/Guarantee etc. shall be outside the purview of IEMs.

6) In the event of any contradiction between the Integrity Pact and its Annexure, the clause in integrity pact shall prevail.

7) Any disputes/ differences arising between the parties with regard to 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.

8) 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 following witnesses:-

_____	_____
(For & On behalf of the Principal)	(For & On behalf of Bidder/Contractor/Concessionaire/Consulting

(Office Seal)
Place _____
Date _____
Witness 1:
(Name & Address) _____
_____
_____
Witness 2:
(Name & Address) _____

{COUNTERSIGNED and accepted by:

JV Partner}

SECTION IV

Bank Guarantee for BID Security
(Refer Clauses 17.1)

B.G. No. Dated:

1. In consideration of you, National Highways Authority of India, having its office at NHAI Building, Sector - 30B, Chandigarh (UT) - 160030, (Near Sector – 29-30 Traffic Light, Opposite 30 C Market) (hereinafter referred to as the "Authority", which expression shall unless it be repugnant to the subject or context thereof include its, successors and assigns) having agreed to receive the BID of …… and having its registered office at …… (hereinafter referred to as the "Bidder" which expression shall unless it be repugnant to the subject or context thereof include its/their executors, administrators, successors and assigns), for the <Name of the Project> (hereinafter referred to as "the Project") pursuant to the Bidding Document dated …… issued in respect of the Project and other related documents including without limitation the draft contract Agreement (hereinafter collectively referred to as "Bidding Documents"), we (Name of the Bank) having our registered office at …… and one of its branches at …….. (hereinafter referred to as the "Bank"), at the request of the Bidder, do hereby in terms of Clause 17.1 of Section I (ITB), irrevocably, unconditionally and without reservation guarantee the due and faithful fulfilment and compliance of the terms and conditions of the Bidding Documents (including the Bidding Document) by the said Bidder and unconditionally and irrevocably undertake to pay forthwith to the Authority an amount of Rs. **** (Rupees ****** only) (hereinafter referred to as the "Guarantee") as our primary obligation without any demur, reservation, recourse, contest or protest and without reference to the Bidder if the Bidder shall fail to fulfil or comply with all or any of the terms and conditions contained in the said Bidding Documents.

2. Any such written demand made by the Authority stating that the Bidder is in default of the due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents shall be final, conclusive and binding on the Bank.

3. We, the Bank, do hereby unconditionally undertake to pay the amounts due and payable under this Guarantee without any demur, reservation, recourse, contest or protest and without any reference to the Bidder or any other person and irrespective of whether the claim of the Authority is disputed by the Bidder or not, merely on the first demand from the Authority stating that the amount claimed is due to the Authority by reason of failure of the Bidder to fulfil and comply with the terms and conditions contained in the Bidding Documents including failure of the said Bidder to keep its BID open during the BID validity period as set forth in the said Bidding Documents for any reason whatsoever. Any such demand made on the Bank shall be conclusive as regards amount due and payable by the Bank under this Guarantee. However, our liability under this Guarantee shall be restricted to an amount not exceeding Rs. **** (Rupees **** only).

4. This Guarantee shall be irrevocable and remain in full force for a period of 180 (one hundred and eighty) days from the BID Due Date inclusive of a claim period of 60 (sixty) days or for such extended period as may be mutually agreed between the Authority and the Bidder, and agreed to by the Bank, and shall continue to be enforceable till all amounts under this Guarantee have been paid.

5. We, the Bank, further agree that the Authority shall be the sole judge to decide as to whether the Bidder is in default of due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents including, inter alia, the failure of the Bidder to keep its BID open during the BID validity period set forth in the said Bidding Documents, and the decision of the Authority that the Bidder is in default as aforesaid shall be final and binding on us, notwithstanding any differences between the Authority and the Bidder or any dispute pending before any Court, Tribunal, Arbitrator or any other Authority.

6. The Guarantee shall not be affected by any change in the constitution or winding up of the Bidder or the Bank or any absorption, merger or amalgamation of the Bidder or the Bank with any other person.

7. In order to give full effect to this Guarantee, the Authority shall be entitled to treat the Bank as the principal debtor. The Authority shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee from time to time to vary any of the terms and conditions contained in the said Bidding Documents or to extend time for submission of the BIDs or the BID validity period or the period for conveying acceptance of Letter of Award by the Bidder or the period for fulfilment and compliance with all or any of the terms and conditions contained in the said Bidding Documents by the said Bidder or to postpone for any time and from time to time any of the powers exercisable by it against the said Bidder and either to enforce or forbear from enforcing any of the terms and conditions contained in the said Bidding Documents or the securities available to the Authority, and the Bank shall not be released from its liability 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 said Bidder or any other forbearance, act or omission on the part of the Authority or any indulgence by the Authority to the said Bidder or by any change in the constitution of the Authority or its absorption, merger or amalgamation with any other person or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of releasing the Bank from its such liability.

8. Any notice by way of request, demand or otherwise hereunder shall be sufficiently given or made if addressed to the Bank and sent by courier or by registered mail to the Bank at the address set forth herein.

9. We undertake to make the payment on receipt of your notice of claim on us addressed to [name of Bank along with branch address] and delivered at our above branch which shall be deemed to have been duly authorised to receive the said notice of claim.

10. It shall not be necessary for the Authority to proceed against the said Bidder before proceeding against the Bank and the guarantee herein contained shall be enforceable against the Bank, notwithstanding any other security which the Authority may have obtained from the said Bidder or any other person and which shall, at the time when proceedings are taken against the Bank hereunder, be outstanding or unrealised.

11. We, the Bank, further undertake not to revoke this Guarantee during its currency except with the previous express consent of the Authority in writing.

12. The Bank declares that it has power to issue this Guarantee and discharge the obligations contemplated herein, the undersigned is duly authorised and has full power to execute this Guarantee for and on behalf of the Bank.

13. For the avoidance of doubt, the Bank's liability under this Guarantee shall be restricted to Rs. ***** (Rupees ****only). The Bank shall be liable to pay the said amount or any part thereof only if the Authority serves a written claim on the Bank in accordance with paragraph 9 hereof, on or before [*** (indicate date falling 180 days after the BID Due Date)].

14. This guarantee shall also be operatable at our …….. Branch at **Panchkula/Chandigarh**, 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.

15. The guarantor/bank hereby confirms that it is on the SFMS (Structural Finance Messaging System) platform & shall invariably send an advice of this Bank Guarantee to the designated bank of NHAI, details of which is as under:

S. No.	**Particulars**	**Details**
1.	**Name of Beneficiary**	**National Highways Authority of India**
2.	**Name of Bank**	**Canara Bank**
3.	**Account No.**	**0385201800065**
4.	**IFSC Code**	**CNRB0001624**

Signed and Delivered by ……. Bank
By the hand of Mr./Ms ……., its …….. and authorised official.

(Signature of the Authorised Signatory)
(Official-Seal)

SECTION – IV

FORM OF BANK GUARANTEE

[Performance Security/Additional Performance Security]

To

Regional Office, Chandigarh,
National Highways Authority of India,
NHAI Building, Sector - 30B, Chandigarh (UT) - 160030,
(Near Sector – 29-30 Traffic Light, Opposite 30 C Market)

WHEREAS_____[name and address of Contractor] (hereafter called the "Contractor") has undertaken, in pursuance of Letter of Acceptance (LOA) No. _____Dated_____ for <Name of the Project> (hereinafter called the "Contract").

AND WHEREAS the Contract requires the Contractor to furnish the Performance Security/ Additional Performance Security} for due and faithful performance of its obligations, under and in accordance with the Contract, during the {Contract Period/Construction Period/ Defects Liability Period and Maintenance Period} in a sum of Rs….. cr. (Rupees ……..….. crore) (the "**Guarantee Amount**"[1]).

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 {Contract Period/ 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 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 General Manager, National Highways Authority of India, 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.

[1] Guarantee Amount for Performance Security and Additional Performance Security shall be calculated as per Contract.

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, fulfillment 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 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 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 our…….. Branch at **Panchkula/Chandigarh**, 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.

14. The guarantor/bank hereby confirms that it is on the SFMS (Structural Finance Messaging System) platform & shall invariably send an advice of this Bank Guarantee to the designated bank of NHAI, details of which is as under:

S. No.	**Particulars**	**Details**
1.	Name of Beneficiary	**National Highways Authority of India**
2.	Name of Bank	**Canara Bank**
3.	Account No.	**0385201800065**
4.	IFSC Code	**CNRB0001624**

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)

FORM OF LETTER OF APPLICATION

To,

Regional Office, Chandigarh,
National Highways Authority of India,
NHAI Building, Sector - 30B, Chandigarh (UT) - 160030,
(Near Sector – 29-30 Traffic Light, Opposite 30 C Market) Phone no. 0172-2586818.

DESCRIPTION OF WORKS: BID FOR

Dear Sir,

Having examined the Bid Document, Instruction to Bidders Qualification Information, Scope of works, etc. for the subject work. We, hereby submit our bid for the subject work.

It is certified that the information furnished in this document is true and correct. The proposal is unconditional and unqualified. We undersigned accept that NHAI reserves the right to reject any or all application without assigning any reason.

Thanking you,

Yours faithfully,

(Authorized Signatory)
for and on behalf of M/s_____

FORM OF LETTER OF ACCEPTANCE

No. ……. Dated ……..

To

M/s…….

Sub.: ……. Name of Work ……

Sir,

Based on your bid submitted on …….. in compliance of bidding document of NHAI for execution of the work of ……. , it is hereby notified that your bid for a contract price of **Rs…… (Rupees in words……)** has been accepted for and on behalf of NHAI

You are hereby requested to furnish Performance Security in the form detailed in para. 33 for an amount equivalent to **Rs…… (Rupees in words……)** within 7 days as per provisions of clause 33 of the bid document and sign the contract agreement failing which the actions as stipulated in clause-.33 shall be taken.

Thanking you,

Yours faithfully,

(……..)
General Manager

FORM OF AGREEMENT

AGREEMENT

This agreement made the _____day of _____ 2026_____ between the National Highways Authority of India, New Delhi (hereinafter called "the Employer" of the one part and _____ (here in after called "the Contractor") of the other part.

AND WHEREAS the Employer invited bids from eligible bidders for the execution of certain works, viz.....

AND WHEREAS pursuant to the bid submitted by the Contractor, vide _____ (here in after referred to as the "BID" or "ÖFFER") for the execution of works, the Employer by his letter of acceptance dated _____ accepted the offer submitted by the Contractor for the execution and completion of such works and remedying of any defects thereon, on terms and conditions in accordance with the documents listed in para 2 below.

AND WHEREAS the Contractor by a deed of undertaking dated _____ has agreed to abide by all the terms of the bid, including but not limited to the amount quoted for the execution of Contract, as stated in the bid, and also to comply with such terms and conditions as may be required from time to time.

AND WHEREAS the contractor has agreed to undertake such works and has furnished a performance security pursuant to clause 33 of the instructions to bidders (Section-I).

NOW THIS AGREEMENT WITNESSETH as follows:

1 In this agreement words and expressions shall have the same meaning as are respectively assigned to them in the conditions of contract hereinafter referred to;

2 the following documents shall be deemed to form and be read and construed as part of this agreement viz.

(a) Agreement,
(b) Letter of Acceptance
(c) Contractor's Bid including Financial Bid Form,
(d) Contract Data,

32.1 Conditions of Contract
(f) Technical Specifications,
(g) Drawings, if any
(h) Implementation Manual and Maintenance Intervention Level
(i) Scope of Work
(j) Bill of Quantities, and
(k) Any other document listed in the Contract Data.

3 The foregoing documents shall be construed as complementary and mutually explanatory one with another. Should any ambiguity or discrepancy be noted then the order of precedence of these documents shall be subject to the order as listed above and interpreted in the above order of priority.

4 In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the works and remedy any defects therein in conformity in all respects with the provisions of the contract.

5 the employer hereby covenants to pay the contractor in consideration of the execution and completion of the works and remedying of defects therein, the contract price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the contract.

IN WITNESS WHEREOF the parties here to have caused this agreement to be executed the day and year above written. Signed, sealed and delivered by the said Employer through his Authorized Representative and the said Contractor through his Power of Attorney holder.

Binding Signature of Employer _____

For and on behalf of National Highways Authority of India, New Delhi – 110 075

Binding Signature of Contractor _____
For and on behalf of M/s. _____

In the presence of
1. Name :
   Address:

2. Name :
   Address:

In the Presence of
1. Name:
   Address:

2. Name:
   Address:

(SECTION-V)

CONDITIONS OF CONTRACT

AND CONTRACT DATA

Table of Clauses

A. General 1. Definitions 2. Interpretation 3. Language and Law 4. Engineer's Decisions 5. Delegation 6. Communications 7. Subcontracting 8. Other Contractors 9. Personnel 10. Employer's and Contractor's Risks 11. Employer's Risks 12. Contractor's Risks 13. Insurance 14. Site Investigation Reports 15. Queries about the Contract Data 16. Contractor to Construct the Works & do maintenance 17. The Works to Be Completed by the Intended Completion Date 18. Approval by the Engineer 19. Safety 20. Discoveries 21. Possession of the Site 22. Access to the Site 23. Instructions 24. Deleted 25. Arbitration 26. Deleted **B. Time Control** 27. Programme 28. Extension of the Intended Completion Date 29. Delays Ordered by the Engineer 30. Management Meetings **C. Quality Control** 31. Identifying Defects 32. Tests	33. Correction of Defects 34. Uncorrected Defects **D. Cost Control** 35. Bill of Quantities 36. Variations 37. Payments for Variations 38. Cash Flow Forecasts 39. Payment Certificates 40. Payments 41. Compensation Events 42. Taxes and currencies for payment 43. Price adjustment 44. Security Deposit/ Retention Money 45. Liquidated Damages 46. Advance Payment 47. Securities 48. Cost of Repairs **E. Finishing the Contract** 49. Completion 50. Taking Over 51. Final Account 52. Operating and Maintenance Manual 53. Termination 54. Payment upon Termination 55. Property 56 Release from Performance **F. Other Conditions of Contract** 57. Labour 58. Compliance with Labour Regulations 59. Drawings and Photographs of the Works 60. The Apprenticeship Act, 1961

Section V
Conditions of Contract

A. General

33.1 **Definitions**

1.1 Terms which are defined in the Contract Data are not defined in the Conditions of Contract but keep their defined meanings. Capital initials are used to identify defined terms.

Bill of Quantities means the priced and completed Bill of Quantities forming part of the Bid.

Compensation Events are those defined in Clause 41 hereunder.

The Completion Date is the date of completion of the Works as certified by the Engineer, in accordance with Clause 49.1.

The Contract is the Contract between the Employer and the Contractor to execute, complete, and maintain the Works. It consists of the documents listed in Clause 2.3.

The Contract Data defines the documents and other information, which comprise the Contract.

The Contractor is a person or corporate body whose Bid to carry out the Works has been accepted by the Employer.

The Contractor's Bid is the completed bidding document submitted by the Contractor to the Employer and includes technical and financial bids.

The Contract Price is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days; months are calendar months.

A **Defect** is any part of the Works not completed in accordance with the Contract.

The Defects Liability Certificate is the certificate issued by Engineer, after the Defect Liability Period has ended and upon correction of Defects by the Contractor.

The Defects Liability Period is the period named in contact data and calculated from the Completion Date.

Drawings include calculations and other information provided or approved by the Engineer for the execution of the Contract.

The Employer is the party as defined in the Contract Data, who employs the Contractor to carry out the Works. The Employer may delegate any or all of its functions to a person or body nominated by him for specified functions.

The Engineer is the person named in the Contract Data (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Engineer) who is responsible for supervising the execution of the Works and administering the Contract.

Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

The Initial Contract Price is the Contract Price listed in the Employer's Letter of Acceptance.

The Intended Completion Date is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the Engineer by issuing an extension of time after the approval from Employer.

Materials are all supplies, including consumables, used by the Contractor for incorporation in the Works.

Plant is any integral part of the Works that shall have a mechanical, electrical, electronic, chemical, or biological function.

The **Site** is the area defined as such in the Contract Data.

Site Investigation Reports are those that were included in the bidding documents and are factual interpretative reports about the surface and subsurface conditions at the Site.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Engineer.

The **Start Date** is given in the Contract Data. It is the date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.

A **Sub-Contractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site.

Temporary Works are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Works.

A **Variation** is an instruction given by the Engineer after the approval from NHAI, which varies the Works.

The **Works** are what the Contract requires the Contractor to construct, install, maintain, and handover to the Employer, as defined in the Contract Data.

2. Interpretation

2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Engineer will provide instructions clarifying queries about these Conditions of Contract.

2.2 If sectional completion is specified in the Contract Data, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).

2.3 The documents forming the Contract shall be interpreted in the following order of priority.

(a) Agreement,
(b) Letter of Acceptance
(c) Contractor's Bid including Financial Bid Form,
(d) Contract Data,
(e) Conditions of Contract
(f) Technical Specifications,
(g) Drawings, if any
(h) Implementation Manual and Maintenance Intervention Level
(i) Scope of Work
(j) Bill of Quantities, and
(k) Any other document listed in the Contract Data.

3. Language and Law

3.1 The language of the Contract and the law governing the Contract are stated in the Contract Data.

a) **Engineer's Decisions**

a. Except where otherwise specifically stated, the Engineer will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

5. Delegation

5.1 The Engineer, duly informing the Employer, may delegate any of his duties and responsibilities to other people except to the Adjudicator, after notifying the Contractor, and may cancel any delegation after notifying the Contractor.

6. Communications

6.1 Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is delivered.

~~**7. Subcontracting**~~

~~**7.1** The Contractor may subcontract any portion of work, up to a limit specified in Contract Data, with the prior approval of the Employer in writing. Subcontracting shall not alter the Contractor's obligations.~~

~~**7.2** The Contractor shall not be required to obtain any consent from the Employer for:~~

~~8 the sub-contracting of any part of the Works for which the Sub-Contractor is named in the Contract;~~
~~9 the provision of labour or labour component.~~
~~10 the purchase of Materials which are in accordance with the standards specified in the Contract.~~

~~**7.3** Beyond what has been stated in clauses 7.1 and 7.2, if the Contractor proposes sub-contracting of any part of the work during execution of the Works, because of some unforeseen circumstances to enable him to complete the Works as per terms of the Contract, the Employer will consider the following before according approval:~~
~~a) The Contractor shall not sub-contract the Works more than the limit specified in Contract Data.~~
~~b) The Contractor shall not sub-contract any part of the Work without prior consent of the Employer. Any such consent shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsible for the acts, defaults and neglects of any of his sub-Contractor, his agents or workmen as fully as if they were the acts, defaults or neglects of the Contractor, his agents and workmen.~~

~~**7.3** The Engineer should satisfy himself before recommending to the Employer whether~~
~~a) the circumstances warrant such sub-contracting; and~~
~~b) the sub-Contractor so proposed for the Work possess the experience, qualifications and equipment necessary for the job proposed to be entrusted to him in proportion to the quantum of Works to be sub-contracted.~~

8. Other Contractors

8.1 The Contractor shall cooperate and share the Site with other Contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Contractors, as referred to in the Contract Data. The Contractor shall also provide facilities and services for them as described in the Schedule. The Employer may modify the Schedule of Other Contractors, and shall notify the Contractor of any such modification.

8.2 The Contractor should take up the works in convenient reaches as decided by the Engineer to ensure there is least hindrance to the smooth flow of traffic including movement of vehicles and equipment of other Contractors till the completion of the Works.

9. Personnel

9.1 The Contractor shall employ the technical personnel named in the Contract Data. The RO, NHAI will approve any proposed replacement of technical personnel (except Project Manager) only if their relevant qualifications and experience are substantially equal to or better than those of the personnel stated in the Contract Data. If the personnel stated in the contract data are not deployed on site by the contractor, a penalty of Rs. 50,000/- per month in case of Project Manager and Rs. 25,000/- in case of other key personnel will be imposed upto a maximum period of 3 months. Thereafter, it will be treated as a breach of contract and action will be taken as per clause 53. The replacement of Project Manager will be approved by NHAI, HQ.

9.2 If the Engineer asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the Works in the Contract.

10. Employer's and Contractor's Risks

10.1 The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.

11. Employer's Risks

11.1 The Employer is responsible for the excepted risks which are (a) in so far as they directly affect the execution of the Works in the Employer’s country, the risks of war, hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection or military or usurped power, civil war, riot commotion or disorder (unless restricted to the Contractor’s employees), natural calamities and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive, or (b) a cause due solely to the design of the Works, other than the Contractor’s design.

12. Contractor's Risks

12.1 All risks of loss of or damage to physical property and of personal injury and death, which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the Contractor.

13. Insurance

13.1 The Contractor at his cost shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of defect liability period for events (a) to (d), in the amounts and deductibles stated in the Contract Data for the following events which are due to the Contractor's risks:

I. loss of or damage to the Works, Plant and Materials;
II. loss of or damage to Equipment;
III. loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and
IV. Personal injury or death.

13.2 Insurance policies and certificates for insurance shall be delivered by the Contractor to the Engineer for the Engineer's approval before the Start Date. All such insurance shall provide for compensation to be payable in Indian Rupees to rectify the loss or damage incurred.

a. If the Contractor does not provide any of the policies and certificates required, the Employer may effect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be debt due.

b. Alterations to the terms of insurance shall not be made without the approval of the Engineer.

13.4 Both parties shall comply with any conditions of the insurance policies.

14. Site Investigation Reports

14.1 The Contractor, in preparing the Bid, may rely on any Site Investigation Reports referred to in the Contract Data, supplemented by any other information available to him, before submitting the bid.

15. Queries about the Contract Data

15.1 The CGM (CM) will clarify queries on the Contract Data.

16. Contractor to Construct the Works & do maintenance

16.1 The Contractor shall construct, install and maintain the Works in accordance with the documents forming part of the contract.

17. The Works to Be Completed by the Intended Completion Date

17.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Programme submitted by the Contractor, as updated with the approval of the Engineer, and complete them by the Intended Completion Date.

18. Approval by the Engineer

18.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Engineer, who is to approve them if they comply with specifications and drawings.

18.2 The Contractor shall be responsible for design of Temporary Works.

18.3 The Engineer's approval shall not alter the Contractor's responsibility for design of the Temporary Works.

18.4 The Contractor shall obtain approval of third parties to the design of the Temporary Works, where required.

18.5 All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the Engineer before their use.

19. Safety

19.1 The Contractor shall be responsible for the safety of all activities on the Site.

20. Discoveries

20.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Engineer of such discoveries and carry out the Engineer's instructions for dealing with them.

21. Possession of the Site

21.1 The Employer shall give complete possession of the Site to the Contractor on the date of signing of agreement.

22. Access to the Site

22.1 The Contractor shall allow access to the Site and to any place where work in connection with the Contract is being carried out, or is intended to be carried out and to any place where material or plant are being manufactured /fabricated / assembled for the works to the engineer and any person/persons/agency authorized by:

17. The Engineer
18. The Employer

23. Instructions

23.1 The Contractor shall carry out all instructions of the Engineer, which comply with the applicable laws where the Site is located.

23.2 The Contractor shall permit the Employer to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by Auditors appointed by the Employer if so required by the Employer.

24. Deleted

25. ARBITRATION

25.1 in case of dispute or difference arising between the Employer and a Contractor relating to any matter arising out of or connected with this agreement, such disputes or differences shall be settled as set forth below:

1. The Dispute shall be finally referred to Society for Affordable Resolution of Disputes (hereinafter called as SAROD), a Society registered under Society's Act, 1860 vide Registration no. S/RS/SW1049/2013 duly represented by Authority and National Highways Builders Federation (NHBF). The dispute shall be dealt with in terms of Rules of SAROD. The detailed procedure for conducting Arbitration shall be governed by the Rules of SAROD and provisions of Arbitration & Conciliation Act, 1996, as amended from time to time.

   The Dispute shall be governed by Substantive Law of India

2. The appointment of Tribunal, Code of conduct for Arbitrators and fees and expenses of SAROD and Arbitral Tribunal shall also be governed by the Rules of SAROD as amended from time to time. The rules of SAROD are as per Annex-I

3. Arbitration may be commenced during or after the Contract Period, provided that the obligations of Authority and the Contractor shall not be altered by reason of the Arbitration being conducted during the Contract Period.

4. The seat of Arbitration shall be New Delhi or a place selected by governing body of SAROD and the language for all documents and communications between the parties shall be English.

5. The expenses incurred by each party in connection with the preparation, presentation, etc., of arbitral proceedings shall be shared by each party itself.

25.2 The arbitrators shall make a reasoned award (the **"Award"**). Any Award made in any arbitration held pursuant to this Clause 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.

25.3 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.

25.4 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.

25.5 Adjudication by Regulatory Commission or Authority

In the event of constitution of a statutory Regulatory Commission or Authority 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 25, be adjudicated upon by such Regulatory Commission or Authority in accordance with 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 High Court, as the case may be, or no such appeal has been preferred within the time specified in the Applicable Law.

26 Deleted

B. Time Control

27. Programme

27.1 The Engineer shall issue the indent of work in stages specifying the time limit for the same as and when required.The Contractor shall submit to the Engineer for approval a programme within the time stipulated in the Contract Data showing the general methods, arrangements, order, and timing for all the activities in the Works, along with monthly cash flow forecasts.

27.2 An update of the Programme shall be a programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining Works, including any changes to the sequence of the activities.

27.3 The Contractor shall submit to the Engineer for approval an updated Programme at intervals. If the Contractor does not submit an updated Programme within this period, the Engineer may withhold the amount stated in the Contract Data from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Programme has been submitted.

27.4 The Engineer's approval of the Programme shall not alter the Contractor's obligations. The Contractor may revise the Programme and submit it to the Engineer again at any time. A revised Programme shall show the effect of Variations and Compensation Events.

28. Extension of the Intended Completion Date

28.1 The Engineer shall extend the Intended Completion Date only after the approval of NHAI if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining Works, which would cause the Contractor to incur additional cost.

28.2 The Engineer shall decide whether and by how much time to extend the Intended Completion Date within 21 days of the Contractor asking the Engineer for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new intended Completion Date.

29. Delays Ordered by the Engineer

29.1 The Engineer may instruct the Contractor to delay the start or progress of any activity within the Works.

30. Management Meetings

30.1 **Either the Engineer or the Contractor may require the other** to attend a management meeting. The business of a management meeting shall be to review the plans for the remaining Works and to deal with matters raised in accordance with the early warning procedure.

30.2 The Engineer shall record the business of management meetings and provide copies of the record to those attending the meeting. The responsibility of the parties for actions to be taken shall be decided by the Engineer either at the management meeting or after the management meeting and stated in writing to all those who attended the meeting.

C. Quality Control

31. Identifying Defects

31.1 The Engineer shall check the Contractor's work and notify the Contractor of any Defects that are noticed. Such checking shall not absolve the contractor from its obligations and its responsibilities. The Engineer may instruct the Contractor to search for a Defect and to uncover and test any work (existing work/work executed by the contractor) that the Engineer considers may have a Defect.

32. Tests

32.1 The contractor shall be solely responsible for:

a. Carrying out the mandatory tests prescribed in the technical specifications forming part of contract.
b. For the correctness of the test results, whether preformed in his laboratory or elsewhere.
c. The Authority may engage third party for testing of executed items. The payment for the same would be made by the Authority.

32.2 If the Engineer instructs the Contractor to carry out a test not specified in the Specification to check whether any work (executed by the contractor) has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no defect, the cost of such tests shall be borne by the Authority otherwise by the Contractor.

32.3 Subject to further condition in contract data

33. Correction of Defects noticed during the Defect Liability Period.

33.1 The Engineer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion and is defined in the Contract Data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

33.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the reasonable time specified by the Engineer's notice as per good industry practice. If any defect including shrinkage cracks, other faults appear in the work within defect liability period, the Engineer shall give Notice to the Contractor of such defects before end of defect liability period and shall extend the defect liability period as long as defects remain to be corrected.

34. Uncorrected Defects/ Incomplete Works

34.1 If the Contractor has not corrected the Defect, to the satisfaction of the Engineer, within the time specified in the Engineer's notice/indent, the Engineer will assess the cost of having the Defect corrected and get the defects rectified through some other agency and the Contractor will pay 1.2 times of this amount.

34.2 If the Contractor has not completed the work to the satisfaction of the Engineer, within the time specified in the Engineer's notice/indent, in no case exceeding one month, the Engineer will assess the cost of having the work completed and get the work completed through some other agency and the Contractor will pay this amount in addition to the damages specified as per clause 45.

D. Cost Control

35. Bill of Quantities

35.1 The Bill of Quantities shall contain items for the construction, installation, testing, and commissioning and maintaining works to be done by the Contractor.

35.2 The Bill of Quantities is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rates in the Bill of Quantities for each item for the work executed.

35.3 Changes in the Quantities

Deleted

36. Variations

36.1 All variations shall be included in updated programmes produced by the Contractor.The Engineer shall, having regard to the scope of the Works and the sanctioned estimated cost, have power to order +/- 25% of original BOQ quantity of single BOQ item subject to maximum of +/-5% of original Contract value.

37. Payments for Variations

37.1 If rates for Variation items are specified in the Bill of Quantities, the Contractor shall carry out such work at the same rate.

37.2 If the rates for Variation are not specified in the Bill of Quantities, the Engineer shall derive the rate from similar items in the Bill of Quantities and if it cannot be derived from similar item in Bill of Quantities then the rate will be derived as per Clause 37.3.

37.3 The Contractor shall, within 14 days of the issue of order of Variation work, inform the Engineer the rate which he proposes to claim, supported by analysis of the rates. The Engineer shall assess the quotation and determine the rate based on prevailing market rates within one month of the submission of the claim by the Contractor and approval from NHAI will be taken. As far as possible, the rate analysis shall be based on the standard data book and the current schedule of rates of the district public works division.

38. Cash Flow Forecasts

38.1 When the Programme is updated, the Contractor shall provide the Engineer with an updated cash flow forecast.

39. Payment Certificates

39.1 The Contractor shall submit to the Engineer monthly statements of the value of the work executed less the cumulative amount certified previously supported with detailed measurement of the items of work executed.

39.2 The Engineer shall check the Contractor's monthly statement within 7 days and certify the amount to be paid to the Contractor after taking into account any credit or debit for the month in question.

39.3 The value of work executed shall be determined, based on measurements by the Engineer.

39.4 The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.

39.5 The value of work executed shall also include the valuation of Variations and Compensation Events.

39.6 The Engineer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information to rectify the mistakes with detail justification acceptable to Employer.

39.7 The final bill shall be submitted by the contractor within one month of the actual date of completion of the work; otherwise the Engineers certificate of the measurement and of the total amount payable for work accordingly shall be final and payment made accordingly within a period of sixty days.

40. Payments

40.1 Payments shall be adjusted for deductions for advance payments, security deposit, other recoveries in terms of the Contract and taxes at source, as applicable under the law. The Employer shall pay the Contractor the amounts Engineer had certified within 7 days of the date of each certificate.

40.2 Deleted

40.3 Deleted.

41. Compensation Events

41.1 The following shall be Compensation Events unless they are caused by the Contractor:

I. The Employer modifies the Schedule of other contractors in a way which affects the work of the contractor under the Contract.
II. The Engineer orders a delay or does not issue drawings, specifications or instructions required for execution of works in reasonable time
III. The Engineer instructs the Contractor to uncover or to carry out additional tests upon work which is then found to have no defects.
IV. The Engineer gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.
V. Other contractors, public authorities, utilities or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.
VI. The effect on the Contractor of any of the Employer's Risks.

41.2 If a Compensation Event would prevent the Works being completed before the Intended Completion Date, the Intended Completion Date shall be extended. The Engineer shall decide whether and by how much the Intended Completion Date shall be extended after the approval of the employer.

41.3 The contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor not having given early warning or not having cooperated with the Engineer/Employer.

42. Taxes & Currencies for payments

42.1 The rates quoted by the Contractor shall be deemed to be inclusive of the sales and other levies, duties, royalties, cess, toll, taxes of Central and State Governments and GST, local bodies and authorities that the Contractor will have to pay for the performance of this Contract. The Employer will perform such duties in regard to the deduction of such taxes at source as per applicable law.

42.2 All payments will be made in Indian Rupees.

43. Price Adjustment : NOT APPLICABLE

44. Security Deposit / Retention Money

44.1 The Employer shall retain security deposit of five percent of the amount from each payment due to the Contractor until Completion of the whole of the Works.

44.2 The security deposit/retention money and the performance security will be released to the Contractor when the Defect Liability period is over, and the Engineer has certified that the Defects, if any, notified by the Engineer to the Contractor before the end of this period have been corrected.

44.3 If the contractor so desires then the Security Deposit/retention money can be released on submission of unconditional Bank Guarantee at the following two stages:-

(a) At a point after the progress of work in financial term (gross value of work done) has reached 50% of the contract amount

(b) After the retention money has been deducted to the full value (5% of the Contract Amount).

45. Liquidated Damages

45.1 The Contractor shall pay liquidated damages to the Employer at the rate or part thereof stated in the Contract Data for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from payments due to the Contractor

and/ or Performance Bank Guarantee. Payment of liquidated damages shall not affect the Contractor's other liabilities.

45.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Engineer shall correct any overpayment of liquidated damages by the Contractor by adjusting in the next payment certificate. The contractor shall not be paid interest on the over payment of liquidated damages.

46. Advance Payment

46.1 Deleted

47. Securities

47.1 Subject to further condition in contract data, the Performance Security equal to ten percent of the contract price shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in the form given in the Contract Data and by a prescribed bank. The Performance Security shall be valid until a date 28 days after the expiry of Defect Liability Period The validity shall account for additional 45 days time to account for BG verification, signing of contract and start date

48 Cost of Repairs

48.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Liability Period shall be remedied/ rectified by the Contractor at their cost if the loss or damage arises from the Contractor's acts or omissions.

E. Finishing the Contract

49. Completion

49.1 When the whole of the works has been completed as per the provision of the Contract, the Contractor shall request the Engineer to issue a certificate of Completion of the Works. The Engineer shall, within 14 days of the date of receipt of such request, either issue to the Contractor, with a copy to the Employer, a completion certificate, stating the date on which, the works were completed in accordance with the contract, or give instructions in writing to the contractor specifying all the work which, in the Engineer’s opinion, is required to be done by the Contractor before the issue of such certificate.

50. Taking Over

50.1 The Employer shall take over the Site and the Works within seven days of the Engineer's issuing a certificate of Completion.

51. Final Account

51.1 The Contractor shall supply to the Engineer with a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Engineer shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the Engineer shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Engineer shall decide on the amount payable to the Contractor and issue a payment certificate within 56 days of receiving the Contractor's revised account.

52. Operating and Maintenance Manual

52.1 If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them within 28 days from date of issue of certificate of completion.

52.2 If the Contractor does not supply the Drawings and/or manuals by the stipulated date or they do not receive the Engineer's approval, the Engineer shall withhold the amount equal to Rs. 5 lakhs from payments due to the Contractor.

53. Termination/Foreclosure

53.1 The Employer may terminate the Contract if the Contractor causes a fundamental breach of the Contract.

53.2 Fundamental breaches of Contract include, but shall not be limited to, the following:

- the Contractor stops work for 28 days when no stoppage of work is shown on the current Programme and the stoppage has not been authorized by the Engineer;
- the Contractor is declared as bankrupt or goes into liquidation other than for approved reconstitution or amalgamation;
- the Engineer/Employer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Engineer;
- the Contractor does not maintain a Security, which is required;

- the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in clause 45;
- the Contractor fails to provide insurance cover as required under clause 13;
- if the Contractor, in the judgement of the Employer, has engaged in the corrupt or fraudulent practice in competing for or in executing the Contract. For the purpose of this paragraph, **" Corrupt practice"** means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (For avoidance of doubt, offering of employment to, or employing, or engaging in any manner whatsoever, directly or indirectly, any official of the Authority who is or has been associated in any manner, directly or indirectly, with Bidding Process, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Authority, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process);
- **"Fraudulent practice"** means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process; if the Contractor has not completed at least thirty percent of the value of Work required to be completed after half of the completion period has elapsed;
- if the Contractor fails to set up a field laboratory with the prescribed equipment, within the period specified; and
- any other fundamental breach as specified in the Contract Data.

53.3 Without prejudice to any other right or remedies which the Employer may have under this contract, upon occurrence of a Contractor's fundamental breach of contract, the Employer shall be entitled to terminate this contract by issuing a Termination Notice to the Contractor ; provided that before issuing the Termination Notice, the Employer shall by a Notice inform the Contractor of its intention to issue such Termination Notice and grant 15 days to the Contractor to make a representation, and may after the expiry of such 15 days, whether or not it is in receipt of such representation, issue the Termination Notice.

53.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.

53.5 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible but in no case later than 7 days.

53.6 **Foreclosure**- NHAI may foreclose the contract before the expiry of the scheduled contract period on account of taking up the stretch for future development such as 6-laning or OMT of the highway or any such administrative decision by giving three months Notice.

54. Payment upon Termination / Foreclosure

54.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer shall issue a certificate for the value of the work done less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the Contract Data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer and Employer may recover the same from Performance Bank Guarantee.

In case of foreclosure of contract on account of proposed future development of the highway or otherwise, as specified in Clause 53.6, within a period of 18 months from the date of start of contract, the Engineer shall issue a certificate for the value of work done till foreclosure and balance value of work left out. The agency shall be compensated 10% of the balance value of work left out beyond the Notice period, of the original contract amount, so certified by the Engineer and necessary deductions of income tax and other statutory taxes as applicable at that time will be made and the agency will not have any claim whatsoever on this account". In case, contract is foreclosed after the expiry of 18 months no such compensation will be admissible.

55. Property

55.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Employer for use for completing balance work if the Contract is terminated because of the Contractor's fundamental breach of contract.

56. Release from Performance

56.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of the Employer or the Contractor, the Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which a commitment was made.

F. Other Conditions of Contract

57. Labour

57.1 The Contractor shall, make arrangements of his own cost and expenses for the engagement of all staff and labour, local or others; for their payment, housing, feeding and transport; and for compliance with various labour laws/ regulations.

57.2 The Contractor shall, as asked by the Engineer, deliver to the Engineer a return in detail, in such form and at such intervals as the Engineer may prescribe, showing the staff and the numbers of the several classes of labour from time to

time employed by the Contractor on the Site and such other information as the Engineer may require.

58. COMPLIANCE WITH LABOUR REGULATIONS

58.1 During the currency of the Contract, the Contractor and his sub-Contractors shall abide at all times by all existing labour enactments and rules made thereunder, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be notified already or that may be notified under any labour law in future either by the State or the Central Government or the local authority. Salient features of some of the major labour laws that are applicable to construction industry are given below. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made thereunder, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, the Engineer/Employer shall have the right to deduct any money due to the Contractor including from his performance security/ retention money. The Employer/Engineer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer. The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.

58.2 SALIENT FEATURES OF SOME MAJOR LABOUR LAWS APPLICABLE TO ESTABLISHMENTS ENGAGED IN BUILDING AND OTHER CONSTRUCTION WORK.

a) **Workmen Compensation Act 1923**: - The Act provides for compensation in case of injury by accident arising out of and during the course of employment.

b) **Payment of Gratuity Act 1972**: - Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed the prescribed minimum years (say, five years) of service or more or on death the rate of prescribed minimum days' (say, 15 days) wages for every completed year of service. The Act is applicable to all establishments employing the prescribed minimum number (say, 10) or more employees.

c) **Employees P.F. and Miscellaneous Provision Act 1952**: The Act Provides for monthly contributions by the Employer plus workers at the rate prescribed (say, 10% or 8.33%). The benefits payable under the Act are:

a. Pension or family pension on retirement or death as the case may be.
b. Deposit linked insurance on the death in harness of the worker.
c. Payment of P.F. accumulation on retirement/death etc.

d) **Maternity Benefit Act 1951**: - The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.

e) **Contract Labour (Regulation & Abolition) Act 1970**: - The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by Law. The principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ prescribed minimum (say 20) or more contract labour.

f) **Minimum Wages Act 1948**: - The Employer is to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of buildings, roads, runways are scheduled employment.

g) **Payment of Wages Act 1936:** - It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.

h) **Equal Remuneration Act 1979**: - The Act provides for payment of equal wages for work of equal nature to male and female workers and for not making discrimination against female employees in the matters of transfers, training and promotions etc.

i) **Payment of Bonus Act 1965**: - The Act is applicable to all establishments employing prescribed minimum (say, 20) or more workmen. The Act provides for payments of annual bonus within the prescribed range of percentage of wages to employees drawing up to the prescribed amount of wages, calculated in the prescribed manner. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. States may have different number of employment size.

j) **Industrial Disputes Act 1947**: - The Act lays down the machinery and procedure for resolution of industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.

k) **Industrial Employment (Standing Orders) Act 1946**: - It is applicable to all establishments employing prescribed minimum (say, 100, or 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get these certified by the designated Authority.

l) **Trade Unions Act 1926**: - The Act lays down the procedure for registration of trade unions of workmen and Employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities.

m) **Child Labour (Prohibition & Regulation) Act 1986**: - The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulations of employment of children in all other occupations and processes. Employment of child labour is prohibited in building and construction industry.

n) **Inter-State Migrant Workmen's (Regulation of Employment & Conditions of Service) Act 1979**: - The Act is applicable to an establishment which employs prescribed minimum (say, five) or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as Housing, Medical-Aid, Travelling expenses from home up to the establishment and back etc.

o) **The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act 1996** and **the Cess Act of 1996**: - All the establishments who carry on any building or other construction work and employs the prescribed minimum (say, 10) or more workers are covered under this Act. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the Government. The Employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.

a. **Factories Act 1948:** - The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing the prescribed minimum (say, 10) persons or more with aid of power or another prescribed minimum (say, 20) or more persons without the aid of power engaged in manufacturing process.

59. Drawings and Photographs of the Works

59.1 The contractor shall do photography/videography of the site firstly before the start of the work, secondly mid-way in the execution of different stages of work and lastly after the completion of the work. No separate payment will be made to the contractor for this.

59.2 The Contractor shall not disclose details of Drawings furnished to him and works on which he is engaged without the prior approval of the Engineer in writing. No

photograph of the works or any part thereof or plant employed thereon, shall be taken or permitted to be taken by the Contractor or by any of his employees or any employees of his sub-Contractors without the prior approval of the Employer in writing. No photographs/ Videography shall be published or otherwise circulated without the approval of the Employer in writing.

60. The Apprenticeship Act 1961

60.1 The Contractor shall duly comply with the provisions of the Apprenticeship Act 1961 (III of 1961), the rules made there under and the orders that may be issued from time to time under the said Act and the said Rules and on his failure or neglect to do so he shall be subject to all liabilities and penalties provided by the said Act and said Rules.

ANNEX-I

ARBITRATION RULES OF SAROD

Rules

a. Scope of Application
b. Definitions
c. Notice, Calculation of Periods of Time
d. Commencement of Arbitration
e. Response by Respondent
f. Filing of Case Statements
g. Contents of Case Statements
h. Default in Filing and Serving Case Statements
i. Further Written Statements
j. SAROD to Provide Assistance
k. Appointment of Tribunal
l. Multi-party Appointment of the Tribunal
m. Appointment of Substitute Arbitrator
n. Independence and Impartiality of the Tribunal
o. Code of Ethics for Arbitrators
p. Challenge of Arbitrators
q. Decision on Challenge
r. Removal of the Tribunal
s. Re-hearing in the Event of Replacement of the Tribunal
t. Jurisdiction of the Tribunal
u. Fees of SAROD and Arbitral Tribunal
v. Transmission of File of the Tribunal
w. Juridical Seat of Arbitration
x. Language of Arbitration
y. Conduct of the Proceeding
z. Communications between Parties and the Tribunal
aa. Party Representatives
bb. Hearings

cc. Documents - only Arbitration
dd. Witnesses
ee. Experts Appointed by the Tribunal
ff. Rules applicable to substance of dispute
gg. Closure of Hearings
hh. Additional Powers of the Tribunal
ii. Deposits to Costs and Expenses
jj. Decision Making by the Tribunal
kk. The Award
ll. Additional Award
mm. Correction of Awards
nn. Settlement
oo. Interest
pp. Costs
qq. Waiver
rr. Exclusion of Liability
ss. General Provisions
tt. Amendment to Rules

PREAMBLE

In order to seek speedy, affordable, just and reasonable Redressal of Dispute/Differences between NHAI and Concessionaire/Contractor arising out of and during the course of execution of various contracts, a Society for Affordable Redressal of Disputes (SAROD) has been formed as a Society under Societies Registration Act, 1860 with registration No.S/RS/SW/l044/2013. It has been formed by National Highways Authority of India (NHAI) and National Highways Builders Federation (NHBF) with founding members as mentioned in the Memorandum of Association of SAROD.

SAROD ARBITRATION RULES

Rule 1 - Scope of Application

9.1 Where any agreement, submission or reference provides for arbitration at the Society for Affordable Redressal of Disputes ("SAROD"), or under the Arbitration Rules of the SAROD and where the case is a domestic arbitration shall be conducted in accordance with the following Rules, or such Rules as

amended by the SAROD where the amendments take effect before the commencement of the Arbitration. Parties may adopt following clause for inclusion in the contract:-

"Any dispute or difference whatsoever arising between the parties and of or relating to the construction, interpretation, application, meaning, scope, operation or effect of this contract or the validity or the breach thereof, shall be settled by arbitration in accordance with the rules of arbitration of the "SAROD" and the award made in pursuance thereof shall be final and binding on the parties subject to Provisions of The Arbitration and Conciliation Act, 1996".

9.2 These rules shall come into effect from the day of approval by Governing Body of SAROD.

Rule 2 - Definitions

These Rules shall be referred to as "the SAROD Arbitration Rules".

9.2 In these Rules:

"Act" means the 'Arbitration and Conciliation Act 1996' of India and any statutory modifications or re-enactments thereof.

"SAROD" means the Society for Affordable Redressal of Disputes.

"SAROD Arbitrator Panel" means the list of persons admitted to serve as arbitrators under these Rules.

"NHAI" means National Highways Authority of India.

"NHBF" means the National Highways Builders Federation.

"GOVERNING BODY" means Governing Body of SAROD as defined in Article 9 of Memorandum of Association.

"PRESIDENT" means President of Governing Body of SAROD as defined in Rules & Regulation of SAROD

"**SECRETARY**" means Secretary of SAROD as defined in Rules &

Regulation of SAROD.

"**TRIBUNAL"** means either a Sole Arbitrator or all arbitrators when more than one is appointed.

"PARTY" means a party to an arbitration agreement,

"**E-Arbitration**" means submission of pleadings, defence statement etc by E-mail and holding of proceedings via video conferencing.

Rule 3 - Notice, Calculation of periods of Time

3.1 For the purposes of these Rules, any notice, including a notification, communication or proposal, is deemed to have been received if it is physically delivered to the addressee or if it is delivered at his habitual residence, place of business or mailing address, or, if none of these can be found after making reasonable inquiry, then at the addressee's last-known residence or place of business. Notice shall be deemed to have been received on the day it is so delivered.

3.2 For the purposes of calculating a period of time under these Rules, such period shall begin to run on the day following the day when a notice, notification, communication or proposal is received. If the last day of such period is an official holiday or a non-business day at the residence or place of business of the addressee, the period is extended until the first business day which follows. Gazetted public holidays or non-business days occurring during the running of the period of time are included in calculating the period.

3.3 Without prejudice to the effectiveness of any other form of written communication, written communication may be made by fax, email or any other means of electronic transmission effected to a number, address or site of a party.

3.4 The transmission is deemed to have been received on the day of transmission.

Rule 4 - Commencement of Arbitration

4.1 Any party wishing to commence an arbitration under these Rules ("the Claimant") shall file with the Secretary and serve on the other party {"the Respondent"), a written Notice of Arbitration ("the Notice of Arbitration") which shall include the following:

1.1 a request that the dispute be referred to arbitration;

1.2 the names, addresses, telephone numbers, fax numbers and email addresses of the parties to the dispute;

1.3 a reference to the arbitration clause or any separate arbitration agreement that is invoked and provide a copy of the arbitration clause or arbitration agreement;

1.4 a reference to the contract out of which the dispute arises and provide a copy of the contract where possible;

1.5 a brief statement describing the nature and circumstances of the dispute;

1.6 the relief or remedy sought, including the amount of claim if quantifiable at the time the Notice or Arbitration is filed;

1.7 a proposal as to the number of arbitrators (i.e. one or three), if the parties have not previously agreed on the number; and

1.8 the name of the Claimant's nominated arbitrator.

b. A filing fee of Rs. 10,000/- (Ten thousand) or any amount decided by Governing Body from time to time is payable at the time of filing the Notice of arbitration

4.3 The date of filing of the Notice of Arbitration with the Secretary is the date of commencement of the arbitration for the purpose of these Rules.

Rule 5 – Response by Respondent

8.1 Within 14 days of receipt of the Notice of Arbitration, the Respondent shall file with the Secretary and serve upon on the Claimant, a Response including

a) A confirmation or denial of all or part of the claims;

b) Brief statement of the nature and circumstances of any envisaged counterclaims

C A comment in response to any proposals contained in the Notice of Arbitration; and

d. The name of the respondent's nominated arbitrator.

8.2 A filing fee of Rs. 10,000/- or any amount decided by Governing Body from time to time is payable at the time of filing the Response.

8.3 In case parties have objection to the jurisdiction of Arbitral Tribunal, such objection shall be raised not later than 15 days of the commencement of

Arbitration proceedings failing which it will be deemed that parties have waived their right to objection.

Rule 6 – Filing of Case Statements

5.1 Within 30 days after the filing of the Notice of Arbitration, the claimant must file with the Secretary and serve on the Respondent, a Statement of Claimant's Case alongwith all documents to be relied upon by the Claimant.

5.2 Within 30 days after the service of the statement of Claimant's Case, the Respondent must file with the Secretary and serve on the Claimant, a statement of respondent's defense and counterclaim (if any) alongwith all documents to be relied upon by the Respondent.

5.3 Within 30 days after the service of the statement of Respondent's defense, if the Claimant intends to challenge anything in the statement of Respondent's defense and/or counterclaim, the Claimant must then file with the Secretary and serve on the Respondent, a statement of claimant's reply and if necessary, defense to counterclaim.

5.4 No further case statements may be filed without the leave of the Tribunal or if a Tribunal has not been appointed, the Secretary.

5.5 The Tribunal or if a Tribunal has not been appointed, the Secretary, may upon the written application of a party, extend the time limits provided under this Rule,

5.6 The party required to file a case statement must at the same time deposit with the Secretary for eventual transmission to the Tribunal an additional copy or additional copies of the case statement, according to the number of arbitrators constituting or who will constitute the Tribunal.

Rule 7 – Contents of Case Statements

6.1 The case statements must contain the detailed particulars of the party's claim, defence or counterclaim and must thus contain a comprehensive statement of

the facts and contentions of law supporting the party's position.

6.2 It must:

a. Set out all items of relief or other remedies sought together with the amount of all quantifiable claims and detailed calculations.

b. State fully its reasons for denying any allegation or statement of the other party.

c. State fully its own version of events if a party intends to put forward a version of events different from that given by the other party.

6.3 A case statement must be signed by or on behalf of the party making it.

Rule 8 - Default in Filing and Serving Case Statements

6 If the Claimant fails within the time specified under these Rules or as may be fixed by the Tribunal or by the Secretary, to submit its Statement of Case, the Tribunal or if a Tribunal has not been appointed, the Governing Body may issue an order for the termination of the arbitral proceedings or make such other directions as may be appropriate in the circumstances.

7 It the Respondent fails to submit a Statement of Respondent's Defense, the Tribunal may nevertheless proceed with the arbitration and make the award.

Rule 9 - Further Written Statements

a. The Tribunal will decide which further written statements, in addition to the case statement(s) already filed, are required from the parties and shall fix the periods of time for giving, filing and serving such statements.

b. All such further statements must be given to the Tribunal, filed with the Secretary and served on the Claimant or Respondent, whichever is applicable.

Rule 10 - SAROD to Provide Assistance

10.1 At the request of the Tribunal or either party, the Secretary will render such assistance as is required for the conduct of the arbitration, including arranging for facilities, suitable accommodation for sittings of the Tribunal, secretarial

assistance or interpretation of these rules.

10.2 Any additional expenses incurred or to be incurred for any such arrangements shall be borne by the parties.

Rule 11 - Appointment of Tribunal

1. The disputes shall be decided by a Sole Arbitrator when the total claim of dispute is Rs. 3 Crores or less.

2. In all cases of disputes claimed for more than Rs. 3 Crores, the tribunal shall consist of odd number of Arbitrators to be nominated by the parties. The Presiding Arbitrator shall be

appointed by the Arbitrators nominated by the parties from amongst the panel maintained by SAROD. For deciding the Presiding Arbitrator, a draw of lots can be carried out from
amongst the names suggested by the Arbitrators nominated by the Parties, The eligibility criteria for empanelment of Arbitrators will be decided by the Governing Body.

3. If a Sole Arbitrator is to be appointed, the Governing Body will appoint the Arbitrator within 21 days from the date the Respondent's Statement of Defence and Counterclaim (if any) is filed or falls due, whichever is earlier. The Governing Body will appoint the Arbitrator from the panel of Arbitrators by draw of lots,

4. An Arbitrator/Presiding Arbitrator to be appointed under these Rules shall be a person on the SAROD Arbitration Panel as at the date of the appointment,

5. In the event of any party failing to appoint Arbitrator within 30 days of receipt of the notice of Arbitration, the Governing Body shall appoint the Arbitrator or Presiding Arbitrator as the case may be by a draw of lots.

Rule 12 - Multiparty appointment of the Tribunal

a. If there are more than 2 parties in the arbitration, the parties shall agree on the procedure for appointing the Tribunal within 21 days of the receipt of the Notice of Arbitration.

b. If the parties are unable to do so, upon the lapse of the 21 day time period mentioned herein, the Tribunal shall be appointed by the Governing Body as soon as practicable.

Rule 13 - Appointment of Substitute Arbitrator

In the event of the death or resignation of any of the arbitrators, a substitute arbitrator must be appointed by the same procedure as in Rule 11 by which the arbitrator concerned was appointed, failing which, the Governing Body will make the appointment.

Rule 14 - Independence and Impartiality of the Tribunal

11.1 The Tribunal conducting arbitration under these Rules shall be and remain at all times independent and impartial, and shall not act as advocate for any party.

11.2 A prospective arbitrator shall disclose to those who approach him in connection with his possible appointment, any circumstances likely to give rise to justifiable doubts as to his impartiality or independence.

11.3 An arbitrator, once nominated or appointed, shall disclose any such circumstance referred to in Rule 14.2 to the Secretary and/ or to all parties.

Rule 15 - Code of Ethics for Arbitrators

An Arbitrator is a fountain of justice and emblem of equity, fairness and good conscience. Therefore he/she is expected to exhibit a noble conduct. The code of conduct prescribed by the Governing Body has to be adopted.

Appointment

12.1 A prospective arbitrator shall accept an appointment only if he is fully satisfied that he is able to discharge his duties without bias, he has an adequate knowledge of the language of the arbitration, and he is able to give to the arbitration the time and attention which the parties are reasonably entitled to expect,

12.2 In this code, the masculine includes the feminine.

Disclosure

12.3 A prospective arbitrator shall disclose all facts or circumstances that may give rise to justifiable doubts as to his impartiality or independence, such duty to continue thorough out the arbitral proceedings with regard to new facts and circumstances.

12.4 A prospective arbitrator shall disclose to the Secretary and any party who approaches him for a possible appointment:

14.1 Any past or present close personal relationship or business relationship, whether direct or indirect, with any party to the dispute, or any representative of a party, or any person known to be a potentially important witness in the arbitration;

14.2 The extent of any prior knowledge he may have of the dispute.

Bias

12.5 The criteria for assessing questions relating to bias are impartiality and independence. Partiality arises when an arbitrator favours one of the parties or where he is prejudiced in relation to the subject matter of the dispute. Dependence arises from relationships between an arbitrator and one of the parties, or with someone closely connected with one of the parties.

12.6 Any close personal relationship or current direct or indirect business relationship between an arbitrator and a party, or any representative of a party, or with a person who is known to be a potentially important witness, will normally give rise to justifiable doubts as to a prospective arbitrator's impartiality or independence. Past business relationships will only give rise to justifiable doubts if they are of such magnitude or nature as to be likely to affect a prospective arbitrator's judgment. He should decline to accept an appointment in such circumstances unless the parties agree in writing that he may proceed.

Communications

12.7 Before accepting an appointment, an arbitrator may only enquire as to the general nature of the dispute, the names of the parties and the expected time period required for the arbitration.

12.8 No arbitrator shall confer with any of the parties or their Counsel until after the Secretary gives notice of the formation of the Tribunal to the parties.

12.9 Throughout the arbitral proceedings, an arbitrator shall avoid any unilateral communications regarding the case with any party, or its representatives.

Fees

12.10 In accepting an appointment, an arbitrator agrees to the remuneration as prescribed in the rules of SAROD, and he shall make no unilateral arrangements with any of the parties or their Counsel for any additional fees or expenses without the agreement of all the parties and the consent of the Secretary of SAROD.

Conduct

12.11 Once the arbitration proceedings commence, the arbitrator shall acquaint himself with all the facts and arguments presented and all discussions relative to the proceedings so that he may properly understand the dispute.

Confidentiality

12.12 The arbitration proceedings shall remain confidential. An arbitrator is in a relationship of trust to the parties and should not, at any time, use confidential information acquired during the course of the proceedings to gain personal advantage or advantage for others, or to affect adversely the interest of another.

12.13 This Code is not intended to provide grounds for the setting aside of any award.

Rule 16 - Challenge of Arbitrators

15.1 An arbitrator may be challenged if there are circumstances that give rise to justifiable doubts as to his impartially or independence and also if he or she has committed any misconduct.

15.2 An arbitrator may also be challenged if he does not possess the qualifications required by the agreement of the parties,

15.3 A party may challenge an arbitrator appointed on its nomination or with its agreement only for reasons of which it becomes aware after the appointment has been made.

15.4 A party who intends to challenge an arbitrator shall file with the Secretary and serve on the other party or all other parties, whichever is applicable, a Notice of Challenge.

15.5 The Notice of challenge must be filed and served within 14 days from the appointment of the arbitrator or within 14 days after the circumstances mentioned in Rule 15.1 became known to that party.

15.6 The Notice of Challenge must state the reasons for the challenge.

15.7 The arbitration shall be suspended until the challenge is resolved or decided upon.

15.8 When an arbitrator has been challenged by one party, the other party may agree to the challenge. The arbitrator may also, after the challenge, withdraw from his office. However, it is not implied in either case that there has been an acceptance of the validity of the grounds for the challenge. In both cases, the procedure provided in Rule 11 read with Rule 13, shall be used for the appointment of a substitute arbitrator.

Rule 17 - Decision on Challenge

(a) If the other party does not agree to the challenge and the arbitrator does not withdraw, the decision on the challenge will be made by the Governing Body.

(b) If the Governing Body sustains the challenge, a substitute arbitrator shall be appointed or chosen pursuant to the procedure applicable to the appointment of an arbitrator as provided in Rule 11 read with Rule 13. If the Governing Body dismisses the challenge, the arbitrator shall continue with the arbitration.

Rule 18 - Removal of the Tribunal

16.1 The Governing Body may on the application of a party remove an arbitrator:

- Who is physically or mentally incapable of conducting the proceedings or where there are justifiable doubts as to his ability to do so; or
- Who has refused or failed to use all reasonable dispatch in conducting the arbitration or making an award.
- Who has continuously absented from attending the proceedings for more than 3 sitting without prior permission of Presiding Arbitrator/Governing Body of SAROD.

16.2 The arbitrator(s) concerned is entitled to appear and be heard at the hearing of the application to remove him.

16.3 Upon the removal of the arbitrator, a substitute arbitrator shall be appointed in accordance with Rule 11 read with Rule 13.

16.4 The Governing Body's decision on the application is final and is not subject to appeal or review.

Rule 19 - Re-hearing in the Event of Replacement of the Tribunal

If the sole or presiding Arbitrator is replaced, there shall be a re-hearing. If any other arbitrator is replaced, such re-hearing may take place at the discretion of the Tribunal.

Rule 20 - Jurisdiction of the Tribunal

(i) The Tribunal shall have the power to rule on its own jurisdiction, including any objection with respect to the existence, termination or validity of the arbitration agreement. For that purpose, an arbitration agreement which forms part of a contract shall be treated as an agreement independent of the other terms of the contract. A decision by the Tribunal that the contract is null and void shall not entail ipso jure the invalidity of the arbitration agreement.

(ii) The plea that the Tribunal does not have jurisdiction shall be raised not later than in the Statement of Defense. A plea that the Tribunal is exceeding the scope of its authority shall be raised promptly after the Tribunal has indicated its intention to decide on the matter alleged to be beyond the scope of its

authority. In either case the Tribunal may nevertheless admit a late plea under this Rule if it considers the delay justified. A party is not precluded from raising such a plea by the fact that he has nominated, or participated in the appointment of an arbitrator.

(iii) The Tribunal must rule on an objection that it lacks jurisdiction as a preliminary question upon the objection being raised. It may rule on an objection that it exceeds the scope of its authority either as a preliminary question or in an award on the merits, as it deems just and convenient.

(iv) In addition to the jurisdiction to exercise the powers defined elsewhere in these Rules, the Tribunal shall have jurisdiction to determine any question of law arising in the arbitration; proceed with the arbitration not with sanding the failure or refusal of any party to comply with these Rules or with the Tribunal's orders or directions, or to attend any meeting or hearing, but only after giving that party written notice that it intends to do so; and to receive and take into account such written or oral evidence as it shall determine to be relevant, whether or not strictly admissible in law.

Rule 21 – Fees of SAROD and Arbitral Tribunal

Fee Schedule

Registration Fee (Non - Refundable): Rs, 10,000/- or any amount fixedby Governing Body from time to time. The Schedule of Fees and allied expenditure shall be decided by Governing Body.

Rule 22- Transmission of File to the Tribunal

39.1 The Secretary shall, as soon as practicable transmit to the Tribunal, a file containing the Notice of Arbitration, the Response and all case statements.

39.2 The Tribunal shall as soon as practicable, after consultation with the parties, issue such orders and/or directions as are necessary for the conduct of the arbitration to conclusion, including a timetable for steps to be taken in the arbitration and for the hearing of the arbitration.

Rule 23 – **Judicial** Seat of Arbitration

(i) Unless otherwise agreed by the parties, the judicial seat of arbitration shall be New Delhi.

(ii) Notwithstanding Rule 22.1 and 22.2, the Tribunal may, unless otherwise

agreed by the parties, hold hearings and meetings anywhere convenient, subject to the provisions of Rule 28.2.

Rule 24 - Language of Arbitration

The language of arbitrators shall be English. In case of material existing are in any other language, other than English the same has to be translated to English language.

Rule 25 - Conduct of the Proceedings

The Tribunal shall have the widest discretion allowed by the Act to ensure the just, expeditious, economical and final determination of the dispute. The proceedings shall be conducted from 10.AM to 5PM with a recess of one hour.

Rule 26 - Communication between Parties and the Tribunal

20.1 Where the Tribunal sends any written communication to one party, it shall send a copy to the other party or parties as the case may be.

20.2 Where a party sends any written communication (including Statements, expert reports or evidentiary documents) to the Tribunal, the same shall be copied to the other party or ail other parties, whichever is applicable, and show to the Tribunal that the same has been so copied.

20.3 The address of the parties for the purpose of all communications during the proceedings shall be those set out in the Notice of Arbitration, or as either party may at any time notify the Tribunal and the other party or parties, whichever is applicable.

20.4 A copy of correspondence between the parties and the Tribunal shall be sent to the Secretary.

Rule 27 - Party Representatives

Any party may be represented by legal practitioners or any other representatives,

subject to such proof of authority as the Tribunal may require. The names and addresses of such representatives must be notified to the other party or parties. In case one party is represented by non-legal person, another party will also be represented by non-legal person so as to maintain natural justice.

Rule 28 - Hearings

7 Unless the parties have agreed on documents-only arbitration, the tribunal shall hold a hearing for the presentation of evidence by witnesses, including expert witnesses, or for oral submissions.

8 The Tribunal shall fix the date, time and place of any meetings and hearings in the arbitrations on the first hearing, and complete time table pertaining to all the activities of the Arbitration e.g. submission of statement of claim, reply, counter claim, reply therein, admission and denial of documents, visit/inspection of site if any. The tribunal shall stick to the time table with without any deviations unless there are unavoidable circumstances warranting such deviation which will be with the prior permission of the tribunal.

9 Prior to the hearing, the Tribunal may provide the Parties with matters or questions to which it wishes them to give special consideration.

10 In the event that a party to the proceedings without sufficient cause, fails to appear at a hearing of which the notice has been given, the Tribunal may proceed with the arbitration and may make the Award after the party present has submitted evidence to prove its case.

11 All meetings and hearing shall be in private unless the parties agree otherwise.

Rule 29 - Documents Only Arbitration

- The Disputes may be decided without an oral hearing if it is so agreed by the parties.

32 Where the parties agree to dispense with oral hearing, the Tribunal must be promptly informed by either of the parties, as soon as is practicable. The Tribunal must also be promptly informed it, at a later stage, the parties or either of them intends to apply for an oral hearing.

33 Parties may seek discovery of documents if they are not satisfied with existence of documents annexed with statement of claim, reply and counter claim by giving self-contained request to the Tribunal justifying the necessity for such documents. Decision of tribunal shall be final and binding upon the parties.

Rule 30 - Witnesses

26.1 The Tribunal may require each party to give notice of the names and designations of the witnesses it intends to call and reasons for legal necessity of such witness.

26.2 No party shall call any expert witness without the leave of the Tribunal.

26.3 Any witness who gives evidence may be questioned by each party or its representative subject to any rulings made by the Tribunal,

26.4 A Witness may be required by the Tribunal to testify under oath or affirmation.

26.5 Subject to such order or direction which the Tribunal may make, the testimony of witness may be presented in written form, either as signed statements or by duly sworn or affirmed affidavits,

26.6 Any party may require a witness to attend an oral examination at a hearing. If the witness fails to attend, the Tribunal may place such weight on the written testimony as it thinks fit, or may exclude it altogether,

26.7 The Tribunal shall determine the admissibility, relevance, materiality and weight of the evidence given by any witness.

Rule 31 - Experts Appointed by the Tribunal

28.1 Unless otherwise agreed by the parties, the Tribunal may:

23.1 appoint one or more experts to report the Tribunal on specific issues;

23.2 require a party to give any such expert any relevant information or to produce, or to provide access to, any relevant documents, goods or property for inspection by the expert.

28.2 Unless otherwise agreed by the parties, if a party so requests or if the Tribunal deem it fit, the expert shall, after delivery of his written or oral

report, participate in an oral hearing, at which the parties may question him and present expert witnesses in order to testify on the points at issue.

28.3 Rule 30.2 shall not apply to an assessor appointed by agreement of the parties, or to an expert appointed by the Tribunal to advise solely in relation to procedural matters.

Rule 32 - Rules applicable to substance of dispute- (1) Where the place of arbitration is situated in India,

p) In an arbitration, the arbitral tribunal shall decide the dispute submitted to arbitration in accordance with the substantive law for the time being in force in India;

Rule **33**- Closure of Hearing

(e) The Tribunal may inquire of the parties if they have any further proof to offer or witnesses to be heard or submission to make and, if there are none, declare the hearing closed.

(f) The Tribunal may also, in view of exceptional circumstance, reopen the hearings at any time before the award is made.

Rule 34 - Additional Powers of the Tribunal

1. In addition to the powers conferred by the Act, the Tribunal shall also have the power to:-

44.1 Allow any party, upon such terms (as to costs and otherwise) as it shall determine, to amend claims or counterclaims;

44.2 Extend or abbreviate any time limits provided by these Rules;

44.3 Conduct such enquires as may appear to the Tribunal to be necessary or expedient;

44.4 Order the parties to make any property or thing available for inspection

44.5 Order any parties to produce to the Tribunal, and to the other parties for inspection, and to supply copies of any documents or classes of documents in their

possession, custody or power which the Tribunal determines to be relevant;

44.6 Make orders or give directions to any party for interrogatories;

44.7 Make orders or give directions to any party for an interim injunction or any other interimmeasure;

44.8 Makesuch orders or give such directions as it deems fit in so far as they are not inconsistent with the Act or any statutory re-enactment thereof or such law which is applicable or these Rules.

2. If the parties so agree, the Tribunal shall also have the power to add other parties (with their consent) to be joined in the arbitration and make a single Final Award determining all disputes between them.

Rule 35 - Deposits to Costs and Expenses

a) The Tribunal's fees and SAROD administration fees shall be ascertained in accordance with the Schedule of Fees in Force at the time of commencement of the arbitration.

b) The Claimant shall deposit with the SAROD half of the fees payable at the time of filing of the Statement of Case. The Respondent shall deposit with the SAROD one-half of the fees payable at the time of filing the Statement of Respondent's Defence and Counterclaim (if any). The balance of fees payable shall be paid 60 days before the date of the final hearing or on such other date that the Secretary may direct.

c) Where the amount of the claim or the counterclaim is not quantifiable at the time payment is due, the Secretary will make a provisional estimate. The fees will be adjusted in the light of such information as may subsequently become available. If the arbitration is settled or disposed of without a hearing, the amount of the Tribunal's fees and SAROD administration fees shall be finally determined by the Secretary who will have regard to all the circumstances of the case, including the stage of proceedings at which the arbitration is settled or otherwise disposed of.

d) The Secretary may from time to time direct parties to make one or more deposit(s) towards any further expenses incurred or to be incurred on behalf of or for the benefit of the parties.

e) All deposit(s) shall be made to and held by the SAROD. Any interest which may accrue on such deposit(s) shall be retained by the SAROD.

f) If a party fails to make the payments or deposits required or directed, the Tribunal may refuse to hear the claims or counterclaims, whichever is applicable, by the non-complying party, although it may proceed to determine claims or counterclaims by any party who has complied with orders.

g) The parties shall remain jointly and severally liable to the SAROD for payment of all such fees and expenses until they have been paid in full even if the arbitration is abandoned, suspended or concluded, by agreement or otherwise, before the final Award is made.

Rule 36 - Decision Making by the Tribunal

(a) Where a Tribunal has been appointed, any direction, order, decision or award of the Tribunal must be made by the whole Tribunal or a majority. If an arbitrator refuses or fails to sign the Award, the signatures of the majority shall be sufficient, provided that the reason for the omitted signature is stated.

(b) If there is no unanimity, the same shall be made by the majority arbitrators as well as by the dissenting Arbitrator alone as if acting as a sole arbitrator.

(c) However, in the case of a three-member Tribunal the presiding arbitrator may, after consulting the other arbitrators, make procedural rulings alone.

Rule 37 - The Award

35.1 It will be mandatory for the parties to submit written synopsis of their arguments respectively which will form part of the arbitral proceedings.

35.2 The Tribunal shall assemble at the assigned place in SAROD and shall exercise utmost secrecy and confidentiality in writing the award,

35.3 Unless the Secretary extends the time or the parties agree otherwise, the Tribunal shall make its Award in writing within 30 days from the date on which the hearings are closed and shall state the reasons upon which its award is based. The award shall contain the date and shall be signed by the arbitrator or arbitrators.

35.4 The Tribunal may make interim awards or separate awards on different issues at different times.

35.5 All Awards must be submitted by the Tribunal to the Secretary and they shall be issued through the Secretary.

35.6 The Tribunal must deliver to the Secretary number of originals of the award sufficient for the parties and for filing with the Secretary.

35.7 The Secretary shall release the award to the parties only upon receipt of sufficient deposits to cover the fees and expenses due to the Tribunal and to the SAROD.

35.8 By agreeing to have arbitration under these Rules, the parties undertake to carry out the award without delay.

35.9 Stamp duty on award shall be payable by the party in whose favor the award has been pronounced.

Rule 38 - Additional Award

36.1 Within 30 days after the receipt of the award, either party, with notice to the Secretary and the other party may request the Tribunal to make an additional award as to claims presented in the arbitral proceedings but omitted from the award.

36.2 If the Tribunal considers the request for an additional award to be justified and considers that the omission can be rectified without any further hearings or evidence, it shall notify all the parties within 7 days of the receipt of the request, that it will make and additional award, and complete the additional award within 30 days after the receipt of the request.

Rule 39 - Correction of Awards

37.1 Within 30 days of receiving an Award, unless another period of time has been agreed upon by the parties, a party may by notice to the Secretary and the other party request the Tribunal to correct in the Award, any errors in

computation, any clerical or typographical errors or any errors of similar nature.

37.2 If the Tribunal considers the request to be justified, it shall make the corrections) within 30 days of receiving the request. Any correction shall be notified in writing to the parties and shall become part of the Award.

37.3 The Tribunal may correct any error of the type referred to in Rule 37.1 on its own imitative within 30 days of the date of the Award.

Rule 40 - Settlement

a. If, the parties arrived at amicable settlement of the dispute during the currency proceedings, the parties shall file memo of settlement before the tribunal who shall either issue an order for the termination of the arbitral proceedings or, if requested by both parties and accepted by the Tribunal, record the settlement in the form of an arbitral award on agreed terms. The Tribunal is not obliged to give reasons for such an award,

b. The Parties shall:

i. Notify the Tribunal and the Secretary immediately if the arbitration is settled or otherwise

terminated:

ii. Make provision in any settlement for payment of all the costs of the arbitration and fees and expenses due to the SAROD and the Tribunal.

c. If the continuation of the arbitral proceedings becomes unnecessary or impossible for any reason not mentioned in Rule 38.1, before the award is made, the Tribunal shall inform the parties of its intention to issue an order for the termination of the proceedings. The Tribunal shall have the power to issue such an order unless party raises justifiable grounds for objection.

d. Copies of the order for termination of the arbitral proceedings or of the arbitral award on. agreed terms, signed by the Tribunal, shall be communicated by the Tribunal to the parties through the Secretary.

Rule 41 - Interest

The Tribunal may award interest on any sum awarded at such rate as applicable in fixed deposits of Sate Bank of India in respect of such periods ending not later than the date of the award as the Tribunal considers just.

Rule 42 - Costs

a. The Tribunal shall specify in the final award, the costs of the arbitrations and decide which party shall bear them and in what proportion they shall be borne.

b. In this Rule, "costs of the arbitration" shall include:

40.1 The fees and expenses of the Tribunal and the administration fees of the SAROD as determined by the Secretary in accordance with the Schedule of Fees;

40.2 The costs of tribunal appointed experts or of other assistance rendered: and

40.3 All expenses which are reasonably incurred by the SAROD in connection with the arbitration.

c. The Tribunal has power to order in its Award, that all or part of the legal or other costs (such as legal fees and expenses, costs incurred in respect of party appointed experts etc) of one party shall be paid by the other party.

Rule 43 - Waiver

A party which is aware of non-compliance with these Rules and yet proceeds with the arbitration without promptly stating its objection in writing to such non-compliance shall be deemed to have waived its right to object.

Rule 44 - Exclusion of Liability

45.1 The Tribunal, the President, the SAROD and any of its officers, employees or agents shall not be liable to any party for any act or omission in connection with any arbitration conducted under these Rules,

45.2 After the Award as been made and the possibilities of corrections and additional Awards have lapsed or been exhausted, neither the Tribunal nor the President shall be under any obligation to make any statement to any person about any matter concerning the arbitration, and no party shall seek to make any arbitrator or the President or the SAROD and any of its officers a witness in any legal proceedings arising out of the arbitration.

Rule 45 - General Provisions

42.1 In all matters not expressly provided for in these Rules, the President, the Secretary and the Tribunal shall act in the spirit of these Rules and shall make every reasonable effort to ensure the just, expeditious and economical conclusion of the arbitration.

42.2 The Secretary may from time to time issue Practice Notes on the implementation of these

Rules.

Rule 46 - Amendment to Rules

These Rules may from time to time be amended by the Governing Body of

SAROD.

Contract Data

Clause Reference

Items marked "N/A" do not apply in this Contract.

1.1

1. The Employer is [Cl.1.1]

Regional Office, Chandigarh,
National Highways Authority of India,
NHAI Building, Sector - 30B, Chandigarh (UT) - 160030,
(Near Sector – 29-30 Traffic Light, Opposite 30 C Market) Phone no. 0172-2586818

Name of authorized Representative: (Will be intimated later)

2. The Engineer is: (Will be intimated later)

   Designation:

   Address: [Cl.1.1]

3. The Intended Completion Date for the whole of the Works is **06 months** [Cl.1.1, 17&28] from start date.

4. The Site is located at: . [Cl.1.1]

5. The Start Date shall be within 15 days after the date of issue of the Notice to proceed with the work. [Cl.1.1]

b) (a) The name and identification number of the Contract: .

(b) The Work consist of "Protection Work at CH-58.700 (LHS) and from CH-58.800 to CH-58.850 (LHS) on Zirakpur-Parwanoo Section of NH-5 (Old NH-22) from KM 39.960 to KM 67+550 on BOT Basis in the States of Punjab, Haryana & Himachal Pradesh". [Cl.1.1]

3.1 (a) The law which applies to the Contract is the law of Union of India. [Cl.3.1]

(b) The language of the Contract documents is English [Cl.3.1]

7.1 The limit of subcontracting is **NIL** of initial contract price [Cl.7.1]

8.1 Schedule of Other Contractor – NIL [Cl 8.1]

9.1 The Technical Personnel are: [Cl.9.1]

Sl. No.	Personnel	Minimum Qualification and Experience	Particular Experience (minimum requirement)	No. of Persons
1.	Project Manager	Graduation in Civil Engineering + 5 Years Exp.	5years as Project Manager on NH/SH, bridge construction/ Maintenance works	1
2.	Site Engineer cum Surveyor Engineer cum Material Engineer	Diploma in Civil Engineering + 5 years Exp. Or Degree in Civil Engineering + 3 yrs. Exp.	5 years on highway construction /Maintenance works	1
3.	Incident cum Road Property Manager cum Route Operation Manager	Graduate from a recognized University + 5 years experience	3 years on highway property management and maintenance	1

13.1. Amount for insurance are: [Cl.13.1]
a) Rupees equivalent to Contract price.
b) Rupees equivalent to 5% of Contract price.
c) Rupees equivalent to 5% of contract price
d) Rupees 20 lakhs for multiple incidents.

And deductible as per premium rate.

14.1 Site Investigation Report – NIL [Cl 14.1]

27.1. (A) The period for submission of the programme for approval of Engineer shall be 30 days from the issue of Letter of Commencement. [Cl.27.1]

(B). (a) Identified indented work
(1) Weekly Indent, Monthly Indent,–
3 days before start of week; 7 days before start of month.
(2) Emergent Indents – Within 24 hours

27.3 Amount to be withheld for delays in submission of updated programme: 1% of value of work corresponding to the updated programme.

32 The period for setting up a field laboratory with the prescribed equipment relevant to items of work in BOQ is 30 days from the days from the date of notice to start work

a) **The Defect Liability Period will be 3 Years from the Date of Completion.**

45.1	(a) Amount of liquidated damages for delay in completion of works	For identified Indented work 0.1 percent of the Indented value, off to the nearest thousand, per day with the minimum of Rs. 10000/- per day
	(b) Maximum limit of liquidated damages for delay in completion of work.	10 per cent of the Initial Contract Price rounded off to the nearest thousand

[Cl.45.1]

47.1. The standard form of Performance Security acceptable to the Employer Shall be an unconditional Bank Guarantee of the type as specified in the Bidding Documents. [Cl. 47.1]

53.2 **(j)** Other fundamental breach is that the contractor has failed to complete 75% of value of indented work in any 3 indents issued by the Engineer.

[Cl 53.2 (j)]

54.1. The percentage to apply to the value of work not completed representing the Employer's additional cost for completing the work shall be 20%.
[Cl.54.1]

(SECTION-VI)
SCOPE OF WORK

SCOPE OF WORK

6.1 General (in case of O&M work)

Road maintenance - this includes emergency; routine, periodic (if required) and disaster maintenance. Broadly routine maintenance will include maintenance of shoulders and slopes, side drains, CD works, Major Bridges, carriageway and crust.

Road property management – Identification of encroachments and ribbon development, enforcement of regulations, Liasoning with the relevant authorities for above including procurement of land records with ownership as per mutation from the concerned Revenue Authorities and help in mutation, if required and maintenance of road signs and road furniture, demarcation of ROW with Boundary Pillars etc.

Incident management - First aid, basic automobile assistance, tow away cranes, wireless/mobile facility and road safety works.

Safety Improvement (**Engineering Works)** – Pavement Overlay, renewal of pavement marking, Repairing/ Providing Crash Barriers, Guard Rails management of access, provision of new sign boards, cats eyes, provision of FoB/PuP, Junction improvement, Rumble strips on cross roads, blinkers, refugee lanes, high mast light, cross bars, footpath, side drains etc.

Inspections

6.2 Road Maintenance

The Contractor shall be required to perform all routine road maintenance activities along the project roads. The Contractor shall be required to submit Maintenance Report for each component of the works.

The Contractor shall be required to utilize mechanized equipment and methods to perform these obligations.

All maintenance activities shall be carried out in accordance with relevant specifications and IRC codes prescribed in the contract. The requisite quality control tests as per specifications and codes are to be carried out by the Contractor at his cost as per directions of the Engineer.

Routine road maintenance means planned works and activities required to ensure public safety, repair small defects and to maintain the road in the required condition. Ad hoc maintenance means carrying out of unscheduled maintenance occasioned by irregular events such as accidents, natural calamities, abnormal weather conditions and the like.

The routine and ad hoc Road Maintenance shall include, amongst others, activities such as:

Repairing Local Potholes
Crack Sealing
Asphalt Treatment
Road Sign Maintenance
Road Markings
Guard Rail and supplementary road furniture repairs
Maintenance of Rigid Pavements
Repair of Fences
Repairs of Accident Damaged Assets
Maintenance of Culverts, Drains and Channels
Clearing of Litter and Debris from roads and structures
Periodic Maintenance of Flexible Pavement

6.2.1 Horticultural Maintenance

The contractor shall maintain all existing trees, plants, shrubs and other suitable vegetation in the median and right of way strictly according to the desired density and ensure the conservation of all trees, shrubs and similar vegetation, in the median and within the right of way by promptly replacing the casualties. The Contractor shall also take adequate and appropriate measures, during the various seasons, to ensure the survival of the vegetation.

6.3 Road property management

The Contractor shall ensure the maximum availability and efficient utilization of the assets for the NHAI. This shall also include the protection of the right of way from encroachments and other unauthorized activities.

For this purpose, the Contractor with the help of the Authority Representative and Revenue Authority shall maintain Land Record Register for entire NH ROW and shall also draw up a comprehensive asset register detailing the condition of the entire existing road and building assets. This asset register shall be maintained and continually updated after any additions to the infrastructure and after each of the required inspections.
Any damage or loss to asset of highway like signages, delineators, boards etc. by way of theft or due to negligence of the Contractor, shall be fully recoverable from the Contractor.

Authority/Contactor shall use latest technology (RAMS-ROMDAS fitted on a vehicle with sensors and 360 degree) for capturing the road inventory (i.e., signage and other road furniture) and payment quality such as roughness index, cracks, potholes etc. and furnish the monthly report.

Prior to issuance of completion certificates, Contractor will use LiDAR (Light Detection and Ranging) or any other superior technology to detect complete road profile as per direction of Engineer-in-charge whenever required.

Contractor shall be under an obligation to make use of use of instrument mounted vehicle (Capable of capturing road condition) or equivalent equipped vehicle every 6 months so as to assess the condition of road in terms of its strength, riding quality, signage and other furniture.

6.3.1 Unauthorized Encroachments

The strict enforcement of the requirements of the NHAI shall be a significant obligation under the Contract. The NHAI shall define the Right of Way and their requirements with respect to un-authorized accesses, encroachments and the like.

The Contractor shall be required to detect report, use it's best endeavors and remove all unauthorized encroachments within the right of way as soon as possible. The Contractor shall be required to record all such encroachments and seek any assistance from Police, local authorities and the NHAI as it deems fit, in order to ensure that all such encroachments are removed.

At the start of the Contract, the Contractor shall be required to determine all encroachments and unauthorised accesses to the highway, existing at time being granted access to site. The Contractor shall list out the encroachments with a description, location and extent of each encroachment, draw up a method statement and programme for the removal of the unauthorized accesses or encroachments for approval by the NHAI. All existing encroachments shall be removed, and un-authorised accesses closed within 3 months of the Contractor being granted access to site.

6.4 Incident Management

The Contractor shall set up and maintain an Incident Management System (IMS) and supply regular incident statistics to NHAI.

Incident Management entails a set of coordinated activities initiated by the Contractor when an incident (an extraordinary event resulting in the reduction of road capacity or creates a hazard for users) occurs, in order to minimize the effects of the incident and restore normal capacity and safety levels to all affected road facilities as efficiently as possible.

The Contractor has to identify relevant agencies (e.g. rescue, fire, hazardous materials, traffic, police, ambulance, hospitals, alternative routes, cleanups) and their representatives and to liaise with these representatives on behalf of the employer.

The incident management centre on the project highway (minimum 500 sqm.) shall be continuously staffed on a 24 hours basis. The Contractor shall maintain records of the details of all incidents (e.g. collision, hazardous material, breakdown, etc). After occurrence of any major incident, resulting in multiple loss of life, significant periods of road closure or major route rehabilitation work, an incident debriefing report shall be produced and forwarded to NHAI

within 24 hours of occurrence. The Incident Management Centre shall monitor the location of route of incident management vehicles / Rescue operation vehicles through VTS on continuous basis.

Contractor will keep a record of the removed accidental/damaged vehicles by taking a dated photograph of the same and will submit the report on weekly basis to the Employer/Engineer.

Contractor will remove dead animals/birds from the carriageway and bury them at a suitable location as directed by the engineer/employer within two hours of the incident and accident vehicles/Debris within 4 hours. If contractor fails to remove the dead animals/birds from the carriageway within two hours of the incident, he will be levied a penalty of Rs. 10,000/- per such incident.

II Tow Away Vehicle

The vehicle fitted with VTS shall be in good condition and registration number not older than 2 years. The vehicle shall be painted with approved colour pattern with NHAI name and emblem painted sides, back and front. The Contractor must employ following manpower to work in shift:

i. Driver, with knowledge of vehicle repair
ii. A helper

The vehicle shall run minimum 5 km. daily (even for dry run) to be eligible for monthly payment.

Number of Tow Away Vehicles :01

Note :

29.1 In case of absence/deficiencies in respect of vehicles / manpower / equipment as mentioned under Clause 6.4 found during inspection by Engineer/Authority Representative a penalty of Rs. 5000/- per item per incidence shall be levied.

29.2 Incident Management Vehicles may be discontinued during the period of contract by the Employer. The agency will not have any claim due to de-mobilization of these vehicles at any stage.

6.5 Safety Improvement (Engineering Works)

The contractor shall execute junction improvement, provision of Blinkers, flood lights, FOB/PUP, Rumble Strips, Signages etc. and other improvements as proposed by Engineers' Representative. The Contractor shall execute the work strictly as per specifications and drawings. The drawings for same are to be got approved from Engineer's Representative.

6.6 Inspection

Full and complete inspection of the highway section shall be undertaken at appropriate intervals as mentioned in this section & section VIII (Implementation Manual & Maintenance Intervention Levels and as mentioned in Clause 6.13). The Contractor shall provide appropriate testing equipment for qualitative inspections, such as reflectivity meters, straight edges and the like.

6.6.1 Daily followed by weekly and monthly Inspections

Items to be inspected daily on regular basis followed by weekly and monthly inspections shall include:

Potholes
Cracking & Patches
Rutting
Defective bridge decks area and bump at approach
User information - road marking and road signs
Blocked drains
Toll Management System (Manual) and Tollbooth
Tow Away Trucks, Cranes etc.
Frequency of Highway Patrol

b) Accidents/Incidence/Road Block

6.6.2 Quarterly Inspections

Items to be inspected at quarterly intervals shall include :

bridges – structural elements for damage
culverts – structural elements for damage
blocked drains
road marking
road signs

6.7. Repairs

Repairs arising out of the inspections shall be carried out by the Contractor as per performance standards after a joint assessment with the Engineer and approval of NHAI.

6.8 PERFORMANCE STANDARDS

6.8.1 <u>PERFORMANCE STANDARDS FOR MAINTENANCE:</u>

The performance standards define the level at which the proposed facility is to be maintained and operated.

Road Maintenance: (As per MOST Specifications)

SL. NO.	SERVICEABILITY INDICATOR	REQUIRED MAINTENANCE LEVEL	PERMISSIBLE TIME LIMIT FOR DEFECT RECTIFICATION	FREQUENCY OF INSPECTIONS BY THE CONTRACTOR TO ENSURE REQUIRED LEVEL OF SERVICE
1.	Potholes/km (max. Numbers)	5 nos. in a stretch of 5 km.	Two days	Daily on regular basis followed by weekly & monthly inspections
2.	Cracking & patch (max. Permissible)	5.0 per cent of road surface in a stretch of 1 km.	Seven days	- do -
3.	Rutting (20mm), max. Permissible limit	1.0 per cent in a stretch of 1 km (measured with 3 m straight edge.)	Three days	- do -
4.	Defective bridge decks area and bump at approach (max. Permissible)	Nil	Fifteen days	- do -
5.	User information	All road signs, km stones & road marking in good condition	Seven days	- do -

B) Route operations

SL. NO.	SERVICEABILITY INDICATOR	REQUIRED MAINTENANCE LEVEL	FREQUENCY OF INSPECTIONS BY CONTRACTOR TO ENSURE REQUIRED LEVEL OF SERVICE
1.	Tow away trucks, cranes & ambulances etc.	To reach the incident spot within 30 minutes of incident occurrence	Daily on regular basis
2.	Frequency of highway patrol	Every 4 hours on entire stretch (logging system)	Daily on regular basis

3	Removal of dead animals /birds	To reach the incident spot within 60 minutes of incident occurrence	Daily on regular basis

6.8.2 Performance Standards for Drainage System

The inspection and maintenance shall follow the guidelines specified in IRC: SP35-1990 or any modification to it by Indian Roads Congress.

Pre-monsoon inspection and repairs shall include: detailed condition inspection of all bridges, culverts and the longitudinal drainage system. This shall be followed by repairs as required. Clearance of waterways of cross-drainage (CD) works and bridge waterways (vegetation, silt) within the right-of-way and 100 m on either side of the right-of-way, clearing the longitudinal and surface drains, repairs to flooring and pitching and face walls which should be brought to intact condition and painting of bridge markings shall be carried out.

During the monsoon, any blocked vent-ways shall be cleared immediately.

After monsoon a detailed inspection shall be undertaken to identify any severe damage. One month after the cessation of rain, the structures shall be given one coat of white wash or colour wash as a protective measure.

6.8.3 Performance Standards for Operations

(ii) For incident management system:

Set up of Control Room

Staffing – 24 w/day and 365 days/year

Response time to a single incident – ½ an hour after receiving notification

Multiple incidents – as soon as possible

The facility shall be kept clear of all obstructions to traffic. Broken down vehicles, accident remnants, fallen trees, or any other obstructions should be cleared at once, after completing any legal formalities. The availability of Tow-trucks, cranes, and other equipment required for this purpose shall be ensured.

Accident relief measures, including an ambulance, shall be available round the clock. The response time should be 30 minutes. Traffic regulation and management to minimise the disturbance due to accident to other traffic shall be taken by providing temporary traffic signs, cones, reflective tape etc.

The intersections at either end or in-between shall be managed such that delays to through traffic are minimized.

Regular patrolling shall be done to ensure smooth traffic movement on the facility. The frequency of the patrol shall be at least once in 4 hours for the entire length of facility.

- In respect of route operation like patrol vehicle, ambulance and towing of vehicle, any case of non compliance as per Cl 6.8 of 'Performance Standard', a penality of Rs. 10,000/ for each non compliance incident will be levied.

- The log books for Route Patrol Vehicle, Ambulance and Crane shall be maintained as per "Logging System". i.e. exact time reached at particular incident and time at which the spot of incidence left out. Both vehicles should not waste time unnecessarily. From the entries of log book, if it is found that time is exhausted unnecessarily / arbitrarily, reduction in the rate of concerned BOQ item shall be made. Engineer's decision in this regard shall be final.

- Signed muster rolls of staff pertaining to route patrols and Ambulances shall be maintained. Any absenteeism of route patrol staff shall attract a penalty as per Clause 6.4. The decision of Engineer shall be final in this context.

- The Route Patrol Vehicle, Ambulance and Crane shall be equipped (for 24 x 7 period and total duration of contract) with Vehicle Trafficking System, equipment / medicines as mentioned in Cl.no.6.4 of "Incident Management". Any shortage of equipment / medicines shall attract penalty as per Clause 6.4. The decision of Engineer shall be binding on the contractor.

- The contractor shall submit following documents along with each monthly statement of work done.
  a) The photographs (hard copies) of each incidence of damaged towed vehicle with use of crane for entire month.
  b) The undertaking of route patrol In-charge and driver of each damaged towed vehicle stating that "no charges" i.e. the services of crane made freely available to damaged vehicle.

  The claim for BOQ item, "use of crane" shall not be entitled in absence of above mentioned data. Reduction in rate on pro-rata basis shall be proposed in absence of above data.

- The contractor shall submit the following documents along with each monthly statements of work done.

8 The reports as per IRC 53 – 1973 and formats approved by Engineer of accidents occurred during the month.

9 The Photographs in hard and soft copies of all accidents and in soft copies for all other incidents.

10 The reports of incidents other than accidents shall be submitted in the format approved by Engineer.

11 **The contractor shall submit hard copies of VTS of all vehicles generated reports such as transit, / stoppage / Idle, average speed etc. for entire month along with each monthly bill.**

The photographs (hard copies) supplied shall be paid under concerned BOQ item.

11.5 The contractor shall submit the daily report of accidents / incidents occurred on each of next day. Failure of which shall attract penalty of Rs. 500 / incidence.

- Each route patrol vehicle, ambulance and crane vehicle shall be installed with precise Vehicle Tracking System (VTS) of reputed ISO 9001 company. The VTS shall be based on Global Positioning System (GPS) and GSM / GPRSM technology. The system shall also include micro, live, real time tracking web based software by use of which GIS maps shall be accessed and transit / stoppage / idle / over speed reports of vehicles shall be generated.
- **The payment to incident management vehicle will be made based on the report of vehicle tracking system. The payment may be proportionately deducted in case route operations has not been carried out as per Clause 6.8.1 (B) of Scope of Work.**

- For operation of this system one computer of brand approved by the Engineer alongwith internet facility shall be installed at "Control Room, by the contractor.

- The contractor shall install one broad band internet connection. He shall also make necessary arrangements for uninterrupted electricity supply to Control Room.

- The contractor shall bear all expenditure involved in purchasing VTS, software's, one computer and internet connection, maintenance and operation charges (for total period of contract) inclusive of all taxes as applicable.

- The contractor shall be responsible for 24 x 7 working of VTS. The necessary liaison with Producer Company is sole responsibility of contractor.

- The Control Room shall be manned by a Manager 24x7 to have proper monitoring on the route operation vehicles. The Control Room shall have record of the VTS of all the vehicles, photographs of the route operations of the previous day, as mentioned above, muster roll of the staff, previous day's report of incidence, accidents detail duly filled in as per format as specified above and other reports related to route operations as defined by Engineer-in-charge.

6.9 Performance Standards for "Maintenance of existing and new plants / shrubs / hedges grass in median".

The length of median to be maintained under this BOQ item means the stretch of median in which plantation of hedges / shrubs / flowering trees are already in existence or proposed to be planted.

The following stretches of road are excluded from median maintenance length.

a) Flyovers / Major bridges.
b) Median cuts
c) Lined drain in median and where concreting is done for full width of median.

d) Double face 'W' crash barrier installed in median & where plantations have not been planted.

A) **Removal of weeds / vegetation and unwanted debris**

i) The contractor shall keep median without any weeds, unwanted vegetation, debris etc. for the entire period of contract. For this purpose he should deploy at least the following for each month of contract period.
   a) One labour / day (8 hours) for every four Km. of median.
   b) One tractor with trolley / day (8 hours) for every 35 km. stretch of median.
   c) One supervisor for every 35 km. stretch of median.

   This deployment shall be made available for whole month from June to Feb of a year. From March to May one labour / day (8 hours) for every 06 km. of median and one tractor with trolley / day (8 hours) for every 50 km. of median shall be deployed.

ii) The contractor shall maintain separate signed muster rolls of deployed labours& supervisors and log books of tractors. The muster rolls and log books shall be made available for inspection. Xerox copy of log books and muster rolls shall be submitted along with each monthly statement of work done by the contractor.

iii) The deployment mentioned as per (i) is minimum and shall not relieve contractor from his obligation to keep the median without weeds, unwanted vegetation and debris from the median. He shall increase inputs as per requirements of site conditions and Engineers instructions.

iv) If a contractor fails to keep median without weeds, unwanted vegetation, debris etc. (as per provision of BOQ) penalty of Rs. 500/ Km. / incidence to Rs. 1500/ Km / incidence shall be imposed. Engineers decision in this context is binding on contractor.

v) Engineer/PD may ask for supporting details regarding engagement of labour to satisfy themselves before making payment.

B) **Watering**:

i) For the specified period of the year excluding the monsoon months (2-3 months) [period shall be specified by Engineer depending on site condition] contractor shall prepare monthly plan for deployment of water tankers in consultation with Engineer and shall submit the same seven days prior to next month. It is obligatory on contractor to deploy the number of water tankers as per plan. If Engineer observes number of water tankers deployed (as per plan) are not sufficient as per site condition, he shall instruct to increase the water tankers. Engineers decision shall be final.

ii) If contractor fails to deploy the water tankers as per Engineer's instructions and as per monthly plan each incidence of non deployment, a penalty of Rs. 8000 / day / incidence shall be imposed.

iii) The methodology suggested vide (i) to (ii) shall not relieve contractor from his obligation of non-wilting of any hedge / shrub / flowering trees of median. If any existing hedge, shrub, flowering tree etc. got dead it should

be replaced by contractor at his own cost. Engineers decisions in this context is final

iv) Deployed water tanker shall be fitted with red electric blinking signal and red flag at top of LHS back end. The safety measures as per IRC 112 shall be taken while watering

v) The contractor shall maintain log books of each deployed water tanker and submit the Xerox copies along with each monthly statement of work done.

C) **Trimming of plantation and application of insecticides / pesticides**

i) Trimming of hedges and flowering trees shall be done as and when required and as ordered by Engineer.

ii) Supplying and application of insecticides / pesticides shall be done as and when required and as ordered by Engineer.

iii) Each incidence of failure of trimming and application of insecticides / pesticides shall be penalized at the rate of Rs. 500 / Km. / incidence. Engineers decision shall be binding on the contractor.

D) **The contractor shall** submit the daily reports (on next day) of out put of various men and machinery deployment for median maintenance in the formats approved by Engineer. Failure of which shall impose penalty of Rs. 1000 / incidence.

6.10 - Performance standard for "carrying out cleaning, removing of dust / silt / thrash from carriageway.

i) This BOQ item is on km basis. The total length of stretch under consideration is taken under this item. However, width of carriageway to be kept clean as per BOQ provision, it includes.

a) Total width of carriageway (LHS + RHS) including median width.

b) Width of service roads (LHS + RHS) wherever service roads are in existence.

c) Width of all structures such as flyovers, major bridges, minor bridges, culverts, subways, etc.

ii) For cleaning of carriageway contractor shall deploy mechanical broom with VTS for total period of contract. The deployment of mechanical broom shall be for at least 20 days / month. Contractor shall maintain log book of this mechanical broom and submit the Xerox of this along with each monthly statements of work done alongwith the report of VTS.

iii) In addition to mechanical broom contractor shall deploy following men / machinery for each month and total duration of contract.

a) One unskilled labour / day (8 hours) for every three km. of stretch of road.

b) One superior for every 30 km of stretch of road.

c) One tractor with trolley / day (8hours) for every 30 km. of stretch of road.

iv) The contractor shall maintain separate signed muster rolls of deployed labours& supervisors and log books of tractors. The muster rolls and log books shall be made available for inspection. Xerox copy of log books and muster rolls shall be submitted along with each monthly statement of work done by the contractor.

v) The deployment maintained as per (ii) & (iii) is minimum and shall not relieve contractor from his obligation to keep the carriageway clean as per BOQ provisions. It is obligatory on contractor to increase inputs as per requirements of site conditions and Engineers instructions.

vi) The contractor shall submit daily reports (on next day) of out- puts of men & machinery deployment in the formats approved by Engineer. Failure of which shall attract a penalty of Rs. 1000 / incidence.

6.11 Performance standard for "Removal of rank vegetation / weeds etc.

Indent for this work shall be issued once in year by the Engineer. After execution of this indented quantity, it is the sole responsibility of contractor to keep that particular area without any vegetation / weeds / grass for the remaining period of contract (one year). For this purpose, he shall make use of men / machinery deployment as in case of performance standard Cl. no. 6.10.

6.12 ADDITIONAL MAINTENANCE STANDARDS

6.12.1 Maintenance standard for cleaning, clearing and repairing roadside lined drains

1. Scope

i. The work shall consist of removing material to bring them to original shape/drainage capacity.
ii. Disposal of sediments, extraneous debris or vegetation growth, blocking flow.

2. Methods, Tools and Equipment

1 Safety devices and signs shall be placed as per MoRT&H clause no.112
2 The debris, sediments, vegetation growth and excess material shall be excavated. The excavated material shall be disposal off as directed by Engineer-in-charge with all leads and lifts.
3 The drain slopes and sides shall be dressed up to original flow line and cross section.

6.12.1.3 Measurements for Payment

The work shall be measured in terms of rm of drain cleaned, cleared and repaired.

Rate

The contract unit rate for cleaning and clearing roadside pucca drains shall mean payment in full for carrying out all the required operations explained above including compensation for:

1. Setting out and providing safety devices and signs placed in work area. As per MoRT&H clause no.112.
2. Furnishing all materials to be incorporated in the work including transportation of excavated material and disposing of the same with all leads and lifts.
3. All labour, materials, tools, equipment, safety measures, testing and incidentals necessary to complete the work to specifications.

6.12.2 Maintenance standard for cleaning, clearing, deepening and reshaping of roadside unlined drains

6.12.2.1 Scope

i. The work shall consist of cleaning, clearing deepening and reshaping of roadside unlined drains and making shallow lateral drains on shoulders to drain out the rain water/surface water effectively from bituminous surface as well as from roadside berms.

6.12.2.3 Methods, Tools and Equipment

i. Safety devices and signs shall be placed in accordance to MoRT&H clause no.112
ii. The unlined drains should be cleaned and cleared off the deposition of sediments, extraneous debris or vegetation blocking free flow in the drain. This work may be carried out manually.
iii. In case any erosion is noticed then these drains should be deepened/widened in proper slope as directed by Engineer in-charge.
iv. For draining out the standing water from road edges and unpaved shoulders, the shallow lateral drains at regular intervals shall be made manually as and when required.
v. The drain slope and sides are neatly dressed up to required flow line and cross section.
vi. The excess excavated material should be well dressed, watered and compacted in nearby area or transported away from the site with all leads and lifts, as directed by the Engineer in-charge.

6.12.2.4 Measurements for Pavement

The work shall be measured in unit of RM. for roadside drains only and no separate payment shall be made for making shallow lateral drains.

1. Rate

The contract unit rate for cleaning, clearing, deepening and reshaping of roadside unlined drains and making lateral drains on shoulders shall mean payment in full for carrying out all the required operations explained above including compensation for:

- setting out and providing safety devices and signs placed in work area. As per MoRT&H clause no.112.
- furnishing all materials to be incorporated in the work including all royalties, fees, rents where necessary and all leads/lifts.
- Transporting the excavated/recovered material and disposing of the same with all heads and lifts as directed by the Engineer in-charge.
- All labour, materials, tools, equipment, safety measures testing and incidental necessary to complete the work to specifications

6.12.3 Maintenance standard for routine maintenance of road signs and delineators, kerbs

6.12.3.1 Scope

A. The work shall consist of washing of signs, delineators, removal of posters, cleaning of kerbs etc. on a regular maintenance cycle and repair to supporting structures with repainting.

6.12.3.2 Methods, Tools & Equipment

- The road signs and delineators should be thoroughly washed using a detergent solution followed by a lean rinse and whole face of the sign shall be dried.
- Defects in supporting structures like bullet holes, surface marks or bent posts shall be repaired with appropriate tools.
- Damaged area shall be cleaned and loose/flaking paint shall be removed. Bullet holes shall be filled with filler and supporting structures shall be painted with first quality enamel paint in two or more coats.

6.12.4 Maintenance standard for replacing road signs, delineators mounted on single post/multiple posts

6.12.4.1 Scope

i. The work shall consist of replacement of damaged signboards/delineators due to accident or worn out due to age and weathering.
ii. Replacement of missing signboards and major repairs especially to sign faces.

6.12.4.2 **Methods, Tools & Equipment**

i New signboards/delineators in lieu of badly damaged/missing ones shall be provided conforming to MOST specification clause 801 to perform the function and convey message that was originally required (retroreflective type of high intensity grade).

a. For major repairs following sequence shall be carried out :

i. Beat any holes and indentations flat with a hammer and dolly
ii. Clean the damaged area and remove any loose or flaking sheeting, paint or other surface material
iii. Fill the holes and indentations with polyster body filler and access material shall be striked off to flush with sign face.
iv. Patch the whole of the affected area with existing surface material as required viz. Pressure sensitive, reflective sheeting, paint etc.
v. Restore the legend by black screening or reflective sheeting of correct class cut to shape.

6.13 Monitoring

6.13.1 The Contractor shall submit the daily report (by email) indicating the day's activities and the work executed at site. The Contractor shall also inform any changes observed at site such as road condition, structure damages/changes, damages to road-signs, crash barriers, railing, encroachments, and any other unusual changes at site before 11.00 AM every day for the preceding 24 hours.

6.13.2 The daily report should be submitted to PD and Engineer on daily basis as per proforma approved by Engineer in consultation with PD, NHAI.

6.13.3 The detail summary of these daily inspections and work carried out shall form part of monthly bill in the form of email extracts otherwise payment may not be admissible.

6.14

a) Broad Performance Parameter for Solar High Mast Light - 15mtrs. High

Broad Performance Parameter for Solar High Mast Light	
Height	15mtrs.
Lux	average 40Lux
Light Source	White Light Emitting Diode (W-LED)
Light Out put	White colour (colour temperature 5500 0 -65000 K) minimum. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye .
Mounting of light	for high mast of LED street lighting system 4Nos. X 100W a minimum 15 meters above ground telescopic shape pole,
PV Module	Module r for High mast Street Light A. 2000 Wp module
Battery	Battery for High Mast Street Light A. 48 V 300 Ah Tubular Positive plate Lead acid or gel type VRLA , @ C/10,

	Max DoD 75%
Electronics	Min 85% total efficiency
Average duty cycle	Dusk to dawn
Autonomy	3 days (Minimum 42 operating hours per permissible discharge)
DUTY CYCLE	The LED solar street lighting system will be designed to operate for dust to dawn, under average daily insulation of 5.5 kWh /sq.m. on a horizontal surface.
Warranty :	The module will be warranted for a minimum period of 15 years from the date of supply and the complete White LED solar street lighting and LED High Mast system including the battery) will be warranted for a period of at least 5 years from the date of supply.
Repair/Replacement of damaged part/bulb	Within 24 hours otherwise a penalty of Rs. 5000/- per day will be imposed

1. **Broad Performance Parameter for Solar High Mast Light - 7.5 mtrs. high**

Broad Performance Parameter for Solar High Mast Light	
Height	7.5 Mtr Above the ground Level
Lux	Average-40Lux
Light Source	White Light Emitting Diode (W-LED) of 300 Watt module capacity , 12V 400 Ah or 24 V 200 Ah and LED lights of 18 Watt with 04 numbers light
Light Out put	White colour (colour temperature 5500 0 -65000 K) minimum. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye.
Mounting of light	for high mast of LED street lighting system 4Nos. X 18W and 4 nos. X 24 watt a minimum 09 meters telescopic shape pole, having 7.5 meters above the ground Level
Module	Module r for High mast Street Light 400 Wp module for 24 W
Battery	Battery for High Mast Street Light

	12V 500 Ah or 24 V 250 Ah for 24 W Tubular Positive plate Lead acid or gel type VRLA , @ C/10, Max DoD 75%
Electronics	Min 85% total efficiency
Average duty cycle	Dusk to dawn
Autonomy	3 days (Minimum 42 operating hours per permissible discharge)
DUTY CYCLE	The LED solar street lighting system will be designed to operate for dust to dawn, under average daily insolation of 5.5 kWh /sq.m. on a horizontal surface.
Warranty :	The module will be warranted for a minimum period of 15 years from the date of supply and the complete White LED solar street lighting and LED High Mast system including the battery) will be warranted for a period of at least 5 years from the date of supply.
Repair/Replacement of damaged part/bulb	Within 24 hours otherwise a penalty of Rs. 5000/- per day will be imposed

6.15 Road Performance Parameter for Solar Blinker

S.No.	Specification	Details
1	Blinker Size	300 MM (12 Inch) & 200 mm (8 Inch)
2	Body	Molded Polycarbonate, Suitable for extreme weather conditions
3	Lens	U.V. Stabilized, Transport Polycarbonate
4	Gasket	Rubber Gasket for Sealing between Lens and Signal Unit
5	Color	Red / Amber / Green
6	PCB Used	1.5 mm thick, Glass Epoxy for Power Supply / LED Display
7	LED Used	Ultra Bright, Water clear
8	Viewing Angle	24 Degree for LED's
9	No. of LEDs	176 LED (300 mm) 140 LED (300mm) (Power Saver Model) 96 LED (200 mm)
10	Charge Control Unit (CCU)	Built in Type, helps to protect battery from deep discharging as well as overcharging. Also protect Panel from Reverse Voltage.
11	Solar Panel	12 Volt, Wattage as per requirement
12	Battery	(SMF) Sealed Maintenance Free Type
13	Wire Harness	For making all connections easily and correctly
14	Clamps	For Mounting traffic signal, battery box and solar panel
15	Pole	Dia. 3" or 4", Height 2.5 to 4 mt., GI or MS
16	Working Voltage	12v DC
17	Power Supply	Total Solid State Electronic Circuitry
18	Frequency	30 to 40 Flashes Per Minute as desired
19	Operation	24 hours or 12 hours (Dusk to Down)
20	Control Card	In built and solid state
21	Power Factor	>0.9
22	Visibility	500 Mts., Good even during bad weather
23	Certification	IP 65, ISO 9001 : 2008
24	Repair/Replacement of damaged part/bulb	Within 24 hours otherwise a penalty of Rs. 5000/- per day will be imposed

(SECTION-VII)

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

7.1 PREAMBLE:

The Technical Specifications contained herein shall be read in conjunction with the other Bidding Documents as specified.

7.2 GENERAL REQUIREMENTS

The Technical Specifications in accordance with which the entire work described hereinafter shall be executed and completed by the Contractor shall comprise of the following:

7.2.1 PART – I - GENERAL TECHNICAL SPECIFICATIONS

The General Technical Specifications shall be the "SPECIFICATIONS FOR ROAD AND BRIDGE WORKS" (FIFTH REVISION, 2013) issued by the Ministry of Road Transport & Highways, Government of India and published by the Indian Roads Congress, hereinafter referred to as MORT&H Specifications.

PART – II – SUPPLEMENTARY TECHNICAL SPECIFICATIONS

When an Amended/Modified/Added Clause supersedes a Clause or part thereof in the said Specifications, then any reference to the superseded clause shall be deemed to refer to the Amended/Modified/Added Clause or part thereof.

In so far Amended/Modified/Added Clause may come in conflict or be inconsistent with any of the provisions of the MOST Specifications under reference, the Amended/Modified/Added clause and the additional specifications shall always prevail.

7.2.2 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 and BIS 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 Engineer and, in case of any dispute arising out of the interpretation of the above, the decision of the Engineer shall be final and binding on the Contractor.

7.2.3 The Authority/Client shall get the 3rd party quality audit of Bituminous work from any nearest reputed government technical institute for its gradation, bitumen content and thickness for every km. and construction agency shall bear the cost of these tests.

i. Repairing / filling of all potholes/cracks on the National Highway stretch shall be performed only by using mechanized method with facility to have integrated operation for proper cutting in shape i.e., square/rectangular, cleaning, priming, laying and compacting by mechanical means.

ii. The Contractor will sign the checklist of deliverables enclosed as Appendix at Section II, 4.4 B (b) (iii) which shall be used as a basic monitoring tool so as to ensure that the O&M/renewal obligations are actually fulfilled.

The above provisions are to be complied with by the Contractor/Executing Agency without any financial implication payable to them.

Further if, the Contractor has not been able to fulfil the above-mentioned provisions within a cure period of 15 days, Authority will fulfil these provisions at the risk and cost of the Contractor/Executing Agency.

(SECTION-VIII)

IMPLEMENTATION MANUAL AND

MAINTENANCE INTERVENTION LEVELS

SECTION – VIII
IMPLEMENTATION MANUAL AND MAINTENANCE INTERVENTION LEVEL

8.1 Introduction

8.1.1 Maintenance & Rehabilitation work of highway through one agency is the work of typical nature, which shall continue up to the expiry of base period specified in the contract (excluding defect liability period). These works need attention, efficiency, continuous monitoring and responsive management. This implementation manual spells out detailed guide-lines for implementing the maintenance programme successfully, defining the various activities to be accomplished by the Employer and the Contractor.

8.1.2 This work includes routine, periodic, recurrent and urgent maintenance activities to repair highway surface, shoulders, road side, drainage facilities, CD work, signs, markings, safety features and inspection facilities. The works of different nature at scattered locations within specified time frame need to be performed confirming to specifications and standards in order to keep carriageway in perfect condition.

8.2 Maintenance Procedures

18.1 The complete maintenance programme shall be spread over the initial base period of three months. There are eight significant procedural areas:

a. Maintenance Programme Planning
b. Resource Estimation
c. Identification of Priorities
d. Work Scheduling
e. Work Management
f. Work Control and Quality Assurance
g. Payment Procedures
h. Records & Documentation

8.3 Maintenance Programme Planning

17.1 The maintenance programme planning shall be in two stages

7.1 First Stage: Within 28 days of issuance of Letter of Commencement by the Employer. Contractor & Engineer shall identify the activities of Routine Maintenance, which shall have to be taken up immediately who check the further deterioration of paved and unpaved surface of carriageway separately. To identify these activities formal field inspection shall be carried out by technical staff of Contractor & Engineer. A management meeting shall then be called within 7 (seven) days of inspection to scrutinize the identified works and then these works shall be quantified. Engineer shall then issue indent to contractor for execution of these works specifying quantity to be executed at different locations, amount of works calculated on the

basis of the unit rates quoted by contractor and date of completion. This part of work shall certainly be commenced not later than stipulated date of commencement.

7.2 Finalization of yearly maintenance programme: This activity shall begin with the stipulated date of commencement. The various steps proposed to be taken under this are as under :

- to carryout present state inspection of entire stretch of Highway by Contractor & Engineer.
- To identify defects as per various available engineering characteristics of road & measurement of all defects in each sub-section (length of subsection shall be 200 m) based on representative measurements for 25 m length in each sub section. The extent of defects shall be recorded in forms finalized in consultation with NHAI for paved road, unpaved road and structure / furniture. All Defects with its extent shall be assessed in terms of length & area of the sub section, mentioning chainage (locations) in order to have exact estimate of work.
- A comprehensive documentation shall be prepared separately by Engineer and Contractor mentioning their assessment of various types of defects in each km of road.
- Management meetings shall be called within 15 days of inspection to finalise and then to quantity the defects after comparison of measured condition of road and maintenance intervention levels set out in this Section on commonly acceptable basis. This shall be followed by identification of particular maintenance work proposed to be carried out at site to make good the defects noted above, out of various alternatives available in BOQ.

8.4 Resource Estimation

8.4.1 The Engineer shall workout the yearly requirement of funds based on unit prices rates quoted by Contractor and quantities of various items proposed to be executed. A tentative programme shall be drawn on the basis of resources available with the contractor at different times of maintenance period including available establishment, equipment and labour availability with him. Cash flow available with the contractor shall also be basic input to determine proposed maintenance programme.

8.5 Identification of Priorities

8.5.1 The Engineer shall work out order of priority, judiciously in order that jobs that have the stronger claim or resources placed ahead of the list and those having least claim are placed at the end.

8.2.1 The maintenance activities by order of importance shall be reckoned in the following order or as deemed proper by Engineer:

a. Urgent Works: Emergency repairs, removal of road blockade, repair to road breach, removal of accidental vehicles and dead animals, immediate repairs to CD works.

b. Recurrent Works: Blading and grading of unpaved surface, spot gravelling of unpaved surfaces, clearing of drains before rains, patch repair, local sealing and repair to pot holes.
c. Periodic Works: Re-gravelling shoulders, major repair to defective carriageway, road surface markings resealing and repair to CD works.
d. Other Periodic Works: Laying overlays and reconstruction

8.5.3 The activities mentioned under Routine Maintenance shall be carried out on continuous basis as does not fall in order of priority.

8.5.4 Seasonal variation in the year shall also be influencing factor to decide order of priority of maintenance works.

8.6 Work Scheduling

8.6.1 The maintenance and rehabilitation work of road is of unpredictable nature so quantities shown against each item or work are only representative. It is expected that they would be consumed during the entire base period of works but employer would not be responsible to pay any compensation etc. in case there is variation to any extent in quantity of actual execution of particular item of work with respect to representative quantity shown in BOQ for that particular work.
8.6.2 Scrutinized work proposals shall be negotiated by the Engineer with Contractor for quantity and time to complete those particular activities and accordingly they shall be classified into two groups:

Group – I: Works of short duration of completion (up to 2 months)
Group – II: Works of larger duration of Completion (more than 2 months)

8.6.3 For works under Group I, quarterly indents shall be issued and for works classified under Group 2, bi-annual indents shall be issued by the Engineer. These indents shall mean to identify, quantity the various works which contractor is expected to execute on his unit rates quoted by him at specified locations within the time period assigned in the indents. Each indent shall be treated as part of the work for which contractor has submitted Bids. The terms & conditions applicable in bid document shall also be applicable to these indented works.

8.6.4 In case of urgency requiring immediate actions to remove road blockade, to construct temporary diversion or urgent preventive measures to reduce extent of expected damages or to make precautionary arrangements to handle emergencies,. Engineer shall issue interim indents for such works / arrangements to be complied with by the contractor in responsible manner without loss of time.

8.6.5 The price of any such work which are not covered with items mentioned in price bid, the rates and prices in the contract shall be used as the basis for valuation of reasonable rates, failing which after due consultation by the Engineer with the Employer and the Contractor; suitable rates or prices shall be decided by the Engineer with the approval of Employer.

8.7 Work Management

8.7.1 The success of Contract maintenance system lies with good work management. The contractor shall draw activities which shall be accomplished by in house crew and portion of the work to be accomplished with sub contractors.

8.7.2

8.7.3 The system of quarterly reports such as budget reports, resources utilisation report, quality control and status of base maintenance programme (planned versus actual) has to be generated in order to evaluate working of contract maintenance system and to work out upgradation / modification required in the programme. The modification to finalised maintenance programme can be made with mutual consent of both the contractor and engineer to derive best results.

8.7.4 The contractor can also consider to introduce communication system (like mobile, etc). on the Highway for better and efficient management of site.

8.8 Work Control & Quality Assurance

8.8.1 The Engineer shall adopt random sampling procedures to ensure quality control. Engineer shall carry out in- process inspections and end product inspections to collect samples and shall carry out testing in order to determine the degree of adherence to the maintenance standards of delivered or constructed material. Any testing / checking of works by Engineer shall not absolve the contractor from his responsibility to execute works strictly in accordance of MoRT&H / IRC / IS specifications or laid down standards in bid document.

8.8.2 A quality control laboratory equipped with all instruments required to perform tests as indicated in MoRT&H / IRC / IS specifications at frequency mentioned therein shall have to be provided by the contractor. Contractor shall ensure that testing of all material delivered or constructed is regularly carried out by his filed staff as per standard norms and results of these tests are recorded in specified manner and made available to Engineer whenever required by him. The contractor shall provide the QC laboratory, as incidental to work and no separate payment shall be made for this item. The QC lab shall also be made available to Engineer for conducting tests of his own.

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material delivered or constructed is regularly carried out by his filed staff as per standard norms and results of these tests are recorded in specified manner and made available to Engineer whenever required by him. The contractor shall provide the QC laboratory, as incidental to work and no separate payment shall be made for this item. The QC lab shall also be made available to Engineer for conducting tests of his own.

8.8.3 In- process inspections shall be carried out by the Engineer to witness and / or to verify the quality / quantity of work, when activity is in process with aim to judge justification of payment. Engineer shall carry out end product inspections after completion of the activity to provide satisfactory evidence about acceptability of the contractors work.

8.8.4 The results of in process inspections, end product inspections and quality control tests shall form basis of acceptance of completed works and issuance of Non Conformance Report (NCR). Items of Works or unit of material or the end product do not meet the specifications / standards shall be identified by "Non-Conformance-Report" and can become basis of rejection of work on establishing the authorized disposition.

8.8.5 Non Conformance Report: Defective or uncompleted work shall not be paid. Such work shall also be notified to the Contractor within 10 days of submission of bill through non-conformance report (NCR). The NCR shall clearly identify the item of work that is non – conforming either to specification or to a specific requirement in the contract document. Once NCR is identified, it shall be evaluated and of the dispositions would be established.

a. "Do" Identifies the work which has not been done at all at site within specified time limit. An NCR issued with "Do" disposition for the work should immediately be undertaken by contractor.

b. "Re-Do" Identified the work, that is non conforming of all quality aspects. Such works be totally removed & redone.

c. "Re-work" Requires part of particular item identified in this category be reworked to bring it to the quality required.

d. "Use-as-is" Applied where Engineer accepts work "as-is" not-withstanding the fact that it does not exactly conform to the contract requirements. This work shall be accepted only for agreed reduced rates with respect to unit rates quoted in financial bid by the contractor otherwise shall be re-classified under disposition "Do" or "Re-Do".

8.9 Payment Procedures

8.3.1 The contractor shall submit to the Engineer after the end of each month bill in two copies, each signed by authorized contractor's representative in standard format, showing the amounts to which the contractor considered himself to be

entitled upto the end of the month. These bills should be prepared each indent wise.

a. The Engineer after scrutiny of the bills shall certify and recommend the payments for completed accepted works within 14 days of presentation of bill to him to the employer subject to deductions as per bid documents.
b. The employer shall pay the amount due to the Contractor under certificate and recommendations by the Engineer within 28 days after it has been delivered to the Employer.

8.10 Records & Documentation

8.10.1 The results of all inspections shall be documented. The test results containing documentary evidence of activities and data relevant to the quality of work and performance of the contractor shall also be documented. The field daily to be filled by Site Engineer of Contractor shall be a basic form of documentation. The activities to be entered in daily dairy are

i. The description of day's activities, number and type of crew on job, equipment on job weather and temperature
ii. Any measurement made to determine pay quantities
iii. Daily summary of material issued in the job
iv. A record of significant conversations with and direction given to the contractor
v. A record of bottlenecks with the progress or execution of the work
vi. A record of material testing in lab
vii. Details of visit by officials

8.10.2 The Contractor shall carryout road roughness measurement as directed by Engineer for the entire stretch at the end of the pavement maintenance and shall submit the complete record to NHAI. There shall not be any separate payment on account of this. The payment pertaining to this shall be deemed to be included in the items of works.

8.11 MAINTENANCE INTERVENTION LEVELS

Following criteria shall be adopted by the Engineer while indenting the works.

Sl. No.	**Defects**	**Criteria / Extent (% of sub section length)**	**Treatment / Action**	**Type of maintenance**
1	Shoulder & Slopes			
1.1	Vegetation growth on shoulders & side slopes	Any kind	Vegetation growth be removed	Routine
1.2	Trees	a. All kind	Trim and remove dead / diseased branches	Routine
		b. Fallen trees on carriageway	Remove immediately	Urgent
1.3	Deformation or scour	a. Upto 50 mm	Fill & Compact	Routine

		b. More than 50 mm	Reconstruction	Recurrent / Urgent
1.4	Disturbed stone pitching	a. Upto 30 sqm.	Repair	Routine
		b. More than 30 sqm	Reconstruct	Urgent
2	Side drains			
2.1	Kuccha drains silted / too shallow	Any extent	Clean & repair	Routine
2.2	Standing water on shoulders / drains	Any	Realign to correct gradient and make shallow lateral drains	Routine
2.3	Silting in pucca side drains	Any extent	Clean out	Routine
2.4	Damages or scouring of pucca drains	Any extent	Repair and reconstruct to adequate size and shape	Routine
3	CD Works			
3.1	Silted or blocked openings	Any extent	De-silting / cleaning	Routine
3.2	Erosion / Scour in upstream / down stream	Any extent	Repair / fill the boulders	Periodic
3.3	Pot holes erosion in paved surface floor	Any extent	Repair with concreting	Periodic
3.4	Damaged crash barriers	Any	Reconstruct	Recurring / Urgent
3.5	Vegetation growth at inlet / outlet & near parapets	Any	Remove & Clear	Routine
3.6	Damaged masonry in parapets / substructure / superstructure	Any extent	Repair to match with existing & report to the Engineer	Recurrent
3.7	Painting exposed surfaces of bridge railings, kerb stones, parapets	Any	Repaint / White wash	Periodic
3.8	Cracks in structure	Any	Repair and report to the Engineer	Recurrent / Urgent
3.9	Leached, honey combed, spalled concrete surface, & exposed reinforcement	a. Upto 20 sqm	Repair with epoxy mortar or injected concreting	Urgent
		b. More than 20 sqm	Reconstruct	Urgent / Special alters
3.10	Checking of expansion joints	Any	Check & repair & clean	Periodic
3.11	Maintenance of bearings	Any (In case replacement of	Check & clean & carry ordinary maintenance	Periodic

		bearings is required, then specific report to be given to the Engineer)		
4	Road Furniture			
4.1	Dirty road signs / delineators	Any	Wash & clean	Routine
4.2	Damaged / corroded road signs and delineators	Any	Repair, repaint or replace	Periodic
4.3	Missing road signs	Any	Replace	Routine
4.4	Damaged / missing median kerbs, boundary pillars, 200 m stone, km stone & 5th km stones	Any	Replace	Periodic
4.5	Painting & printing letters on road signs, km stones, 200 m stone, 5th km stones	Any	Repaint & print to match with existing	Periodic
4.6	Safety barriers, fencing	Any	Repair & repaint	Periodic
4.7	Pavement markings	a. Upto 30 sqm.	Repair	Recurring
		b. More than 30 sqm.	Repair	Periodic
5	Road side safety / Miscellaneous			
5.1	Dead animals	Any	Remove and burry	Recurrent / Urgent
5.2	Broken down / accidental vehicle	Any	Inform traffic police and remove	Recurrent / Urgent
5.3	Road blockade	Any	Inform traffic police, remove blockade if reqd. construction temporary diversion	Recurrent / Urgent
6	Carriageway & Crust			
6.1	Stripping	a. <25 sqm.	Local sealing	Routine
		b. >25 sqm.	IInd coat surface dressing	Periodic
6.2	Rutting	a. depth of ruts < 50 mm		
		i. Crack < 10 mm	Seal the crack with slurry	Routine
		ii. crack > 10 mm	Surface dressing & fill ruts with bituminous mix	Recurrent
		b. depth of ruts > 50 mm		

		i. Crack < 10 mm	Seal the cracks with slurry and fill ruts with bituminous mix	Routine
		ii. crack > 10 mm	Surface coat surface dressing over cracked area to be followed by overlay	Periodic / Special attention
6.3	Pot holes	a. <20 mm	Patch repair to pot holes	Recurrent
		b. >20 mm	Patch repair to pot holes & check dressing of crust for strengthening if reqd.	Recurrent / Special Attention
6.4	Bleeding	a. < 25 sqm	Spread and roll over 6 mm size heated aggregates	Routine
		b. > 25 sqm	Apply surface dressing	Periodic
6.5	Cracks	a. < 25 sqm	Local sealing of cracks	Routine
		b. > 25 sqm	Local sealing followed by renewal	Periodic
6.6	Hungry surface	Any	Apply, slurry seal or fog seal	Recurrent
6.7	Corrugations	------	Cutting of high spots and filling of low spots with existing surfacing material and seal the surface	Recurrent
6.8	Shoving	------	Remove the material upto firm base and relay stable mix	Recurrent
6.9	Shallow depressions	------	Repair the depression with pre-mixed material	Recurrent
6.10	Settlements & upheaval	a. <20 sqm	Remove the weak / defective fill upto base & redo.	Recurrent
		b. >20 sqm	i. Remove the weak / defective fill upto base & redo ii. Strengthen the crust by providing additional layers	Periodic
6.11	Edge breaking & edge steps	a. <25 mm	Cut affected area and patch repair to road edge; with repair to unpaved shoulders also	Recurrent

		b. >25 mm	Reconstruct shoulders and repair to carriageway edge also	Periodic

National Highways Authority of India

(Ministry of Road Transport & Highways)

Government of India

(REQUEST FOR QUOTATION)

FOR

Protection Work at CH-58.700 (LHS) and from CH-58.800 to CH-58.850 (LHS) on Zirakpur-Parwanoo Section of NH-5 (Old NH-22) from KM 39.960 to KM 67+550 on BOT Basis in the States of Punjab, Haryana & Himachal Pradesh.

[February, 2026]

Regional Office, Chandigarh,
National Highways Authority of India,
NHAI Building, Sector - 30B, Chandigarh (UT) - 160030,
(Near Sector – 29-30 Traffic Light, Opposite 30 C Market)
Phone no. 0172-2586818

VOLUME - II

SECTION: IX

BILL OF QUANTITIES

The Appendix forms part of Bid. Bidders are required to fill up all the blanks in the form of Bid and Appendix thereto)

FINANCIAL BID FORM

To

Regional Office, Chandigarh,
National Highways Authority of India,
NHAI Building, Sector - 30B, Chandigarh (UT) - 160030,
(Near Sector – 29-30 Traffic Light, Opposite 30 C Market) Phone no. 0172-2586818

DESCRIPTION OF WORKS: BID FOR xx

Reference letter No. ……..

Dear Sir,

Having examined the site of works and Bid Documents, comprising Instructions to Bidders, Scope of works, Conditions of Contract, Technical Specifications, Bill of Quantities and schedules for the execution of the above-named works, we, the undersigned offer to execute and complete such works and remedy any defects therein in conformity with the said bid documents for the sum of Rs. _____ (Rupees _____) or such other sum as may be ascertained in accordance with the said Bid documents.

2. We undertake, if our Bid is accepted, to commence the work within fifteen (15) days of receipt of the order to commence, and to complete and deliver the sections and whole of the works comprised in the Contract within the period stated in the bid hereto.

3. If our Bid is accepted, we will furnish Performance Security (ies) in the form of a Bank Guarantee to be jointly and severally bound on us, in accordance with the Conditions of Contract.

4. We agree to abide by this Bid for the period of One Hundred & Twenty (120) days from the last date fixed for Bid Submission and it shall remain binding upon us and may be accepted at any time before the expiry of that period.

5. We confirm our agreement to treat the Bid documents and other records connected with the works as secret and confidential documents and shall not communicate information contained therein to any person other than the person authorized by the Employer or use such information in any manner prejudicial to the safety and integrity of the works.

6. Unless and until an agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding Contract between us, but

without prejudice to your right to withdraw such acceptance without assigning any reasons thereof.

7. We understand that you are not bound to accept the lowest or any bid you may receive.

Dated this _____ day of _____ 20---

Signature _____ in the capacity of _____ duly authorized **

To sign Bid for and on behalf of _____

(In block capital letters)

Address : _____

_____

Signature of Witness _____

Name of witness _____

Address of witness _____

_____

** Certified copy of Power of Attorney/authorization for signature shall be furnished by the bidder.

Bill of Quantities

9.00 Preamble

9.01 The Bill of quantities shall be read in conjunction with the Instructions to Bidders, Conditions of Contract, Scope of Work and Specifications.

9.02 The quantities given in the Bill of quantities are estimated quantities. The basis of payment will be actual quantities of work indented and carried out and valued at the rates and prices tendered in the priced Bills of quantities, where applicable and otherwise at such rates and prices as the Engineer may fix with in the terms of Contract.

9.03 The rates and prices tendered in the priced Bill of Quantities shall include all equipment, plant, tools, spares, labour, supervision, overheads, consumables, materials, erection, maintenance, testing of input material delivered, profit, taxes and duties together with all general risks, liabilities and obligations set out and implied in the Contract and other incidentals to comply with the requirements of technical specifications and scope of work.

9.04 The rates and prices shall be quoted entirely in Indian Currency.

9.05 A rate or price shall be entered as a single rate as Tender Premium % above / below on the amount in General Abstract.

9.06 The whole cost of complying with the provisions of the contract shall be included in the items provided in the priced Bill of Quantities and where no rates are provided the cost shall be deemed to be distributed among the rates and prices entered for the related items of work.

9.07

22.1 The staff of the contractor shall wear safety jackets, shoes, helmets etc. while on duty and any violation will attract a fine of Rs. 5,000/- for each incident.

22.2 Failure to erect safety signage or trying to carry out the works without proper precautions/safety measures as required will attract a fine of Rs. 5,000/- for each incident.

9.08 The Tendered rate for incident management shall include all equipment labour material consumable tools spares and other incidentals to comply with the requirement of the scope of the work and technical specification.

9.09 General directions and descriptions of work and materials are not necessarily repeated or summarized in the Bill of Quantities. Reference to the relevant sections of the bidding document shall be made before entering rates or prices against each item in the Bill of Quantities.

DESCRIPTION OF WORK: xxxx

ABSTRACT OF COST

S.No.	Description	Amount
1	Grand Total of BOQ	
	I/We agree to execute the above works on the tender premium ----------% above/below the Grand Total of the project Cost as given above.	(In words) ----------percent Above / Below

*****The scope of work may vary (+/-) as per the site condition at the time of execution. In case of extra work, the payment will be made as per the actual work done certified by the Authority or it's engineer.
In case of reduction in scope or reduction in quantity, no financial relief/compensation/claims in any form will be admissible.

भारतीय प्रौद्योगिकी संस्थान, रोपड़
Indian Institute of Technology Ropar
जनपद अभियांत्रिकी विभाग, परिवहन अभियांत्रिकी प्रयोगशाला
Department of Civil Engineering, Transportation Engineering Laboratory
(रुपनगर, पंजाब, भारत – 140001, Rupnagar, दूरभाष 01881-232132, Punjab, India -140001, Telephone: 01881-232132)

Dr. Surya Kant Sahdeo
Assistant Professor
Sustainable Pavement Research Group (SPRG)
Department of Civil Engineering
Indian Institute of Technology, Ropar, Punjab-140001

To

Dated: 16/01/2026

The Project Director,
National Highways Authority of India,
PIU - Chandigarh

Dear Sir,

With reference to your email and request letter with **Ref.No.:CNHPL/ZPP/NHAI/CA/050**, dated: **04.09.2025**, regarding the assignment for undertaking the Comprehensive Examination of Soil Erosion and Providing Mitigation Measures for Stabilization of Hills along in the Area **Zirakpur- Parwanoo Section of NH-5**, by IIT Ropar for the project titled **"(4-laning of Zirakpur- Parwanoo Section of NH-5 (Old NH-22) from KM 39.960 to KM 67+550 on BOT Basis in the States of Punjab, Haryana & Himachal Pradesh- Regarding Protection Work from CH- 58.800 to CH-58.850(LHS)"**.

This is to inform you that the comprehensive assessment has been completed. The enclosed report presents the findings of the joint site inspection, taking site images and survey, soil-erosion evaluation, geotechnical investigations, and the appraisal of slope-stabilisation and mitigation measures for the **Zirakpur- Parwanoo Section of NH-5.**
The data and information reported in the evaluation report are specific to the site investigation and specific studies carried out at IIT Ropar. Kindly note that the report is prepared for academic and technical assessment purposes and does not bear any legal liability.

Thanking you with best regards,

Dr. Surya Kant Sahdeo
Dr Surya Kant Sahdeo
Assistant Professor
Department of Civil Engineering
IIT Ropar, Punjab, India
(Principal Investigator)

Enclosure:

Detailed Technical Report about the comprehensive examination and assessment of **soil erosion and slope instability** for the project titled **"4/6 Laning of Zirakpur–Parwanoo Section of NH-5 (Old NH-22) from KM 39.960 to KM 67+550 on BOT Basis in the States of Punjab, Haryana & Himachal Pradesh"**, comprising observations from **joint site inspection**, **drone imagery and survey**, evaluation of **erosion and slope failure mechanisms**, results of **geotechnical investigations and laboratory testing**, and **proposed stabilization and mitigation measures** for the locations indicated in your communication.

A report on

4-laning of Zirakpur- Parwanoo Section of NH-5 (Old NH-22) from KM 39.960 to KM 67+550 on BOT Basis in the States of Punjab, Haryana & Himachal Pradesh- Regarding Protection Work from CH- 58.800 to CH-58.850(LHS)



Submitted to

National Highway Authority of India (NHAI), PIU- Chandigarh

Dr Surya Kant Sahdeo
Assistant Professor,
Department of Civil Engineering
IIT Ropar, Punjab, India

Indian Institute of Technology, Ropar
Department of Civil Engineering
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Email: surya.kant@iitrpr.ac.in Telephone: +91-1881-232132

January 2026

1. Background

The Department of Civil Engineering, Indian Institute of Technology Ropar (IIT Ropar), received a formal request from the **National Highways Authority of India (NHAI), PIU–Chandigarh**, vide Ref. No. **NHAI/PIU/CHD/11162/PKG-3/AE/E-299971/847** dated **26.11.2025**, to undertake a **Comprehensive Examination of Soil Erosion and to provide Mitigation Measures** along the Zirakpur-Parwanoo Section of NH-5 in the state of Punjab, Haryana & Himachal Pradesh

The request pertains to the issue of recurring soil erosion and slope instability along the hill slopes adjoining the project highway near **Zirakpur Parwanoo section of NH-5**, where soil and debris are repeatedly observed to spill onto the highway, particularly during the monsoon season. These conditions have resulted in road user safety risks and necessitate a comprehensive and permanent solution for the affected hill stretches.

Considering the technical complexity, prolonged recurrence of erosion, and the requirement of a comprehensive geotechnical examination, **NHAI** requested **IIT Ropar** to carry out:

- Detailed site inspection of the affected locations.
- Comprehensive examination of soil erosion, including requisite testing.
- Propose site-specific stabilisation and mitigation measures.
- Submission of a detailed technical report, including overall assessment based on site inspection, design of gabion and breast wall.

Accordingly, a technical team from the **Department of Civil Engineering, IIT Ropar**, led by **Dr. Surya Kant Sahdeo** visited the project location on **06/01/2026** to perform a comprehensive assessment. The team examined the hill slopes along the identified chainage, reviewed visible erosion patterns, mapped zones of distress, evaluated environmental and geological influences, and identified underlying causes of instability. To enhance assessment and improve visualisation of terrain features, an extensive site survey was conducted by IIT Ropar to support detailed analysis and the formulation of mitigation recommendations. Detailed interactions with NHAI officials and site personnel were undertaken to understand historical issues, ongoing challenges, and technical requirements

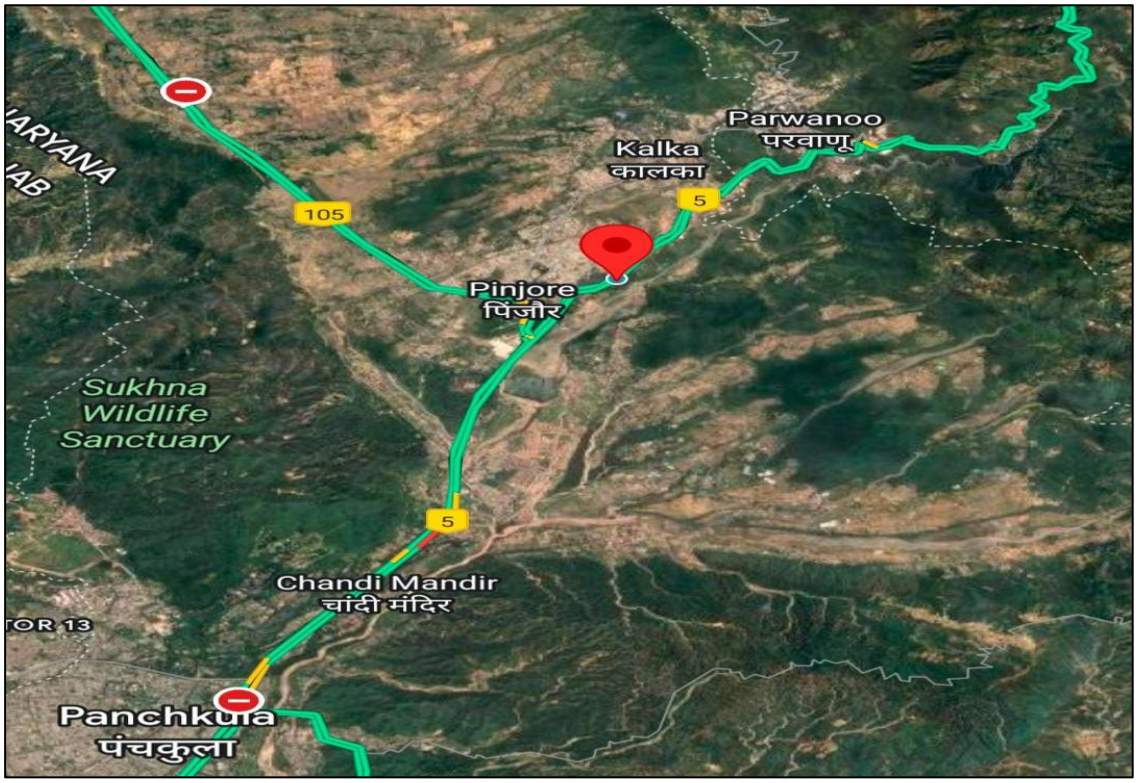


Figure 1: *Geographical location of the site under technical evaluation.* ***[Source: Google Map]***

2. Technical Evaluation

The scope of the site inspection and technical evaluation comprised detailed field reconnaissance along the identified stretches of the Project Highway, with focused attention on the specified chainages affected by slope distress and soil erosion. The evaluation was undertaken to systematically document the prevailing site conditions, assess the existing slope geometry and stability characteristics, identify visible signs of erosion, distress, and material degradation, and evaluate their nature, extent, and severity. The findings from the site inspection form the technical basis for further engineering assessment, analysis, and formulation of appropriate stabilisation and mitigation measures to ensure long-term slope stability and safety of the highway corridor.

3. Field Observations

As part of the site visit and technical evaluation, a systematic field reconnaissance was carried out by the technical team from the Department of Civil Engineering, IIT Ropar, along the identified stretches of the Project Highway. The observations primarily focused on hill slopes adjoining the carriageway, particularly at locations exhibiting signs of soil erosion and slope instability.

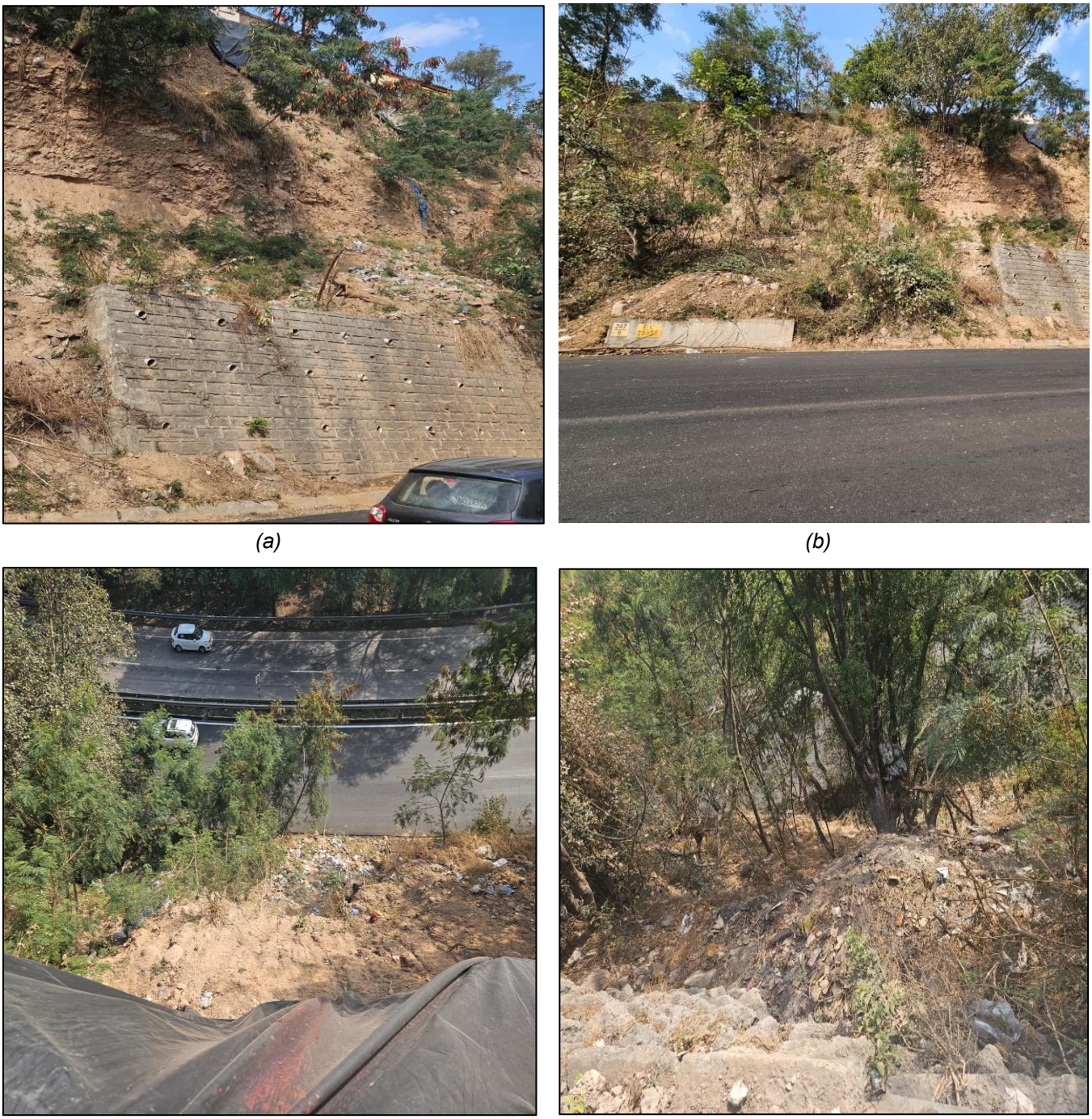
The field assessment involved a detailed examination of slope surface conditions, erosion features, movement of soil and debris towards the carriageway, existing drainage paths, and the overall stability condition of the hill slopes. Observations were carried out through ground-level inspection and were

supplemented, wherever feasible, by site visits to obtain a comprehensive understanding of terrain characteristics, slope geometry, and erosion-prone zones.

All field observations have been systematically documented through photographic records and engineering notes to ensure accurate representation of prevailing site conditions. These observations form the basis for understanding the nature and extent of soil erosion, assessing slope behavior, identifying critical areas of concern, and supporting subsequent analysis, testing, and formulation of appropriate stabilization and mitigation measures, in compliance with applicable guidelines and environmental considerations. The chainage-wise field observations at the identified locations are presented in the subsequent sections.

3.1 Field Observations of NH-5 at (Ch KM 58+850)

- The cut slopes along the highway corridor exhibit severe surface erosion, with visible rills and shallow gullies developed in a loose sandy-silty soil. The absence of slope protection measures has allowed rainfall runoff and wind action to progressively remove fines, indicating a highly erodible and vulnerable slope material.
- Toe erosion is evident at multiple locations, with localised undercutting and formation of small overhangs at the lower and mid portions of the slope. This suggests sustained sheet flow and channelised runoff along the road shoulder, leading to gradual over-steepening of the cut slopes beyond their natural angle of repose.
- In the vicinity of the breast wall, erosion of the backfill and supporting soil is observed. Partial exposure of the substructure and development of cavities below the deck indicate approach embankment erosion, likely due to inadequate surface drainage and lack of scour protection measures around the abutment.
- Accumulation of eroded soil, debris, and waste material at the slope toe highlights uncontrolled surface water paths and possible blockage of informal drainage channels. Such conditions promote concentration of runoff, accelerate erosion processes, and pose a risk of weakening the adjacent pavement layers and shoulder stability.
- Overall, the observed conditions indicate progressive slope deterioration driven by inadequate drainage, lack of erosion control measures, and marginal slope geometry, which may lead to long-term instability and potential safety concerns for the roadway if not addressed.



(a) *(b)*

(c) *(d)*

Figure 2: *Site photographs showing soil erosion, slope conditions at identified locations* ***(Ch. KM 58+850)***

3.2 Field Observations of NH-5 at (Ch KM 58+700)

- The uphill cut slope adjacent to the roadway is steep to near-vertical and comprises stratified silty soil with interbedded finer layers, as clearly visible in the exposed section. Such soil profiles are inherently unstable under gravity and rainfall infiltration, particularly in hilly road conditions.

- The slope face exhibits active gully erosion, retrogressive headward cutting, and localised undercutting, indicating continuous loss of support at the lower portion of the slope. These erosion mechanisms are progressively migrating upslope, posing a direct threat to the stability of the road formation.
- The toe of the cut slope is inadequately protected, with no effective retaining or breast wall system to restrain soil movement. As a result, eroded material is observed accumulating near the road shoulder, reducing effective carriageway width and increasing maintenance requirements.
- Surface runoff from the uphill catchment is uncontrolled and concentrated, with no properly defined catch, drain or interception system. The runoff flows directly over the slope face, accelerating erosion and increasing lateral earth pressure on the lower portion of the slope.
- Sparse and discontinuous vegetation cover provides negligible root reinforcement, offering little resistance to surface erosion or shallow sliding failures. The existing natural slope face therefore, remains highly vulnerable during monsoon conditions.



(a)

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(b)



(c)

Figure 3: *Site photographs showing soil erosion, slope conditions, and exposure of bridge components at identified locations* ***(Ch. KM 58+700)***

4. Laboratory Testing and Analysis

As part of the comprehensive assessment, representative soil samples were collected from multiple identified chainages along the Project Highway during the site visit. The sampling locations were selected based on observed slope conditions, extent of soil erosion, and visible variability in soil strata at each location. Care was taken to ensure that the collected samples reflected the in-situ soil conditions at the respective chainages. All collected soil samples were transported to the **Transportation Engineering Laboratory** of the **Department of Civil Engineering, IIT Ropar**, for further examination.

From the collected soil samples, a representative sample was selected for **laboratory testing** to determine the engineering properties required for gabion wall design. The soil was prepared and tested for **shear strength parameters (c and φ)** using the **Direct Shear Test** as per **IS:2720 (Part 13) / ASTM D3080**. The **bulk density/unit weight** of the soil was also determined in accordance with **IS:2720 (Part 3)**. The laboratory test results were used for earth pressure and stability analysis, and photographs of the testing carried out are presented in **Figure 5**.



(a)



(b)



(c)



(d)

Figure 4: *Laboratory photographs taken during* ***Direct Shear Test*** *of soil sample.*

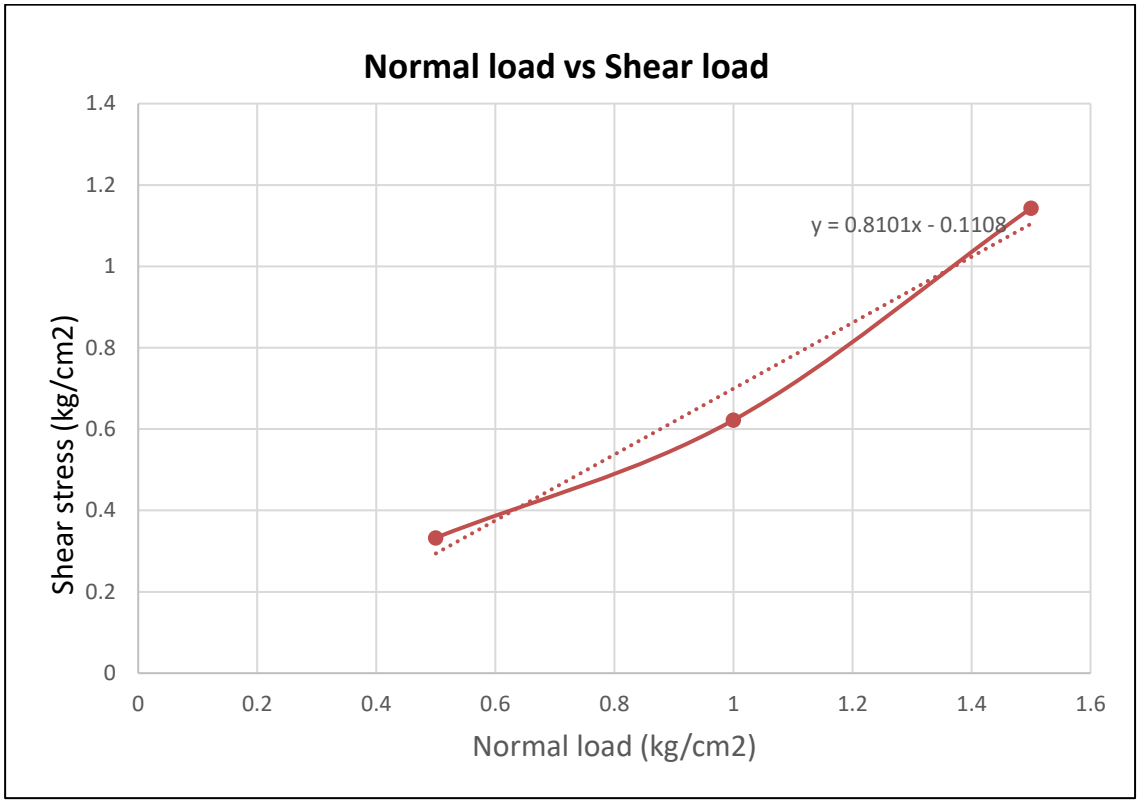
The shear strength characteristics of the soil were evaluated through **Direct Shear Testing** under varying normal stresses. The relationship between **normal load and corresponding shear stress**, obtained from the laboratory test results, is presented in **Figure 4(c)**. Based on the linear best-fit envelope drawn through the test data points, the **angle of internal friction (φ)** of the soil was determined as **39.01°**, while the **cohesion value (c)** was obtained as **0.0313 kg/cm²**. The test results corresponding to normal stresses of **0.5, 1.0, and 1.5 kg/cm²** yielded shear stresses of **0.33, 0.62, and 1.14 kg/cm²**, respectively, as summarised in **Table 1**. The shear strength parameters derived from the laboratory testing were analyzed in conjunction with field observations to assess the stability of the cut slope and to provide design inputs for gabion wall and slope protection measures at the project location.

Table1: Normal load (kg/cm2) Vs Shear Stress (kg/cm2)

Sr. No.	Normal load (kg/cm2)	Shear Stress (kg/cm2)
1.	0.5	0.33
2.	1	0.62
3	1.5	1.14

Table2: Direct Shear Test

Sr. No.	Direct Shear Test	Value
1.	Angle of internal friction	39.01
2.	Cohesion C (kg/cm2)	0.0313



(a)

Figure 5: *Graphical representation of Normal load Vs shear Load*

5. Conclusions

Based on the site inspection, terrain assessment, photographic documentation, and laboratory testing of soil samples, the following conclusions are drawn:

- The investigated cut slopes exhibit **active and progressive erosion**, including rill and gully formation, desiccation cracking, stratified soil exposure, and localised toe undercutting. Such distress mechanisms are characteristic of inadequately protected hill road cuttings and are consistent with failure patterns described in **IRC: SP:48 (Hill Road Manual)** and **IRC:56 (Recommended Practice for Treatment of Embankment and Roadside Slopes for Erosion Control)**.
- The in-situ soil comprises **sandy–silty to silty–clay material with weak bonding and moisture sensitivity**. The exposed stratification and blocky disintegration indicate susceptibility to wetting–

drying cycles, leading to rapid loss of apparent strength, as noted for erosion-prone soils in **IRC:SP:48**.

- Laboratory Direct Shear Test results yielded an **angle of internal friction (φ) of 39.01°** and **very low cohesion (c = 0.0313 kg/cm²)**. In accordance with **IS:2720 (Part 13)**, these results indicate that soil strength is predominantly frictional with negligible cohesive resistance. As per codal understanding, such soils become highly vulnerable when exposed and saturated, explaining the observed field instability.
- Although the friction angle is relatively high, the **near-zero cohesion implies marginal stability for unsupported and steep cut slopes**, particularly under rainfall infiltration. This aligns with stability considerations and earth pressure behaviour outlined in **IRC: SP:42** and **IRC: SP:48** for hill road environments.
- The absence of effective **surface interception drains, slope protection measures, and toe support** has allowed uncontrolled runoff to flow directly over the slope face, accelerating erosion. This condition is non-compliant with drainage and erosion-control recommendations of **IRC:56**, which emphasise interception of runoff and surface protection for exposed slopes.
- The laboratory-derived shear strength parameters are **suitable for use in earth pressure calculations and stability analysis** for the design of gabion walls and associated slope protection systems, in line with **MoRTH Specifications** and relevant IRC guidelines for flexible retaining and erosion-control structures.

6. Recommendations

The following measures are recommended to control soil erosion, strengthen hill-slope stability, and protect highway infrastructure along NH-5 at KM 58+850 and KM 58+700. These interventions have been formulated in accordance with **IRC: SP:48 (Hill Roads Manual), IRC:56 (Slope Erosion Control), IRC: SP:106 (Landslide Mitigation Guidelines), MoRTH specifications** for drainage and retaining structures, and applicable wildlife-corridor protocols governing works in ecologically sensitive areas:

6.1 For NH-5 at (Ch. KM 58+850)

Based on the field observations, laboratory test results, and overall slope geometry at **NH-5 Chainage KM 58+850**, where the **total cut slope height is approximately 18 m above the existing breast wall**, the following stabilisation and mitigation measures are recommended to ensure long-term stability and erosion control.

(I) Toe Stabilisation Using Gabion Wall:

A **stepped gabion wall of 6.0 m height** is recommended as the primary toe-stabilisation measure to restrain downslope soil movement and prevent further toe erosion. The wall comprises **six tiers**

of 1.0 m-high gabion baskets, filled with angular hard rock, with a **base width of 4.0 m**, **vertical back face**, and a **stepped front face providing a horizontal setback of 0.33 m per tier from base to top**. The wall is **embedded 0.5 m below the existing ground level** to improve foundation stability and resistance against sliding and scour. This configuration enhances global stability, reduces overturning moments, and facilitates dissipation of runoff energy. The design is consistent with **MoRTH specifications and IRC: SP:116-2018**.

(II) Filter Provision Behind Gabion Wall:

To prevent migration of fine backfill material into the gabion voids and to ensure free drainage, a **polypropylene geotextile/filter layer** shall be provided along the **entire back face of the gabion wall**. This layer will function as a separator and drainage medium, reducing pore water pressure buildup behind the wall and mitigating internal erosion during intense rainfall events.

(III) Upper Slope Stabilisation Using Green Terramesh System:

For the slope portion above the **6.0 m high gabion wall**, a **green Terramesh reinforced soil slope system** is recommended for overall slope stabilisation and erosion control. The system shall comprise **PVC-coated double-twist steel wire mesh facing** integrated with **high-strength geogrid/mesh reinforcement tails** extending into the backfill at **regular vertical spacing (typically 0.6–1.0 m)**, with an **embedment length of about 0.6–0.7 times the slope height**. The reinforced slope shall be constructed at a **stable inclination of about 60°–70° to the horizontal**, using **free-draining granular backfill** conforming to MoRTH specifications. The facing shall be infilled with topsoil and treated with **hydroseeding/turfing using native grass species** to provide long-term surface protection. This system will **reduce lateral earth pressures on the gabion wall**, improve internal stability of the upper slope mass, and effectively control **rill and gully erosion**, in accordance with **IRC: SP:102, IRC: SP:116, and MoRTH guidelines**.

Table 3: Design Checks for 6.0 m High Stepped Gabion Wall (Toe Stabilisation)

Parameter	Symbol / Formula	Value	Remarks
Wall height	H	6.0 m	Stepped gabion wall
Base width	B	4.0 m	As per IRC: SP:116
Soil unit weight	γ	17 kN/m³	Backfill soil
Angle of internal friction	ϕ	39°	Direct shear test
Active earth pressure coefficient	$Ka = (1-\sin\phi)/(1+\sin\phi)$	0.228	Rankine theory
Total active earth pressure	$Pa = ½ \cdot Ka \cdot \gamma \cdot H^2$	≈ 70 kN/m	Horizontal component
Lever arm of Pa	da = H/3	2.0 m	From base
Overturning moment	Mo = Pa × da	140 kN·m/m	About toe

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Gabion unit weight	γg	20 kN/m³	Angular rock
Total gabion weight	Wg	381 kN/m	Self-weight
Centroid from toe	xg	2.36 m	Composite section
Resisting moment	Mr = Wg × xg	900 kN·m/m	About toe
Factor of Safety (Overturning)	FS_o = Mr / Mo	**6.43**	> 2.0 ✓
Coefficient of friction	μ	0.60	Granular foundation
Sliding resistance	μWg	229 kN/m	Base friction
Factor of Safety (Sliding)	FS_s = μWg / Pa	**3.27**	> 1.5 ✓
Resultant location from toe	xr = (Mr−Mo)/Wg	2.0 m	At centre
Eccentricity	e = B/2 − xr	0 m	Within middle third
Average bearing pressure	σavg = Wg/B	95.3 kPa	
Maximum bearing pressure	σmax	95.3 kPa	< 150 kPa ✓
Allowable bearing capacity	σallow	150 kPa	Soil

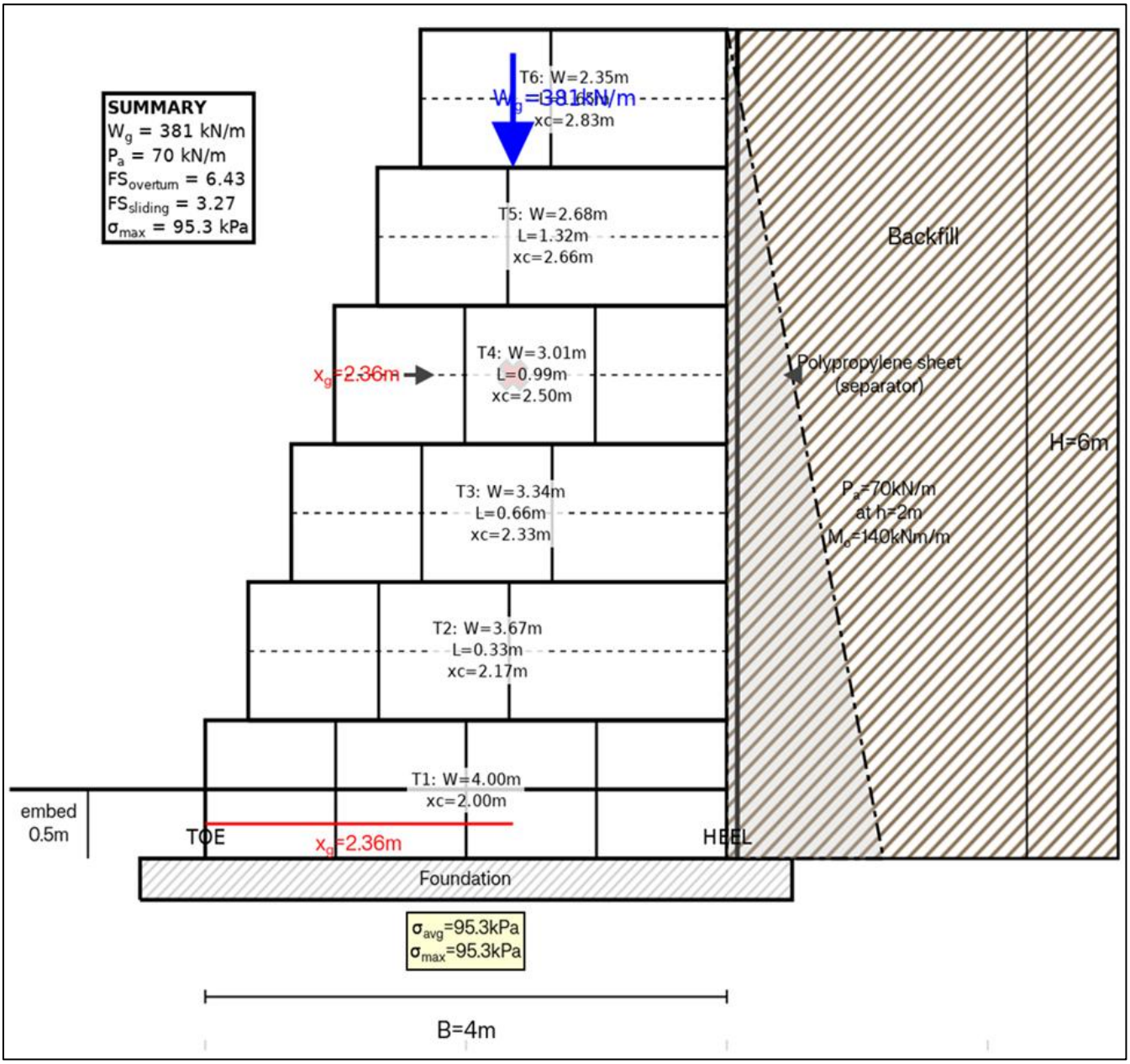


Figure 6: *Design cross-section of 6m height stepped gabion wall.*

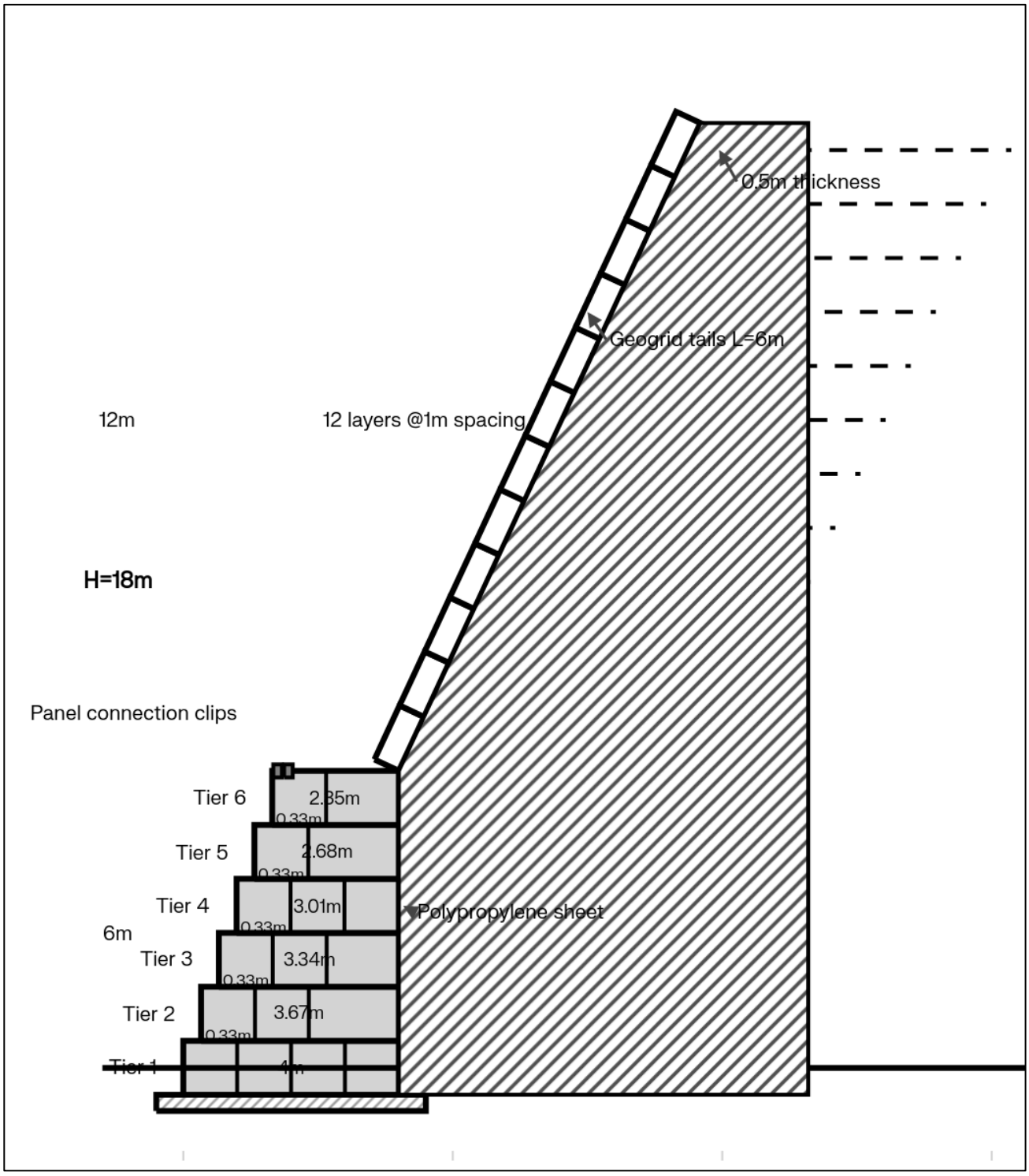


Figure 7: *Design cross-section of an 18 m hybrid wall with a backfill slope above the gabion wall.*

6.2 For NH-5 at (Ch. KM 58+700)

Based on field observations of **steep cut slopes, active gully erosion, and inadequate toe restraint** at Chainage **KM 58+700**, a **stone masonry breast wall** is recommended to stabilise the slope toe and prevent further movement of soil and debris towards the carriageway.

- A **stone masonry breast wall of 3.0 m total height** is proposed, comprising **2.6 m exposed height with 0.4 m embedment below ground level**, to improve resistance against sliding and local scour. The wall shall have a **base width of 1.8 m** and a **top width of 0.4 m**, with the **back face vertical** and the **front face battered (outward sloping)** to enhance structural stability and reduce overturning moments.
- The wall shall be constructed in **random rubble stone masonry in cement mortar**, conforming to **IS:14458 (Part 2)** and **MoRTH specifications** for retaining and breast walls in hill road conditions. The battered front face improves load transfer and overall wall efficiency, while the vertical back face facilitates proper backfill placement and compaction.
- **Adequate weep holes** shall be provided to relieve hydrostatic pressure behind the wall. The weep holes shall be spaced at **1.0 m horizontally and 0.8 m vertically**, and shall be backed with **granular filter media** to prevent clogging and loss of fines. In addition, **surface runoff from the uphill catchment shall be effectively intercepted and safely conveyed** through suitable drainage arrangements to minimise erosion of the retained slope and prevent water ingress behind the wall.

Table 4: Design Checks for 3.0 m High Stone Masonry Breast Wall

Parameter	Symbol / Formula	Value	Remarks
Total wall height	H	3.0 m (2.6 m exposed + 0.4 m embedment)	As proposed
Base width	B	1.80 m	Adequate for stability
Top width	t	0.40 m	As per design
Backfill unit weight	γ	17 kN/m³	Field & lab value
Angle of internal friction	ϕ	39°	Direct shear test
Active earth pressure coefficient	$Ka = (1-\sin\phi)/(1+\sin\phi)$	0.2275	Rankine theory
Total active earth pressure	$Pa = ½ \cdot Ka \cdot \gamma \cdot H^2$	17.40 kN/m	Horizontal thrust
Point of application of Pa	H/3	1.0 m	From base
Overturning moment	Mo = Pa × H/3	17.40 kN·m/m	About toe
Unit weight of masonry	γm	22 kN/m³	Stone masonry

Self-weight of wall	W	72.6 kN/m	Per metre length
Centroid from toe	$\bar{x}$	0.88 m	Trapezoidal section
Resisting moment	$Mr = W \times \bar{x}$	63.88 kN·m/m	About toe
Factor of Safety (Overturning)	$FS_o = Mr / Mo$	3.67	≥ 2.0 → Safe
Coefficient of friction	μ	0.50	Masonry on soil/rock
Sliding resistance	μW	36.3 kN/m	Base friction
Factor of Safety (Sliding)	$FS_s = \mu W / Pa$	2.09	≥ 1.5 → Safe
Resultant distance from toe	x	0.64 m	
Eccentricity	$e = B/2 - x$	0.26 m	
Middle third limit	B/6	0.30 m	e < B/6 → OK
Average bearing pressure	qavg = W/B	40.3 kN/m²	
Maximum bearing pressure (toe)	qmax	75.2 kN/m²	< SBC
Minimum bearing pressure (heel)	qmin	5.4 kN/m²	No tension
Safe bearing capacity	SBC	150–200 kN/m²	Hard soil/rock
Bearing safety	-	Safe	qmax ≪ SBC

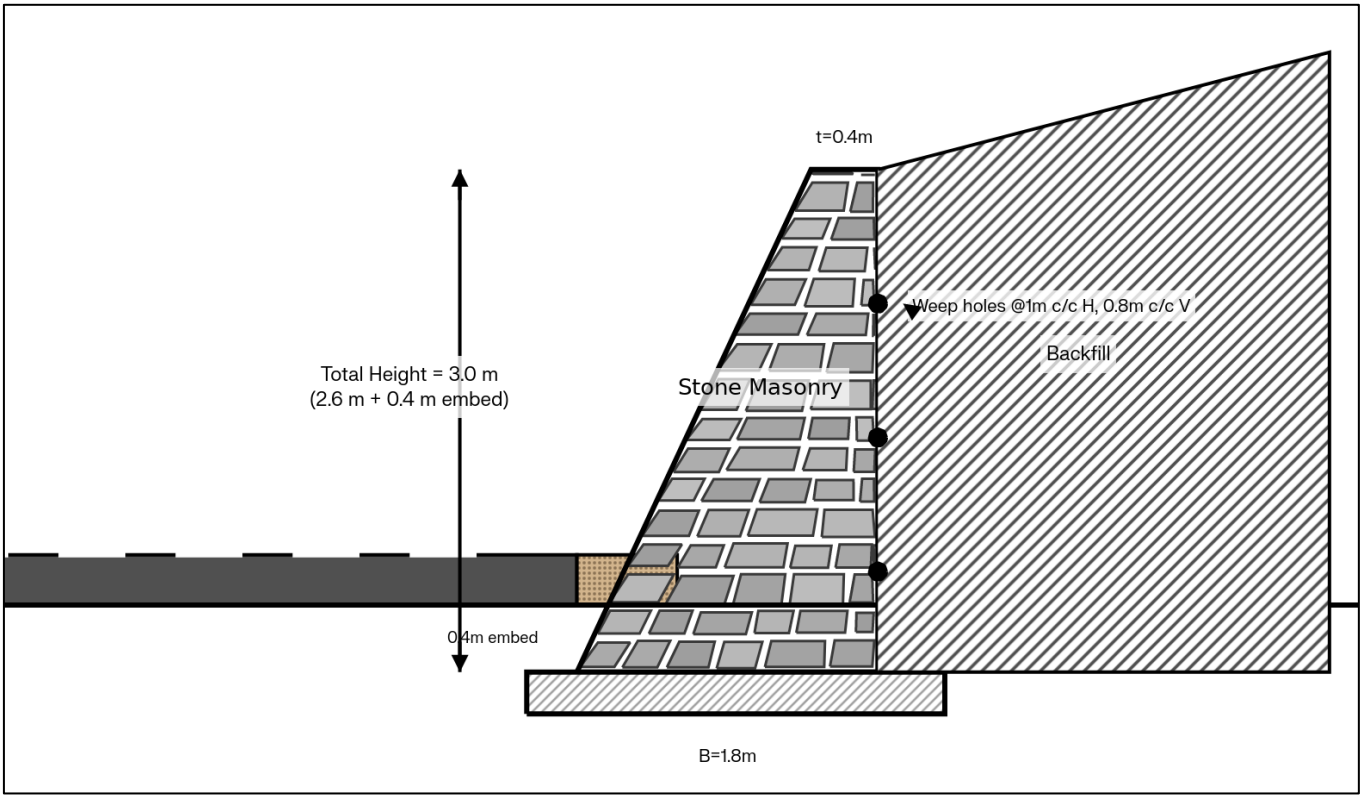


Figure 8: *Design cross-section of a 3 m masonry breast wall.*

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7. Preliminary Cost Estimate for Remedial Measures

Based on the detailed site inspection, laboratory testing, and engineering evaluation carried out at Chainages KM 58+850 and KM 58+700 along NH-5, a combination of gabion wall construction at the slope toe and Green Terramesh reinforced soil slope system for the upper slope has been recommended as a long-term remedial measure for controlling soil erosion and slope instability.

The preliminary cost estimate presented herein covers only the proposed gabion wall and Green Terramesh stabilisation measures, including associated foundation works, reinforcement, drainage, and erosion-control provisions. The estimate has been prepared using consolidated dimensional data derived from the proposed designs, supported by prevailing MoRTH/CPWD Schedule of Rates and Non-SoR items applicable to hill road protection works.

The cost components include site preparation works common to both systems, earthwork and levelling required for gabion foundation and Terramesh installation, PCC foundation for the gabion wall, construction of gabion wall units with stone filling, provision of geotextile filter layers behind the gabion wall and between Terramesh facing and backfill, installation of Green Terramesh facing units, placement of high-strength geogrid reinforcement within the reinforced soil zone, drainage arrangements to relieve pore water pressure, and bio-engineering measures for surface erosion control and vegetation establishment.

Table 5: Cost Estimate for Gabion wall and Green Terramesh Works

Bill of Quantities (BOQ)							
Name of work: Zirakpur- Parwanoo Section of NH-5 (Old NH-22) from KM 39.960 to KM 67+550 on BOT Basis in the States of Punjab, Haryana & Himachal Pradesh- Regarding Protection Work from CH- 58.800 to CH-58.850(LHS).							
Abstract Cost							
Sr No.	**HSR REF NO**	**Description**	**Unit**	**Quantity**	**Rate as per HSR**	**Rate as per HSR ecxulding GST**	**Amount (In Rs)**
1	**4.1**	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared. For 1. Gabbian Wall	SQM	500	7.00	6.30	**3,150.00**
2	**4.13.1**	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-in-charge. (Ordinary rock) for 1. Gabbian Wall	CUM	500.00	145.00	129.50	**64,750.00**
3	**6.1.2**	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 6.1.2 - 1:2:4 (1 cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 20 mm nominal size) for Retaining Wall/ Breast Wall	CUM	125.00	3892.00	3475.60	**4,34,450.00**
4	**35.13**	Gabian Structure for Erosion Control, River Training Works and Protection works Providing and constructing gabian structures for erosion control, river training works and protection works with wire crates of size 2 m x 1 m x 0.3 m each divided into 1m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 mm x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be securely tied with 4 mm galvanised steel wire.	CUM	950.00	3627.00	3238.90	**30,76,955.00**

5	**35.11**	Laying of a geotextile filter between pitching and embankment slopes on which pitching is laid to prevent escape of the embankment material through the voids of the stone pitching/cement c oncrete blocks as well as to allow free movement of water without creating any uplift head on the pitching.	SQM	900.00	151.00	134.80	**1,21,320.00**
6	**4.33**	Excavating, supplying and filling of local earth (including royalty) cum by mechanical transport up to a lead of 1 km also including ramming and watering of the earth in layers not exceeding 20 cm in trenches, plinth, sides of foundation etc. complete (for backfill of gabion wall and levelling the slope above the gabion wall)	CUM	2100.00	82.00	73.20	**1,53,720.00**
7	**4.4**	Surface dressing of the ground including removing vegetation and in-equalities not exceeding 15 cm deep and disposal of r ubbish, lead up to 50 m and lift up to 1.5 m (for 12m slope above gabion wall)	SQM	600.00	12.00	10.70	**6,420.00**
8	**NON HSR RATES TAKEN FROM (CPWD)**	**Green Terra Mesh instalment for (50m length & 12 m height)**					
		Supply & installation of Green Terramesh units of size 3 x 3x 0.8 m with biodegradable erosion control blanket and welded mesh panel and integrated tail as secondary reinforcement length 3m that is made of mechanically woven, double twisted, hexagonal shaped wire mesh, Mesh type 10x12, punch strength 25 Kn & tensile strength 40 Kn/m as per IS 16014:2018, having D=100mm with tolerance of +/-10%, wire dia ID/OD 2.7/3.7mm, Zinc+High abrasion resistance polymer coated, mechanically edged/selvedged and shall have minimum 10 numbers of mesh openings per meter of mesh perpendicular to twist, with partition at 1 m interval etc., Dark Brown rust not more than 5 % after subjecting to 10000 hours of neutral salt spray as per ISO 9227 and polymer should be resistant to abrasion after 300 cycles and shall not expose metal wire in accordance with the procedure described in ASTM A 975 complete as per detailed technical specifications attached and as directed by Engineer-in –Charge. (Size - 3 mx 3 m x 0.8 m)	NOS	265.00	8226.00	8226.00	**21,79,890.00**
		Supply and installation of Mactex N 30.2 polyester needle punched non woven geotextile as filter media behind Gabion/Reinforced soil wall, behind gabion fascia . The width of geotextile roll shall not be less than 4.5 m, at easily accessible location including top and bottom, with all leads and lifts, manpower and machinery, materials, labour etc. complete and as directed by Engineer - In - Charge.	SQM	708.37	128.00	128.00	**90,671.36**
		Supplying and laying Macdrain for use behind walls, between two different fills etc. having three dimensional composite with thermobonding a draining core having "N/W" configuration in extruded monofilaments of minimum thickness 8mm, with two filtering UV stabilized polypropylene nonwoven geotextile of minimum thickness of 0.75mm charactersitic opening size (O90) of 150 micron and tensile strength of 8.0 kN/m that will be working as separation or protecting layer, Geocomposite having in plane flow capacity of 2.1 L / (m.s) at hydraulic gradient of 1.0 & 20 kPa pressure and tensile strength of 28 kN/m, with mass per unit area of 1400 gsm, having minimum creep reduction factor of 1.15 for 100 years life at 100 kPa, at easily accessible location including top and bottom, with all leads and lifts, manpower and machinery, materials, labour etc. complete as per detailed technical specifications and as directed by Engineer - In - Charge.	SQM	660.00	986.95	986.95	**6,51,387.00**
		Supply and application of High Performance-Flexible Growth Medium (HP-FGM) which is100% biodegradable, composed of 100% recycled, thermally refined (within a pressurized vessel) virgin wood fibers, crimped interlocking biodegradable fibers, mineral activators, and wetting agents (including high-viscosity colloidal polysaccharides, crosslinked biopolymers and water absorbents) along with STANDARD prescriptive agronomic formulations such as fertilizer, extended-term dyes, soil pH modifiers, bio stimulant materials and seeds which is hydraulically-applied for Erosion control and faster growth of Vegetation including Supply and application of Biotic Soil Media (BSM) - a combination of recycled Thermally Refined bark and wood fibers with a proprietary blend of biopolymers, biochar, seaweed extract, humic acid, endomycorrhizae and other beneficial constituents. All components of the Biotic Soil Media blend shall be of naturally derived and renewable, and engineered to optimize moisture retention, growth and establishment of vegetation. BSM is applied hydraulically over soil substrate to add organic matter so as to enrich soil nutrients prior to application of HP-FGM or other hydraulic erosion control mulch layers. as per BSM specifications along with standard prescriptive agronomic formulations such as fertilizer, extended-term dyes, soil pH modifiers, bio stimulant materials, seeds etc as specified.	SQM	600.00	650.00	650.00	**3,90,000.00**
		Providing and installing subsurface drainage pipes behind the reinforced soil structure with perforated PVC pipe (lined with Non -woven Geotextile) of 160 mm internal diameter as per the drawings etc. complete and as directed by Engineer -In -Charge.	SQM	1281.13	540.00	540.00	**6,91,810.20**
9	**NON HSR**	Hydroseeding of slopes including binding material and mulching (including performance parameters as mentioned in technical specification), fertilizer and soil amendment products if required in technical defined medium, with supplying the mixture with 100 psi pressure pump on hill slopes on exposed surface.The end product shall form a blanket within 2 hours of application, and irrigation shall be maintained after 2 hours, including for the first month (watering 2–3 times per day after 24 hours of hydroseeding) or till proper establishment of grass and shrubs.	SQM	600.00	800.00	800.00	**4,80,000.00**
		TOTAL AMOUNT					**83,44,523.56**
		Add. 2% for Contigences and petty And unseen Items.					**1,66,890.47**
		Total amount (excluding GST)					**85,11,414.03**

***Note:** The estimate has been developed using consolidated chainage-wise dimensional data and benchmark unit rates derived from prevailing MoRTH/CPWD schedules and rates adopted in comparable hill-road stabilization projects. For specialized and proprietary items for which no standard Schedule of Rates is available in government documents, unit rates have been adopted based on budgetary quotations obtained from reputed manufacturers /suppliers. The costs presented are indicative and intended*

solely for planning and decision-making purposes, representing the likely expenditure required to address both immediate erosion control measures and long-term slope stability requirements. The estimate excludes GST and does not constitute a detailed design or tender-level cost, which may be refined further during subsequent stages of design development and tendering.

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