



**NATIONAL HIGHWAYS AUTHORITY OF INDIA
(MINISTRY OF ROAD TRANSPORT & HIGHWAYS, GOVT.OF INDIA)**

Name of the work: Annual Maintenance including Incident Management of Thoothukudi – Tiruchendur - Kanyakumari Road section from Km 0+000 to Km 119+700 of NH -32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis

(Tender No: NHAI/17011/01/151/2026/RO Madurai)

VOLUME - I

The Regional Officer,
National Highway Authority of India,
No.155/1C1B, 2nd & 3rd Floor,
Pandikoil Ring Road, Near Guru Hospital,
Uthangudi, Madurai-625107.
Phone: 0452-2588999

July - 2026

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(SECTION-I)
NOTICE INVITING TENDER

(E-TENDERING MODE ONLY)

National Highways Authority of India RO - Madurai

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

The National Highways Authority of India (NHAI) here by invites bids through “**e-tendering mode**” from experienced firms/organizations (here in after referred to as the “Bidders”) to bid for the works detailed in the table as mentioned below from the eligible bidders, excluding those firms who have been declared as non-per forming by NHAI or the firms those are black listed/debarred for a specified period by NHAI.

S. No.	Section	NH No.	Length in Km	State	Estimated Cost (Rs. in Lakh)
1	Annual Maintenance including Incident Management of Thoothukudi – Tiruchendur - Kanyakumari Road section from Km 0+000 to Km 119+700 of NH -32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis	NH-32 (SH176)	119.700	TamilNadu	1380.91 (Excluding GST)

Cost of Bid Documents (Non-Refundable): **Rs. 50,000/-**

E-Tender Processing Fee (Non-Refundable): **Nil.**

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

Bid Security (Rs. in lakh)	Average turnover during the last 3 years (Rs. in lakh) (Excluding GST)	Work of a similar nature during the last 7 years (Rs. in lakh) (Excluding GST)	Time period
27.62	414.27	Single work of Rs.1104.73 Lakh or Two works each of Rs.690.45 Lakh or Three works each of Rs.552.36	12 Months

The Scope of Work: As per BOQ and as per Section VI.

It is mandatory for all the bidders to have a class-III Digital Signature Certificate (With Both DSC Components, i.e. Signing & Encryption in the name of the 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.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 (<https://etenders.gov.in>) to have a user ID & Password. The detailed tender document can be viewed/downloaded/purchased from the website (<https://etenders.gov.in>) **from 21.07.2026 to 11.08.2026 (up to 11:00 Hrs IST).**

The complete bid documents can be viewed/downloaded from the E-Tender Portal - NIC (<https://etenders.gov.in>) or www.nhai.gov.in free of cost. To participate for bidding, bidder

has to pay a non-refundable fee of the tender document i.e. **Rs.50,000/-, through Online Mode Only** on or prior to the last date & time of submission of bid documents.

The Payment Should be made to:

Particulars	Details
Name of Beneficiary	National Highways Authority of India
Name of Bank	Canara Bank, Moondrumavadi, Madurai
Account No.	62093030000071
IFSC Code	CNRB0016209

The Bidder must upload Copy of Receipt (Indicating Reference No./Transaction ID) towards payment of cost of Bid document. 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. **However, Bidder must produce the originals of the Bid Security (EMD) viz., Bank Guarantee (along with SFMS Confirmation)/Demand Draft to this office on or before the bid due date.** The financial bid shall be opened online only of those bidders whose technical bid is found responsive.

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

The last date for submission of Bid in online is **11.08.2026 up to 11.00 Hrs IST.** (as mentioned on the e-portal only) ("Bid Due Date"). The bids would be opened on **12.08.2026 at 11.00 Hrs IST** online at **Regional Office, National Highways Authority of India, No.155/1C1B, 2nd & 3rd Floor, Pandikoil Ring Road, Near Guru Hospital, Uthangudi, Madurai – 625 107**, representatives of the bidders (maximum of two) who choose to attend, may attend the online opening of the bids at Regional Office, National Highways Authority of India, No.155/1C1B, 2nd & 3rd Floor, Pandikoil Ring Road, Near Guru Hospital, Uthangudi, Madurai– 625 107 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 letter of authority on the letterhead of the bidder, at the time of opening of bids as mentioned above.

Key Dates for download/view/submission/opening of bid.

Availability of Bid Documents (last date & time of sale of Bid documents):	At:- https://nhai.etenders.gov.in From 21.07.2026 to 11.08.2026 (up to 11.00 Hrs IST)
Last date & time of submission of e-bids (Bid due date):	Up to 11.08.2026 upto 11.00 Hrs IST
Last date & time of submission of earnest money in physical form	Up to 11.08.2026 upto 16.00 Hrs IST
The date & time of opening of bid online:	12.08.2026, @ 11.00 Hrs IST at RO-Madurai, No.155/1C1B, 2nd & 3rd Floor, Pandikoil Ring Road, Near Guru Hospital, Uthangudi, Madurai– 625 107.

1. It is clarified that, the bidders have to upload the details of the cost of the bid document, on or before the last date & time of sale of bid documents mentioned above on the e-tendering

portal, otherwise, it will not be possible for them to upload three-tender documents on the e-tendering portal. Bidders are advised to upload their bids well in time, to avoid last minutes rush on the server or complications in uploading. NHAI, in any case, will not be responsible for any type of problem in uploading the bid.

2. Submission of the Bids after the Bid Due date and time shall not be permitted. Time being display done e-tendering portal of NHAI ("Standard Time") shall be final and binding on Bidder. Bids are required to be submitted by Bidders, only as per the Standard Time and not the time as per their location/country.

3. The Bidders are advised to submit their Bids well before the Bid Due Date. The Authority shall not be responsible for any delay in submission of Bids for any reason including server and technical problems. NHAI reserves the right to accept or reject any or all Bids without assigning any reason thereof.

4. In case of any problem with the submission of the Bid, the Bidder may have the assistance of help desk or use the help manual given on the said website.

5. Following Three Independent External Monitors (IEMs) have been engaged by NHAI vide: NHAI/Policy Guidelines/Vigilance/2025, Policy Circular No. 5.13/2025 dated 19.08.2025;

- (i) Dr. Parvez Hayat, IPS (Retd.)
(Mobile: 9810134469) (Email: phayatips@gmail.com)
- (ii) Sh. Rajvir Singh, Ex. Addl. Dy. CAG, Indian Audit & Accounts Services (Retd.)
(Mobile: 8700466366) (Email: singhrajvir@cag.gov.in)
- (iii) Sh. Arun Kumar Gupta, Ex-CMD, Shipping Corporation of India.
(Mobile: 9833880764) (Email: guptaarun55@rediffmail.com)

6. For any clarification, the office of the undersigned may be contacted.

**The Regional Officer (Madurai),
National Highways Authority of India, Madurai Region,
No.155/1C1B, 2nd & 3rd Floor, Pandikoil Ring Road,
Near Guru Hospital, Uthangudi, Madurai - 625 107
Ph: 0452-2588999
E-mail:romadurai@nhai.org**

(SECTION-II)

**INSTRUCTIONS TO BIDDERS
& APPENDIX TO BID**

Section-II**Instructions to Bidders Table of Clauses**

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Section- II

Instructions to Bidders (ITB)

A. General

1. Scope of Bid

- 1.1 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/tendered, 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.

4. Qualification of the Bidder

- 4.1 Deleted
- 4.2 All bidders shall furnish the following information and documents with their bids in Section-3, Qualification Information.
 - (a) Scanned copies of original documents defining the constitution or legal status, place of registration, and principal place of business; scanned copy of form of Letter of Application as per formation Section-IV and other documents as per Section-III; scanned copy of the written power of attorney of the signatory of the Bid to commit the Bidder. (Refer Clause 12.2 of IT Band Section-III Qualification Information).
 - (b) Scanned copy of total monetary value of Civil Construction works performed for each of the last three years;
 - (c) Scanned copy of experience certificate in works of a similar nature and size for each of the last seven years with certificates from the concerned officer of the

rank of Executive Engineer or equivalent, clearly indicating date of start and date of completion. The experience certificate should be duly notarized.

- (d) Scanned copy of evidence of availability (either owned or leased or rented) of items of construction equipment named in Clause 4.4 B (b)(i).
- (e) Scanned copy of the CV of the technical personnel proposed to be employed for the Contract having the qualifications defined in Clause 4.4 B(b)(ii).
- (f) Scanned copy of reports on the financial standing of the Bidder, and a certificate from Chartered Accountant as a proof of turnover for the last three years;
- (g) Deleted
- (h) Deleted
- (i) Deleted
- (j) Scanned copy of information regarding any litigation or arbitration during the last five years in which the Bidder is involved, the parties concerned, the disputed amount, and the present status;
- (k) Deleted
- (l) Deleted.
- (m) **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 the details of the location(s) at which the local value addition is made. In case the 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.
- (n) Scanned copy of certificate regarding Compliance with Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017

4.3 Bids from joint ventures are not allowed.

4.4 A. To qualify for the award of the contract, each bidder in its name should have the following; -

- (a) *achieved an average annual financial turnover(in all classes of civil engineering construction works only) equal to the amount indicated in NIT during the last three years ending 31stMarch of the previous financial year duly certified by a Chartered Accountant.(Not withstanding anything to the contrary contained herein, in the event that the bid due date falls within three months of the closing of the latest financial years, it shall ignore such financial*

year for the purpose of the bid and furnish annual financial turnover w.r.t. 3 years preceding in last financial year).

- (b) satisfactorily completed (not less than 90% of contract value), as a prime contractor (or as a nominated/approved sub contractor, provided further that all other qualification criteria are satisfied) similar works during last seven years ending last day of month previous to the one in which bids are invited, either of the following:
- i. Three similar completed works costing not less than an amount equal to each of **Rs.552.36 lakh** (Excluding GST)
 - ii. Two similar completed works costing not less than an amount equal to each of **Rs.690.45 lakh** (Excluding GST).
 - iii. One similar completed work costing not less than an amount equal to **Rs.1104.73 lakh** (Excluding GST).

(The similar work constitutes experience in Operation and Maintenance / Construction of 2/4/6 lane highway)

(Escalation factors under shall be used to bring the value of such completed works to the level of current financial year i.e., 2026-27) Escalation factor (for the cost of works completed during the last 7 years & financial figures required for the calculation of bid capacity) may be taken as follows:

Year before	Multiplying Factor
One	1.10
Two	1.21
Three	1.33
Four	1.46
Five	1.61
Six.....	1.77
Seven.....	1.95

The work may have been executed by the bidders as prime contractor or as a nominated/approved sub-contractor. The similar work constitutes experience in the Operation and Maintenance /Construction of 2/4/6 lane highway.

- (c) Deleted
- (d) Deleted
- (e) Deleted

4.4 B (a) Each bidder must produce:

- (i) An affidavit on a Stamp Paper, duly attested from the Notary Public, that the information furnished with the bid documents is correct in all respects; and

- (ii) Such other certificates as defined in Section-III.
- (iii) 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 RFP. 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 RFP. 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 RFP.
- 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.

In addition to this Public Procurement (Preference to Make in India), Order 2017 -Revision dated 19.07.2024 will be applicable. Format attached as **Annexure-I**.

- (iv) Certificate regarding Compliance with Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017 as per Format attached. Format attached as **Annexure-II**.
- (v) **Failure to submit the certificates/documents as specified above at (i), (ii), (iii) and (iv) shall make the bid “Non-responsive”.**

(b) Each bidder must demonstrate:

- (i) Evidence of availability (either owned or leased or rented) of the key equipment for this work as stated in the Appendix to ITB and as per Form in Section III.
- (ii) Availability for this work of personnel with qualification & experience as stated in the Appendix to ITB.
- (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 RFP.

'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.

In addition to this Public Procurement (Preference to Make in India), Order 2017 -Revision dated 19.07.2024 will be applicable. Format attached as Annexure-I.

(c) Deleted

(d) Failure to demonstrate the certificates as specified above at (i), (ii) and (iii) may make the bid **Non-responsive**.

4.4. C Deleted

- 4.5 Sub-Contractors' experience and resources shall not be taken into account in determining the bidder's compliance with the qualifying criteria.
- 4.6 Bidders who meet the minimum qualification criteria will be qualified only if their available bid capacity is more than the total bid value. The available bid capacity will be calculated as under:

Assessed Available Bid capacity= (A* N*2.5-B)

Where,

A = Maximum value of civil engineering works executed in any one year during the last three years (escalation factor as specified in this section shall be used to bring the maximum value of civil engineering works to the level of current financial year i.e. 2026-27) taking in to account the completed as well as works in progress.

N = Number of years prescribed for completion of the works for which bid is invited.
(1 year)

B = Value (updated to the price level of the year indicated in table below under note) of existing commitments, works **for which the Appointed Date/Commencement Date has been declared, or on-going works** to be completed during the period of completion of the works (12 Months) for which bid is invited. For the Sake of

clarification, it is mentioned that works for which LOA has been issued but Appointed Date/Commencement Date not declared as on Bid Due Date shall not be considered while calculating value of B.

Note: The Statement showing the value of all existing commitments, works for which Appointed Date / Commencement Date has been declared or on-going works as well as the stipulated period of completion remaining for each of the works listed should be counter signed by the Client or its Engineer-in-charge not below the rank of Executive Engineer or equivalent or Concessionaire/Authorized of SPV in respect of BOT Projects and verified by Statutory Auditor. The factors for updation of the value of civil engineering works to the price level of the year are indicated as mentioned in Section II, ITB - 4.4 A (b).

- 4.7 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.

7. Site Visit

The Bidder, at his own cost, responsibility, and risk, is encouraged to visit, examine and familiarize himself with the Site of Works and its surroundings including source of earth, water, road aggregates etc. and obtain all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense. He may contact the **Project Director, Project Implementation Unit, Tuticorin, Tuticorin - Tirunelveli NH-138, Thattaparaivillaku, Pudukottai P.O, Tuticorin – 628103** in this regard.

B. Bidding Documents (Online)

8. Content of Bidding Documents

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

Volume-I:

- i. Notice Inviting Tender
- ii. Instructions to Bidders & Appendix to Bid
- iii. Qualification Information
- iv. Forms of Bank Guarantee, Agreement, LOA, POA & Integrity Pact
- v. Conditions of Contract & Contract Data
- vi. Scope of work
- vii. Technical Specifications
- viii. Special Conditions of Contract
- ix. 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. If anywhere in the bid document there is mismatch, the above said condition will be applicable.

8.2 Deleted

- 8.3** The bidder is expected to examine carefully all instructions, conditions of 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 26 hereof, bids, which are not substantially responsive to the requirements of the Bid Documents, shall be rejected.

9. Clarifications on Bid Documents

- 9.1** 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 10 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.

9.2.1 Deleted**9.2.2 Deleted**

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

- 9.2.4** 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 website. Any modifications of the bid documents as per clause 10, 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 10 and not through the minutes of the pre-bid meeting.

9.2.5 Deleted

10. Amendment of Bidding Documents

- 10.1 Before the deadline for submission of bids, the Employer may modify the bidding documents by issuing an addenda/corrigendum.
- 10.2 Any addendum thus issued shall be part of the bidding documents and shall be hosted on website of NHAI e-tendering portal.
- 10.3 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 20.2.

C. Preparation of Bids

11. Language of Bid

- 11.1 All documents relating to the Bid shall be in English.

12. Documents Comprising the Bid

- 12.1 The e-bid submitted by the bidder shall be in two separate parts. Part-I This shall be named Technical Bid and shall comprise of information submitted in section-III. Part-II It shall be named Financial Bid and shall comprise of (i) Priced bill of quantities.

12.2 Documents to be submitted online

The two parts of the proposal (Technical bid & Financial bid) must be submitted through online mode only, with all pages numbered serially along with an index of submission as per procedure under e-tendering. Physical submission of the bid shall not be accepted.

The scanned copies of the following documents are required to be uploaded during submission of e-bid on the tendering portal of NHAI, as per clause 12.1 above.

- a) Earnest Money/Bid Security in accordance with Clause 16
 - b) Proof of submission for Bid Document Fee (Online Mode)
 - c) Original Written Power of Attorney of the signatory (whose digital signature certificate is used during e-tender submission) of the bidder to commit the bid
 - d) Original Affidavit duly notarized and undertaking (format enclosed in Section-IV)
 - e) Information to be submitted in Section III
 - f) Integrity Pact.
- 12.3 The following documents, which are not submitted with the bid, will be deemed to be part of the bid.

Section	Particulars
1	Notice Inviting Tender
2	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
-

13. Bid Prices

- 13.1 The Contract shall be for the whole Works, as described in Clause 1.1 based on the priced Bill of Quantities submitted by the Bidder.
- 13.2 The bidder shall quote bid prices on appropriate format enclosed as part of tender document on e-tender portal of NHAI. 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.

- 13.3 All duties, taxes (except GST), royalties and other levies payable by the Contractor under the Contractor for any other cause, shall be included in the rates, prices, and total Bid price submitted by the Bidder. Nothing extra shall be payable on this account except GST which shall be payable at the applicable rates. The GST shall be reimbursed (if applicable) subject to production of proof of such payment by the contractor specific to the subject work.
- 13.4 The rates and prices quoted by the Bidder are subject to adjustment during the performance of the contract in accordance with the provisions of Clause 43 of the Conditions of Contract (**no adjustment on any account will be admissible for contracts up to 12 months period**).

14. Currencies of Bid and Payment

- 14.1 The unit rates given in the BOQ is in Indian Rupees. All payments shall be made in Indian Rupees.

15. Bid Validity

- 15.1 Bids shall remain valid for a period of **165 days** after the deadline date for bid submission specified in Clause 20. A bid valid for a shorter period shall be rejected by the Employer as non-responsive.
- 15.2 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 16 in all respects

16. Earnest Money/ Bid Security/Forfeiture/Debarment

- 16.1 The Bidder shall furnish, as part of the Bid, Earnest Money/Bid Security, in the amount

as specified in the NIT. (Bank Guarantee (Physical/ e-BG)/ Demand Draft must be in favour of National Highways Authority of India).The Bidder shall furnish as part of its BID, a BID Security in the form of Insurance Surety as Bond (issued by Insurance Company authorized by Insurance Regulatory and Development Authority of India) in the form set forth in Section IV (for Form of Bank Guarantee for Bid Security, Form of Surety Bond for Bid Security, Form of Bank Guarantee for Performance Security/ Additional Performance Security, Form of Surety Bond for Performance Security/ Additional Performance Security) , 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 nationalised 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 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 nationalised bank in India is required. For the avoidance of doubt, Scheduled Bank shall mean a bank as defined under Section 2(e) of the Reserve Bank of India Act, 1934. 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-tender portal while applying to the tender

16.2 Deleted

16.3 Any bid not accompanied by an acceptable Earnest Money/Bid Security, shall be rejected by the Employer **as non-responsive**.

16.4 The Earnest Money of unsuccessful bidders will be returned within 28 days of the end of the Bid validity period specified in Sub-Clause 15.1.

16.5 The Earnest Money of the successful Bidder will be discharged when the Bidder has signed the Agreement and furnished the required Performance Security.

16.6 The Bid Security/Earnest Money will be forfeited:

- a) if the Bidder withdraws the Bid after its submission during the period of Bid validity;
- b) if the Bidder does not accept the correction of the bid price, pursuant to Clause 27; or
- c) in the case of a successful Bidder, if the Bidder fails within the specified time limit to:
 - i. Sign the Agreement; and/or
 - ii. Furnish the required Performance Security.

16.7 In case of forfeiture of bid security, the bidder shall also be debarred from participation in NHAI works for a period as decided by NHAI.

17. Alternative Proposals by Bidders

- 17.1 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.

18. Format and Signing of Bid

- 18.1 The Bidder shall submit e-bid comprising of the documents as described in Clause 12 of the ITB.
- 18.2 DELETED.
- 18.3 DELETED.

D. Submission of Bids**19. Marking of Bids**

- 19.1 The documents to be submitted in Online Mode should be as per clause 12.2 of ITB
- 19.2 DELETED.
- 19.3 DELETED.
- 19.4 DELETED.
- 19.5 DELETED.

20. Deadline for Submission of Bids

- 20.1 Complete E-Bid to be uploaded on NHA e-tender portal before due date & time.
- 20.2 The Employer may extend the deadline for submission of bids by issuing amendment in accordance with Clause 10, 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.

21. DELETED**21.1 DELETED****22. Modification and Withdrawal of Bids**

- 22.1 Bidders may modify or withdraw their e-bids before the deadline prescribed in Clause 20.
- 22.2 DELETED.
- 22.3 No bid may be modified after the deadline for submission of Bids.
- 22.4 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 15.1 above or as extended pursuant to Clause 15.2 shall result in the forfeiture of the Bid Security pursuant to Clause 16.
- 22.5 Bidders may modify the prices of their Bids before deadline of submission of bid.

E. Bid Opening and Evaluation**23. Bid Opening**

Bid opening shall be carried out in two stages. Firstly, 'Technical Bid' of all the bids received (except those received late) shall be opened on the date and time mentioned.' Financial Bid' of those bidders whose technical bid has been determined to be substantially responsible shall be opened on a subsequent date through online process of e-tendering, which will be notified to such bidders.

- 23.1 The Employer will open the "Technical 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.

23.1.1 DELETED

23.1.2 DELETED

- 23.2 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.

- 23.3 The Employer will prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Clause 23.1.

- 23.4 (i) The bids accompanied with valid Bid Security Declaration, 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 12.1.

(ii) Deleted

(iii) Deleted

(iv) As soon as possible, the Evaluation Committee will finalize the list of responsive bidders whose financial bids are eligible for consideration. However, to assist in the examination, evaluation of technical bids, the Employer may at his discretion, ask any bidder for clarification of his bid, however, no additional documents in support of clarification will be entertained.

(v) Bidders shall have to submit Originals of all documents as mentioned in Clause 12.2 after declaration of bid evaluation result by Authority.

(vi) Bidder failing to submit the Original Documents as mentioned in Clause 12.2 shall be unconditionally debarred from bidding in NHAI projects for a period of 5 years.

- 23.5 The Employer shall inform the bidders, whose technical bids are found responsive, of the date, time and place of opening of the financial bids. The bidders so informed, or their representative, may attend the meeting of opening of financial bids.

- 23.6 At the time of the opening of the 'Financial Bid', the names of the bidders whose bids were found responsive in accordance with clause 23.5 will be announced. The financial

bids of only these bidders will be opened. The responsive bidders' names, the Bid prices, the total amount of each bid, pursuant to clause 22 and such other details as the Employer may consider appropriate will be announced by the Employer at the time of bid opening. Any Bid price, which is not read out and recorded, will not be taken into account in Bid Evaluation.

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

24. Process to be Confidential

24.1 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.

25. Clarification of Bids and Contacting the Employer

25.1. 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 27.

25.2 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.

25.3 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**.

26. Examination of Bids and Determination of Responsiveness

26.1 During the detailed evaluation of "Technical Bids", the Employer will determine whether each Bid

(a) Meets the eligibility criteria defined in Clauses 3 and 4;

(b) The required documents uploaded by the bidder are in order; and

(c) Is substantially responsive to the requirements of the bidding documents. During the detailed evaluation of the "Financial Bids", the responsiveness of the bids will be further determined with respect to the remaining bid conditions, i.e., priced bill of quantities, technical specifications and drawings etc.

26.2 DELETED.

26.3 DELETED.

27. Correction of Errors

- 27.1 Financial Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:
- a) Where there is a discrepancy between the rates in figures and in words, the rate in words will govern
- 27.2 The amount stated in the Financial Bid will be corrected by the Employer in accordance with the above procedure for the correction of errors and shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount, the Bid will be rejected, and the Bid Security shall be forfeited in accordance with Sub-Clause 16.6

28. Evaluation and Comparison of Financial Bids

- 28.1 The Employer will evaluate and compare only the bids determined to be substantially responsive in accordance with Clause 26.
- 28.2 In evaluating the bids, the Employer will determine for each Bid the evaluated Bid price by adjusting the Bid price after making any correction for errors pursuant to Clause 27;
- 28.3 If the Bid of the successful Bidder is seriously unbalanced in relation to the Engineer's/Employer's estimate of the cost of work of whole work or cost of one or more items to be performed under the contract, the Employer may require the Bidder to produce detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Employer may require that the amount of the performance security set forth in Clause 33 be increased and an additional performance security may be obtained at the expense of the successful Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract. The amount of the additional increased performance security as decided by the Employer shall be final, binding and conclusive on the bidder.
- 28.4 A bid, which contains several items in the Bill of Quantities which are unrealistically priced low and which cannot be substantiated satisfactorily by the bidder, may be rejected as **non-responsive**.

29. Price Preference

- 29.1 Deleted

F. Award of Contract**30. Award Criteria**

- 30.1 Subject to Clause 32, the Employer will award the Contract to the Bidder whose Bid has been determined:
- i. To be substantially responsive to the bidding documents and who has offered the lowest evaluated Bid price.
 - ii. 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' sanction.

32. Notification of Award and Signing of Agreement

- 32.1 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 in the Part I *General Conditions of Contract* 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 (i) Within 10 (ten) days of receipt of Letter of Acceptance, the successful 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 10% (ten 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 an irrevocable and unconditional Bank Guarantee (including e-Bank Guarantee) only from a Bank in the same form given at Appendix-VII (the "Additional Performance Security") for an amount calculated as under:

If the Bid Price offered by the Selected Bidder is lower than 15% of the Estimated Cost, the Successful Bidder shall be required to furnish Additional Performance Security (APS) equivalent to the Percentage by which the Bid is below 15% of the estimated cost, i.e., (% below bid - 15%) x Quoted Bid Price, in addition to the prescribed Performance Security.

ii) This Additional Performance Security shall be treated as part of Performance Security.

iii) Release of Additional Performance Security:

a) 25% of the Additional Performance Security shall be released after issue of Completion Certificate provided the Project is completed as per the scheduled time of completion including grace period as per Contract, if any, without any EOT. If the Project is not completed as per the scheduled date of completion without any EOT, 25% of the Additional Performance security shall be released along with Para (b) below.

b) 25% of the Additional Performance Security shall be released one year after issue of Completion Certificate provided Stretch is meeting the norms as per the contract in terms of Pavement Quality Index (PCI)/ International Roughness Index (IRI) in the independent NSV survey of the Ministry/ NHAI for which OM No. RW/G-23012/01/2019-W&A (Part -V)) dated 21.05.2026 may be referred.

c) Remaining 50% of the Additional Performance Security shall be released after successful completion of the Defects Liability Period.

d) If the stretch fails to meet the norms of Pavement Quality Index (PCI)/International Roughness Index (IRI) as per the Contract in any biannual assessment starting from Completion Certificate in the Independent NSV Survey of the Ministry/NHAI, Non-refundable Penalty @5% of the Additional Performance Security shall be levied for each such failure.

Note: The successful Bidder shall ensure that the Performance Security and/or Additional Performance Security shall be submitted by the successful Bidder only and the same shall not be issued on behalf of the successful 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 Deleted.

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 16.7.

34. **Advances**

34.1 Deleted.

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.

- 36. Preference to Make in India Order 2017-Revision dated 16.09.2020 will be applicable.

Appendix to ITB**(4.4. B) (b) (i) The key equipment to be deployed on contract work.**

Appendix to ITB		
(4.4.B) (b) (i)	The key equipment to be deployed	
Name of the Equipment	Quantity	Age (in years)
Patrol Vehicle	2	2
Crane of 20-tonne capacity	2	2
Dozer 80HP	1	5
Motor Grader 3.35m	1	5
Air Compressor (250 cfm Capacity)	2	5
Vibratory Roller (8 tones)	1	5
Emulsion Prerssure Distributer (min.1750sqm/hr)	1	5
Mechanical Broomer with VTS	3	2
Brush cutter	10	2
Road Marking machine	2	5
Reflectometer for measuring the reflectivity of thermoplasticpaint/signboards	3	5
Excavator	2	5
Tree Cutting machine	1	2
Generator 250 KVA	2	5
Cutting & Welding machine	3	2
Water Tanker (5000 liters Capacity)	3	5
Tractor with Trolley	2	5
Tipper (10 Tonne Capacity)	2	5
Front End Loader (0.6 cum. Bucket capacity)	2	5
Kerb Casting Machine	1	5
Sensor Paver Finisher (min.9m width)	1	5

Note: The bidder must produce 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 equipments with the company/entity from whom the equipment are proposed to be hired on lease/rent.

B (b) (ii) The Number of Technical Personnel, Qualifications and Experience will be as follows:

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

Note: The detailed and signed CV's along with relevant Experience certificate 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 him self, must be furnished along with the bid as per proforma given below. Non-compliance 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 a financial bid may not be opened.

Format of Curriculum Vitae (CV) For Proposed Key Staff

Photo

1. Proposed Position: _____
2. Name of Staff: _____

3. Date of Birth: _____ (Please furnish proof of age)
4. Nationality: _____
5. Educational Qualification:
(Summarize college/university and other specialized education of staff member, giving names of schools, dates attended and degrees obtained).
(Please furnish proof of qualification)
Contact Address with Phone and mobile numbers:
6. Membership of Professional Societies: _____
7. Publication:
(List of details of major technical reports/papers published in recognized national and international journals)
8. Employment Record:
(Starting with present position, list in reversed order and every employment held. List all positions held by staff member since graduation, giving dates, names of employing organization, title of positions held and location of assignments. For experience *period of specific assignment must be clearly mentioned*, also give client references, where appropriate).
9. Summary of the CV
(Furnish a summary of the above CV. The information in the summary shall be precise and accurate. The information in the summary will have bearing on the evaluation of the CV).
 - A) Education:
 - i) Field of Diploma/Graduation and year
 - ii) Field of post-graduation and year
 - iii) Any other specific qualification
 - B) Experience
 - i) Total experience in highways: _____ Yrs
 - ii) Responsibilities held:
 - i) Yrs.
 - ii) Yrs.
 - iii) Yrs.
 - iii) Relevant Experience: _____ Yrs.

- C) Permanent Employment with the Firm (Yes/No):
If yes, how many years:
If no, what is the employment?
Arrangement with the firm?

Certification:

- 1 *I am willing to work on the project and I will be available for entire duration of the project assignment and I will not engage myself in any other assignment during the currency of this assignment on the project*
- 2 I, the undersigned, certify that to the best of my knowledge and belief, this bio-data correctly describes myself my qualifications and my experience.

Signature of the Candidate_____

Place:_____

Date:_____

Signature of the Authorized Representative of
the firm_____

Place

Date

Note: Each page of the CV shall be signed in ink by both the staff member and the Authorized Representative of the firm.

Annexure - I

(on the letter head of the bidder)

Self Certificate towards Local Content

To,

The Regional Officer (Madurai)
National Highways Authority of India
Madurai Region,
No.155/1C1B, 2nd & 3rd Floor,
Pandikoil Ring Road, Near Guru Hospital,
Uthangudi, Madurai - 625 107.

Sub: Name of Work:

Dear Sir,

With reference to your Bid document dated *** **\$, I/we, (Name of bidder...), having examined the Bidding Documents and understood their contents, hereby certified that the items offered in our Bid meets the local content requirement for

(a) 'Class-I local supplier' contributing minimum local content 50%.

(OR)

(b) 'Class-II local supplier' contributing minimum local content 20%.

(OR)

(c) 'Non Local supplier' contributing local content less than 20%.

(*Please strike out whichever is not applicable)

'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 custom duties) as a proportion of the total value, in percent.

Detailsoflocations(s) at with the local value addition is made is as follows:

S.No.	Description(Items)	Percentageoflocalcontent	Locations

Date:

Place:

Yoursfaithfully,

(Signature of the Authorized signatory)

(Name and designation of the of the Authorised signatory)

Name and seal of Bidder

Note:

{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.}

Annexure – II
(on the letter head of the bidder)

**Certificate regarding Compliance with Restrictions under Rule 144 (xi) of the
General Financial Rules (GFRs), 2017**

To,

The Regional Officer (Madurai)
National Highways Authority of India
Madurai Region,
No.155/1C1B, 2nd & 3rd Floor,
Pandikoil Ring Road, Near Guru Hospital,
Uthangudi, Madurai - 625 107.

Sub: BID for ***** Project.

Dear Sir,

With reference to your RFP document dated *** **\$, I/we, having examined the Bidding Documents and under stood their contents, hereby undertake and confirm as follows:

I/We have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries;

I certify that this Bidder is not from such a country or, if from such a country, has been registered with the Competent Authority as defined in Public Procurement Order No. F.No.6/18/2019-PPD dated 23rd July 2020s and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority.

I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered.

Yours faithfully,

Date:

Place:

(Signature of the Authorized Signatory)
(Name and designation of the Authorized Signatory)
Name and seal of Bidder/Lead Member

Notes:

{Where applicable, evidence of valid registration by the Competent Authority shall be attached}. In case the above certification is found to be false, this would be a ground for immediate rejection of Bid / termination and further legal action in accordance with law.

SECTION-III

QUALIFICATION INFORMATION

(To be Filled by Bidder)

SECTION - III

QUALIFICATION INFORMATION

The information to be filled in by the Bidder in this section on E-portal & Scanned Copies of documents to be submitted online will be used for the purposes of post qualification as provided for in Clause 4 of the Instructions to Bidders.

Qualification Information**1. For Individual Bidders**

- (a) Year of Constitution
- (b) Legal status of Bidder (Proprietorship/Partnership or Pvt. Ltd. firm)

[Upload scanned copy of original]

- (c) Place of registration:

- (d) Principal place of business:

Power of attorney of signatory of Bid *[Upload scanned copy & also supply its Original Copy in an envelope of physical form]*

1.3. Total value of Civil Engineering construction

Work performed in the last three years (in Rs. Lakhs) refer ITB Clause 4.4A (a)
(Upload scanned copies of certificate from Chartered Accountant & also supply original certificate from Chartered Accountant)

2023-2024

2024-2025

2025-2026

Total _____

Average per year

1.4 (a) Work performed as prime contractor, work performed in the past as a nominated/approved subcontractor, provided further that all other qualification criteria are satisfied (in the same name) of a similar nature during the last seven years as per ITB Clause 4.4A (b).

Project Name	Name of the Employer*	Description Of work	Contract No.	Value of Contract (Rs. Crore)	Date of issue of work order	Stipulate the period of Completion	Actual date of completion *	Remarks explaining the reasons for delay & work Completed

** Upload certificate(s) from the Employer (to be given by an officer at the rank of Executive Engineer or equivalent)*

Note: In case of nominated/approved sub-contractor, a certificate from the Executive Engineer or equivalent of the Prime Employer should be obtained from whom an approval for sub-contractor has been obtained.

1.4(b) Information on Bid Capacity (works for which bids have been submitted and accepted and works which are yet to be completed) as on the date 7 days before the last date for bid submission (as per Cl 4.6 of the ITB).

(i) Existing commitments and ongoing works(B)

Description of works	Place & State	Contract No.	Name & Address of Employer	Value of Contract (Rs. Cr)	Stipulated Period of Completion	Value of works* remaining to be completed in the next N years (Rs. Cr)	Escalation factor	Anticipated Date of completion	Escalated value of remaining work during completion period of work for Which bids are invited
1	2	3	4	5	6	7	8	9	10

* Upload certificate (s) from the Engineer(s)-in-Charge of the rank of Executive Engineer or equivalent.

- (ii) Details of works for which bid was submitted and accepted (i.e. where contract signing is pending)

Description of works	Place & State	Name & Address of Employer	Date of issue of Letter of Acceptance (LOA) *	Value is given in LOA	Stipulated period for completion	Value of work during the completion period of work for which bids Are Invited
1	2	3	4	5	6	7

* Upload copy of LOA

- (iii) Bid Capacity (Bidder shall calculate, mention his bid capacity and enclose the supporting calculation)

A = Rs..... lakh (enclose the details)

N = 1 year

B = Rs..... lakh (enclose the details)

Assessed Available Bid capacity = $(A \times N \times 2.5 - B)$

- 1.5. Availability of Key Equipment essential for carrying out the Works [Ref. Clause 4.4(B) (b) (i)]. The Bidder should list all the information requested below.

Item of Equipment	Requirement		Availability Proposals		Page No of the proof attached.
	No.	Capacity	Owned/Leased Rented	Nos./ Capacity	

Note: The bidder must upload 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.

- 1.6 Qualification and Experience of Key Personnel required for administration and execution of the Contract [Ref.Clause 4.4(B) (b)(ii)]. Upload biographical data for technical personnel (Refer also to Cl. 4.2(e) of Instruction to Bidders).

(Refer also to Sub Clause 9.1 of the Conditions of Contract).

Position	Name	Qualification	Total Professional Experience (Years)	Experience in the proposed position (Years)

Note: The detailed and signed CVs of all the Key Technical Personnel, signed by the key personnel himself, must be uploaded along with the bid as per Performa given in Appendix to ITB. Non-compliance 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.

1.7. Information on litigation history in which the Bidder is involved.

Other Party (ies)	Employer	Cause of Dispute	Amount involved	Remarks showing Present Status

2. Bidders should upload the scanned copy of the following affidavits/undertakings as per formats enclosed here in after & also send original copy of Affidavit:-

- (i) Affidavit (it should be on stamp paper attested by Notary Public)
- (ii) Undertaking regarding minimum investment of cash flow towards working capital.
- (iii) Undertaking that the Bids shall remain valid for the period specified in Clause 15.1 of the ITB—165 Days.
- (iv) Letter of Application as per format in Section-IV

AFFIDAVIT

(it should be on stamp paper attested by Notary Public)

1. I, the undersigned, do hereby certify that all the statements and documents made in the enclosed attachments are true and correct.
2. The undersigned also here by certifies that neither our firm M/s _____ have abandoned any work on National Highways in India nor any contract awarded to us for such works have been rescinded, during last five years prior to the date of this bid.
3. The undersigned hereby authorize(s) and request(s) any bank, person, firm or corporation to furnish pertinent information deemed necessary and requested by NHAI to verify this statement or regarding my (our) competence and general reputation.
4. The undersigned understands and agrees that further qualifying information may be requested, and agrees to furnish any such information at the request of the NHAI and with in the prescribed time.

(Signed by an Authorized Representative of the Firm)

Name of the Representative

Name of Firm

DATE

To be notarized by Notary

UNDERTAKING

I, the under signed do hereby undertake that our firm M/s _____ Would invest 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 **165 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.

(On the letterhead of the bidder)

Appendix 1.7 [Ref. clause 4.4 B (b) (i)]

Undertaking

I, the undersigned do hereby undertake that our firm M/s..... agree to provide and will deploy required equipment as mentioned in the Appendix to ITB of the work..... further it is certified that the documents submitted as an evidence of availability of the key equipment for this work as stated in the Appendix to ITB, are genuine and correct. If anything contrary to the details as submitted is found at any stage NHAI would be at liberty to debar/black list my firm for an appropriate period as decided by NHAI.

(Signed by an Authorized Representative of the Firm)

Name of the Representative

Name of Firm

(Seal of the company)

Date

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

(SECTION-IV)

**FORMS OF BANK GUARANTEES
LOA & AGREEMENT**

Form of Bank Guarantee for BID Security

(Refer Clauses 16.1)

B.G. No.

Dated:

1. In consideration of you, National Highways Authority of India, having its office at RO-Madurai, No.155/1C1B, 2nd& 3rd Floor, Pandikoil Ring Road, Near Guru Hospital, Uthangudi, Madurai – 625 107, (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 RFP 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-II (ITB) of the RFP Document, 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. *** crore (Rupees *** ** crore 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 Madurai, 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 there under 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:

Particulars	Details
Name of Beneficiary	National Highways Authority of India
Name of Bank	Canara Bank, Moondrumavadi, Madurai
Account No.	62093030000071
IFSC Code	CNRB0016209

Signed and Delivered by Bank

By the hand of Mr./Ms, its and authorized official.

(Signature of the Authorised Signatory)

(Official-Seal)

Form of Surety Bond for BID Security
(Refer Clauses 16.1)

S.B. No.

Dated:

1. In consideration of you, National Highways Authority of India, having its office at RO-Madurai, No.155/1C1B, 2nd& 3rd Floor, Pandikoil Ring Road, Near Guru Hospital, Uthangudi, Madurai – 625 107, (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 (and acting on behalf of its Consortium) (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 concession / contract Agreement (hereinafter collectively referred to as “Bidding Documents”), we (Name of the Surety Insurer) having our registered office at and one of its branches at (hereinafter referred to as the “Surety Insurer”), at the request of the Bidder, do hereby in terms of Clause 17.1 of Section-II 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 “Surety Bond”) 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 Surety Insurer.
3. We, the Surety Insurer, do hereby unconditionally undertake to pay the amounts due and payable under this Surety Bond 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 Surety Insurer under this Surety Bond. However, our liability under this Surety Bond shall be restricted to an amount not exceeding Rs. *** ** (Rupees *** ** only).

4. This Surety Bond 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 Surety Insurer, and shall continue to be enforceable till all amounts under this Surety Bond have been paid.
5. We, the Surety Insurer, 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 Surety Bond shall not be affected by any change in the constitution or winding up of the Bidder or the Surety Insurer or any absorption, merger or amalgamation of the Bidder or the Surety Insurer with any other person.
7. In order to give full effect to this Surety Bond, the Authority shall be entitled to treat the Surety Insurer as the principal debtor. The Authority shall have the fullest liberty without affecting in any way the liability of the Surety Insurer under this Surety Bond 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 Surety Insurer 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 Surety Insurer from its such liability.
8. Any notice by way of request, demand or otherwise hereunder shall be sufficiently given in writing or made if addressed to the Surety Insurer and sent by courier or by registered post or by certified e-mail to the Surety Insurer at the address or e-mail set forth herein.
9. We undertake to make the payment on receipt of your notice of claim on us addressed to [name of Surety Insurer along with branch address] and delivered at our above branch who shall be deemed to have been duly Authorized 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 Surety Insurer and the Surety Bond herein contained shall be enforceable against the Surety Insurer, 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 Surety Insurer hereunder, be outstanding or unrealised.
11. We, the Surety Insurer, further undertake not to revoke this Surety Bond during its currency except with the previous express consent of the Authority in writing.
12. The Surety Insurer declares that it has power to issue this Surety Bond and discharge the obligations contemplated herein, the undersigned is duly Authorized and has full power to execute this Surety Bond for and on behalf of the Surety Insurer.
13. For the avoidance of doubt, the Surety Insurer's liability under this Surety Bond shall be restricted to Rs. *** crore (Rupees *** ** crore only). The Surety Insurer shall be liable to pay the said amount or any part thereof only if the Authority serves a written claim on the Surety Insurer in accordance with paragraph 9 hereof, on or before [*** (indicate date falling 180 days after the BID Due Date)].
14. This Surety Bond shall also be operatable at our..... Branch at Madurai, from whom, confirmation regarding the issue of this Surety Bond or extension / renewal thereof shall be made available on demand. In the contingency of this Surety Bond being invoked and payment hereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.
15. The Insurance Surety Bond shall be verified from the specific portal created for this purpose.

Signed and Delivered by Company

By the hand of Mr./Ms, its and authorized official.

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

FORM OF BANK GUARANTEE
[Performance Security/Additional Performance Security]

To

The Regional Officer,
National Highways Authority of India,
Regional Office – Madurai,
No.155/1C1B, 2nd & 3rd Floor, Pandikoil Ring Road,
Near Guru Hospital, Uthangudi, Madurai – 625 107.

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 an {Performance Security/Additional Performance Security} for due and faithful performance of its obligations, under and in accordance with the Contract, during the {Construction Period/ Defects Liability Period and Maintenance Period} in a sum of Rs..... cr. (Rupees crore) (the “**Guarantee Amount**”²).

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

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

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor’s obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with the Contract, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums 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 the 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.

²Guarantee 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 herein before, 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 for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Contract.
12. This Guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No.758, except that the supporting statement under Article 15(a) is hereby excluded.
13. This guarantee shall also be operatable at our..... Branch at Madurai, 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 there under 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:

Particulars	Details
Name of Beneficiary	National Highways Authority of India
Name of Bank	Canara Bank, Moondrumavadi, Madurai
Account No.	62093030000071
IFSC Code	CNRB0016209

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 SURETY BOND
[Performance Security/Additional Performance Security]

To

The Regional Officer,
National Highways Authority of India,
Regional Office – Madurai,
No.155/1C1B, 2nd& 3rd Floor, Pandikoil Ring Road,
Near Guru Hospital, Uthangudi, Madurai – 625 107.

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]** (herein after called the “Contract”).

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

AND WHEREAS we, through our branch at (the “**Surety Insurer**”) have agreed to furnish this Surety Bond by way of Performance Security.

NOW, THEREFORE, the **Surety Insurer** hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The **Surety Insurer** hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor’s obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with the Contract, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the **Surety Bond 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.

¹ Surety Bond Amount for Performance Security and Additional Performance Security shall be calculated as per Contract.

2. A letter from the Authority, under the hand of an officer not below the rank of the 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 Surety Insurer. The Surety Insurer 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 Surety Insurer, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Surety Bond, the Authority shall be entitled to act as if the Surety Insurer were the principal debtor and any change in the constitution of the Contractor and/or the Surety Insurer, 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 Surety Insurer under this Surety Bond.
4. It shall not be necessary, and the Surety Insurer hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Surety Insurer its demand under this Surety Bond.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Surety Insurer under this Surety Bond, 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 Surety Insurer 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 Surety Insurer from its liability and obligation under this Surety Bond and the Surety Insurer hereby waives all of its rights under any such law.
6. This Surety Bond is in addition to and not in substitution of any other Surety Bond 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 Surety Insurer under this Surety Bond is restricted to the Surety Bond Amount and this Surety Bond 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 Surety Insurer under this Surety Bond all rights of the Authority under this Surety Bond shall be forfeited and the Surety Insurer shall be relieved from its liabilities hereunder.
8. The Surety Bond shall cease to be in force and effect on ****\$. Unless¹ a demand or claim under this Surety Bond is made in writing before expiry of the Surety Bond, the Surety Insurer shall be discharged from its liabilities hereunder.
9. The Surety Insurer undertakes not to revoke this Surety Bond 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 Surety Bond and the undersigned has full powers to do so on behalf of the Surety Insurer.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Surety Insurer 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 Surety Bond shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Contract.
12. This Surety Bond 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 Madurai, 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 there under claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.
14. The Insurance Surety Bond shall be verified from the specific portal created for this purpose.

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

The Regional Officer (Madurai),
National Highways Authority of India, Madurai Region,
No.155/1C1B, 2nd & 3rd Floor, Pandikoil Ring Road,
Uthangudi, Madurai – 625107.
Phone: 0452-2588999
Email: romadurai@nhai.org

DESCRIPTION OF WORKS:

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.

Thankingyou,

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. 33.2 of ITB for an amount equivalent to Rs (Rupees in words.....) within 10 days as per provisions of clause 33.1 of ITB of the bid document and sign the contract agreement failing which the actions as stipulated in clause 33.3 of ITB shall be taken.

Thank you,

Yours faithfully,

(.....)
Regional Officer

FORM OF AGREEMENT

This agreement made the _____ day of _____
_____ 20____ between the National
Highways Authority of India, (herein after 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 "OFFER") 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 a bid 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 herein after 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,
 - (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. 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, RO- Madurai.

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

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Section V

Conditions of Contract

A. General

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 contract 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.

4. Engineer's Decisions

4.1 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:

- a. the sub-contracting of any part of the Works for which the Sub-Contractor is named in the Contract;

- b. the provision of labour or labour component.
- c. 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 Contract or 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 the 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 the 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 work men as fully as if they were the acts, defaults or neglects of the Contractor, his agents and workmen.

7.4 The Engineer should satisfy himself before recommending to the Employer whether

- a) The circumstances warrant such subcontracting; and
- b) The sub-Contractors 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.

7.5 In the event any sub-contract for Works, or the aggregate of such sub-contracts with any Sub-contractor, the Contractor shall communicate the name and particulars, including the relevant experience of the Sub-contractor, to the Authority prior to entering into any such sub-contract. The Authority shall examine the particulars of the Sub-contractor from the national security and public interest perspective and approve the sub-contract to the Contractor.

7.6 In the event any sub-contract referred to in Clause 7.5 relates to a Sub-contractor who has, over the preceding 3 (three) years, not undertaken at least one work of a similar nature with a contract value exceeding 40% (forty per cent) of the value of the sub-contract to be awarded hereunder, and received payments in respect thereof for an amount equal to at least such 40% (forty per cent).

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 Engineer 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 the Project Manager and Rs 25,000/- in case of other key personnel will be imposed up to 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 the Project Manager will be approved by NHAI, Regional Officer, Madurai.

9.2 If the Engineer asks the Contractor to remove a person who is a member of the Contractor's staff or workforce, 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 radio active 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 CAR Policy, 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:

- a) loss of or damage to the Works, Plant and Materials;
- b) loss of or damage to Equipment;
- c) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and
- d) 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.

13.3 If the Contractor does not provide any of the policies and certificates required, the Employer may affect 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.

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

13.5 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 Regional Office** 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 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:

- a. The Engineer
- b. 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

25.1 Dispute Resolution

25.1.1 In the event of any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the "Dispute") shall, in the first instance, be attempted to be resolved amicably.

25.1.2 The Parties agree to use their best efforts for resolving all Disputes arising under or in respect of this Agreement promptly, equitably and in good faith, and further agree to provide each other with reasonable access during normal business hours to all non-privileged records, information and data pertaining to any Dispute.

25.2 Escalation of Dispute

In the event of any Dispute(s) between the Parties remains unresolved within 30 (thirty) days of the notice in writing referred to in Clause 25.1.1 or such longer period as may be mutually agreed by the Parties, either Party may refer the Dispute to Arbitration or Conciliation in accordance with the provisions of Clause 25.3.

25.3 Arbitration, Conciliation and Adjudication of Dispute

25.3.1 Any Dispute between the Parties the sum of which is of value less than Rupees 10 Crores which remains unresolved between the Parties through the mechanisms available/ prescribed in the Agreement, which has not been agreed upon/ reached settlement by the Parties, will be referred either to SAROD, (a Society registered under Society's Act, 1860 vide Registration no. S/RS/SW1049/2013) duly represented by Government/ Authority and National Highways Builders Federation (NHBF) or to India International Arbitration Centre ("IIAC").

25.3.1.1 The appointment of Tribunal, Code of conduct for Arbitrators and fees and expenses of SAROD/IIAC and the Arbitral Tribunal shall also be governed by the Rules of SAROD as amended from time to time or the India International Arbitration Centre Act 2019 and the regulations framed thereunder as amended from time to time. The rules of SAROD are placed at Annex-I.

25.3.1.2 Subject to the provisions of The Limitation Act, 1963, as amended from time to time, 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.

25.3.1.3 The venue of Arbitration shall be New Delhi, or a place selected by governing body of SAROD or IIAC, as the case may be, and the language for all documents and communications between the Parties shall be English.

25.3.1.4 Each Party shall bear its own costs and expenses incurred in connection with the arbitral proceedings.

25.3.1.5 The arbitrators. shall make a reasoned award (the "Award"). Any Award made in any arbitration held pursuant to this Article / 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.

25.3.1.6 The Contractor and the Authority agree that the Award may be enforced against the Contractor and/or the Authority, as the case may be, and their respective assets wherever situated.

25.3.2 Any Dispute between the Parties, the sum of which is of value Rupees 10 Crores or above, which remains unresolved between the Parties through the mechanisms available or prescribed in the Agreement, which has not been agreed upon/ reached settlement by the Parties, will be resolved by Conciliation as per the Arbitration and Conciliation Act, 1996.

25.3.3 The Contractor and the Authority agree that the Award or a settlement agreement may be enforced against the Contractor and/or the Authority, as the case may be, and their respective assets wherever situated.

25.3.4 This Agreement and the rights and obligations of the Parties shall remain in full force and effect, pending the Award in any Arbitration hereunder. Further the Parties unconditionally acknowledge and agree that notwithstanding any Dispute between them, each Party shall proceed with the performance of its respective obligations, pending resolution of Dispute in accordance with this Article.

25.3.5 This provision relating to Conciliation under the Arbitration and Conciliation Act, 1996 shall cease to apply once the provisions relating to substitution of conciliation process by mediation are notified under Mediation Act, 2023, Thereafter "Conciliation" herein be referred to as Mediation as per the provisions of the Mediation Act 2023.

25.3.6 Notwithstanding anything to the contrary contained in the Agreement, it is agreed that any Dispute between the Parties the sum of which is of value equal to or above Rupees 10 Crores shall not be referred to Arbitration. It is further agreed that all declaratory disputes or non-monetary disputes shall not be referred to Arbitration. For the avoidance of doubt, it is clarified that nothing herein shall prevent the Parties from seeking resolution of such Disputes through civil courts.

26. Deleted

B. Time Control

27. Programme

27.2 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.

27.3 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.

27.4 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.

27.5 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

- 28.2 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.
- 28.3 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

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

30. Management Meetings

- 30.2 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.
- 30.3 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**

- 31.2 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

- 32.2 The contractor shall be solely responsible for:
- Carrying out the mandatory tests prescribed in the technical specifications forming part of contract.
 - For the correctness of the test results, whether performed in his laboratory or elsewhere.
 - The Authority may engage third party for testing of executed items. The payment for the same would be made by the Authority.

32.3 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.

32.4 Subject to further condition in contract data

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

33.2 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.

33.3 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

34.2 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.

34.3 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

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

35.3 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.

35.4 Changes in the Quantities

Deleted

36. Variations

- 36.1 All variations shall be included in updated programmes produced by the Contractor. Variation if any, arises will be submitted to employer for approval.

37. Payments for Variations

- 37.2 If rates for Variation items are specified in the Bill of Quantities, the Contractor shall carry out such work at the same rate.
- 37.3 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. If the rates are not specified in the bill of quantities but are available in SOR of State Public Works department/SDB, the Engineer shall derive the rates for such variation items at the rates of SOR/SDB reduced/increased in the same proportion as per discount/premium quoted by the contractor and if it cannot be derived from similar item in Bill of Quantities or from SOR of State Public Works department/SDB, then the rate will be derived as per Clause 37.3. The decision of the employer in determination of rates for variations shall be final and binding on the contractor.
- 37.4 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

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

39. Payment Certificates

- 39.2 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.
- 39.3 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.
- 39.4 The value of work executed shall be determined based on measurements by the Engineer.
- 39.5 The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.
- 39.6 The value of work executed shall also include the valuation of Variations and Compensation Events.
- 39.7 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 detailed justification acceptable to the Employer.

- 39.8 The final bill shall be submitted by the contractor within one month of the actual date of completion of the work; otherwise, the Engineer's 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 as far as possible.

40. Payments

- 40.2 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 has certified within 14 days of the date of each certificate.

40.3 Deleted

40.4 Deleted.

41. Compensation Events

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

- a) The Employer modifies the Schedule of other contractors in a way which affects the work of the contractor under the Contract.
- b) The Engineer orders a delay or does not issue drawings, specifications or instructions required for execution of works in reasonable time
- c) The Engineer instructs the Contractor to uncover or to carry out additional tests upon work which is then found to have no defects.
- d) The Engineer gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.
- e) 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.
- f) The effect on the Contractor of any of the Employer's Risks.

- 41.3 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.

- 41.4 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

42.2 The rates quoted by the Contractor shall be deemed to be inclusive of Sales and other levies, duties, royalties, cess, toll, taxes (excluding GST and labour cess which shall be payable at applicable rates) of Central and State Governments, 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.

42.3 All payments will be made in Indian Rupees.

43. Price Adjustment

DELETED

44. Security Deposit/Retention Money

44.2 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.

44.3 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.

44.4 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

45.2 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.

45.3 If the Intended Completion Date is extended after liquidated damages have been paid, the Engineer shall correct any over payment 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

DELETED

47. Securities

- 47.2 Subject to further condition in contract data, the **Performance Security equal to Ten Percent (10%) of the Contract Price** and additional security for unbalanced bids 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 and the additional Performance Security for the unbalanced bids shall be valid until date 28 days from the date of issue of certificate of completion. 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 within 3 months 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:
- a) the Contractor stops work for 28 days when no stop page of work is shown on the current Programme and the stoppage has not been authorized by the Engineer;
 - b) the Contractor is declared as bankrupt or goes into liquidation other than for approved reconstitution or amalgamation;
 - c) 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 (not more than specified for each BOQ item);
 - d) the Contractor does not maintain a Security, which is required;
 - e) 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;
 - f) the Contractor fails to provide insurance cover as required under clause 13;
 - g) If the Contractor, in the judgment 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);
 - h) "**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;
 - i) If the Contractor fails to setup a field laboratory with the prescribed

equipment, within the period specified; and

j) Any other fundamental breach as specified in the Contract Data.

53.3 Without pre judice 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 4/6-laning or PBMC of the highway or any such administrative decision by giving one 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 03 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 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 what so ever on this account". In case, contract is foreclosed after the expiry of 3 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 there under, 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) **Work men's 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:
 - i. Pension or family pension on retirees mentor death as the case may be.
 - ii. Deposit-linked insurance on the death in harness of the worker.
 - iii. 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 schedule deployment.
- 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 Work men'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
- p) Housing accommodations for workers near the workplace etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.
- q) **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 for plant employed thereon, except those permitted under clause 59.1, 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

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2. Definitions
3. Notice, Calculation of Periods of Time
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5. Response by Respondent
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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/I044/2013. It has been formed by National Highways Authority of India (NHA) 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

- 1.1 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 amendment takes 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".
- 1.2 These rules shall come into effect from the day of approval by Governing Body of SAROD.

Rule 2-Definitions

- 2.1 These Rules shall be referred to as **"the SAROD Arbitration Rules"**.
- 2.2 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.
"NHA" 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 With out 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:
 - a. a request that the dispute be referred to arbitration;
 - b. the names, addresses, telephone numbers, fax numbers and email addresses of the parties to the dispute;
 - c. 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;
 - d. a reference to the contract out of which the dispute arises and provide a copy of the contract where possible;

- e. a brief statement describing the nature and circumstances of the dispute;
 - f. the relief or remedy sought, including the amount of claim if quantifiable at the time the Notice of Arbitration is filed;
 - g. a proposal as to the number of arbitrators (i.e. one or three), if the parties have not previously agreed on the number; and
 - h. The name of the Claimant's nominated arbitrator.
- 4.2 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

- 5.1 Within 14 days of receipt to 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.
- 5.2 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.
- 5.3 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

- 6.1 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 along with all documents to be relied upon by the Claimant.
- 6.2 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) along with all documents to be relied upon by the Respondent.
- 6.3 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 Claimant's reply and if necessary, defense to counterclaim.
- 6.4 No further case statements may be filed without the leave of the Tribunal or, if Tribunal has not been appointed, the Secretary.
- 6.5 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,

- 6.6 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

- 7.1 The case statements must contain the detailed particulars of the party's claim, defense or counterclaim and must thus contain a comprehensive statement of the facts and contentions of laws up porting the party's position.
- 7.2 It must:
- a. Set out all item sofre lies for other remedies sought together with the amount of all quantifiable claims and detailed calculations.
 - b. Statefully its reasons for denying any allegation or statement of the other party.
 - c. Statefully its own version of events if a party intend stop ut forward a version of events different from that given by the other party.
- 7.3 A case statement must be signed by or on behalf of the party making it.

Rule 8- Default in Filing and Serving Case Statements

- 8.1 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.
- 8.2 It the Respondent fails to submit a Statement of Respondent's Defense, the Tribunal may never the less proceed with the arbitration and make the award.

Rule 9- Further Written Statements

- 9.1 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.
- 9.2 All such further statements must be given to the Tribunal, filed with the Secretary and served on the Claimantor Respondent, which ever is applicable.

Rule 10-SAROD to Provide Assistance

- 10.1 At the request of the Tribunal or either party, the Secretary will tender such assistance as is required for the conduct of the arbitration, including arranging for facilities, and suitable accommodation for sittings of the Tribunal, secret arial 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

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

- 11.2 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.
- 11.3 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 Counter claim (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,
- 11.4 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.
- 11.5 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

- 12.1 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.
- 12.2 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

- 13.1 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

- 14.1 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.
- 14.2 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.
- 14.3 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 noble conduct. The code of conduct prescribed by the Governing Body has to be adopted.

Appointment

- 15.1 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,
- 15.2 In this code, the masculine includes the feminine.

Disclosure

- 15.3 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 through out the arbitral proceedings with regard to new facts and circumstances.
- 15.4 A prospective arbitrator shall disclose to the Secretary and any party who approaches him for a possible appointment:
- (a) 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;
 - (b) The extent of any prior knowledge he may have of the dispute.

Bias

- 15.5 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.
- 15.6 Any close personal relationship or current director in direct 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

- 15.7 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.
- 15.8 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.
- 15.9 Throughout the arbitral proceedings, an arbitrator shall avoid any unilateral communications regarding the case with any party, or its representatives.

Fees

- 15.10 In accepting an appointment, an arbitrator agrees to the remuneration as prescribed in the rules of SAROD, and he shall make 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

- 15.11 Once the arbitration proceedings commence, the arbitrators 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

- 15.12 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.
- 15.13 This Code is not intended to provide grounds for the setting aside of any award.

Rule 16-Challenge of Arbitrators

- 16.1 An arbitrator may be challenged if there are circumstances that give rise to justifiable doubts as to his impartiality or independence and also if he or she has committed any misconduct.
- 16.2 An arbitrator may also be challenged if he does not possess the qualifications required by the agreement of the parties,
- 16.3 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.
- 16.4 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.
- 16.5 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.
- 16.6 The Notice of Challenge must state the reasons for the challenge.
- 16.7 The arbitration shall be suspended until the challenge is resolved or decided upon.
- 16.8 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

- 17.1 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.
- 17.2 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

- 18.1 The Governing Body may on the application of a party remove an arbitrator:
- a. Who is physically or mentally incapable of conducting the proceedings or where there are justifiable doubts as to his ability to do so; or
 - b. Who has refused or failed to use all reasonable dispatch in conducting the arbitration or making an award.
 - c. Who has continuously absented from attending the proceedings for more than 3 sittings without prior permission of Presiding Arbitrator/Governing Body of SAROD.
- 18.2 The arbitrator(s) concerned is entitled to appear and be heard at the hearing of the application to remove him.
- 18.3 Upon the removal of the arbitrator, a substitute arbitrator shall be appointed in accordance with Rule 11 read with Rule 13.
- 18.4 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

- 20.1 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.
- 20.2 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.

- 20.3 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.
- 20.4 In addition to the jurisdiction to exercise the powers defined else where in these Rules, the Tribunal shall have jurisdiction to determine any question of law arising in the arbitration; proceed with the arbitration not with standing 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 fixed by 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

- 22.1 The Secretary shall, as soon as practicable transmit to the Tribunal, a file containing the Notice of Arbitration, the Response and all case statements.
- 22.2 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

- 23.1 Unless otherwise agreed by the parties, the judicial seat of arbitration shall be New Delhi.
- 23.2 Not with standing Rule 22.1 and 22.2, the Tribunal may, unless otherwise agreed by the parties, hold hearings and meetings any where 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 5 PM with a recess of one hour.

Rule 26-Communication between Parties and the Tribunal

- 26.1 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.
- 26.2 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 all other parties, whichever is applicable, and show to the Tribunal that the same has been so copied.
- 26.3 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 anytime notify the Tribunal and the other party or parties, which ever is applicable.
- 26.4 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

- 28.1 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 or alsubmissions.
- 28.2 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 there in, admission and denial of documents, visit/inspection of site if any. The tribunal shall stick to the time table without any deviations unless there are unavoidable circumstances warranting such deviation which will be with the prior permission of the tribunal.
- 28.3 Prior to the hearing, the Tribunal may provide the Parties with matters or questions to which it wishes them to give special consideration.
- 28.4 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.
- 28.5 All meetings and hearing shall be in private unless the parties agree otherwise.

Rule 29-Documents Only Arbitration

- 29.1 The Disputes may be decided without an oral hearing if it is so agreed by the parties.
- 29.2.1 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, at a later stage, the parties or either of them intends to apply for an oral hearing.

- 29.2.2 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

- 30.1 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.
- 30.2 No party shall call any expert witness without the leave of the Tribunal.
- 30.3 Any witness who gives evidence may be questioned by each party or its representative subject to any rulings made by the Tribunal,
- 30.4 A Witness may be required by the Tribunal to testify under oath or affirmation.
- 30.5 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,
- 30.6 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,
- 30.7 The Tribunal shall determine the admissibility, relevance, materiality and weight of the evidence given by any witness.

Rule 31-Experts Appointed by the Tribunal

- 31.1 Unless otherwise agreed by the parties, the Tribunal may:
- Appoint one or more experts to report the Tribunal on specific issues;
 - 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.
- 31.2 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.
- 31.3 Rule 30.2 shall not apply to an assessor or 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,

- 32.1 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

- 33.1 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.
- 33.2 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

- 34.1 In addition to the powers conferred by the Act, the Tribunal shall also have the power to:-
- a. Allow any party, upon such terms (as to costs and otherwise) as it shall determine, to amend claims or counterclaims;
 - b. Extend or abbreviate any time limits provided by these Rules;
 - c. Conduct such enquires as may appear to the Tribunal to be necessary or expedient;
 - d. Order the parties to make any property or thing available for inspection
 - e. 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;
 - f. Make orders or give directions to any party for interrogatories;
 - g. Make orders or give directions to any party for an interim injunction or any other interim measure;
 - h. Make such 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 such law which is applicable or these Rules.
- 34.2 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

- 35.1 The Tribunal's fees and SAROD administration fees shall be as ascertained in accordance with the Schedule of Fees in Force at the time of commencement of the arbitration.
- 35.2 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.
- 35.3 Where the amount of the claim or the counter claim 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 off.

- 35.4 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.
- 35.5 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.
- 35.6 If a party fails to make the payments or deposits required or directed, the Tribunal may refuse to hear the claims or counter claims, which ever is applicable, by the non-complying party, although it may proceed to determine claims or counter claims by any party who has complied with orders.
- 35.7 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

- 36.1 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.
- 36.2 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.
- 36.3 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

- 37.1 It will be mandatory for the parties to submit written synopsis of their arguments respectively which will form part of the arbitral proceedings.
- 37.2 The Tribunal shall assemble at the assigned place in SAROD and shall exercise utmost secrecy and confidentiality in writing the award,
- 37.3 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.
- 37.4 The Tribunal may make interim awards or separate awards on different issues at different times.
- 37.5 All Awards must be submitted by the Tribunal to the Secretary and they shall be issued through the Secretary.

- 37.6 The Tribunal must deliver to the Secretary number of originals of the award sufficient for the parties and for filing with the Secretary.
- 37.7 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.
- 37.8 By agreeing to have arbitration under these Rules, the parties undertake to carryout the award without delay.
- 37.9 Stamp duty on award shall be payable by the party in whose favor the award has been pronounced.

Rule 38 - Additional Award

- 38.1 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.
- 38.2 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 an additional award, and complete the additional award within 30 days after the receipt of the request.

Rule 39 - Correction of Awards

- 39.1 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.
- 39.2 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.
- 39.3 The Tribunal may correct any error of the type referred to in Rule 37.1 on its own initiative within 30 days of the date of the Award.

Rule 40-Settlement

- 40.1 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.
- 40.2 The Parties shall:
- a. Notify the Tribunal and the Secretary immediately if the arbitration is settled or otherwise terminated:
 - b. 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.

- 40.3 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.
- 40.4 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 State 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

- 42.1 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 become.
- 42.2 In this Rule, “costs of the arbitration” shall include:
- a. 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;
 - b. The costs of tribunal-appointed experts or of other assistance rendered; and
 - c. All expenses which are reasonably incurred by the SAROD in connection with the arbitration.
- 42.3 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

- 44.1 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,
- 44.2 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

- 45.1 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.
- 45.2 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

1.1 Items marked “N/A” do not apply in this Contract.

1. The Employer is [Cl.1.1]
Chairman, National Highways Authority of India (NHAI)
Acting through Regional Officer, NHAI, Madurai.
Address: No.155/1C1B, 2nd & 3rd Floor, Pandikoil Ring Road,
Near Guru Hospital, Uthangudi, Madurai-625107.

Name of authorized Representative: (**Project Director, PIU, Tuticorin**)

The Engineer is: M/s. SA Infrastructure Consultants Private Limited.

Association Varad Associates.

Address: Tuticorin.

If Any changes to the Engineer will be intimated in due course.

[Cl.1.1]

2. The Intended Completion Date for the whole of the Works is 12 months from start date. [Cl.1.1,17&28]
3. The Site is located in various locations on the Thoothukudi – Tiruchendur - Kanyakumari Road section from Km.0+000 to Km.119+700 of NH -32 (Old SH-176) in the State of Tamil Nadu. [Cl.1.1]
4. The Start Date shall be within 7 days after the date of issue of the Notice to proceed with the work. [Cl.1.1]
5. The scope of this work shall be curtailed or terminated at any point of time as decided by the NHAI Employer/Authority.

6. (a) The name and identification number of the Contract is herein after called “the tender” No. **NHAI/17011/01/151/2026/RO Madurai**) [Cl.1.1]

(b) The works consists of “Annual Maintenance including Incident Management of Thoothukudi – Tiruchendur - Kanyakumari Road section from Km 0+000 to Km 119+700 of NH -32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis” The Work consist of “Routine maintenance of all assets, facilities and services created within RoW on the above-mentioned sections of National Highways including maintenance of carriageway, shoulders, median, etc., providing incident management by way of route patrol and surveillance, value addition to the road by way of providing Pedestrian Guard Rails, MBCB, Solar Binkers, Hazard Markers, Signboards, median markers, delineators, Solar Street Lights, LED lights and their maintenance etc., wherever required, road property management., for 12 months”[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 sub contracting is 50% of initial contract price. [CI.7.1]

8.1 Schedule of Other Contractor–NIL [CI8.1]

9.1 The Technical Personnel are: [CI.9.1]

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

13.1 Amount for insurance are: [CI.13.1]

- Rupees equivalent to Contract price.
- Rupees equivalent to 5% of Contract price.
- Rupees equivalent to 5% of Contract price.
- Rupees 20 lakhs for multiple incidents and deductible as per premium rate.

14.1 Site Investigation Report–NIL [CI14.1]

27.1 (A) The period for submission of the programme for approval of Engineer shall be 15 days from the issue of Letter of Commencement [CI.27.1]

(B). (a) Identified indented work

- Weekly Indent, Monthly Indent, Quarterly Indent and Bi-annual indent 3 days before start of week; 7 days before start of month; 15 days before start of quarter and 28 days before bi-annual period concern.
- 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.

33 The Defect Liability Period will be 12 months from the Date of Completion.

- 45.1 (a) Amount of liquidated damages for delay in completion of works
For identified work 0.1 percent of the Indented value, Rounded off to the nearest thousand, per day with the minimum of Rs.10,000/- per day.
(b) Maximum limit of liquidated damages for delay in completion of work
10% 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

- **Road maintenance:** This includes routine and periodic maintenance as specified in the BOQ. Broadly, routine maintenance includes the mechanical/manual cleaning of the main carriageway, shoulders, and side slopes; the removal of rank vegetation and weeds up to the ROW boundaries; and the clearing, cleaning, and reshaping of cross drainage (CD) works (bridges and culverts) before and after the monsoon.
- **Road property management:** Identification of encroachments and ribbon development, enforcement of regulations, liaising with the relevant authorities for the above including procurement of land records with ownership as per mutation from the concerned Revenue Authorities and help in mutation, if required. It also includes the physical maintenance of the road property by ensuring all collected garbage, debris, and cleared vegetation are strictly disposed of outside the Right of Way (ROW) limits.
- **Incident management:** Route patrols and surveillance, basic automobile assistance, deployment of a 20-tonne capacity pick-and-carry crane for vehicle recovery, provision of a Route Patrol Vehicle equipped with 24x7 GPS tracking and incidence management tools, and prompt clearance of road obstructions (including dead animals) in accordance with applicable NHA/IRC guidelines.
- **Safety Improvement & Engineering Works:** Providing cast-in-situ cement concrete Kerbs (M20 grade), road markings (longitudinal edge lines and cold-plastic transverse bar markings), Metal Beam Crash Barriers (MBCB), Pedestrian Guard Rails with anti-glare screens, thermoplastic median markers, reflective road studs, solar raised pavement markers, Solar Blinkers, Solar street lights, delineators, and replacement/installation of retro-reflectorised signages (including hazard markers and gantries). It also covers pothole rectification using 40mm Bituminous Concrete, painting of kerbs and crash barriers, and other civil/structural works (such as laying interlocking tiles, dismantling of structures, and drain foundation works) as described in the BOQ.
- **Inspections.**
 - 1. Routine Maintenance:**
 - i. Carrying out proper cleaning, and removing of dust / silt / trash / plastic / rubbish / garbage / waste from the main carriageway, shoulders, side slopes, expansion joints, water spouts, vent holes, road studs, and delineators (Frequency: Monthly).
 - ii. Clearing, cleaning, and reshaping of upstream and downstream faces of bridges, slab/box type culverts, and pipe culverts (Frequency: Twice a year, before and after monsoon).

- iii. Painting two coats of synthetic enamel paint on new plastered concrete surfaces and crash barriers.
- iv. Kerb Painting with two coats of synthetic enamel paint.
- v. Plastering with cement mortar (1:3, 12mm thick) on required structures.

2. Carriageway Works & Appurtenances:

- i. Removal of rank vegetation, weeds, and undesirable vegetations from shoulders and embankment slopes up to the ROW boundaries (Frequency: Twice a year).
- ii. Providing and fixing of retro-reflectorised cautionary, mandatory, and informatory signs (including Hazard markers, Chevron boards, and Triangle/Rectangular signs).
- iii. Providing and erecting Direction and Place Identification Signs (>0.9 sqm), including Stack ADS, Crash Prone Area signs, Reassurance Gantries, Welcome Gantries, and Thank You Gantries.
- iv. Providing and fixing of Reflective Pavement Markers (RRPM) / road studs (prismatic retro-reflective type conforming to ASTM D-4280).
- v. Supplying of Solar Raised Pavement Markers (polycarbonate molded, active LED, IP65).
- vi. Supplying and installation of delineators (80 to 90 cm high above ground level).
- vii. Providing and fixing of thermoplastic median markers (U-shape structure) with fluorescent yellow retro-reflective sheeting.
- viii. Providing Solar Blinkers and Solar Street Lights.
- ix. Providing Longitudinal Edge Lines.
- x. Providing and laying 5mm and 10mm high Single Rib Pattern Transverse Bar Markings (Cold Plastic with high refractive index glass beads).
- xi. Construction of cast-in-situ cement concrete kerb with channel (M20 grade on M15 foundation).
- xii. Providing and erecting Double Guard Type-A, "W" Metal Beam Crash Barrier.
- xiii. Providing Pedestrian Guard Rail (PGR) integrated with Anti-Glare Screens.
- xiv. Providing Advanced Warning Pavement Markers.

3. Patch Work:

- i. Filling Pot-holes and Patch Repairs with Bituminous concrete, 40mm (including removal of failed material, trimming of excavation, application of tack coat, backfilling with hot bituminous material, and compaction).

4. Incident Management:

- i. Provide Route Patrol Vehicle: Supply 1 route patrol vehicle equipped with a 24x7 GPS tracking system, traffic cones, illumination, and incident management tools as per NHA Circular No.12.36/2024 dated 12.12.2024.
- ii. Provide Tow Crane: Station 1 pick-and-carry crane (20-tonne or higher capacity) fitted with a 24x7 GPS tracking system for the prompt removal and towing of broken-down/accident vehicles. Includes submission of complete stretch videography and color photographs at three stages of the O&M period.

5. Other Civil / Structural Works:

- i. Supplying and laying interlocking tiles (100 mm thickness, minimum strength M40) over a 5cm layer of 6mm aggregate.
- ii. Dismantling of existing structures (culverts, bridges, retaining walls, masonry, cement concrete, woodwork, steelwork) including disposal of unserviceable material and stacking of serviceable material.
- iii. Providing and laying M15 Grade Plain Cement Concrete (PCC) in drain foundations.
- iv. Providing weep holes in brick masonry / plain / reinforced concrete abutments and wing/return walls using 110 mm dia PVC pipes.
- v. Providing HYSD steel (Fe 415 grade TMT bars) reinforcement for RCC works, including cutting, bending, lifting, and tying in position.

- **In case of any discrepancy between Scope & BOQ, the BOQ shall prevail.**

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 method stopper form 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 this cost as per directions of the Engineer.

Routine road maintenance means planned works and activities required to ensure public safety and to maintain the road in the required condition. Adhoc 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 adhoc Road Maintenance Shall include, amongst others, activities such as:

- Road Sign Maintenance
- Guard Rail and supplementary road furniture repairs
- Maintenance of 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

6.3 Road property management

The Contractor shall ensure the maximum availability and efficient utilization of the assets for the NHA. 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, GTM Avenue Plantation, delineators, boards etc. by way of theft or due to negligence of the Contractor, shall be recoverable from the Contractor.

6.3.1 Unauthorized Encroachments

The strict enforcement of the requirements of the NHA shall be a significant obligation under the Contract. The NHA shall define the Right of Way and their requirements with respect to unauthorized 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 NHA 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 unauthorized 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 NHA. All existing encroachments shall be removed, and unauthorized 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 NHA.

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.

6.4.1. Route Patrols:

The contractor is required to provide 24 hrs per day route patrols to assist the road users of the highway, to provide information, feedback and perform functions in relation to incident management. To achieve this, the Patrol vehicles fitted with VTS should be fully equipped as well as the patrol persons should be adequately trained in traffic management, road safety and primary first aid. The purpose of these patrol is to:

- Provide the users of the highway with basic mechanical help for vehicles that break down on the road and also protect other users from such vehicles.
- Immediately identify traffic hazards of what ever nature, such as unauthorized parking, public transport vehicles, and obstructing traffic during passenger loading and unloading, debris, stray animals and the like. The operator shall take the necessary measures to remove such obstructions.
- Provide emergency management at accident scenes until such time as the appropriate authorities arrive.
- Assist with the removal of damaged or mechanically impaired vehicles from the highway.
- Provide road user information and to further the image of National Highway Section.
- Maintain daily records of assistance provided to road users.
- Observe, record and report suspect aspects of the highway, hazards and incident damage caused by vehicles, floods, storms or other and events, such that the highway maintenance records and at a base are continuously improved.
- Each Patrol Vehicle should do patrolling of distance not less than 260 km per vehicle daily and daily VTS report to be submitted in daily basis.

I Patrol Vehicles / Rescue Vehicles:

Patrol Vehicles/Rescue Vehicles deployed by the contractor shall confirm to the specification/Norms prescribed by the **NHAI as per Policy Circular No. 12.19, dated 20th March, 2018** and **NHAI Policy Circular No.12.36/2024 dated 12.12.2024**.

Number of Patrol Vehicles: 2

~~II Ambulance:~~

~~One Ambulance will be provided by the authority on as is where is basis. The contractors price bid shall be inclusive of all the expenses towards maintenance of the Ambulance by providing services from authorized agency routinely, as and when required. Also, the vehicles which are handed over initially shall be taken over and all the statutory clearances, if required, shall be paid by the contractor. The contractor shall check up on the vehicle before quoting the amount in the price bid in order to ensure proper compliance of the above.~~

III Crane

The vehicle fitted with VTS shall be in good condition and vehicle model shall not be 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 shifts:

- a) Driver, with knowledge of vehicle repair
- b) A helper

The vehicle shall be of 20T capacity and it shall run minimum 5Km daily (even for dry run) to be eligible for monthly payment.

Number of Crane: 2(20 T Capacity)

Note:

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. 10,000/-per item per incidence shall be levied.

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 works proposed in BOQ under supervision of 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:

- Defective bridge decks and approach
- User information-road marking and road signs
- Blocked drains
- Cranes
- Frequency of Highway Patrol
- 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 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 PERFORMANCE STANDARDS FOR MAINTENANCE:

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

A) Road Maintenance: (As per MORTH 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 5km.	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	Three days	- do -

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
		m straight edge.)		
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 THE CONTRACTOR TO ENSURE THE REQUIRED LEVEL OF SERVICE
1	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: SP:35-1990 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

- a) For incident management system:
 - Setup of Control Room Staffing–24hrs/day and 365days/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 cranes, and other equipment required for this purpose shall be ensured.
- Accident relief measures shall be available round the clock. The response time should be 30minutes. Traffic regulation and management to minimize the disturbance due to accidents 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 Crane, any case of noncompliance as per Cl 6.8 of 'Performance Standard', a penalty of Rs. 10,000/ for each noncompliance 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 ~~Ambulance~~ 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 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 been titled in absence of the 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.
 - i) There ports as per IRC53–1973 and formats approved by Engineer of accidents occurred during the month.
 - ii) The Photographs in hard and soft copies of all accidents and in soft copies for all other incidents.
 - iii) The reports of incidents other than accidents shall be submitted in the format approved by Engineer.
 - iv) 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.

- The contractor shall submit the daily report of accidents / incidents occurred on each of next day. Failure of which shall attract penalty of Rs.5000 /- 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/GPRS 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/stop page/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 along with 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, and maintenance and operation charges (for total period of contract) inclusive of all taxes as applicable.
 - The contractor shall be responsible for 24x7 working of VTS. The necessary liaison with Producer Company is sole responsibility of the 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 details 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 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 stretch 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 (8hours) for every Three Km. stretch.
 - b) One tractor with trolley/day (8 hours) for every 30 km. stretch.
 - c) One supervisor for every 30 km. stretch.
- ii) The contractor shall maintain separate signed muster rolls of deployed labour & supervisors and log book 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 stretch without weeds, unwanted vegetation and debris from the stretch. He shall increase inputs as per requirements of site conditions and Engineer's instructions.
- iv) If a contractor fails to keep stretch 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. Engineer's 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) The contractor shall submit the daily reports (on next day) of output of various men and machinery deployment for 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 the 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 ROB, 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 along with 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 (8hours) 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 (8 hours) for every 30 km. of stretch of road.
- iv) The contractor shall maintain separate signed muster rolls of deployed labours & supervisors and logbooks of Road cleaning Equipment. 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 carriage way clean as per BOQ provisions. It is obligatory on contractor to increase in puts 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.

- i) The contractor shall keep the shoulders, embankment slopes upto right of way (RoW) on both sides complete in all respects.
- ii) The work shall include breaking of clods, rough dressing and disposal of waste and vegetation outside RoW as per directions of the Engineer.
- iii) 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 a statement of work done by the contractor.
- iv) If a contractor fails to keep the specified area without weeds, unwanted vegetation, debris (as per provision of BOQ), a penalty of Rs. 5000/km/incidence shall be imposed. The Engineer's decision in this context is binding on the Contractor.
- v) The frequency of cleaning will be twice in a year, from the BT edge to ROW on both sides of the carriageway.
- vi) In case of damage occurs to the existing GTM Avenue plantation, a penalty of Rs. 2500/Plant shall be imposed.

6.12 ADDITIONAL MAINTENANCE STANDARDS

6.12.1 Maintenance standard for cleaning, clearing and repairing road side lined drains

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.

Methods, Tools and Equipment

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

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 road side pucca drains shall mean payment in full for carrying out all the required operations explained above including compensation for:

- a. Setting out and providing safety devices and signs placed in work area. As per MoRT&H clause no.112.
- b. Furnishing all materials to be incorporated in the work including transportation of excavated material and disposing of the same with all leads and lifts.
- c. 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 road side unlined drains

6.12.2.1. Scope

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

6.12.2.2 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 of 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 near by area or transported away from the site with all lead sand lifts, as directed by the Engineer in-charge.

6.12.2.3 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.

6.12.2.4 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:

- a. Setting out and providing safety devices and signs placed in work area. As per MoRT&H clause no.112.
- b. Furnishing all materials to be incorporated in the work including all royalties, fees, rents where necessary and all leads/lifts.
- c. Transporting the excavated/recovered material and disposing of the same with all heads and lifts as directed by the Engineer in-charge.
- d. 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

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

- i. 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.
- ii. Defects in supporting structures like bullet holes, surface marks or bent posts shall be repaired with appropriate tools.
- iii. Damaged are a 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 sign boards and major repairs especially to sign faces.

6.12.4.2 Methods, Tools & Equipment

- i. new sign boards/delineators in lieu of badly damaged/missing ones shall be provided conforming to MoRTH specification clause 801 to perform the function and convey message that was originally required (retro-reflective type of high intensity grade).
- ii. For major repairs following sequences shall be carried out:
 - a. Be at any holes and indentations flat with a hammer and dolly
 - b. Clean the damaged area and remove any loose or flaking peeling, paint or other surface material
 - c. Fill the holes and indentations with polyester body filler and excess material shall be struck off to flush with signface.
 - d. Patch the whole of the affected area with existing surface material as required viz. Pressure sensitive, reflective sheeting, paint etc.
 - e. Restore the legend by black screening or reflective sheeting of correct class cut to shape.

6.13. Monitoring

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 11.00AM every day for the preceding 24 hours.

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

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.

6.14a) Broad Performance Parameter for Solar StreetLight – 7 mtrs.

Broad Performance Parameter for Solar StreetLight	
Height	7 Mtrs.
Lux	average 40 Lux
Light Source q	White Light Emitting Diode (W-LED)
Light Output	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	minimum 7 meters above ground telescopic shape pole,
PV Module	Module for High mast Street Light A. 2000 Wp module

Broad Performance Parameter for Solar StreetLight	
Battery	Battery for Street Light A. 12 V 500 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 lighting system will be designed to operate for dusk 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 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	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		Dia. 3" or 4", Height 2.5 to 4 mt., GI or MS

S.No.	Specification	Details
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	Warranty	All the equipments supplied are subject to satisfactory operation for a period of 3 years from the date of commissioning. The vendor will provide onsite comprehensive warranty for 3 years including LED panel light, Solar System Assembly unit with atleast 12 hours back up having solar module, solar charge controller with cabinet for keeping battery & charge controller and M.S. pole for mounting. The vendor will have to rectify any defects during the warranty free of cost within 24 hours of the receipt of complaint.
25	Repair/Replacement of damaged part/bulb	Within 24 hours otherwise a penalty of Rs. 5000/- per day will be imposed

Duties of the Technical / Non-Technical persons deployed for the project stretch

1. Project Manager:

The Project Manager shall serve as the overall in-charge for the entire project stretch and shall report directly to the Engineer and NHAI-PIU, Tuticorin. He shall be responsible for submitting daily and weekly work plans/schedules in advance to the Authority and the Engineer, strictly in accordance with the contract agreement. He shall represent or accompany officials from NHAI-PIU, Tuticorin in various meetings with State Government authorities and shall submit a detailed compliance report regarding all activities discussed within one week of such meetings. Furthermore, he shall be liable to execute any other project-related duties as directed by the Engineer and NHAI-PIU, Tuticorin.

2. Site Engineer cum Surveyor Engineer cum Material Engineer:

These personnel shall be strictly responsible for all site execution, surveying, and material quality control. His primary duties include the preparation and submission of the monthly statements (billing) for the value of works executed, conducting precise site measurements, and ensuring strict adherence to MoRTH/NHAI quality control requirements for all materials and workmanship. Furthermore, he shall carry out any other technical works as directed by the Engineer and NHAI-PIU, Tuticorin.

3. Incident cum Road Property Manager cum Route Operation Manager:

These personnel shall be responsible for the seamless execution of all incident management, road property protection, and route operation activities along the project highway. His duties include monitoring 24x7 route patrols, coordinating vehicle recovery (tow cranes), managing accident scenes, identifying and reporting ROW encroachments/ribbon development, and liaising with local authorities for road property management. Furthermore, he shall carry out any other operational duties as directed by the Engineer and NHAI-PIU, Tuticorin.

Conditions of Deployment:

In the event of any failure by the Contractor to deploy the aforementioned key personnel, penal action shall be initiated in accordance with Clause 9 (Section V - Conditions of Contract). The cost of deploying these personnel is deemed to be included in the overall Contract Price, and no additional payment whatsoever shall be made for the same.

(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. All works shall be executed in strict compliance with the item descriptions provided in the Bill of Quantities (BoQ).

7.2 GENERAL REQUIREMENTS

- 7.2.1 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:

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 MORTH 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 MORTH 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.

7.3 SPECIFICATIONS FOR SPECIFIC BOQ ITEMS

7.3.1 Metal Beam Crash Barrier (Type - A, "W" Profile):

Providing and erecting a "W" metal beam crash barrier comprising a 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level. The barrier shall be fixed on ISMC series channel vertical posts (150 x 75 x 5 mm) spaced 2 m centre to centre. The overall post height shall be 1.8 m, with 1.1 m embedded below ground/road level. All steel parts and fitments shall be hot-dip galvanized. All fittings must conform to IS:1367 and IS:1364. The metal beam rail shall be fixed on the vertical post with a spacer of channel section (150 x 75 x 5 mm, 330 mm long), complete as per Clause 811 of MoRTH Specifications.

7.3.2 Sign Boards and Road Furniture:

All sign boards, road studs, pavement markings, delineators, and solar blinkers shall strictly comply with NHA Policy Circular No. 12.38/2025.

Signages: Shall be made of Class-C Micro Prismatic Grade Sheeting (Type XI) conforming to IRC:67 (2022) and MoRTH Clause 801. Sheeting shall have a UV protective clear overlay, manufacturer watermark, lot number, and a QR (Bar) code on the backside. The agency must submit a 10-year warranty for field performance. Installation requires kmz file tagging with installation photos.

Road Delineators: Conforming to IRC:79, 80 to 90 cm high above ground level, made of mild steel with pure polyester powder coating (min 40 microns) and three reflective sheeting bands (Type XI) of 150mm height.

7.3.3 Road Studs and Solar Raised Pavement Markers:

Reflective Pavement Markers (RRPM): Prismatic retro-reflective type conforming to ASTM D-4280. The plastic body shall be moulded from ASA, HIPS, or ABS. Must support a load of 13,635 kg.

Solar Raised Pavement Markers: Polycarbonate molded body, 360-degree illumination, active mode LED, IP65 rated for dust/water ingress, and resistant to temperatures from 0°C to 70°C. Must support a load of 20,000 kg (ASTM D-4280) and provide a minimum autonomy of 50 hours on a full charge. Fixed using epoxy resin.

7.3.4 Road Markings (Cold Plastic Transverse Bar Markings):

Providing and laying 5mm and 10mm high Single Rib Pattern Transverse Bar Markings using 2-component cold plastic with specialized primer. Shall be applied in a single monolithic application to create rumble strips (300 mm wide) conforming to clause 3.7 of IRC:99. Must include high refractive index glass beads (250gm/sqm). Type 1 beads (MoRTH 803.4.2) as a constituent of the basic compound and Type 2 beads sprayed on the surface (MoRTH 803.6.4). Performance must confirm to Clause 15.5 of IRC:35.

7.3.5 Incident Management Vehicles:

Route Patrol Vehicle: Shall be provided fully equipped as per NHAI Policy Circular No. 12.36/2024 dated 12.12.2024, including traffic cones, illumination, and incident management tools. Must be fitted with a 24x7 GPS-based tracking system.

Tow Crane: Minimum 20-tonne capacity pick-and-carry crane meeting IRC:SP:84-2014 (Clause 12.10) standards for vehicle recovery, fitted with a 24x7 GPS tracking system.

7.3.6 Civil & Structural Works:

Concrete Kerbs: M20 grade cement concrete kerb with channel on M15 grade foundation, laid using a kerb laying machine as per MoRTH Clause 408.

Interlocking Tiles: Minimum strength M40, 100mm thickness, laid over a 5cm layer of 6mm aggregate.

Steel Reinforcement: HYSD steel (Fe 415 grade TMT bars) conforming to IS 1786-1979, executed as per MoRTH Clauses 1000, 1100, 1202, and 1600.

(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 guidelines 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 roadside drainage facilities, CD work, signs, safety features and inspection facilities. The works of different nature at scattered locations within specified time frame need to be performed conforming to specifications and standards in order to keep carriageway in perfect condition.

8.2 Maintenance Procedures

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

- Maintenance Programme Planning
- Resource Estimation
- Identification of Priorities
- Work Scheduling
- Work Management
- Work Control and Quality Assurance
- Payment Procedures
- Records & Documentation

8.3 Maintenance Programme Planning

8.3.1 The maintenance programme planning shall be in two stages

- a. 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 and 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.
- b. 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:

- i. to carryout present state inspection of entire stretch of Highway by Contractor & Engineer.
- ii. To identify defects as per various available engineering characteristics of road & measurement of all defects in each sub-section (length of subsection shall be 200m) based on representative measurements for 25m length in each subsection. The extent of defects shall be recorded informs finalized in consultation with NHAI for paved road, unpaved road and structure/furniture. All Defects with its extent shall be assessed interms of length & area of the subsection, mentioning chainage (locations) in order to have exact estimate of work.
- iii. A comprehensive documentation shall be prepared separately by Engineer and Contractor mentioning their assessment of various types of defects in each km of road.
- iv. Management meetings shall be called within 15 days of inspection to finalize and then to quantify 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

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.

8.5.2 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 potholes.
- 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 inter 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 The system of quarterly reports such as budget reports, resources utilization 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 finalized maintenance programme can be made with mutual concern to both the contractor and engineer to derive best results.

8.7.3 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 carryout 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.

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 contractor's 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 be come 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 with in 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-sa-is" Applied where Engineer accepts work "as-is" notwithstanding 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

8.9.1 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 up to the end of the month. These bills should be prepared each indent wise.

- 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.
- 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 diary are

- The description of day's activities, number and type of crew on job, equipment on job weather and temperature
- Any measurement made to determine pay quantities
- Daily summary of material issued in the job
- A record of significant conversations with and direction given to the contractor
- A record of bottlenecks with the progress or execution of the work
- A record of material testing in lab
- 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

The 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
1.4	Disturbed stone pitching	a. Upto 30sqm.	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 shoulders / drains on	Any	Realign to correct gradient and make shallow lateral drains	Routine
2.3	Silting in pucca drains	Any extent	Clean out	Routine
2.4	Damages or scouring of pucca drains side	Any extent	Repair reconstruct adequate and shape and to size	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
3.5	Vegetation	Any	Remove & Clear	Routine

Sl. No	Defects	Criteria / Extent (% of sub section length)	Treatment Action	Type of maintenance
	growth at inlet / outlet & near parapets			
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, honeycombed, 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
3.1	Checking of expansion joints	Any	Check & repair & clean	Periodic
3.11	Maintenance bearings of	Any(In case replacement of bearings is required, then specific report to be given to the Engineer)	Check & clean & carry ordinary maintenance	Periodic
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 & 5 th km stones	Any	Replace	Periodic
4.5	Painting & printing letters on road signs, km stones, 200	Any	Repaint & print to match with existing	Periodic

Sl. No	Defects	Criteria / Extent (% of sub section length)	Treatment Action	Type of maintenance
	stone, 5th km stones			
4.6	Safety barriers, fencing	Any	Repair & repaint	Periodic
4.7	Pavement markings	a. Upto 30sqm.	Repair	Recurring
		b. More than 30 sqm.	Repair	Periodic
5	Road side safety Miscellaneous			
5.1	Dead animals	Any	Remove and bury	Recurrent/ Urgent
5.2	Broken down accidental vehicle	Any	Inform police traffic and remove	Recurrent/ Urgent
5.3	Road blockade	Any	Inform traffic police, remove blockade if required. construction temporary diversion	Recurrent/ Urgent
6	Carriageway & Crust			
6.1	Stripping	a. <25 sqm.	Local sealing	Routine
		b. >25 sqm.	2nd coat surface dressing	Periodic
6.2	Rutting	a. depth of ruts < 50 mm		
		i. Crack < 10 mm	Seal the with slurry Crack	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 required.	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 up to firm base and relay stable mix	Recurrent
6.9	Shallow	-----	Repair the depression with pre-	Recurrent

Sl. No	Defects	Criteria / Extent (% of sub section length)	Treatment Action	Type of maintenance
	depressions		mixed material	
6.10	Settlements & upheaval	a. <20 sqm	Remove the weak	Recurrent
			/ defective fill up to base & redo.	
		b. >20 sqm	i. Remove the weak / defective fill up to base & redo	Periodic
			ii. Strengthen the crust by providing	
			additional layers	
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

ANNEXURE-I

DRAFT INTEGRITY PACT

(To be executed on plain paper and submitted along with Technical Bid/Tender documents for tenders having a value between Rs.5 Cr and Rs.100 Cr. To be signed by the bidder and same signatory competent/authorized to sign the relevant contract on behalf of the NHAI). This integrity Pact is made at on this day of 20.

Between

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 & G-6, Sector-10, Dwarka, New Delhi, herein after referred to as "The Principal", which expression shall unless repugnant to the meaning or contract there of include its successors and permitted assigns.

and

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

Preamble

Whereas, the Principal intends to award, under laid down organisational procedures, contract/s for **"Annual Maintenance including Incident Management of Thoothukudi – Tiruchendur - Kanyakumari Road section from Km 0+000 to Km 119+700 of NH -32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis"** The Principal values full compliance with all relevant laws of the land, rules of land, regulations, economic use of resources and of fairness/transparency in its relations with its Bidder(s) and/or Contractor(s)/ Concessionaire(s)/Consultant(s).

And where as to meet the purpose aforesaid, both the parties have agreed to enter into this Integrity Pact (here after 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 has under:-

Article 1 Commitments of the Principal

1. The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-
 - (a) No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self, or third person, any material or immaterial benefit which the person is not legally entitled to.

- (b) The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - (c) The Principal will exclude all known pre judiced persons from the process, whose conduct in the past has been of biased nature.
1. If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Actor 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 whats ever 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 contracts, 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 principle, if any.

- (e) The Bidder(s) / Contractor(s) / Concessionaire(s) / Consultant(s) will, when presenting his bid, disclose any and all payment she 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 offenses outlined above or be an accessory to such offence.
- (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.

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/Contractor/Concessionaire/Consultant has committed at 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/Contractor/Concessionaire/Consultant for any future tenders/contract award process. The imposition and duration of the exclusion will be determined by these verity of the transgression. Theseverity 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/Contractor/Concessionaire/Consultant and the amount of the damage.The exclusion will be imposed for a minimum of 1year.
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/Contractor/Concessionaire /Consultant 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/Contractor/Concessionaire/Consultant shall be final and binding on the Bidder/Contractor/Concessionaire/Consultant.
6. On occurrence of any sanctions/disqualification etc a rising out from violation of

integrity pact, the Bidder/Contractor /Concessionaire/ Consultant shall not been titled for any compensation on this account.

7. Subject to full satisfaction of the Principal, the exclusion of the Bidder/Contractor /Concessionaire /Consultant could be revoked by the Principal if the Bidder / Contractor / Concessionaire / Consultant can prove that he has restored/ recouped the damage caused by him and has installed a suitable corruption prevention system in his organization.

Article- 4 Compensation for Damages.

1. If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Article-3, the Principal shall be entitled to forfeit the Earnest Money Deposit / Bid Security or demand and recover the damages equivalent to Earnest Money Deposit / Bid Security apart from any other legal right that may have accrued to the Principal.
2. In addition to 1 above, the Principal shall be entitled to take recourse to the relevant provisions of the contract related to 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 Transgression

1. The Bidder declares that no previous transgressions occurred in the last 3years immediately before signing of this Integrity Pact with any other Company in any country conforming to the anti corruption/Transparency International (TI) approach or with any other Public Sector Enterprise/Undertaking in India or any Government Department in India that could justify his exclusion from the tender process.
2. If the Bidder makes 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 treatments 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 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 / DBFOT Projects) It expires for the concessionaire 24 months after his concession period is over and for all other unsuccessful Bidders 6 months after this Contract has been awarded. If any claim is made / lodged during 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 9 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 a partnership or a consortium, this pact must be signed by all partners or consortium members.
4. Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
5. Any disputes/differences arising between the parties with regard to term of this pact, any action taken by the Principal in accordance with this Pact or interpretation thereof shall not be subject to any Arbitration.
6. The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant 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 mentioned in the presence of following witness:-

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

(Office Seal)

Place: _____

Date: _____

Witness 1: (Name & Address): _____

Witness 2: (Name & Address): _____



**NATIONAL HIGHWAYS AUTHORITY OF INDIA
(MINISTRY OF ROAD TRANSPORT & HIGHWAYS, GOVT.OF INDIA)**

Name of the work: “Annual Maintenance including Incident Management of Thoothukudi – Tiruchendur - Kanyakumari Road section from Km 0+000 to Km 119+700 of NH -32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis”.

(Tender Ref. No: NHAI/17011/01/151/2026/RO Madurai)

VOLUME - II

**The Regional Officer,
National Highway Authority of India,
No.155/1C1B, 2nd& 3rd Floor,
Pandikoil Ring Road, Near Guru Hospital,
Uthangudi, Madurai-625107.
Phone: 0452-2588999**

July - 2026

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 there to)

FINANCIAL BID FORM

To

The Regional Officer (Madurai)
National Highways Authority of India
Madurai Region,
No.155/1C1B, 2nd & 3rd Floor,
Pandikoil Ring Road, Near Guru Hospital,
Uthangudi, Madurai - 625 107.
Phone: 0452-2588999

Description of works: Annual Maintenance including Incident Management of Thoothukudi – Tiruchendur - Kanyakumari Road section from Km 0+000 to Km 119+700 of NH -32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis.

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 Seven (7) 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 a bid by this Bid for the period of One Hundred & Sixty-Five (165) 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 signing 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

9.0 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 within 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 submitted as a single rate as Tender Premium% above/below on the amount mentioned in enclosed abstract of cost.

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 The contractor shall keep the entire carriageway neat and clean throughout the contract period. The contractor shall maintain guardrails, railings, crash barriers, road furniture, etc. In good condition by cleaning them frequently as advised/required by using suitable detergents/chemicals.

- 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.
- 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, consumables, 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.

Annual Maintenance including Incident Management of Thoothukudi - Tiruchendur - Kanyakumari Road section from Km 0+000 to Km 119+700 of NH - 32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis

Detailed Estimate Abstract					
Sl.No.	Description of work	Unit	Quantity	Rate	Amount
1. ROUTINE MAINTENANCE WORKS					
1.1	Filling Pot- holes and Patch Repairs with - Bituminous concrete, 40mm. (Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material as per clause 504, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per clause 3004.2)	Sqm	4,662.50	495.00	23,07,937.00
1.2	Carrying out proper cleaning , and removing of dust / silt / trash / plastic / rubbish / garbage / waste from the main carriageway (total width of carriageway LHS+RHS) by mechanical/manual means and from shoulders up to toe line of the embankment including side slopes manually and disposing of the waste material at a suitable place outside ROW as directed by the Engineer and as per road maintenance Standard clause no.6.1.21,6.2,6.3,6.4 of IRC-SP 95-2011. The job includes cleaning of expansion joints, water spouts, vent holes, road studs and delineators also. (Frequency of cleaning will be per month).-Two Lanes	Km	102.20	4983.17	5,09,280.00
1.3	Clearing bridges, slab/box type culverts and pipe culverts including clearing, cleaning and reshaping of upstream and downstream faces of those culverts with in the ROW. The Job includes disposal of excess material recovered site including vegetation outside ROW with all leads and lifts complete in all respect as per direction of Engineer in charge and as per road maintenance Standard clause no.6.5 & 6.6 of SP 95-2011.(Frequency of cleaning will be twice in a year i.e. before and after monsoon)				
a	Bridges (Major/Minor)	Nos	12	9339.80	1,12,078.00
b	Slab/Box type culverts/Pipe culvert	Nos	124	2519.80	3,12,455.00
1.4	Removal of rank vegetation /weeds and undesirable vegetations from shoulders, embankment slopes up to ROW (both side) complete in all respect including breaking of clods, rough dressing and disposal of waste material and vegetation at a place outside ROW as per direction of Engineer in charge and as per road maintenance Standard clause no.6.14 of IRC-SP 95-2011. (Two time per year)	Sqm	1161510.00	6.89	80,02,804.00
					₹ 1,12,44,554.00
2.INCIDENT MANAGEMENT					
2.1	Removing all types of broken down/vehicles which have met with accidents from the carriageway amd toeing the same to proper locations i.e nearest police stations or some suitable location by using 20 tonne or of more capacity pick and carry crane, as per IRC :SP:84-2014, Clause 12.10 and as per other applicable clause agreement. It shall also be fitted GPS based vehicle tracking system to monitor its movement on 24 hrs X 7 days of a week basis for 1 vehicle. Also Supply of colour photographs in three copies and two CDs complete as per Technical specification Clause 125 & Supply of video cassette (CD) in three copies including videography of complete stretch at three stages in O&M period complete as per Technical specification Clause 126	Month	24.00	200000.00	48,00,000.00

Annual Maintenance including Incident Management of Thoothukudi - Tiruchendur - Kanyakumari Road section from Km 0+000 to Km 119+700 of NH - 32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis

Detailed Estimate Abstract					
Sl.No.	Description of work	Unit	Quantity	Rate	Amount
2.2	Route Patrol Vehicle : Providing by route patrol vehicle as per IRC: SP: 73-2018, Clause 12.11 and NHAI/Policy Guidelines/Road Safety/2024/Policy Circular No.12.36/2024 dated 12.12.2024 and also as per other applicable clause in agreement. The patrol shall promptly clear the road of any obstruction take time to be cleared, the section shall be cordoned off by placing traffic cones, it shall be illuminated during night. Also removing the dead animals from highway. It shall also be fitted with GPS based vehicle tracking system to monitor its movement on 24hrsx7days of a week basis for one vehicle. vehicle shall be enough space to carry essential traffic and incidence management and safety tools.	Month	24.00	250000.00	60,00,000.00
Total amount for Incident Management Items					₹ 1,08,00,000.00
<u>3.OTHER WORKS</u>					
3.1	Supplying and laying interlocking tile 100 mm or nearest size thickness, minimum strength M 40 including providing a layer of 6 mm aggregate for 5 cm thickness, then laying interlock cobbles in lines and levels as per the directions of the departmental officers at site inclusive of all cost & conveyance charges etc.; complete.	Sqm	3750	1177.088	44,14,080.00
3.2	Dismantling of Structures (Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres)	Cum	2250	1222	27,49,500.00
3.3	Providing and laying Plain Cement Concrete of M15 grade for foundation of drains, including mixing, placing, compacting and curing, complete as per the drawings and MoRTH Specifications	Cum	191.25	6737	12,88,451.00
3.4	Providing and laying Reinforced Cement Concrete of M20 grade in drain raft, walls and cover slab, including mixing, placing, compacting, finishing and curing, complete as per the drawings and MoRTH Specifications	Cum	1125	7545	84,88,125.00
3.5	Providing weep holes in Brick masonry/Plain/ Reinforced concrete abutment, wing wall/ return wall with 110 mm dia PVC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing face. Complete as per drawing and Technical Specifications	Nos	150	461	69,150.00
3.6	HYSD steel (Fe 415 grade TMT bars IS 1786-1979) bar reinforcement wrought & put up for RCC works including cost and conveyance of steel and binding wire, labour for cutting, bending, lifting, placing in position and tying as per approved structural drawings and as directed by Engineer-in-charge including all taxes etc., complete as per drawings and technical specifications for bars below 36 mm dia including over laps and wastage for finished item of work as per specifications Clauses 1000 and 1202 MORD & 1100, 1600 MORTH	MT	56.25	81870	46,05,188.00
Total amount for Other Items					₹ 2,16,14,494.00
TOTAL					₹ 4,36,59,048.00

Annual Maintenance including Incident Management of Thoothukudi - Tiruchendur - Kanyakumari Road section from Km.0+000 to Km.119+700 of NH -32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis					
TRAFFIC AND OTHER APPURTENANCES (Main Carriage way)					
S.No	Description of work	Unit	Rate	Quantity	Amount
1	Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per clause 801 of MoRTH Specifications for Roads & Bridge Works and IRC: 67 (2022) made of class -C Micro Prismatic Grade Sheeting of Type XI retro reflective sheeting. The retro-reflective sheeting shall have manufacturer logo, watermark and lot number on the sheet. A QR (Bar) code shall also be placed on the backside of the sign board with an indelible ink. For signs above 600mm size, retro reflective sheet shall be fixed over 2 mm thick aluminium sheeting vide or 4mm thick Aluminium composite material sheet vide clause 801 of MoRTH Specifications for Roads & Bridge Works. For signs above 600mm sizes, sign shall be fixed over back support frame of minimum 35 x 35x 3 mm angle Frame. For signs above 600mm size, Signs shall be supported on GI circular pipe 80 NB, 3.2 mm thickness conforming to IS 1239. Retro-Reflective sheet shall be fixed on Substrate with Pressure Sensitive Adhesive. The Substrate shall be firmly riveted on Angle Frame @ 200mm spacing with Aluminium Pop rivets etc using Pneumatic Guns. The Angle frame shall be firmly fixed with high strength bolts, washers nuts conforming to IS1364 and IS 1367 on Sign Support Pole. Sign Supports shall be firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45 cm x 45 cm x 60, 60 cm below ground level as per approved drawing. All Components of signs and supports including Angle Frame, Bolts, Nuts, Washers, etc. other than the reflective portion shall be galvanized by hot dip process (Zinc coated, 0.55 kg/sqm; minimum single spot) unless otherwise specified. All galvanizing shall be done after fabrication. Alternate white and yellow bands measuring 50 mm long retro-reflective sheeting shall be pasted around GI posts which help in ensuring the visibility/Presence of poles during night time even if the sign boards are stolen or totally vandalized. Minimum four bands of such retro-reflective sheeting shall be pasted starting from a height of 0.5 m above the finish road level. The messages (legends, letters, numerals, etc.) and borders as per clause 6.8 of IRC 67 shall be digitally printed. Finished Signs shall have an Ultra Violet (UV) protective clear overlay applied to the entire face of the signs supplied by reflective sheet manufacturer. The agency shall submit 10 years warranty for satisfactory field performance for type XI retro reflective sheeting from the retro-reflective sheet manufacturer conforming to clause 6.7 & 6.9 of IRC 67. Agency shall submit a certified copy of test reports from an Government laboratory/ Institute conforming to clause 6.7 & 6.9 of IRC 67 including 3 years accelerated outdoor weathering for the retro reflective sheeting. The Agency shall submit the sign convertor (manufacturer) name with details of essential equipment available with convertor in his fabrication shop such as digital printer, cutter, plotter, laminator, Galvanizing plant, etc. The Agency shall submit road sign installation drawing in Kmz file for approval before installation and after installation submit geo-tagging of all road signs with its installation photos and date of installation and other details as mentioned in IRC 67 annexure VII, complete in all respects. The sign supports and its foundation details are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards				
a	Mandatory Sign 750 mm Circular)	Nos	8,624.00	272.00	23,45,728
b	Keep Left (600mm Circular)	Nos	7,249.00	62.00	4,49,438
c	Chevron sign Board	Nos	5,641.88	256.00	14,44,321
d	Hazard Marker (300 mm x 900 mm)	Nos	5,077.69	120.00	6,09,323
e	900mm Equilateral Triangle	Nos	8,365.00	374.00	31,28,510
f	900mm Equilateral Triangle	Nos	8,365.00	20.00	1,67,300
g	Octagonal 750MM	Nos	9,367.00	122.00	11,42,774
h	2x900mmTriangles	Nos	16,730.00	102.00	17,06,460
i	1400mmx2800mmTriangles	Sqm	13,304.00	31.36	4,17,213
j	600mmx800mm Rectagular	Nos	9,027.00	106.00	9,56,862
k	2400x1800 mm Rectangular	Sqm	13,304.00	207.36	27,58,717
2	Providing and fixing of Reflective Pavement Markers (RRPM), i.e. road studs shall be prismatic retro-reflective type conforming to ASTM D-4280. The Plastic body of RPM/road stud shall be moulded from ASA (Acrylic Styrene Acrylonitrile) or HIPS (Hi-impact Polystyrene) or Acrylonitrile Butadiene Styrene (ABS). The marker height shall not be less than 10mm and shall not exceed 20mm and its width shall not exceed 130mm. The markers shall support a load of 13,635 kg tested in accordance with ASTM D 4280. The Reflective panels shall consist of number of lenses containing single or dual prismatic cubes capable of providing total internal reflection of the light entering the lens face. Lenses shall be moulded of methyl methacrylate conforming to ASTM D 788 or equivalent. The optical performance of road studs shall be confirming to clause 804.4 of MoRTH specifications.	Nos	232.00	49,480.00	1,14,79,360

Annual Maintenance including Incident Management of Thoothukudi - Tiruchendur - Kanyakumari Road section from Km.0+000 to Km.119+700 of NH -32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis					
TRAFFIC AND OTHER APPURTENANCES (Main Carriage way)					
S.No	Description of work	Unit	Rate	Quantity	Amount
3	Solar Powered Road marker (Solar Stud): Supplying and installation of Solar Raised Pavement Markers made of polycarbonate moulded body with circular shape, solar powered, LED self-illumination in active mode, 360 degree illumination and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face in passive mode. The marker shall support a load of 20000 kg tested in accordance to ASTM D 4280. Its water resistance shall meet the requirements of IP 65 in accordance with IS:12063:1987 Category 2 for protection against water ingress. Colour of lighting could be provided in red or yellow (amber) or green or blue or combination as per requirement. It shall have super bright LEDs so as to provide long visibility from a distance of more than 800 m. Its flashing rate shall not be less than 1 Hz. It should be able to give the prescribed performance in the temperature range of -40°C to +55°C. Its life shall be not less than 3 years. The full charge should provide for a minimum autonomy of 50 hours operation. The height, width and length of the marker shall not be less than 10mm x 100mm x 100mm. Also the surface diameter of the marker shall not be less than 100mm respectively. The weight of marker shall not exceed 0.5 kilograms. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive and complete as directed by the Engineer	Nos	1,980.20	1,342.00	26,57,428
4	Road Delineators: Supplying and Installation of delineators (road way No. indicators, hazard markers, object markers) confirming to IRC 79, 80 to 90 cm high above ground level with about 200 to 300mm base which can be anchored on to the ground. The delineator shall have an ellipsoidal or circular shape made of mild steel with pure polyester powder coating circular shape made of mild steel with pure polyester powder coating with minimum thickness of powder coating of not less than 40 micron. The delineator shall have minimum three reflective sheeting bands of 150mm height confirming to Type XI sheeting specifications as per IRC67.	Nos	1,270.00	5,160.00	65,53,200
5	Median Marker :Supplying and Fixing Median Marker confirming to IRC No. 266 79, shall be provided with fluorescent yellow colour retro reflective heeting Type XI as per IRC: 67. Median Marker shall be of tough, high impact resistant, injection - moulded, thermoplastic body with property for flexibility to provide high durability and U shape structure having rebound / bounce back property.	Nos	287.00	3,600.00	10,33,200
6	Supplying and erecting red /yellow unbreakable polycarbonate body Solar Blinker 300mm dia. LED lamp confirming to IRC:93 and IS:7537. It shall have Light Emitting Diode (LED) – Hi Bright technology (Compliant to EN12368 or equivalent BIS standard). The Signal Switching shall be Solid State, with Opto-isolation. The Automatic operation mode shall have functional flashing rate available at 50% Duty Cycle - 50 or 60 Flashes/ minutes. The Electrical Power Supply shall be solar based 12 VDC operating at Ambient Temperature 0° to 55° C. The solar power system shall have in-built charge Controller - Low/High cut out, Solar SPV Module - 60 Watts, Maintenance Free Battery (60AH) (having back up for operating blinker for 72 Hrs in absence of Sun or during rainy or foggy days. The Solar System shall be housed in a weatherproof pole mounting cabinet with clamp and mounting accessories. The Solar Blinker shall be supported on GI circular pipe 80 NB, 3.2 mm thickness confirming to IS 11239, 3m above the Finish Road level. GI circular pipe shall be firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45 cm x 45 cm x 60, 60 cm below ground level as per approved drawing. Alternate white and yellow bands (Minimum four bands) of Type XI retro-reflective sheeting shall be pasted @ 0.5m c/c starting from a height of 0.5 m above the finish road level.	Nos	28,342.75	20.00	5,66,855

Annual Maintenance including Incident Management of Thoothukudi - Tiruchendur - Kanyakumari Road section from Km.0+000 to Km.119+700 of NH -32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis					
TRAFFIC AND OTHER APPURTENANCES (Main Carriage way)					
S.No	Description of work	Unit	Rate	Quantity	Amount
7	Supply and Installation of Single pole- Single arm Solar street lights - Supply of 1x 80w (+/- 5w) Stand alone Solar Streetlight System having 2 days backup and Suitable for dimming a) Streetlight Luminaire shall have minimum 12,500 Lumens System output, greater than 160 Lumens Per watt system efficiency, IP66 & IK10 Protection, luminaire made Corrosion proof coated Pressure Diecast aluminum Housing and individual lens for each LED embedded on PC cover. 75,000 burning hours life - 1no b) Solar Panel of 300 - 340Wp Mono- Crystalline 36V with excellent aging resistance and UV endurance to withstand harsh environment environmentally sealed to IP67- 1no c) The Batteries using in the system shall be of 25.6V 60Ah, 1536Whr Maintenance free Lithium Pherro Phospate battery having minimum 2000 cycles life - 1no d) The Charge controller using in the system shall be 400Wp MPPT type Programmable and dimmable via blue tooth app at site, > 93% efficiency, built in protection of Battery Reverse Polarity, Panel Reverse Polarity, Panel Reverse Current, Surge Protection at PV input, Battery Over Voltage, Load short circuit and fuse protection. The Charge Controller shall be kept inside the Pole Junction box e) Supply installation testing and commissioning of above mentioned Solar system on 9 metres height hot dip galvanized Octagonal Pole made of BSEN10025 GI with min top 90mm and bottom 190mm dia made of min 3mm sheet thickness, Base Plate 320x320x20mm, Mounting Brackets for holding Solar panels at the top, Galvanized Battery mounting box and single arm bracket with all accessories for fixing luminaires as per structural stability design f) Foundation 500mm x 500mm x 800mm below soil level and 300mm above ground level of M25 Grade for Single arm bracket and as per instructions by NHAI	Nos	90,140.00	20.00	18,02,800
8	Direction and Place Identification Signs with size more than 0.9 sqm size Board: Providing and fixing of retro-reflectorised direction and place identification sign as per clause 801 of MoRTH Specifications for Roads & Bridge Works (5th Revision) and IRC : 67 made of class -C Micro Prismatic Grade Sheeting of Type XI retro reflective sheeting. The retro -reflective sheeting shall have manufacturer logo, watermark and lot number on the sheet. A QR (Bar) code shall also be placed on the backside of the sign board with an indelible ink. Retro reflective sheet shall be fixed over 2 mm thick aluminium sheeting or 4mm thick Aluminium composite material sheet vide clause 801 of MoRTH Specifications for Roads & Bridge Works. The sign shall be fixed over back support frame of minimum 40x40x 5mm Angle Frame. Retro reflective sheet shall be fixed on substrate with Pressure Adhesive. The substrate shall be firmly riveted on angle frame @200mm spacing with aluminium pop rivets using Pneumatic guns. The Angle frame shall be firmly fixed with high strength Bolts, washers & nuts conforming to IS1364 and IS 1367 on Sign Support Pole. Signs shall be supported on two or more GI circular pipe 80 NB, 3.2 mm thickness conforming to IS 1239. Adequate bracing shall be provided to hold firmly GI support pipes. The sign supports shall be firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45 cm x 45 cm x 60, 60 cm below ground level as per approved drawing. All Components of signs and supports including angle frame, bolts, nuts, washers, etc., other than the reflective portion shall be galvanized by hot dip process (Zinc coated, 0.55 kg/sqm; minimum single spot) unless otherwise specified. All galvanizing shall be done after fabrication. Alternate white and yellow bands measuring 50 mm long retro-reflective sheeting shall be pasted around GI posts which help in ensuring the visibility/Presence of poles during night time even if the sign boards are stolen or totally vandalized. Minimum four bands of such retro-reflective sheeting shall be pasted starting from a height of 0.5 m above the finish road level. The messages (legends, letters, numerals, etc.) and borders shall be digitally printed conforming to clause 6.8 of IRC 67. Finished Signs shall have an Ultra Violet (UV) protective clear overlay applied to the entire face of the signs supplied by reflective sheet manufacturer. The agency shall submit 10 years warranty for satisfactory field performance for type XI retro reflective sheeting from the manufacturer conforming to clause 6.7 & 6.9 of IRC 67. Agency shall submit a certified copy of test reports from Government laboratory/Institute conforming to clause 6.7 & 6.9 of IRC 67 including 3 years accelerated outdoor weathering for the retro reflective sheeting. The Agency shall submit the sign convertor (manufacturer) name with essential equipment in his fabrication shop such as digital printer, cutter, plotter, laminator, Galvanizing plant etc. The Agency shall submit road sign installation drawing in 'Kmz' file for approval before installation and after installation submit geo-tagging of all road signs with its installation photos and date of installation and other details as mentioned in IRC 67 annexure VII, complete in all respects. The sign supports and its foundation details are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.				
a	Stack ADS	Sqm	13,304.00	198.72	26,43,771
b	Crash Prone Areas	Sqm	13,304.00	51.84	6,89,679
c	Flag Type Sign	Sqm	13,304.00	317.52	42,24,286

Annual Maintenance including Incident Management of Thoothukudi - Tiruchendur - Kanyakumari Road section from Km.0+000 to Km.119+700 of NH -32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis

TRAFFIC AND OTHER APPURTENANCES (Main Carriage way)					
S.No	Description of work	Unit	Rate	Quantity	Amount
9	Providing and fixing overhead gantry mounted Signs as per clause 801 & 802 of MoRTH Specifications for Roads & Bridge Works (5th Revision) and IRC : 67 made of class -C Micro Prismatic Grade Sheeting of Type XI retro reflective sheeting. The retro - reflective sheeting shall have manufacturer logo, watermark and lot number on the sheet. A QR (Bar) code shall also be placed on the backside of the sign board with an indelible ink. Retro reflective sheet shall be fixed over 2 mm thick aluminium sheeting or 4mm thick Aluminium composite material sheet vide clause 801 of MORTH Specifications for Roads & Bridge Works. The sign shall be fixed over back support frame minimum 40x40x 5mm Angle Frame. Retro- reflective sheet shall be fixed on substrate with Pressure Adhesive. The substrate shall be firmly riveted on angle frame @200mm spacing with aluminium pop rivets using Pneumatic guns. The Angle frame shall be firmly fixed with high strength Bolts, washers & nuts conforming to IS1364 and IS 1367. The sign shall be fixed with vertical clearance of 6.0m from the highest finished level of entire carriageway including paved shoulder, For Cantilever mounted signs, The center of the sign is typically located over the carriageway edge line; however the left of sign shall be positioned no further left than the left edge of paved shoulder. On Gantry mounted signs, when number of signs are erected, the outer edges of signs shall not extend beyond the outer edge of paved shoulders on left side and paved edge strip on median side. Overhead Signs shall be placed on structurally sound gantry or cantilever structure made of GI pipes conforming to IS 1239. The lateral clearance of the gantry sign supports shall be conforming to clause 802.3 of MORTH specifications. The sign supports shall firmly fixed to the ground by means of properly designed foundation as per approved drawing. All Components of signs and supports including gantry, bolts, nuts, washers, etc., Other than the reflective portion shall be galvanized by hot dip process (Zinc coated, 0.55 g/sqm; minimum single spot) unless otherwise specified. All galvanizing shall be done after fabrication. Alternate white and yellow bands measuring 50 mm long retro-reflective sheeting all be pasted around gantry support posts which help in ensuring the visibility/Presence of poles during night time even if the sign boards are stolen or totally vandalized. Minimum four bands of such retro-reflective sheeting shall be pasted starting from a height of 0.5 m above the finish road level. The messages (legends, letters, numerals, etc.) and borders shall be digitally printed conforming to clause 6.8 of IRC 67. Finished Signs shall have an Ultra Violet (UV) protective clear overlay applied to the entire face of the signs supplied by reflective sheet manufacturer. The agency shall submit 10 years warranty for satisfactory field performance for type XI retro reflective sheeting from the manufacturer conforming to clause 6.7 & 6.9 of IRC 67. Agency shall submit a certified copy of test reports from Government laboratory/ Institute conforming to clause 6.7 & 6.9 of IRC 67 including 3 years accelerated outdoor weathering for the retro reflective sheeting. The Agency shall submit the sign convertor (manufacturer) name with essential equipment in his fabrication shop such as digital printer, cutter, plotter, laminator, galvanizing plant etc. The Agency shall submit road sign installation drawing in 'Kmz' file for approval its before installation and after installation submit geo-tagging of all road signs with its installation photos and date of installation and other details as mentioned in IRC 67 annexure VII, complete in all respects. The sign supports and its foundation details are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions board.				
9a	Reassurance Gantry Facia - Providing and erecting overhead sign made of Class -C Micro Prismatic Sheeting of Type XI retro reflective sheeting as per IRC 67.	Sqm	9,475.00	252.00	23,87,700
9b	Reassurance Gantry - Cost of Gantry, Cantilever Gantry and Butterfly gantry (Truss and Vertical support) including Open/Pile Foundation for Gantry with two supports (apprx. 32 cum RCC), Cantilever Gantry and Butterfly Gantry (apprx. 16 cum RCC) including excavation, backfilling, cement concrete, steel reinforcement , etc. complete all respect The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.	Nos	9,94,011.00	12.00	1,19,28,132

Annual Maintenance including Incident Management of Thoothukudi - Tiruchendur - Kanyakumari Road section from Km.0+000 to Km.119+700 of NH -32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis					
TRAFFIC AND OTHER APPURTENANCES (Main Carriage way)					
S.No	Description of work	Unit	Rate	Quantity	Amount
10	Direction and Place Identification Signs with size more than 0.9 sqm size Board: Providing and fixing of retro-reflectorised direction and place identification sign as per clause 801 of MoRTH Specifications for Roads & Bridge Works (5th Revision) and IRC : 67 made of class -C Micro Prismatic Grade Sheeting of Type XI retro reflective sheeting. The retro -reflective sheeting shall have manufacturer logo, watermark and lot number on the sheet. A QR (Bar) code shall also be placed on the backside of the sign board with an indelible ink. Retro reflective sheet shall be fixed over 2 mm thick aluminium sheeting or 4mm thick Aluminium composite material sheet vide clause 801 of MoRTH Specifications for Roads & Bridge Works. The sign shall be fixed over back support frame of minimum 40x40x 5mm Angle Frame. Retro reflective sheet shall be fixed on substrate with Pressure Adhesive. The substrate shall be firmly riveted on angle frame @200mm spacing with aluminium pop rivets using Pneumatic guns. The Angle frame shall be firmly fixed with high strength Bolts, washers & nuts conforming to IS1364 and IS 1367 on Sign Support Pole. Signs shall be supported on two or more GI circular pipe 80 NB, 3.2 mm thickness conforming to IS 1239. Adequate bracing shall be provided to hold firmly GI support pipes. The sign supports shall be firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45 cm x 45 cm x 60, 60 cm below ground level as per approved drawing. All Components of signs and supports including angle frame, bolts, nuts, washers, etc., other than the reflective portion shall be galvanized by hot dip process (Zinc coated, 0.55 kg/sqm; minimum single spot) unless otherwise specified. All galvanizing shall be done after fabrication. Alternate white and yellow bands measuring 50 mm long retro-reflective sheeting shall be pasted around GI posts which help in ensuring the visibility/Presence of poles during night time even if the sign boards are stolen or totally vandalized. Minimum four bands of such retro-reflective sheeting shall be pasted starting from a height of 0.5 m above the finish road level. The messages (legends, letters, numerals, etc.) and borders shall be digitally printed conforming to clause 6.8 of IRC 67. Finished Signs shall have an Ultra Violet (UV) protective clear overlay applied to the entire face of the signs supplied by reflective sheet manufacturer. The agency shall submit 10 years warranty for satisfactory field performance for type XI retro reflective sheeting from the manufacturer conforming to clause 6.7 & 6.9 of IRC 67. Agency shall submit a certified copy of test reports from Government laboratory/Institute conforming to clause 6.7 & 6.9 of IRC 67 including 3 years accelerated outdoor weathering for the retro reflective sheeting. The Agency shall submit the sign convertor (manufacturer) name with essential equipment in his fabrication shop such as digital printer, cutter, plotter, laminator, Galvanizing plant etc. The Agency shall submit road sign installation drawing in 'Kmz' file for approval before installation and after installation submit geo-tagging of all road signs with its installation photos and date of installation and other details as mentioned in IRC 67 annexure VII, complete in all respects. The sign supports and its foundation details are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.	Sqm	13,304.00	77.76	10,34,519
	Providing and fixing overhead gantry mounted Signs as per clause 801 & 802 of MoRTH Specifications for Roads & Bridge Works (5th Revision) and IRC : 67 made of class -C Micro Prismatic Grade Sheeting of Type XI retro reflective sheeting. The retro - reflective sheeting shall have manufacturer logo, watermark and lot number on the sheet. A QR (Bar) code shall also be placed on the backside of the sign board with an indelible ink. Retro reflective sheet shall be fixed over 2 mm thick aluminium sheeting or 4mm thick Aluminium composite material sheet vide clause 801 of MORTH Specifications for Roads & Bridge Works. The sign shall be fixed over back support frame minimum 40x40x 5mm Angle Frame. Retro- reflective sheet shall be fixed on substrate with Pressure Adhesive. The substrate shall be firmly riveted on angle frame @200mm spacing with aluminium pop rivets using Pneumatic guns. The Angle frame shall be firmly fixed with high strength Bolts, washers & nuts conforming to IS1364 and IS 1367. The sign shall be fixed with vertical clearance of 6.0m from the highest finished level of entire carriageway including paved shoulder, For Cantilever mounted signs, The center of the sign is typically located over the carriageway edge line; however the left of sign shall be positioned no further left than the left edge of paved shoulder. On Gantry mounted signs, when number of signs are erected, the outer edges of signs shall not extend beyond the outer edge of paved shoulders on left side and paved edge strip on median side. Overhead Signs shall be placed on structurally sound gantry or cantilever structure made of				

Annual Maintenance including Incident Management of Thoothukudi - Tiruchendur - Kanyakumari Road section from Km.0+000 to Km.119+700 of NH -32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis					
TRAFFIC AND OTHER APPURTENANCES (Main Carriage way)					
S.No	Description of work	Unit	Rate	Quantity	Amount
11	GI pipes conforming to IS 1239. The lateral clearance of the gantry sign supports shall be confirming to clause 802.3 of MORTH specifications. The sign supports shall firmly fixed to the ground by means of properly designed foundation as per approved drawing. All Components of signs and supports including gantry, bolts, nuts, washers, etc., Other than the reflective portion shall be galvanized by hot dip process (Zinc coated, 0.55 g/sqm; minimum single spot) unless otherwise specified. All galvanizing shall be done after fabrication. Alternate white and yellow bands measuring 50 mm long retro-reflective sheeting all be pasted around gantry support posts which help in ensuring the visibility/Presence of poles during night time even if the sign boards are stolen or totally vandalized. Minimum four bands of such retro-reflective sheeting shall be pasted starting from a height of 0.5 m above the finish road level. The messages (legends, letters, numerals, etc.) and borders shall be digitally printed confirming to clause 6.8 of IRC 67. Finished Signs shall have an Ultra Violet (UV) protective clear overlay applied to the entire face of the signs supplied by reflective sheet manufacturer. The agency shall submit 10 years warranty for satisfactory field performance for type XI retro reflective sheeting from the manufacturer conforming to clause 6.7 & 6.9 of IRC 67. Agency shall submit a certified copy of test reports from Government laboratory/ Institute conforming to clause 6.7 & 6.9 of IRC 67 including 3 years accelerated outdoor weathering for the retro reflective sheeting. The Agency shall submit the sign convertor (manufacturer) name with essential equipment in his fabrication shop such as digital printer, cutter, plotter, laminator, galvanizing plant etc. The Agency shall submit road sign installation drawing in 'Kmz' file for approval its before installation and after installation submit geo-tagging of all road signs with its installation photos and date of installation and other details as mentioned in IRC 67 annexure VII, complete in all respects. The sign supports and its foundation details are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions board.	Sqm	9,475.00	36.00	3,41,100
12	Crash Barrier Painting - Providing and applying two coats of approved synthetic enamel paint of required shade and make over new plastered or concrete surfaces, after preparing the surface and applying suitable primer and wall putty as required to obtain a smooth and even finish, including all materials, labour, tools and plants, scaffolding, curing where required, and all incidental charges, complete as per the MoRTH Specifications for Road and Bridge Works and as directed by the Engineer.	Sqm	157.00	10,400.00	16,32,800
13	Providing and applying 12 mm thick cement plaster in Cement Mortar 1:3 (1 cement : 3 fine sand) to concrete or masonry surfaces, including preparation of the surface, raking out joints where required, finishing the surface smooth, curing, and all materials, labour, tools and plants, scaffolding, transportation and incidental charges, complete in all respects as per the MoRTH Specifications for Road and Bridge Works and as directed by the Engineer.	Sqm	264.70	10,400.00	27,52,880
14	Construction of cement concrete kerb with channel with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M15 grade foundation 150 mm thick, kerb channel 300 mm wide, 50 mm thick in PCCM20 grade, sloped towards the kerb, kerb stone with channel laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 409	Rm	567.00	4,000.00	22,68,000
15	Kerb Painting - Providing and applying two coats of approved synthetic enamel paint of required shade and make over new plastered or concrete surfaces, after preparing the surface and applying suitable primer and wall putty as required to obtain a smooth and even finish, including all materials, labour, tools and plants, scaffolding, curing where required, and all incidental charges, complete as per the MoRTH Specifications for Road and Bridge Works and as directed by the Engineer.	Sqm	157.00	1,320.00	2,07,240
16	Metal Beam Crash Barrier Type - A, "W" Double Guard. Providing and erecting Single sided Double Guard Metal Beam Crash Barrier System 1.70m high, comprising of 3mm thick wall "W" beams posts and spacer channels shall be made by cold roll forming using HR conform to IS 5986 Fe 410/360 and dip galvanized having Zinc Mass of 550gms/ sqm, minimum 950mm above road/ ground level fixed on ISMC series channel vertical post 150x75x5mm spaced 2m center to center 312mm x 83mm flange width x 3mm thick, 4318mm long post directly embedded in the concrete (M15) pit size 350x350x800mm for a depth of 750mm below ground. All fixing bolts and nuts hot dip galvanized conforming to IS:1367 clause 4.60 all complete as per Technical Specification and as directed by the Engineer-in-charge	Rm	6,500.00	960.00	62,40,000
17	PGR-(Pedestrian Guard Rail) - Anti - Glare Screen with 25 mm steel pipe framework fixed with circular and rectangular vans (Providing and erecting an anti - glare screen with 25 mm dia vertical pipes fabricated and framed in the form of panels of one metre length and 1.75 mtr height fixed with circular vane 250 mm dia at top and rectangular vane 600 x 300 mm at the middle, made out of steel sheet of 3 mm thickness, end vertical pipes of the panel made larger for embedding in foundation concrete, applying 2 coats of paint on all exposed surfaces, all as per approved design and drawings.)	Rm	4,914.00	2,000.00	98,28,000

Annual Maintenance including Incident Management of Thoothukudi - Tiruchendur - Kanyakumari Road section from Km.0+000 to Km.119+700 of NH -32 (Old SH-176) in the State of Tamil Nadu on Item Rate Basis					
TRAFFIC AND OTHER APPURTENANCES (Main Carriage way)					
S.No	Description of work	Unit	Rate	Quantity	Amount
18	Providing and Laying of 5mm high Single Rib Pattern Transverse Bar Markings with 2 component cold plastic with specialised cold plastic Primer coating rolled on surfacing material solvent free, high build two pack seamless, tough, skid resistant, for material to reduce speed. Cold Plastic road marking material shall be applied in single monolithic application to create rumble strip raised section of 10 mm high, 300 mm wide confirming to clause 3.7 of IRC 99, across the entire carriageway. Each rumble marking shall be made complete with specialised high refractive index glass beads of minimum reflectivity index of 1.5. The glass bead shall be 250gm/sqm. Type 1 beads (Refer MORTH Specification Clause803.4.2) which are a constituent of the basic cold plastics compound vide Table 800-9 (MORTH Specification) and Type 2 beads are those which are to be sprayed on the surface vide Clause 803.6.4 (MORTH Specification). Pavement Marking Performance such as Day/Night visibility, Dry/Wet visibility and skid resistance shall be confirming to clause 15.5 of IRC 35. The finished surface to be levelled, uniform and free from streaks and holes, to be applied on the edge lines, Including surface cleaning and cost of all materials etc. complete.	Sqm	2,916.67	1,209.60	35,28,004
19	Providing and Laying of 10mm high Single Rib Pattern Transverse Bar Markings with 2 component cold plastic with specialised cold plastic Primer coating rolled on surfacing material solvent free, high build two pack seamless, tough, skid resistant, for material to reduce speed. Cold Plastic road marking material shall be applied in single monolithic application to create rumble strip raised section of 10 mm high, 300 mm wide confirming to clause 3.7 of IRC 99, across the entire carriageway. Each rumble marking shall be made complete with specialised high refractive index glass beads of minimum reflectivity index of 1.5. The glass bead shall be 250gm/sqm. Type 1 beads (Refer MORTH Specification Clause803.4.2) which are a constituent of the basic cold plastics compound vide Table 800-9 (MORTH Specification) and Type 2 beads are those which are to be sprayed on the surface vide Clause 803.6.4 (MORTH Specification). Pavement Marking Performance such as Day/Night visibility, Dry/Wet visibility and skid resistance shall be confirming to clause 15.5 of IRC 35. The finished surface to be levelled, uniform and free from streaks and holes, to be applied on the edge lines, Including surface cleaning and cost of all materials etc. complete.	Sqm	4,552.00	1,209.60	55,06,099
Total Amount (Rs.)					9,44,31,699



भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय, भारत सरकार)

National Highways Authority of India

(Ministry of Road Transport and Highways, Government of India)

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NHAI/ Policy Guidelines/ Road Safety/ 2024

Policy Circular No.12.36/2024 dated 12th December, 2024

{Decision taken on E-Office File No. RMDIV-21/1/2024-RMD Division (Comp. No. 266572)}

Sub: Amendment to NHAI/ Policy Guidelines/ Strengthening the Incident Management Services/ 2019 Policy Circular No. 12.19 dated the 20th March 2018- reg.

Route Patrolling Operations play a critical role in maintaining Safety and ensuring smooth traffic flow on Highways/Designated Routes. Route Patrol Vehicles (RPVs) are deployed to conduct routine inspections of Highway stretch, monitor and respond to incidents / near-miss incidents and provide immediate assistance to road users in emergency situations. Equipped with trained Manpower, advanced Communication and Safety Tools, these Vehicles are essential for upholding regulatory standards, minimizing traffic disruptions, improving Road Safety and enhancing overall Road User experience along our Highways.

2. The detailed specifications for the Patrol Vehicle have been outlined under Annexure-1 of NHAI/Policy Guidelines/ Strengthening the Incident Management services/2018 Policy Circular No.12.19, dated the 20th March 2018. With the recent Technological Advances and experience gained, it has been decided to update the above-mentioned specifications. Accordingly, the specifications of the Patrol Vehicles deputed on the National Highways stands amended and replaced by the specifications stipulated in **Appendix-I** of this Circular. In consideration of the same:

- i. New Route Patrol Vehicles (RPVs) hired/procured henceforth shall be in accordance with these specifications.
- ii. The existing RPVs undertaking route patrolling tasks across various Highways of NHAI shall be upgraded as per these specifications within a period of six months from the date of issuance of this Circular at no additional cost.
- iii. However, the cost of CAMERA with AI Software, only shall be borne by NHAI.
- iv. Provision for installation of Dashboard Cameras is to be provided in the existing RPV units. The data/ video footage including Road distresses using the Dashboard Camera shall be collected in the presence of concerned Authority Engineer (AE) and a Representative of Project Implementation Units (PIU), NHAI. This Road distresses data must be uploaded by the AE on NHAI One application. Further, this data from the Dashboard Cameras shall be provided by the PIUs to the NHAI HQ on monthly basis. Detailed SOP in this regard shall be issued separately by NHAI HQ.
- v. Approval of these modifications/alterations with respect to CMVR Provisions/RTO Regulations shall be taken at RO Level with concerned State Governments.

Contd...2/-

3. This Policy also outlines the functions of Route Patrolling along our Highways, Details on Components of Route Patrolling including Route Patrolling Vehicle (RPV), Inventory in RPV and Manpower requirements in RPV with their broad Responsibilities are stipulated at **Appendix-II** and **Appendix-III** of this Circular respectively.

4. This issues with the approval of Competent Authority.



(CS. Sanjay Kumar Patel)
General Manager (Coord.)

To:

All Officers of NHAI HQ/ ROs/ PIUs/ CMUs/ Site Offices

Copy to:

1. Hindi Division for translation in Hindi.
2. Library for hosting the circular on library site.
3. Web Admin for circulation.

Patrol Vehicle Specifications

Every Route Patrol Vehicle (RPV) should adhere to the minimum specifications as described below:

General Vehicle

Sr. No.	Type	Description
1	Vehicle type	- RPV should be a large size Sport Utility Vehicle (SUV) or Multi Utility Vehicle (MUV) with a seating capacity of minimum 4 people including the driver. - RPV should be able to accelerate from 0km/ h to 80 km/ h within 20s when tested in accordance with IS: 11851-1986. - The Route Patrol Vehicle (RPV) should be capable of maintaining stable and controlled movement in case an emergency situation demands high speed movement. - The RPV should be a new vehicle and should not have covered more than 2000 km (mileage) at the time of procurement. Once a vehicle has either exceeded 3,00,000 kilometers or has been in operation for three years, whichever occurs first, it shall be replaced with new RPV. - Rear or trunk of RPV shall be of closed ceiling with cabinet shelves and dedicated space of each equipment and inventory. The shelves shall be so designed that accessing any equipment shall be quick, easy and with least dependency on any other equipment. Cabinet design with dimensions shall be as shown in Figure 2. It may be noted that, closed cabinet storage-based design has been prepared to accommodate all proposed inventory in RPV and to facilitate easy accessibility during incident handling. It may further be noted that, the dimensions mentioned in Figure 2 are minimum requirements to accommodate the inventory. Improvisation in the shared design / layout arrangement shall not be conducted, unless otherwise approved by the concerning authority based on project specific / region specific requirements.
2	External Appearance	Emblems, Logo, Marking & Colour Scheme: To maintain uniformity across the country, external appearance of RPV shall be as shown in figure 1. - Complete body exterior should be painted with PU base 2K paint, white in colour with red stripe pattern as shown in the image below. The placement, font style, size and overall dimensions of Logo, authority name and emergency number shall be followed as shown in figure 1 and as described below. - RPV should have "RAJMARG SAATHI", "NHAI", "SPV" Logo, texts "NHAI" & "HIGHWAY PATROL UNIT" written on the vehicle as shown in figure 1.

Sr. No.	Type	Description
		○ On the storage cabinet: Diameter of logos (NHAI and RAJMARG SAATHI) shall be 550mm and font height of letter "HIGHWAY PATROL UNIT" shall be 60mm. ○ On the Passenger Doors: Diameter of logos (NHAI and SPV) shall be 500mm. ○ On bonnet: Diameter of "NHAI" logo shall be 550mm. ○ Font Height of "NHAI" written on the trunk body shall be 200mm height. ○ Font style English: "Arial Black" & Font style Hindi: "Krutidev 040". ○ Font colour shall be followed as per the colour scheme shown in the figure 1. ● Rear of the vehicle shall be provided with fluorescent yellow and red stripe pattern with reflective paint as shown in the image. The stripes must slope downward and away from the centre line of the vehicle at an angle of 45°. Each stripe must be 6-inches wide and in an alternating pattern of red and yellow. Additionally, retroreflective striping inside vehicle doors is essential to maintain conspicuity and alerting to the passing drivers when the doors are opened.
3	Lighting and Illumination	The RPV shall be equipped with fog lamps, warning lights, a roof-mounted rear bar light and a front LED bar light with siren, in addition to standard vehicle indicators, headlamps, and tail lamps. Warning Lights: The warning light system shall be installed externally as per the specified arrangement, colour, and size detailed in the image provided. These lights shall alternate between red and blue colours, flashing at a rate of 60 to 90 flashes per minute. To help other drivers recognize the RPV's operational status, distinct emergency lighting patterns shall be used to differentiate between a moving and stationary vehicle. This can be achieved through various strobe patterns, light configurations, and colour sequencing. Roof-Mounted Rear Bar Light: The roof-mounted rear bar light shall be programmed to flash at 60 to 90 flashes per minute in alternating red and blue colours. All light assemblies must be made of weatherproof materials to prevent electrolysis and corrosion between the light housing and the vehicle body.
4	Siren with Public Address System	A high-quality combination electronic siren with Integrated Public Addressing System of minimum 100W (PMPO) shall be provided. The siren's controls should have full range volume control and should permit the following sounds: Manual, Wail, and Yelp. The siren sweep rate should be 10-18 cycles per minute. The microphone should be of a noise-cancelling type. Siren/Speakers shall not protrude beyond the face of the bumper or bumper guards if provided in there. The control panel for this system should be fixed at a suitable location in the driver compartment.

Sr. No.	Type	Description
5	Cameras for Intelligent Support	A Dashboard camera with GPS with AI video analytics fixed on the front dashboard positioned to capture the view of the highway, and identify road defects like cracks and potholes respectively shall be installed in the RPV. It should possess advanced capabilities beyond mere recording. Dashboard camera to be equipped with AI-powered object detection and classification algorithms to automatically identify and categorize various elements of the road environment, including vehicles, pedestrians, road signs, and infrastructure. Minimum Specifications for Cameras: • 2Megapixel, 1920x1080 at 30fps, FOV (D:125, H:105, V:58). • Operating Environment: Temperature: -20 to +70 degrees Celsius, humidity: 10% to 90%, atmospheric pressure: 860mbar to 1080mbar. • Memory Storage: minimum 256GB. • Support: Wifi, 4G (minimum), GPS, 2GB RAM, G-sensor (3axis acceleration sensors). • Camera shall support IR capabilities. This data can then be used to create a comprehensive inventory database of road features, aiding in infrastructure management, route planning, and hazard identification.
6	Route Patrol Personnel	Recognition of personnel All PV Personnel should wear brilliant blue color uniform including brilliant blue color jackets required in winters with reflective stripes, authority name, logo (NHAI & RAJMARG SAATHI logo). Safety garments for PV personnel should conform to at least ISO 14116:2008. Steel-toe Safety Boots to protect against impact and falling objects with slip resistant sole and ankle support shall be used at all times. Uniforms should be clean, well-maintained and free of tears or excessive wear for a professional appearance. Avoid Loose or Dangling Accessories: Minimize wearing any loose items that could catch on equipment or pose a safety risk.



The branding and recognition pattern of RPV described above should resemble with the one shown in the sketches below:



Figure 1: Side and Rear view of the RPV

10/2/22

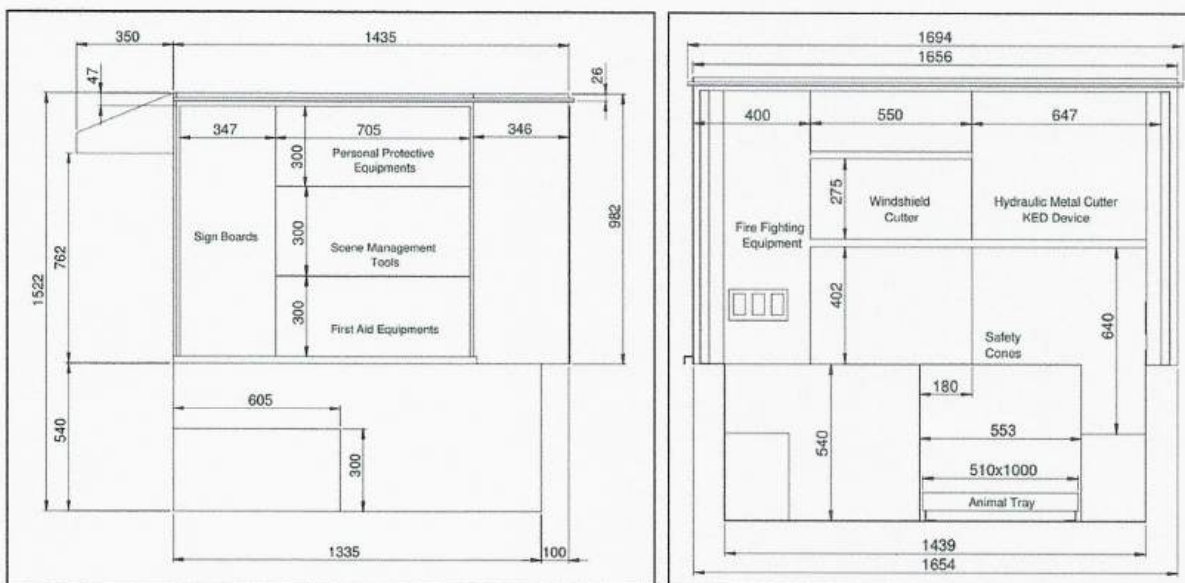
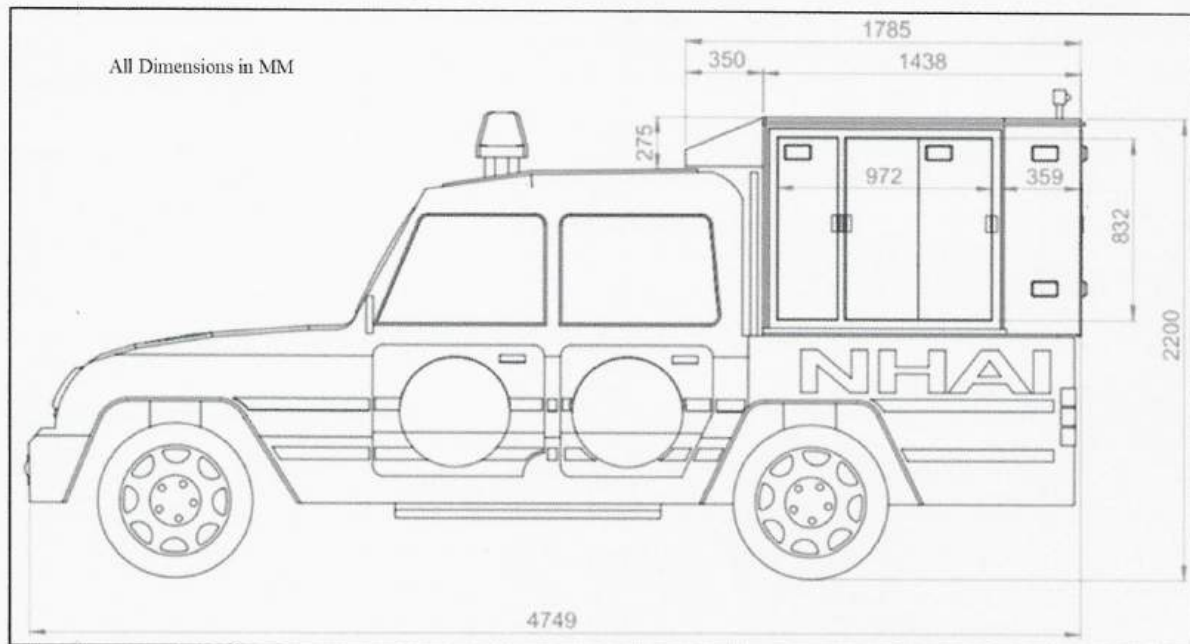


Figure 2: Cabinet-Storage Based Route Patrolling Vehicle Arrangement

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Appendix-II

Equipment and Inventory in Route Patrolling Van

Following are the list of equipment and specification of each to be kept in working condition in every RPV:

S. No.	Type	Description
1	Tracking Equipment	Automatic vehicle tracking system with GPS technology for tracking vehicle's current location; GPS Technology shall be in accordance with AIS-140 requirement of Vehicle Tracking System (VTS) of NHAI
2	Communication Equipment	• 1 Mobile communication device with camera and internet connectivity. • 1 Two- way radio device with antennae or better technology for mobile communication, for communication with on-road control room units. It should have a sufficient range to communicate in the entire section with sufficient battery life (12 hours+). This is mandatory along highways having telephonic blackspot locations. • 1 Siren with Public Address System as mentioned in the vehicle description in the table above. • Dashboard camera with GPS and AI video analytics fixed on the front dashboard.
3	General Surveillance Equipment	• White color high intensity torch lights with two set of spare batteries (2Nos) • Orange color reflective safety jacket and Gum boots (3 Nos sets, 1 for each attendant) • Helmet with whistle attached on side (3 Nos sets, 1 for each attendant) • Rain suit with reflective strips (3 Nos, 1 for each attendant) • 5L capacity liquid containers for carrying fuel along with a funnel (2 Nos, one for each: petrol and diesel) • Drinking Water container with 5L capacity (1No) • Rope of minimum 20 m length (1Nos) (suitable to tow LMV) • Red color reflective flags made of santoon fabric, dimension of 600x900mm (5Nos) • Baton lights, red and green color, 21inch length and 1.25-inch diameter (2Nos)



S. No.	Type	Description
4	Vehicle Repairing Equipment	• Leather gloves (3Nos, 1 for each attendant) • Rubber gloves (3Nos, 1 for each attendant) • 20-ton hydraulic jack, should be able to attain a maximum height of at least 300 mm (1No), shall also be suitable for cars as well as for medium / large trucks • Heavy duty steel towing chain of minimum 1.5 m length (1 Nos) • Portable tyre inflator pump with tyre gauge capable of filling tires up to a pressure of 50 psi; should be able to inflate tires of cars, buses and light trucks (1No), Tyre Sealant (500ml) • Starter leads with multi-meter: For making connections with external power source (1 pair) • Tow bar for towing purposes, 1.3m long (1Nos) • Mechanical toolkit with equipment like hammer, fencing pliers, mallet, ratchet wrench set, screwdriver set, battery brush, etc. • Tow hook in the front as well as rear
5	Extrication & First Aid Equipment	• 1 Hydraulic/electric portable hand cutter and spreader combined tool should be able to cut off vehicle parts, metal structure, steel plate. Should have maximum cutting force > 250 KN, spreading force > 25KN with opening distance of Blades > 150 mm • 4 wooden wedges - 4 rectangular wooden blocks of minimum dimensions 150 * 120 * 60 mm for stabilizing light and heavy vehicles • Woollen blankets (2Nos) • First aid kit (1No) ○ 24 small sterilised dressings, 12 medium size sterilized dressings, 12 large size sterilized dressings, 12 large size sterilized burn dresses. 12 (15 cm) packets of sterilized cotton, wool. ○ (200 ml) bottle of certimide solution (I) or suitable antiseptic solution, 1 (200ml) bottle of mercurochrome (2%) solution in water, 1(120ml) bottle of sal- volatile having the doses and mode of administration indicated on the label. ○ A pair of scissors. ○ 1 role of adhesive plaster (6 cm into one meter), 2 role of adhesive plaster (2 cm into one meter). ○ Twelve pieces of sterilized eye pads in separate sealed packets. ○ A bottle containing hundred tablets (I each of 325 mg) of aspirin or any other analgesic.

S. No.	Type	Description
		○ Twelve roller bandages 10 cms wide. Twelve roller bandages 5cms wide. ○ 1 tourniquet. ○ a supply of suitable splints, 3 packets of safety pins. ○ Kidney tray. ○ A snake bite lancet. ○ 1 (30ml) bottle containing potassium permanganate crystals. ○ 1 copy of first aid leaflet issued by the Directorate General. ○ 6 triangular bandages. ○ 2 pairs of suitable sterilized latex hand gloves. ○ Burn Gel Packets, Sterile Burn Dressings ○ Sufficient number eye wash bottles filled with distilled water or suitable liquid clearly indicated by a distinctive sign which shall be visible at all times. ○ 4% xylocaine eye drops and boric acid eye drops and soda by carbonate eye drops. ○ CPR Face Shield, Pocket Mask, Disposable Gloves ○ Hand Sanitizer ○ Tweezers, Thermometer (Digital), Instant Cold Packs ○ Pain Relievers (Ibuprofen, Acetaminophen or likes), Antihistamine Tablets (For allergic reactions), Aspirin
6	Scene Management Equipment	• Minimum 20 Reflective cones of 750 mm each, should be orange in colour with retro-reflectors white band and a heavy rubber base with minimum possibility of being displaced by wind/vehicular traffic • 4 kg dry Powder Fire Extinguisher ISI marked & conforming to BE: 13849-1993 or latest) (2 Nos) • Hard bristle broom (1Nos) • Shovel (1 No) • Signboard with chevron arrows on both side and Mechanism to stand by itself. (6Nos) as shown in Figure-3. (Size - 900mm*900mm) • 2 numbers of foldable tripods to raise the height of first signboard, depending on traffic characteristics along the highway. • 6 numbers of flashing light for fixing on each signboard to improve visibility whenever signboard is installed while handling the incident Solar/ battery-based flashing LED light along with clamp / magnetic arrangement for fixing on to signboard (minimum 12 hours backup and minimum visibility distance of 500m). Few images for reference are shown alongside.



12/2

S. No.	Type	Description
		• Red colour Reflective tape of 4-inch width (1role), Caution Tape (1 role) • 3 pairs of safety glasses and masks for protection of safety officers from glass debris/ airborne dust. • 10 kg sealed bucket with lime or cement inside • 5kg Sandbag to handle oil spills on the highway • Animal hook, 1.3m long (1No) • Rock Salt bag of 5kg, with cool box, dead body cover / bag for smaller dead animals of weight up to 50kg

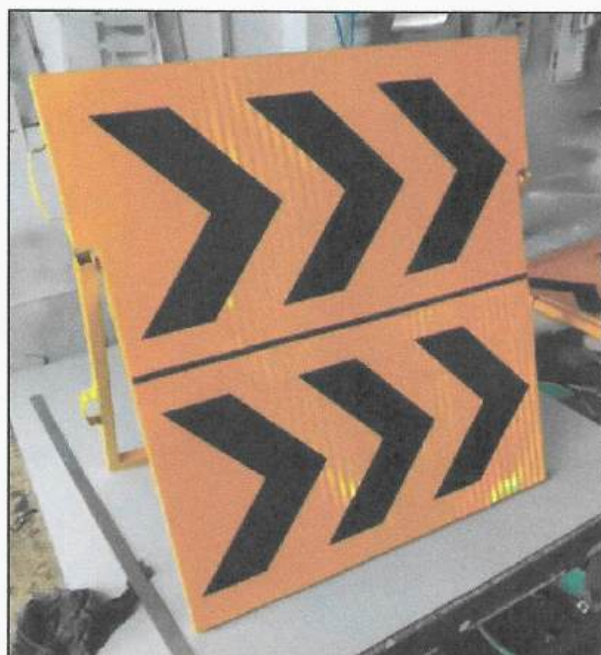


Figure 3: Modular sign board with Front and Back view

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Manpower in Route Patrolling Team along with Broad Responsibilities

Route Patrolling essentially consists of regular surveillance along highways to provide following functions towards Highway Asset Management and Road User Response Services -

1. Monitoring and Surveillance along the Highway

- a. Road Property Management - Identify, Record, Report and Coordinate to Resolve encroachments, hazards and incidental damage to Road Asset caused by vehicles, floods, storms or other random
- b. Identify, Report Issues related to Engineering, Education and Enforcement Implementations along the Highway

2. Incident Management and Roadside Assistance / Emergency Response to Road Users

- a. Identify, Report and Resolve hazards impacting Smooth and Safe Traffic Movement e.g.- vehicle breakdowns, unauthorized parking, hazardous material spill along highway, visibility obstructions, dead animal removals, traffic violations, etc.
- b. Identify, Report and Facilitate Emergency Response to Road Users during Incidents / Accidents including coordination with enforcement, medical agencies and authorities

The manpower and training requirements for the smooth operation of RPVs to perform above functions shall be as stipulated in the table below:

S. No.	Manpower Details	Broad Responsibilities
1	Highway surveillance in- charge	
	1 Highway surveillance in-charge should be appointed per shift per vehicle - The employee appointed should have a minimum of 2 years of relevant experience in route patrolling and traffic management. - The employee appointed should be able to read/write and maintain logbooks. - Employee appointed should undergo trainings including fields such as - Vehicle use and maintenance - Safety policies	- Patrol the corridor to ensure obstruction free flow as per shift standards. - To report to police and assist injured at accident scene and remove all obstructions from road when the vehicles are cleared. - To provide first aid to injured, contact control room and ambulance service if needed, assist police. - Record and report all incidents to control room (damaged or missing signage, barriers, or guardrails, accidents, debris, any anomalies activities observed on highway) - To ensure safety of traffic with minimal delay at accidents. - To assist motorists on broken down vehicles and to ensure that they do not obstruct free

S. No.	Manpower Details	Broad Responsibilities
	○ Radio and communication procedures ○ Public relations/ customer service ○ Public relations/customer service ○ Traffic Management ○ Vehicle recovery procedures ○ Victim extrication procedures ○ Extinguishing vehicles fires ○ Basic first aid training ○ Work side protection ○ Minor vehicle repairs • Employee appointed should time to time undergo certified trainings declared by the Authority related to Incident Management within the given stipulated timelines to continue his/her services	flow. Report in Control Room for arranging tow-away cranes or suitable help for the same. • Maintain relations with all emergency services, and local safety councils. • To report condition of drainage, ROW plantations, median plantation etc along the Highway. • Check on encroachment irregularities taking place within ROW and prevent unauthorized entry into the corridor. • Prevent theft of assets. Identify and report any such thefts of highway assets along highway. • Attend to urgent maintenance for safety requirements. • Remove poster, advertisement from sign boards, RE Wall, arrest garbage dumping adjacent or within ROW. • Conduct awareness campaign at villages, schools adjacent to highway and carry out enforcement drives at identified blackspot locations with the help of local authorities. • Conducting Dry run and mock drills for the patrolling team. All times, the Route Patrol In-Charge should have with him a list of telephone numbers and address of all concerned stakeholders in providing the road users services.
2	Driver cum helper	
	• 1 driver/ helper should be appointed per shift per vehicle • Employee appointed should have a valid license to drive a SUV vehicle. • Employee appointed should be able to read/write & maintain logbooks.	• Regularly check and maintain the patrol vehicle, ensuring it's in good working condition (fuel levels, engine condition, tire pressure, lights, horn (forward and reverse) wipers etc.). • Report any vehicle issues or required repairs to supervisors promptly.

S. No.	Manpower Details	Broad Responsibilities
	• Basic training of employee should include fields such as ○ Vehicle driving along multiple shifts ○ Minor repairing of vehicle ○ Vehicle and equipment use and maintenance ○ Radio and communication ○ Defensive driving ○ Extinguishing vehicles fires ○ Work site protection • Employee appointed should time to time undergo certified trainings declared by the Authority related to Incident Management within the given stipulated timelines to continue his/her services	• Offer basic assistance, such as jump-starting stranded vehicles and assisting with flat tires, fuel etc. • Assist emergency responder and highway surveillance in-charge in route patrol activities.
3	Emergency Responder	
	1 Emergency responder should be appointed per shift per vehicle Basic qualification shall be 12th pass with 2 years' experience in basic first aid and CPR a certified course in Basic First Aid and CPR, such as those offered by organizations certified organizations Basic training of employee should include fields such as • Vehicle and equipment use and maintenance • Basic First Aid Training (wound care, bleeding control, burn treatment, fracture and sprain management) & CPR • Basic life support skills Training in techniques like the recovery position, assessing vital signs, and supporting an individual's	• Assist Highway surveillance in-charge and helper to carry out route patrol activities. • Ensure all necessary patrol equipment (e.g., cones, first aid kit, emergency lights) is stocked, functional, and readily accessible in the vehicle. • Respond promptly to accidents or incidents, providing initial assistance and securing the area to prevent further risks, alert oncoming traffic and create a safe zone around the incident. • Perform minor maintenance on highway infrastructure, such as clearing debris, removing obstacles impacting safe traffic movement and needs immediate rectification, or replacing small items like reflectors. • Report emergency repairs, such as damaged barriers, sign board etc and ensure road conditions are safe.

S. No.	Manpower Details	Broad Responsibilities
	breathing. Ability to identify life-threatening situations (such as heart attacks, strokes, or choking) and provide immediate support. • Emergency scene management and assisting public to maintain order • Basic personal safety training, protecting themselves from bloodborne pathogens and other hazards during medical assistance (using gloves, masks, etc.) • Victim extrication from a crashed/damaged vehicle • Extinguishing vehicles fires • Employee appointed should time to time undergo certified trainings declared by the Authority related to Incident Management within the given stipulated timelines to continue his/her services	• Document and report daily patrol logs, including any observations, incidents handled, and maintenance activities performed. Take photos or record details as required for official documentation of incidents.



भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय, भारत सरकार)

National Highways Authority of India

(Ministry of Road Transport and Highways, Government of India)

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NHAI/Policy Guidelines /Road Safety /2025

Policy Circular No. 12.38/2025 dated 19th March, 2025

{Decision taken on E-Office File No. NHAI/RSA/Misc/2023 (Comp. No. 219528)}

Sub: Budgetary Rate for Traffic Signs, Pavement Markings and Road Safety Items and Short Term Measures on Black Spots -reg.

Road Signs & Pavement Markings are language of the Road. The Road Signs are provided to promote Safety & Efficiency for orderly movement of all Road Users on various Category of Roads in both urban and non-urban Areas. Road Signs have the backing of Law in India and are incorporated in the Motor Vehicles Act, 1988 and in "The Motor Vehicles (Amendment) Act, 2019".

2. IRC Code for Road Signs (IRC:67), Pavement Markings (IRC:35) and Safety Products (IRC:79) shall be followed for sitting, Construction and Maintenance for all categories of Roads including Expressways on Corridor based approach. In addition, Project Specific Codes IRC:SP:73 (Two Lanes), IRC:SP:84 (4 Lanes), IRC:SP:87 (6 Lanes), IRC:SP:99 (Expressway), MoRTH Specifications (5th Revision) and MoRTH Guidelines for Provision of Signage on Expressway and National Highways shall be followed. These Specifications shall be adopted on all NHAI Projects as follows:

- (i) DPR Projects;
- (ii) Projects where bids are yet to be invited, make appropriate provisions in the bid Documents;
- (iii) Projects under Construction Stage, provide Road Signs confirming to these Specifications;
- (iv) Projects under Operation & Maintenance (O&M) Stage, Upgrade Road Signs, Pavement Markings and Safety Products confirming to these Guidelines;
- (v) As Mitigation Measures on Black Spots and Accident Prone Locations;

3. The "Budgetary Unit Rates" are provided "Zone wise" as follows:

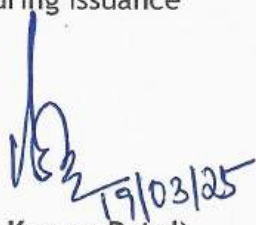
- (i) North Zone : RO-Jammu, RO-Shimla, RO-Dehradun, RO-Chandigarh, RO-Delhi, RO-UP West;
- (ii) West Zone : RO-Jaipur, RO-Mumbai, RO-Nagpur, RO-Gandhinagar;
- (iii) East Zone : RO-UP East, RO-Patna, RO-Ranchi, RO-Kolkata, RO-Guwahati, RO-Bhubaneshwar;
- (iv) South Zone : RO-Bengaluru, RO-Chennai, RO-Madurai, RO-Thiruvananthapuram;
- (v) Central Zone : RO-Raipur, RO-Bhopal, RO-Vijayawada, RO-Hyderabad;

4. The Budgetary Unit Rates for "Road Signs" shall include Supply, Installation, Maintenance, Replacement of Broken/Vandalised Signs for a Period of 10 years from the date of completion of Work or Project Specific Defects Liability Period (DLP), whichever is more (Annexure-I).

Contd...2/-

5. The Budgetary Unit Rates for "Pavement Markings" shall include Supply, Installation, Maintenance for 3 years from the date of implementation or Project specific Defects Liability Period whichever is more (Annexure-II).
6. The Budgetary Unit Rates of all other Safety Products shall include Supply, Installation, Maintenance for 2 years from the date of completion of Work or Project specific Defects Liability Period (DLP), whichever is more (Annexure-II).
7. Typical Safety Mitigation Measures on Black Spots have been detailed in Annexure-III. These Mitigation Measures can be implemented as Short Term Measures on Black Spots such as Sharp Curve, at-Grade/Grade Separated Intersections, Roundabouts, School Zones, Hazardous Locations, U-Turns, Entry/Exit Locations etc.
8. These Short Term Measures can also be considered for Application Proactively during DPR Stage, Construction Stage, Pre-opening and Operation & Maintenance Stage on Potential Accident Prone Locations also.
9. Wherever, Traffic and Safety Items deficiencies are observed confirming to IRC Codes SP-73, SP-84, SP-87, SP-99, IRC-67, IRC-35, MoRTH Guidelines on Traffic Signs December 24, 2024 or Safety Audit Observations, the Mitigation Measures shall be implemented on Priority. The Mitigation Measures can be implemented in accordance with SoP issued to ROs and PDs vide NHAI Policy Circular No. 12.33 dated 06th June, 2023 and vide Policy Circular No. 12.25 dated 12th April, 2022 under Annual Road Safety Work Plan.
10. A Certificate confirming the **Galvanization by Hot Dip Process** (Zinc Coated, 0.55 Kg/Sqm, Minimum Single Spot) on Sign Supports, Retro Reflectivity of Road Signs, Pavement Markings and Safety Products shall be submitted and got approved before installation. The Retro-Reflectivity of Road Signs, Pavement Markings and Safety Products shall be measured on Site before release of Payment on installation and during Defect Liability Period as applicable.
11. Contractor/Concessionaire shall submit a Comprehensive Warranty for Installation, Operation, Maintenance and Replacement of Damaged/Vandalised Sign, Pavement Markings and Safety Products along with undertaking of Retro Reflective Sheet/Pavement Marking OEMs and Sign Convertor/Applicator.
12. The Mitigation Measures, Traffic and Safety Items implemented will be monitored by Road Safety Division and ROs are requested to share Monthly Statement on amount approved, Implementation Status, Accident Statistics, etc.
13. Further, RO/PD shall ensure that the Items considered in Change of Scope are those Items only, which are not in the Scope of existing Contractor and not left out during issuance of COD/PCOD.
14. This issues with the approval of Competent Authority.

Encl: As stated above


(CS. Sanjay Kumar Patel)
I/c Chief General Manager (Coord.)

To:

All Officers of NHAI HQ/ ROs/ PIUs/ CMUs/ Site Offices

Copy to:

1. Hindi Division for translation in Hindi.
2. Library for hosting the circular on library site.
3. Web Admin for circulation.

Budgetary Unit Rates of Traffic Signs

Sr No	Ref MoRTH Specification	Description	Unit	Budgetary Unit Rates for different Substrate (Rs)									
				North Zone		West Zone		East Zone		South Zone		Central Zone	
				Aluminium	ACM	Aluminium	ACM	Aluminium	ACM	Aluminium	ACM	Aluminium	ACM
1	801	Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per clause 801 of MoRTH Specifications for Roads & Bridge Works and IRC : 67 (2022) made of class -C Micro Prismatic Grade Sheeting of Type XI retro reflective sheeting. The retro - reflective sheeting shall have manufacturer logo, watermark and lot number on the sheet. A QR (Bar) code shall also be placed on the backside of the sign board with an indelible ink. For signs above 600mm size, retro reflective sheet shall be fixed over 2 mm thick aluminium sheeting vide or 4mm thick Aluminium composite material sheet vide clause 801 of MoRTH Specifications for Roads & Brdige Works. For signs above 600mm sizes, sign shall be fixed over back support frame of minimum 35 x 35x 3 mm angle Frame. For signs above 600mm size, Signs shall be supported on GI circular pipe 80 NB, 3.2 mm thickness confirming to IS 1239. Retro-Reflective sheet shall be fixed on Substrate with Pressure Sensitive Adhesive. The Substrate shall be firmly riveted on Angle Frame @ 200mm spacing with Aluminium Pop rivets using Pneumatic Guns. The Angle frame shall be firmly fixed with high strength bolts, washers nuts conforming to IS1364 and IS 1367 on Sign Support Pole. Sign Supports shall be firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45 cm x 45 cm x 60, 60 cm below ground level as per approved											

[illegible]

			applicable to all road signs and directions boards.											
		i	150 cm equilateral triangle	No	14032	12643	14214	13191	14352	13317	14540	13489	15032	13580
		ii	120 cm equilateral triangle	No	11032	10096	11355	10591	11665	10733	11686	10902	11960	10968
		iii	90 cm equilateral triangle	No	8120	7627	8582	8063	8665	8141	8904	8365	8959	8418
		iv	75 cm equilateral triangle	No	6820	6441	7249	6847	7318	6913	7565	7143	7613	7190
		v	150 cm Circular	No	20492	18021	20249	18669	20443	18845	20557	18965	21624	19078
		vi	120 cm Circular	No	15629	13417	15079	13971	15223	14103	15395	14271	16632	14357
		vii	90 cm Circular	No	10272	9582	10513	9805	10686	9967	10620	9904	10619	9902
		viii	75 cm Circular	No	8419	7893	8881	8328	8965	8407	9195	8624	9253	8679
		ix	90 cm x 75 cm rectangular	No	10300	9596	10813	10077	10920	10176	11130	10376	11200	10442
		x	80 mm x 60 mm rectangular	No	9596	8274	9323	8726	9415	8811	9643	9027	10458	9085
		xi	120 cm high octagon	No	15712	14523	16351	15118	16510	15263	16690	15439	16787	15528
		xii	90 cm high octagon	No	11253	10106	11374	10597	11484	10699	11700	10905	12174	10971
		xiii	75 cm high octagon	No	9218	8612	9705	9070	9801	9159	10020	9367	10085	9428
2	801		Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per clause 801 of MoRTH Specifications for Roads & Bridge Works (5th Revision) IRC : 67 (2022) made of class -C Micro Prismatic Grade Sheeting of Type XI retro reflective sheeting. The retro - reflective sheting shall have manufacturer logo, watermark and lot number on the sheet. A QR (Bar) code shall also be placed on the backside of the sign board with an indelible ink. For Signs up 600mm size, retro reflective sheet shall be fixed over 1.5mm Thick aluminium sheeting vide or 3mm thick Aluminium composite material vide clause 801 of MoRTH Specifications for Roads & Bridge Works. For signs upto 600mm sizes, sign shall be fixed over back support frame of minimum 25x25x 3 mm Angle Frame. For signs upto 600mm size, Signs shall be supported on GI circular pipe 65 NB, 3.2 mm thickness confirming to IS 1239. Retro-Reflective sheet shall be fixed on Substrate with Pressure											

		Sensitive Adhesive. The Substrate shall be firmly riveted on Angle Frame @ 200mm spacing with Aluminium Pop rivets using Pneumatic Guns. The Angle frame shall be firmly fixed with high strength nuts, washers & bolts conforming to IS1364 and IS 1367 on Sign Support Pole. Sign Supports shall be firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45 cm x 45 cm x 60, 60 cm below ground level as per approved drawling. All Components of signs and supports including Angle Frame, Bolts, Nuts, Washers, etc. other than the reflective portion shall be galvanized by hot dip process (Zinc coated, 0.55 kg/sqm; minimum single spot) unless otherwise specified. All galvanizing shall be done after fabrication. Alternate white and yellow bands measuring 50 mm long retro-reflective sheeting shall be pasted around GI posts which help in ensuring the visibility/Presence of poles during night time even if the sign boards are stolen or totally vandalized. Minimum four bands of such retro-reflective sheeting shall be pasted starting from a height of 0.5 m above the finish road level. The messages (legends, letters, numerals, etc.) and borders as per clause 6.8 of IRC 67 shall be digitally printed. Finished Signs shall have an Ultra Violet (UV) protective clear overlay applied to the entire face of the signs supplied by reflective sheet manufacturer. The agency shall submit 10 years warranty for satisfactory field performance for type XI retro re-lective sheeting from the retroreflective sheet manufacturer confirming to clause 6.7 & 6.9 of IRC 67. Agency shall submit a certified copy of test reports from a Government laboratory/Institute conforming to clause 6.7 & 6.9 of IRC 67 including 3 years accelerated outdoor weathering for the retro reflective sheeting. The Agency shall submit the sign convertor (manufacturer) name with details of essential equipment available with convertor in his fabrication shop such as digital printer,										
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			cutter, plotter, laminator, Galvanizing plant, etc. The Agency shall submit road sign installation drawing in 'Kmz' file for approval before installation and after installation submit geo-tagging of all road signs with its installation photos and date of installation and other details as mentioned in IRC 67-2022 annexure VII, complete in all respects. The sign supports and its foundation details are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.											
		i	60 cm equilateral triangle	No	6094	5757	6512	6156	6574	6216	6560	6198	6606	6239
		ii	60 cm Circular	No	7224	6781	7663	7203	7736	7273	7715	7249	7771	7295
		iii	60 cm x 50 cm rectangular	No	7106	6677	7552	7098	7626	7168	7599	7138	7648	7185
		iv	60 cm x 45 cm rectangular	No	5574	5285	5963	5653	6021	5709	5970	5658	6018	5704
		v	60 cm x 60 cm square	No	7433	6895	7789	7321	7864	7392	7843	7368	7986	7414
3	801		Providing and fixing of retro-reflectorised direction and place identification sign of area not exceeding 0.9 sqm as per clause 801 of MoRTH Specifications for Roads & Bridge Works (5th Revision) and IRC : 67 made of class -C Micro Prismatic Grade Sheeting of Type XI retro reflective sheeting. The retro - reflective sheeting shall have manufacturer logo, watermark and lot number on the sheet. A QR (Bar) code shall also be placed on the backside of the sign board with an indelible ink. Retro reflective sheet shall be fixed over 2 mm thick aluminium sheeting or 4mm thick Aluminium composite material sheet vide clause 801 of MoRTH Specifications for Roads & Bridge Works. The sign shall be fixed over back support frame of minimum 35 x 35x 3 mm Angle Frame. Retro-reflective sheet shall be fixed on substrate with Pressure Adhesive. The substrate shall be firmly riveted on angle frame @200mm spacing with aluminium pop rivets using Pneumatic guns. The Angle frame shall be firmly fixed with high strength Bolts, washers & nuts conforming to IS1364 and IS 1367 on Sign Support Pole. Signs	sqm	14119	13197	14376	13429	14527	13573	14221	13278	14350	13400

km

		supports shall be GI circular pipe 80 NB, 3.2 mm thickness confirming to IS 1239 and firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45 cm x 45 cm x 60, 60 cm below ground level as per approved drawing. All Components of signs and supports including angle frame, bolts, nuts, washers, etc., other than the reflective portion shall be galvanized by hot dip process (Zinc coated, 0.55 kg/sqm; minimum single spot) unless otherwise specified. All galvanizing shall be done after fabrication. Alternate white and yellow bands measuring 50 mm long retro-reflective sheeting shall be pasted around GI posts which help in ensuring the visibility/Presence of poles during night time even if the sign boards are stolen or totally vandalized. Minimum four bands of such retro-reflective sheeting shall be pasted starting from a height of 0.5 m above the finish road level. The messages (legends, letters, numerals, etc.) and borders shall be digitally printed confirming to clause 6.8 of IRC 67. Finished Signs shall have an Ultra Violet (UV) protective clear overlay applied to the entire face of the signs supplied by reflective sheet manufacturer. The agency shall submit 10 years warranty for satisfactory field performance for type XI retro-reflective sheeting from the manufacturer conforming to clause 6.7 & 6.9 of IRC 67. Agency shall submit a certified copy of test reports from Government laboratory/Institute conforming to clause 6.7 & 6.9 of IRC 67 including 3 years accelerated outdoor weathering for the retro reflective sheeting. The Agency shall submit the sign convertor (manufacturer) name with essential equipment in his fabrication shop such as digital printer, cutter, plotter, laminator, Galvanizing plant etc. The Agency shall submit road sign installation drawing in 'Kmz' file for approval before installation and after installation submit geo-tagging of all road signs with its installation photos and date of installation and											
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		other details as mentioned in IRC 67 annexure VII, complete in all respects. The sign supports & its foundation details are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.											
4	801	Direction and Place identification signs with size more than 0.9 sqm size Board.											
		Providing and fixing of retro-reflectorised direction and place identification sign as per clause 801 of MoRTH Specifications for Roads & Bridge Works (5th Revision) and IRC : 67 made of class -C Micro Prismatic Grade Sheeting of Type XI retro reflective sheeting. The retro - reflective sheeting shall have manufacturer logo, watermark and lot number on the sheet. A QR (Bar) code shall also be placed on the backside of the sign board with an indelible ink. Retro reflective sheet shall be fixed over 2 mm thick aluminium sheeting or 4mm thick Aluminium composite material sheet vide clause 801 of MoRTH Specifications for Roads & Bridge Works. The sign shall be fixed over back support frame of minimum 40x40x 5mm Angle Frame. Retro-reflective sheet shall be fixed on substrate with Pressure Adhesive. The substrate shall be firmly riveted on angle frame @200mm spacing with aluminium pop rivets using Pneumatic guns. The Angle frame shall be firmly fixed with high strength Bolts, washers & nuts conforming to IS1364 and IS 1367 on Sign Support Pole. Signs shall be supported on two or more GI circular pipe 80 NB, 3.2 mm thickness confirming to IS 1239. Adequate bracing shall be provided to hold firmly GI support pipes. The sign supports shall be firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45 cm x 45 cm x 60, 60 cm below ground level as per approved drawling. All Components of signs and supports including angle frame, bolts, nuts, washers, etc., other than the reflective portion shall be galvanized	sqm	13786	12432	14292	13091	14140	12952	14529	13304	14017	12635

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		by hot dip process (Zinc coated, 0.55 kg/sqm; minimum single spot) unless otherwise specified. All galvanizing shall be done after fabrication. Alternate white and yellow bands measuring 50 mm long retro-reflective sheeting shall be pasted around GI posts which help in ensuring the visibility/Presence of poles during night time even if the sign boards are stolen or totally vandalized. Minimum four bands of such retro-reflective sheeting shall be pasted starting from a height of 0.5 m above the finish road level. The messages (legends, letters, numerals, etc.) and borders shall be digitally printed confirming to clause 6.8 of IRC 67. Finished Signs shall have an Ultra Violet (UV) protective clear overlay applied to the entire face of the signs supplied by reflective sheet manufacturer. The agency shall submit 10 years warranty for satisfactory field performance for type XI retro reflective sheeting from the manufacturer conforming to clause 6.7 & 6.9 of IRC 67. Agency shall submit a certified copy of test reports from Government laboratory/Institute conforming to clause 6.7 & 6.9 of IRC 67 including 3 years accelerated outdoor weathering for the retro reflective sheeting. The Agency shall submit the sign converter (manufacturer) name with essential equipment in his fabrication shop such as digital printer, cutter, plotter, laminator, Galvanizing plant etc. The Agency shall submit road sign installation drawing in 'Kmz' file for approval before installation and after installation submit geo-tagging of all road signs with its installation photos and date of installation and other details as mentioned in IRC 67 annexure VII, complete in all respects. The sign supports and its foundation details are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.											
5	801 &802	Overhead Signs											

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		other than the reflective portion shall be galvanized by hot dip process (Zinc coated, 0.55 kg/sqm; minimum single spot) unless otherwise specified. All galvanizing shall be done after fabrication. Alternate white and yellow bands measuring 50 mm long retro-reflective sheeting shall be pasted around gantry support posts which help in ensuring the visibility/Presence of poles during night time even if the sign boards are stolen or totally vandalized. Minimum four bands of such retro-reflective sheeting shall be pasted starting from a height of 0.5 m above the finish road level. The messages (legends, letters, numerals, etc.) and borders shall be digitally printed conforming to clause 6.8 of IRC 67. Finished Signs shall have an Ultra Violet (UV) protective clear overlay applied to the entire face of the signs supplied by reflective sheet manufacturer. The agency shall submit 10 years warranty for satisfactory field performance for type XI retro reflective sheeting from the manufacturer conforming to clause 6.7 & 6.9 of IRC 67. Agency shall submit a certified copy of test reports from Government laboratory/Institute conforming to clause 6.7 & 6.9 of IRC 67 including 3 years accelerated outdoor weathering for the retro reflective sheeting. The Agency shall submit the sign convertor (manufacturer) name with essential equipment in his fabrication shop such as digital printer, cutter, plotter, laminator, Galvanizing plant etc. The Agency shall submit road sign installation drawing in 'Kmz' file for approval before installation and after installation submit geo-tagging of all road signs with its installation photos and date of installation and other details as mentioned in IRC 67 annexure VII, complete in all respects. The sign supports and its foundation details are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.											
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	A	Providing and erecting overhead sign made of Class -C Micro Prismatic Sheeting of Type XI retro reflective sheeting as per IRC 67.	sqm	9749	9685	9441	9364	10046	9871	9530	9475	10144	10102
	B	Cost of Gantry, Cantilever Gantry and Butterfly Gantry (Truss and Vertical support) including Open/Pile Foundation for Gantry with two supports (apprx. 32 cum RCC), Cantilever Gantry and Butterfly Gantry (apprx. 16 cum RCC) including excavation, backfilling, cement concrete, steel reinforcement , etc. complete in all respect The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.											
	i	GI Gantry with two supports having 12m clear span of 4 tonne weight (Apprx)	No	981187		1000208		1011787		994011		1000331	
	ii	GI Gantry with two supports having 13m clear span of 4.1 tonne weight (Apprx)	No	998345		1017737		1029491		1011511		1017942	
	iii	GI Gantry with two supports having 15m clear span of 4.3 tonne weight (Apprx)	No	1032661		1052794		1064901		1046511		1053165	
	iv	GI Gantry with two supports having 16m clear span of 4.5 tonne weight (Apprx)	No	1066977		1087851		1100310		1081512		1088389	
	v	GI Gantry with two supports having 17m clear span of 4.6 tonne weight (Apprx)	No	1084135		1105379		1118015		1099012		1106000	
	vi	GI Gantry with two supports having 18m clear span of 4.7 tonne weight (Apprx)	No	1101293		1122908		1135719		1116513		1123612	
	vii	GI Gantry with two supports having 20 m clear span of 5 tonne weight (Apprx)	No	1152767		1175493		1188833		1169013		1176900	
	viii	GI Gantry with two supports having 22m clear span of 5.2 tonne weight (Apprx)	No	1187083		1210550		1236875		1204014		1212142	
	ix	GI Gantry with two supports having 24 clear span of 5.4 tonne weight (Apprx)	No	1221399		1245607		1273549		1239014		1247383	
	x	GI Gantry with two supports having 26m clear span of 5.6 tonne weight (Apprx)	No	1255715		1280665		1310224		1274015		1282624	
	xi	GI Gantry with two supports having 28m clear span of 5.8 tonne weight (Apprx)	No	1290031		1315722		1346899		1309015		1317866	
	xii	GI Cantilever Gantry 6m for Mandatory Signs of 1.0 tonne (Approx)	No	319013		324819		328847		322003		324049	
	xiii	Cantilever Gantry 8m for Mandatory Signs of 1.2 tonne (Approx)	No	353329		359876		364256		357003		359273	

		xiv	Cantilever Gantry 6m for Direction, Place Identification and Informatory Signs of 2.0 tonne (Approx)	No	490593	500104	505893	497005	500165					
		xv	Cantilever Gantry 7m for Direction, Place Identification and Informatory Signs of 2.1 tonne (Approx)	No	507751	517633	523598	514506	517777					
		xvi	Cantilever Gantry 8m for Direction, Place Identification and Informatory Signs of 2.25 tonne (Approx)	No	533488	543925	550155	540756	544194					
		xvii	Butterfly Gantry 6m for Direction, Place Identification and Informatory signs of 1.3 tonne (Approx)	No	370487	377404	381961	374503	376884					
		xviii	Butterfly Gantry 7m for Direction, Place Identification and Informatory signs of 1.4 tonne (Approx)	No	387645	394933	399665	392004	394496					
		xix	Butterfly Gantry 8m for Direction, Place Identification and Informatory signs of 1.5 tonne (Approx)	No	404803	412461	417370	409504	412107					
6	IRC 6 7		The agency installing the sign shall visually inspect all signs at least twice a year both in day and night times and at least once a year in the rain. At every six months, road signs including posts shall be cleaned, washed with mild detergent as per section 13 of IRC 67, etc. The agency shall maintain, replace damaged/vandalised sign @ every six month or within 15 days of issue of direction by PIU, PD, whichever is earlier, for 10 years from the month of completion of contract, complete in all respect.											
			Shoulder mounted signs supported on single post	No	38171	20795	39098	22341	39292	22539	39856	23103	39856	23103
			Shoulder mounted signs supported on more than one post	No	68820	19019	69485	19373	69647	19538	69989	19885	69989	19885
			Gantry Mounted Informatory Signs Facia	No	302654	137454	307522	140059	309037	141581	311386	143977	311386	141643
			Gantry Mounted Signs other than Informatory Signs Facia	No	189873	22793	190402	23119	190742	23451	190947	23659	190947	23659

Pavement Markings and Road Safety Products

Sr No	Ref MoRTH Specification	Description	Unit	Budgetary Unit Rates (Rs)				
				North Zone	West Zone	East Zone	South Zone	Central Zone
1	803	Providing and Laying hot applied thermoplastic road marking strip on Bituminous Surface of specified shade/ colour of 2.5 mm thick including Type 1 beads (Refer MoRTH Specification Clause 803.4.2) which are a constituent of the basic thermoplastic compound vide Table 800-9 (MoRTH Specification) and Type 2 beads are those which are to be sprayed on the surface vide Clause 803.6.4 (MoRTH Specification). The glass beads shall have a minimum reflectivity index of 1.5. The glass bead shall be @ 250gm/sqm. The thermoplastic road marking material thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC 35. Pavement Marking Performance such as Day/Night visibility, Dry/Wet visibility and skid resistance shall be confirming to clause 15.5 of IRC 35. The finished surface to be level, uniform, and free from streaks and holes complete as per direction of Engineer-in-charge and in accordance with applicable specifications. (Refer MoRTH Clause 803 for technical Specification and Performance for IRC 35:2015). Recommended Use of specialized Road Marking Primer, based on surface conditions.	Sqm	568.00	571.50	600.50	589.25	579.00
2	803	Providing and Laying hot applied thermoplastic road marking strip on Concrete Surface of specified shade/ colour of 2.5 mm thick including Type 1 beads (Refer MoRTH Specification Clause 803.4.2) which are a constituent of the basic thermoplastic compound vide Table 800-9 (MoRTH Specification) and Type 2 beads are those which are to be sprayed on the surface vide Clause 803.6.4 (MoRTH Specification). The glass beads shall have a minimum reflectivity index of 1.5. The glass bead shall be @ 250gm/sqm. The thermoplastic road marking material thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC 35. Pavement Marking Performance such as Day/Night visibility, Dry/Wet visibility and skid resistance shall be confirming to clause 15.5 of IRC 35. The finished surface to be level, uniform, and free from streaks and holes complete as per direction of Engineer-in-charge and in accordance with applicable specifications. (Refer MoRTH Clause 803 for technical Specification and Performance for IRC 35:2015). Recommended Use of specialized Road Marking Primer, based on surface conditions.	Sqm	638.75	642.25	671.25	660.00	649.75

3	804	Providing and fixing of Reflective Pavement Markers (RRPM), i.e. road studs shall be prismatic retro-reflective type conforming to ASTM D-4280. The Plastic body of RPM/road stud shall be moulded from ASA (Acrylic Styrene Acrylonitrile) or HIPS (Hi-impact Polystyrene) or Acrylonitrile Butadiene Styrene (ABS). The marker height shall not be less than 10mm and shall not exceed 20mm and its width shall not exceed 130mm. The markers shall support a load of 13,635 kg tested in accordance with ASTM D 4280. The Reflective panels shall consist of number of lenses containing single or dual prismatic cubes capable of providing total internal reflection of the light entering the lens face. Lenses shall be moulded of methyl methacrylate conforming to ASTM D 788 or equivalent. The optical performance of road studs shall be confirming to clause 804.4 of MoRTH specifications.	No.	225.33	234.67	224.00	232.00	228.33
4	804	Solar Powered Road marker (Solar Stud): Supplying and installation of Solar Raised Pavement Markers made of polycarbonate moulded body with circular shape, solar powered, LED self-illumination in active mode, 360 degree illumination and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face in passive mode. The marker shall support a load of 20000 kg tested in accordance to ASTM D 4280. Its water resistance shall meet the requirements of IP 65 in accordance with IS:12063:1987 Category 2 for protection against water ingress. Colour of lighting could be provided in red or yellow (amber) or green or blue or combination as per requirement. It shall have super bright LEDs so as to provide long visibility from a distance of more than 800 m. Its flashing rate shall not be less than 1 Hz. It should be able to give the prescribed performance in the temperature range of -40°C to +55°C. Its life shall be not less than 3 years. The full charge should provide for a minimum autonomy of 50 hours operation. The height, width and length of the marker shall not be less than 10mm x 100mm x 100mm. Also the surface diameter of the marker shall not be less than 100mm respectively. The weight of marker shall not exceed 0.5 kilograms. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive and complete as directed by the Engineer	No.	1828.60	1920.20	1980.20	1980.20	1996.60
5	806	Road Delineators: Supplying and Installation of delineators (road way indicators, hazard markers, object markers) conforming to IRC 79, 80 to 90 cm high above ground level with about 200 to 300mm base which can be anchored on to the ground. The delineator shall have an ellipsoidal or circular shape made of mild steel with pure polyester powder coating with minimum thickness of powder coating of not less than 40 micron. The delineator shall have minimum three reflective sheeting bands of 150mm height confirming to Type XI sheeting specifications as per IRC 67.	No.	1215.00	1133.80	1218.80	1270.00	1230.00

6		Providing and erecting, 5mm thick anti-glare screen of PPCP/HDPE material. The anti glare shall be rectangular vane of 220-230 mm wide and 600mm ht. The screen shall have minimum one yellow reflective sheeting band on both sides of sheet. The reflective band shall be 150mm ht and confirming to type XI sheeting specifications as per IRC 67	No.	305.00	310.00	325.00	320.00	315.00
7		Providing and erecting, 5mm thick anti-glare screen of PPCP/HDPE material. The anti glare shall be rectangular vane of 220-230 mm wide and 900mm ht. The screen shall have minimum one yellow reflective sheeting band on both sides of sheet. The reflective band shall be 150mm ht and confirming to type XI sheeting specifications as per IRC 67	No.	375.00	387.50	400.00	397.50	392.50
8		Providing and erecting, 10 mm thick anti-glare screen of PPCP/HDPE material. The anti-glare shall be rectangular vane of 300 mm wide and 650 mm ht. The screen shall have minimum one yellow reflective sheeting band on both sides of sheet. The reflective band shall be 150mm ht and confirming to type XI sheeting specifications as per IRC 67	No.	590.00	605.00	625.00	620.00	585.00
9		Median Marker: Supplying and Fixing Median Marker confirming to IRC 79, shall be provided with fluorescent yellow colour retro reflective sheeting Type XI as per IRC: 67. Median Marker shall be of tough, high impact resistant, injection - moulded, thermoplastic body with property of flexibility to provide high durability and U shape structure having rebound / bounce back property.	No.	253	263.8	289.2	287	266
10	812	Supplying and erecting red /yellow unbreakable polycarbonate body Solar Blinker 300mm dia. LED lamp confirming to IRC:93 and IS:7537. It shall have Light Emitting Diode (LED) – Hi Bright technology (Compliant to EN12368 or equivalent BIS standard). The Signal Switching shall be Solid State, with Opto-isolation. The Automatic operation mode shall have functional flashing rate available at 50% Duty Cycle - 50 or 60 Flashes/minutes. The Electrical Power Supply shall be solar based 12 VDC operating at Ambient Temperature 0° to 55°C. The solar power system shall have in-built charge Controller - Low/High cut out, Solar SPV Module – 60 Watts, Maintenance Free Battery (60AH) (having back up for operating blinker for 72 Hrs in absence of Sun or during rainy or foggy days. The Solar System shall be housed in a weatherproof pole mounting cabinet with clamp and mounting accessories. The Solar Blinker shall be supported on GI circular pipe 80 NB, 3.2 mm thickness confirming to IS 1239, 3m above the Finish Road level. GI circular pipe shall be firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45 cm x 45 cm x 60, 60 cm below ground level as per approved drawing. Alternate white and yellow bands (Minimum four bands) of Type XI retro-reflective sheeting shall be pasted @ 0.5m c/c starting from a height of 0.5 m above the finish road level.	No.	27842.75	27842.75	28217.75	28342.75	28217.75

11	803	Providing and Laying of 5mm high Single Rib Pattern Transverse Bar Markings with 2 component cold plastic with specialised cold plastic Primer coating rolled on surfacing material solvent free, high build two pack seamless, tough, skid resistant, for material to reduce speed. Cold Plastic road marking material shall be applied in single monolithic application to create rumble strip raised section of 5 mm high, 300 mm wide confirming to clause 3.7 of IRC 99, across the entire carriageway. Each rumble marking shall be made complete with specialised high refractive index glass beads of minimum reflectivity index of 1.5. The glass bead shall be @ 250gm/sqm. Type 1 beads (Refer MoRTH Specification Clause 803.4.2) which are a constituent of the basic cold plastics compound vide Table 800-9 (MoRTH Specification) and Type 2 beads are those which are to be sprayed on the surface vide Clause 803.6.4 (MoRTH Specification). Pavement Marking Performance such as Day/Night visibility, Dry/Wet visibility and skid resistance shall be confirming to clause 15.5 of IRC 35. The finished surface to be levelled, uniform and free from streaks and holes, to be applied on the edge lines, including surface cleaning and cost of all materials etc. complete.	Sqm	2816.67	2876.67	3050.00	2916.67	2876.67
12	803	Providing and Laying of 10mm high Single Rib Pattern Transverse Bar Markings with 2 component cold plastic with specialised cold plastic Primer coating rolled on surfacing material solvent free, high build two pack seamless, tough, skid resistant, for material to reduce speed. Cold Plastic road marking material shall be applied in single monolithic application to create rumble strip raised section of 10 mm high, 300 mm wide confirming to clause 3.7 of IRC 99, across the entire carriageway. Each rumble marking shall be made complete with specialised high refractive index glass beads of minimum reflectivity index of 1.5. The glass bead shall be @ 250gm/sqm. Type 1 beads (Refer MoRTH Specification Clause 803.4.2) which are a constituent of the basic cold plastics compound vide Table 800-9 (MoRTH Specification) and Type 2 beads are those which are to be sprayed on the surface vide Clause 803.6.4 (MoRTH Specification). Pavement Marking Performance such as Day/Night visibility, Dry/Wet visibility and skid resistance shall be confirming to clause 15.5 of IRC 35. The finished surface to be levelled, uniform and free from streaks and holes, to be applied on the edge lines, including surface cleaning and cost of all materials etc. complete.	Sqm	4468.67	4530.33	4735.33	4552.00	4530.33

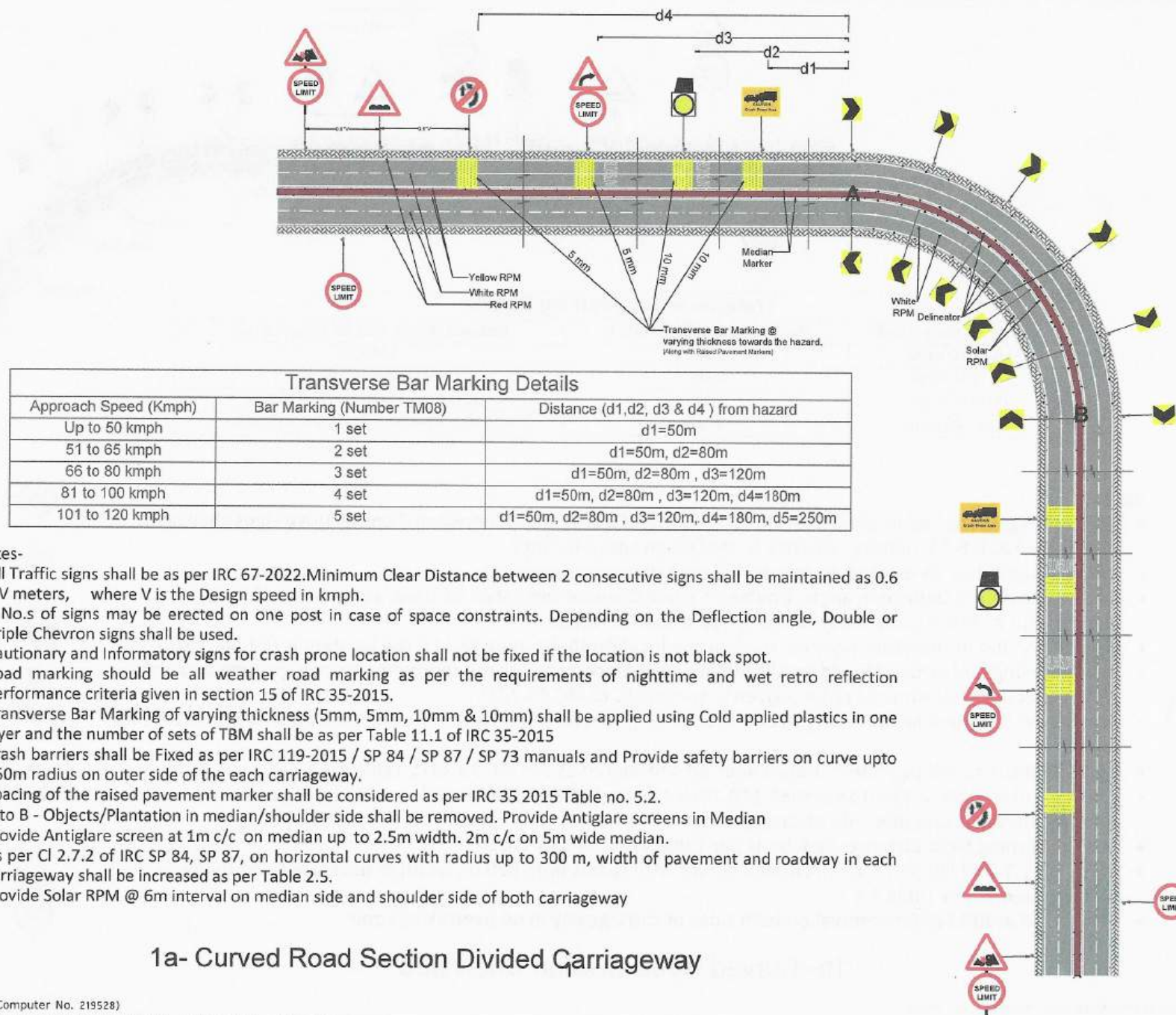
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13	803	Providing and Laying of 15mm high Single Rib Pattern Transverse Bar Markings with 2 component cold plastic with specialised cold plastic Primer coating rolled on surfacing material solvent free, high build two pack seamless, tough, skid resistant, for material to reduce speed. Cold Plastic road marking material shall be applied in single monolithic application to create rumble strip raised section of 15 mm high, 300 mm wide confirming to clause 3.7 of IRC 99, across the entire carriageway. Each rumble marking shall be made complete with specialised high refractive index glass beads of minimum reflectivity index of 1.5. The glass bead shall be @ 250gm/sqm. Type 1 beads (Refer MoRTH Specification Clause 803.4.2) which are a constituent of the basic cold plastic compound vide Table 800-9 (MoRTH Specification) and Type 2 beads are those which are to be sprayed on the surface vide Clause 803.6.4 (MoRTH Specification). Pavement Marking Performance such as Day/Night visibility, Dry/Wet visibility and skid resistance shall be confirming to clause 15.5 of IRC 35. The finished surface to be levelled, uniform and free from streaks and holes, to be applied on the edge lines, including surface cleaning and cost of all materials etc. complete.	Sqm	6120.67	6177.33	6387.33	6254.00	6177.33
14		Provide and fixing Tubular markers 700 mm ht (mini.) and having minimum dia. of 75mm. Tubular Marker shall be made up of polyurethane and flexible in nature. The tubular marker shall be confirming to IRC SP 55, to divide opposing lanes traffic, or to divided vehicular traffic lanes when two or more lanes of moving vehicular traffic are kept operating in the same direction, and to delineate the edge of a pavement drop-off where space limitations do not allow the use of larger devices. A tubular marker shall be attached to the pavement such as to display the minimum 50mm width of 2 no. reflective bands to the approaching road users. The reflective bands shall be provided with white colour retro reflective sheeting Type XI as per IRC: 67	No.	800	815	870	850	840

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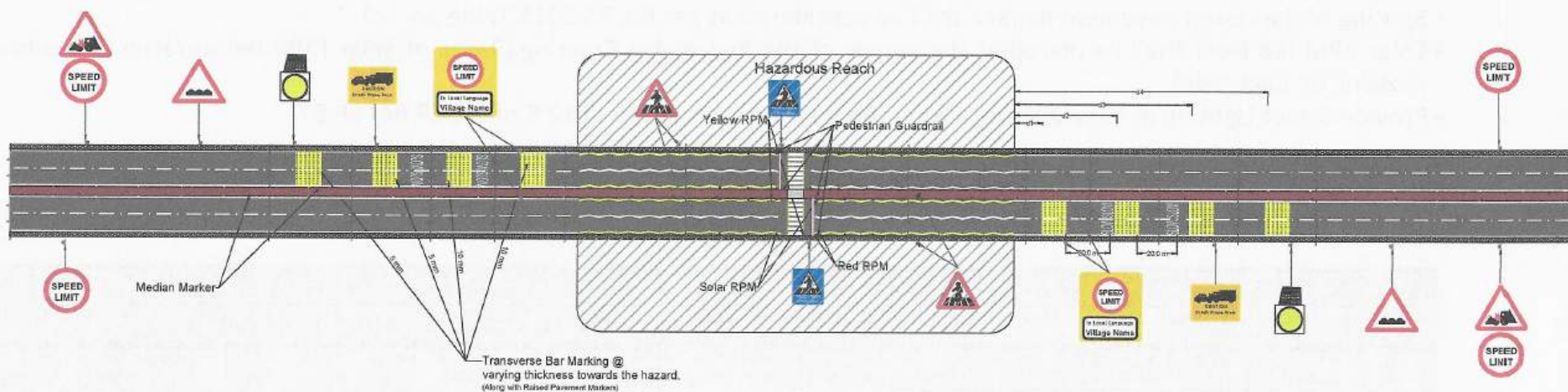
1a- Curved Road Section Divided Carriageway



2a- Mid-Block Pedestrian Crossing/ Hazardous Locations on divided Carriageway

Transverse Bar Marking Details

Approach Speed (Kmph)	Bar Marking (Number TM08)	Distance (d1,d2, d3 & d4) from hazard
Up to 50 kmph	1 set	d1=50m
51 to 65 kmph	2 set	d1=50m, d2=80m
66 to 80 kmph	3 set	d1=50m, d2=80m , d3=120m
81 to 100 kmph	4 set	d1=50m, d2=80m , d3=120m, d4=180m



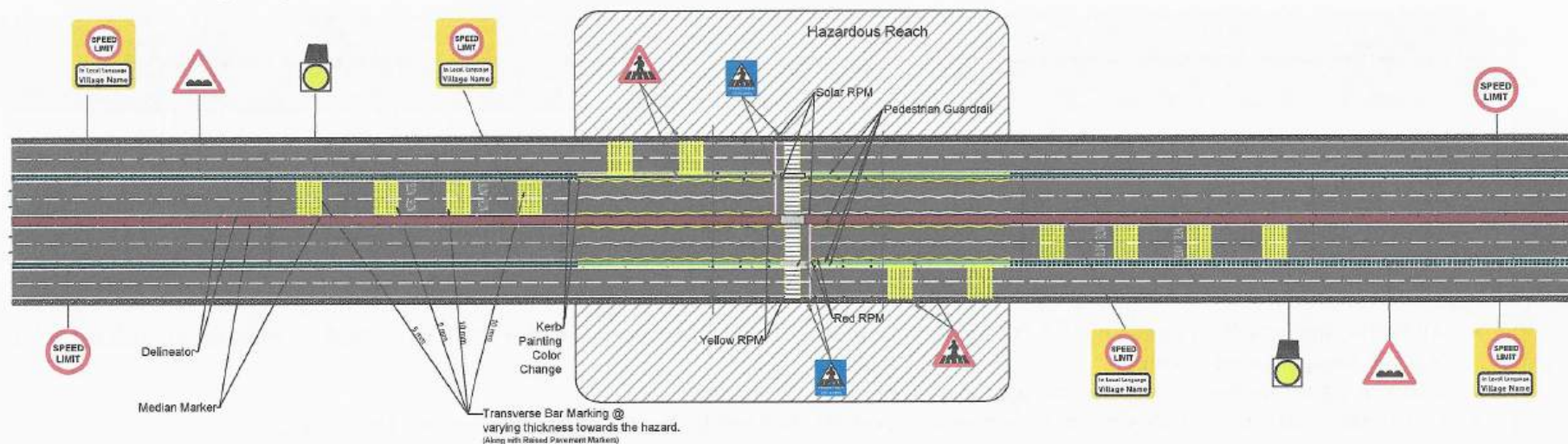
Notes-

- All Traffic signs shall be as per IRC 67-2022. Minimum Clear Distance between 2 consecutive signs shall be maintained as $0.6 * V$ meters, where V is the Design speed in kmph.
- 2 Nos of signs may be erected on one post in case of space constraints.
- Cautionary and Informatory signs for crash prone location shall not be fixed if the location is not black spot.
- Road marking should be all weather road marking as per the requirements of nighttime and wet retro reflection performance criteria given in section 15 of IRC 35-2015
- Transverse Bar Marking of varying thickness shall be (5mm, 5mm, 10mm & 10mm) applied using Cold applied plastics in one layer.
- Crash barriers shall be Fixed as per IRC 119-2015 / SP 84 / SP 87 manuals and Provide safety barriers on on Median side of carriageway.
- Spacing of the raised pavement marker shall be considered as per IRC 35 2015 Table no. 5.2.
- Solar RPM (24 Nos) shall be placed at the corner of the Pedestrian Crossing.(3 nos of Solar RPM before/after the zebra crossing on each side)
- Provide Street Lighting in hazardous locations and builtup areas as per C₃ 12.5 of IRC SP 84/ SP 87

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Notes-

- All Traffic signs shall be as per IRC 67-2022. Minimum Clear Distance between 2 consecutive signs shall be maintained as $0.6 * V$ meters, where V is the Design speed in kmph.
- 2 nos of signs may be erected on one post in case of space constraints.
- Cautionary and Informatory signs for crash prone location shall not be fixed if the location is not black spot.
- Road marking should be all weather road marking as per the requirements of nighttime and wet retro reflection performance criteria given in section 15 of IRC 35-2015
- Transverse Bar Marking of varying thickness shall be (5mm, 5mm, 10mm & 10mm) applied using Cold applied plastics in one layer.
- Crash barriers shall be Fixed as per IRC 119-2015 / SP 84 / SP 87 / SP 73 manuals
- Spacing of the raised pavement marker shall be considered as per IRC 35 2015 Table no. 5.2.
- Solar RPM (48 Nos) shall be placed at the corner of the Pedestrian Crossing.(3 nos of Solar RPM before/after the zebra crossing on each side)
- Provide Street Lighting in hazardous locations and builtup areas as per CI 12.5 of IRC SP 84/ SP 87



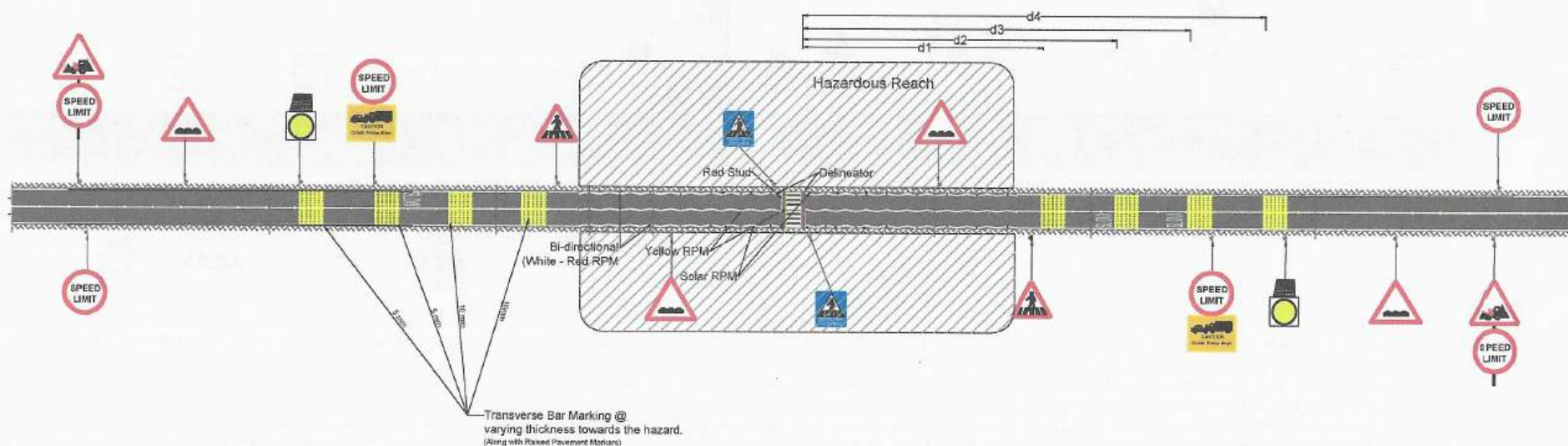
2b -Hazardous Section on 4-Lane Highway with Service Road

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Transverse Bar Marking Details		
Approach Speed (Kmph)	Bar Marking (Number TM08)	Distance (d1, d2, d3 & d4) from hazard
Up to 50 kmph	1 set	d1=50m
51 to 65 kmph	2 set	d1=50m, d2=80m
66 to 80 kmph	3 set	d1=50m, d2=80m , d3=120m
81 to 100 kmph	4 set	d1=50m, d2=80m , d3=120m, d4=180m

Notes-

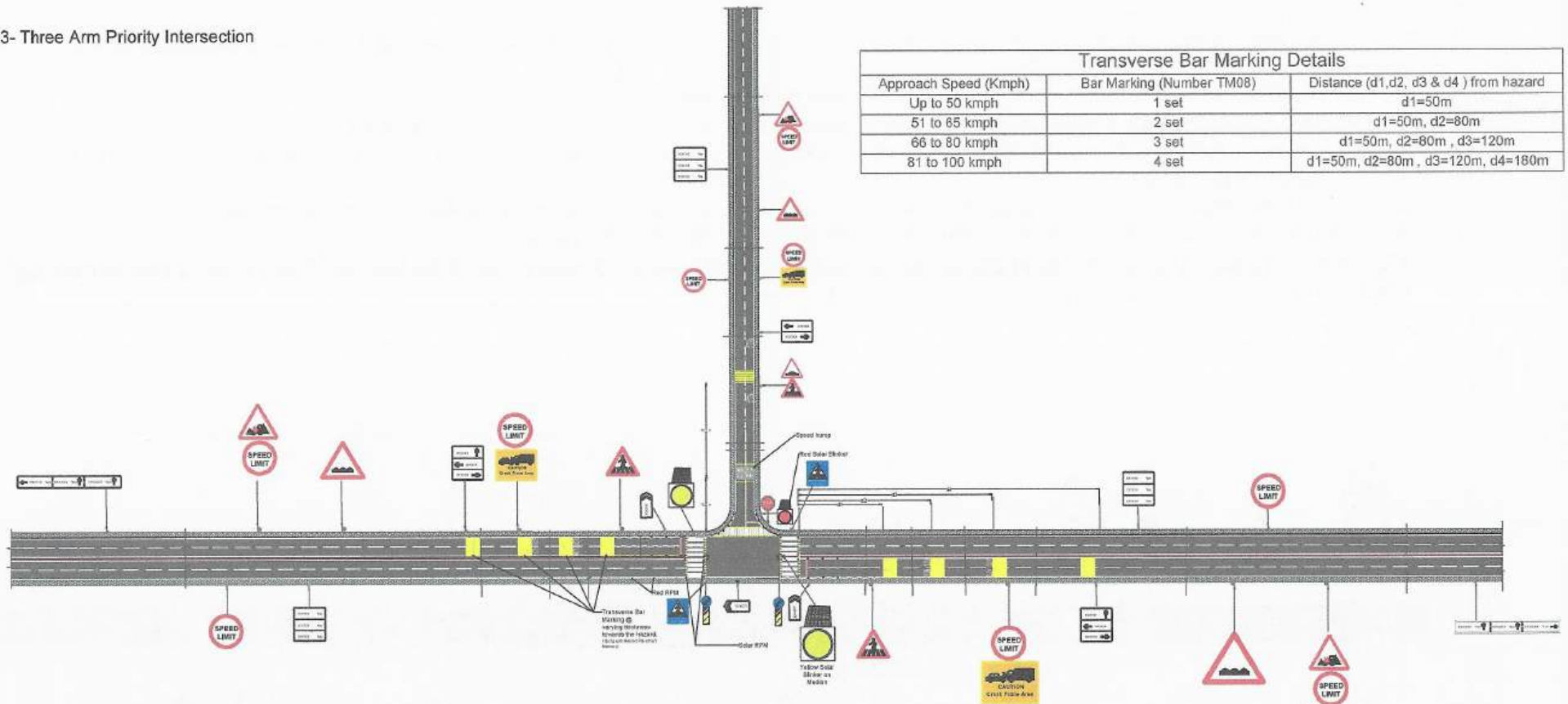
- All Traffic signs shall be as per IRC 67-2022. Minimum Clear Distance between 2 consecutive signs shall be maintained as $0.6 * V$ meters, where V is the Design speed in kmph.
- 2 Nos of signs may be erected on one post in case of space constraints.
- Cautionary and Informatory signs for crash prone location shall not be fixed if the location is not black spot.
- Road marking should be all weather road marking as per the requirements of nighttime and wet retro reflection performance criteria given in section 15 of IRC 35-2015
- Transverse Bar Marking of varying thickness shall be (5mm to 10mm) applied using Cold applied plastics in one layer.
- Spacing of the raised pavement marker shall be considered as per IRC 35 2015 Table no. 5.1.
- Solar RPM (12 Nos) shall be placed at the corner of the Pedestrian Crossing.(3 nos of Solar RPM before/after the zebra crossing on each side)
- Provide Street Lighting in hazardous locations and buildup areas



2c. Mid Block With Pedestrian Crossing/hazardous location on undivided carriageway

Transverse Bar Marking Details		
Approach Speed (Kmph)	Bar Marking (Number TM08)	Distance (d1,d2, d3 & d4) from hazard
Up to 50 kmph	1 set	d1=50m
51 to 65 kmph	2 set	d1=50m, d2=80m
66 to 80 kmph	3 set	d1=50m, d2=80m , d3=120m
81 to 100 kmph	4 set	d1=50m, d2=80m , d3=120m, d4=180m

3- Three Arm Priority Intersection



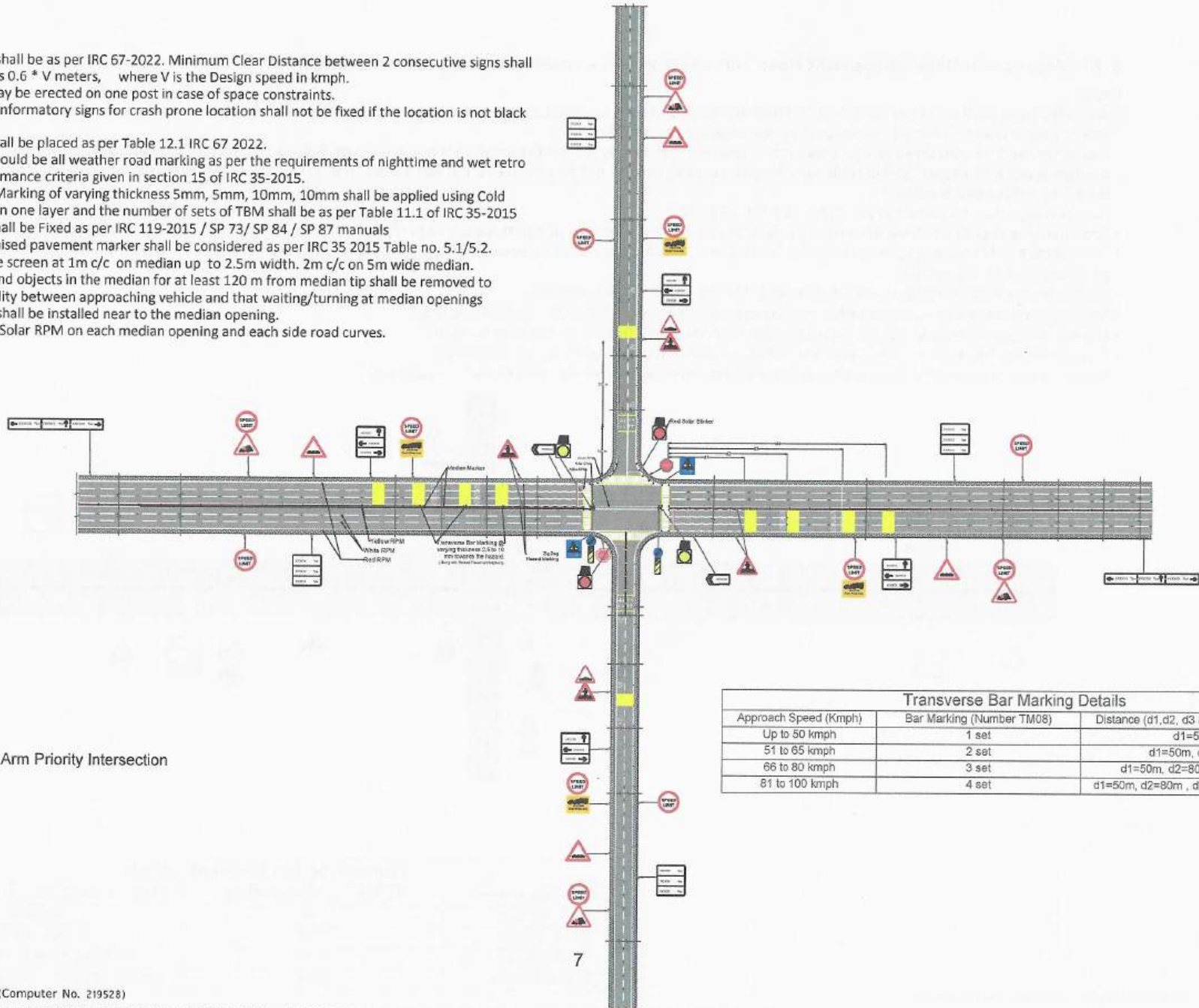
Notes-

- All Traffic signs shall be as per IRC 67-2022. Minimum Clear Distance between 2 consecutive signs shall be maintained as $0.6 * V$ meters, where V is the Design speed in kmph.
- 2 nos of signs may be erected on one post in case of space constraints.
- Cautionary and Informatory signs for crash prone location shall not be fixed if the location is not black spot.
- Direction sign shall be placed as per Table 12.1 IRC 67 2022.
- Road marking should be all weather road marking as per the requirements of nighttime and wet retro reflection performance criteria given in section 15 of IRC 35-2015.
- Transverse Bar Marking of varying thickness 5mm, 5mm, 10mm, 10mm shall be applied using Cold applied plastics in one layer and the number of sets of TBM shall be as per Table 11.1 of IRC 35-2015
- Crash barriers shall be Fixed as per IRC 119-2015 / SP 73/ SP 84 / SP 87 manuals and Provide safety barriers on curve upto 450m radius on outer side of the each carriageway.
- Spacing of the raised pavement marker shall be considered as per IRC 35 2015 Table no. 5.1/5.2.
- Provide Antiglare screen at 1m c/c on median up to 2.5m width. 2m c/c on 5m wide median.
- All plantations and objects in the median for at least 120 m from median tip shall be removed to ensure the visibility between approaching vehicle and that waiting/turning at median openings
- High Mast Light shall be installed near to the median opening.
- Provide 5 nos of Solar RPM on each median opening and each side road curves.

Notes-

- All Traffic signs shall be as per IRC 67-2022. Minimum Clear Distance between 2 consecutive signs shall be maintained as $0.6 * V$ meters, where V is the Design speed in kmph.
- 2 nos of signs may be erected on one post in case of space constraints.
- Cautionary and Informatory signs for crash prone location shall not be fixed if the location is not black spot.
- Direction sign shall be placed as per Table 12.1 IRC 67 2022.
- Road marking should be all weather road marking as per the requirements of nighttime and wet retro reflection performance criteria given in section 15 of IRC 35-2015.
- Transverse Bar Marking of varying thickness 5mm, 5mm, 10mm, 10mm shall be applied using Cold applied plastics in one layer and the number of sets of TBM shall be as per Table 11.1 of IRC 35-2015
- Crash barriers shall be Fixed as per IRC 119-2015 / SP 73/ SP 84 / SP 87 manuals
- Spacing of the raised pavement marker shall be considered as per IRC 35 2015 Table no. 5.1/5.2.
- Provide Antiglare screen at 1m c/c on median up to 2.5m width. 2m c/c on 5m wide median.
- All plantations and objects in the median for at least 120 m from median tip shall be removed to ensure the visibility between approaching vehicle and that waiting/turning at median openings
- High Mast Light shall be installed near to the median opening.
- Provide 5 nos of Solar RPM on each median opening and each side road curves.

4- Four Arm Priority Intersection



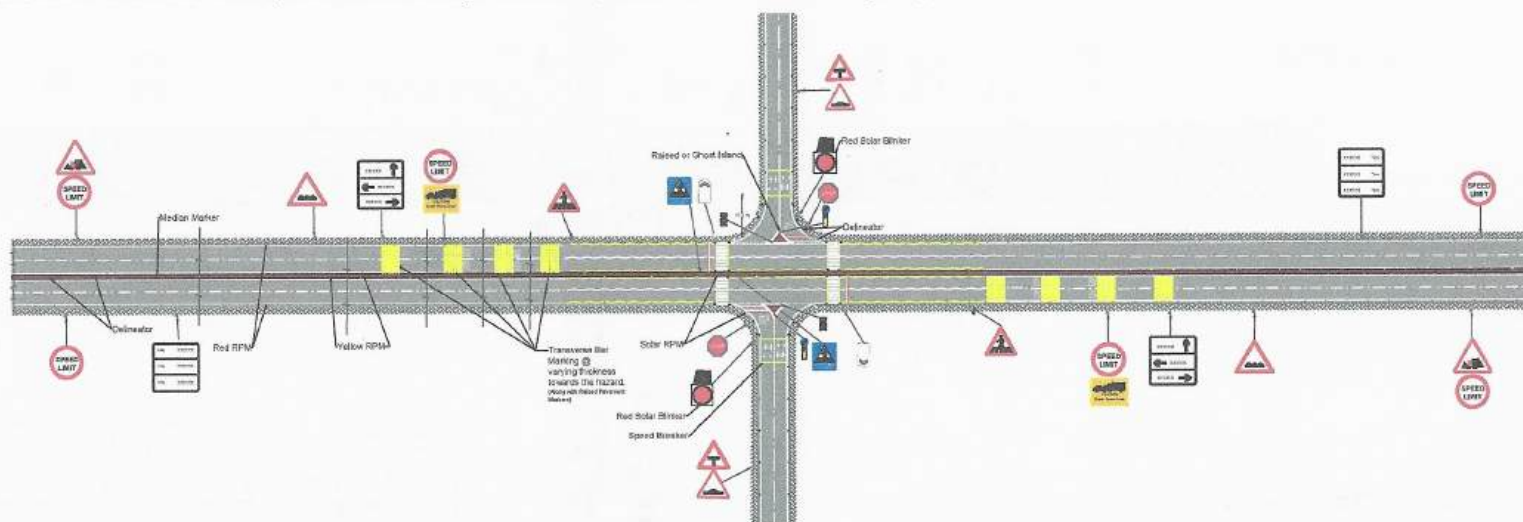
Transverse Bar Marking Details

Approach Speed (Kmph)	Bar Marking (Number TM08)	Distance (d1, d2, d3 & d4) from hazard
Up to 50 kmph	1 set	d1=50m
51 to 65 kmph	2 set	d1=50m, d2=80m
66 to 80 kmph	3 set	d1=50m, d2=80m, d3=120m
81 to 100 kmph	4 set	d1=50m, d2=80m, d3=120m, d4=180m

5. NH Meeting with Minor Village/MDR Road T-Intersection without median opening / Left in Left out Arrangement

Notes-

- All Traffic signs shall be as per IRC 67-2022. Minimum Clear Distance between 2 consecutive signs shall be maintained as $0.6 * V$ meters, where V is the Design speed in kmph. 2 signs may be erected on one post in case of space constraints.
- Cautionary and Informatory signs for crash prone location shall not be fixed if the location is not black spot. Raised Transverse bar marking shall not be provided, if location is not a blackspot. Speed Limit sign, Rumble strips signs shall not be provided if it is not a blackspot. STOP sign or Give way sign shall be used appropriately as per IRC 67-22 if it is not a blackspot.
- Direction sign shall be placed as per Table 12.1 IRC 67 2022.
- Road marking should be all weather road marking as per the requirements of nighttime and wet retro reflection performance criteria given in section 15 of IRC 35-2015.
- Transverse Bar Marking of varying thickness 5mm, 5mm, 10mm, 10mm shall be applied using Cold applied plastics in one layer and the number of sets of TBM shall be as per Table 11.1 of IRC 35-2015
- Crash barriers shall be Fixed as per IRC 119-2015 / SP 73/ SP 84 / SP 87 manuals
- Spacing of the raised pavement marker shall be considered as per IRC 35 2015 Table no. 5.1/ 5.2.
- Provide Antiglare screen at 1m c/c on median up to 2.5m width. 2m c/c on 5m wide median.
- Provide Hazard Marker sign along with Solar RPMs in case of Raised islands for the side road
- Provide 3 nos of Solar RPM before/after zebra markings on shoulder/median side of each carriageway



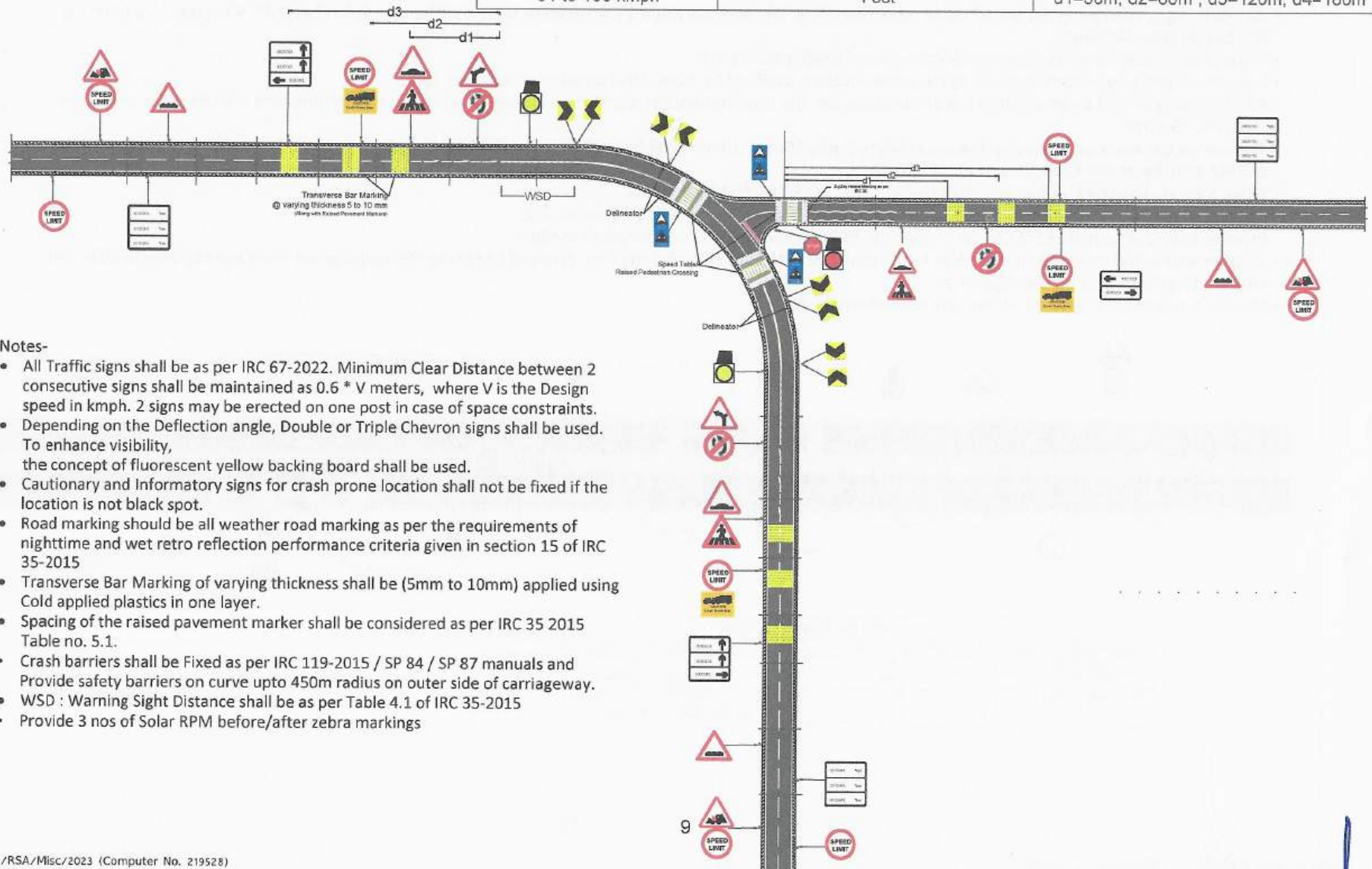
Transverse Bar Marking Details

Approach Speed (Kmph)	Bar Marking (Number TM08)	Distance (d1,d2, d3 & d4) from hazard
Up to 50 kmph	1 set	d1=50m
51 to 65 kmph	2 set	d1=50m, d2=80m
66 to 80 kmph	3 set	d1=50m, d2=80m , d3=120m
81 to 100 kmph	4 set	d1=50m, d2=80m , d3=120m, d4=180m

6. Side Road on Curve

Transverse Bar Marking Details

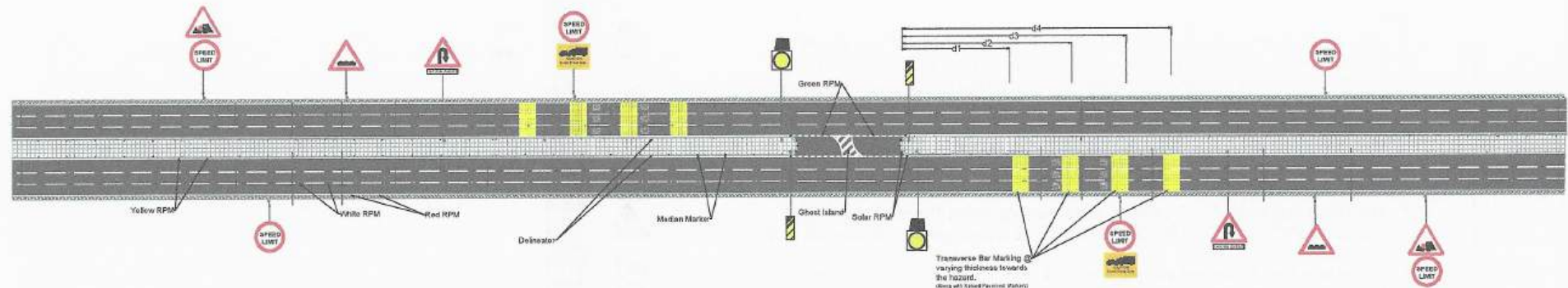
Approach Speed (Kmph)	Bar Marking (Number TM08)	Distance (d1,d2, d3 & d4) from hazard
Up to 50 kmph	1 set	d1=50m
51 to 65 kmph	2 set	d1=50m, d2=80m
66 to 80 kmph	3 set	d1=50m, d2=80m , d3=120m
81 to 100 kmph	4 set	d1=50m, d2=80m , d3=120m, d4=180m



7a. Mid block U turn Locations - Without Storage lane

Notes-

- All Traffic signs shall be as per IRC 67-2022. Minimum Clear Distance between 2 consecutive signs shall be maintained as $0.6 * V$ meters, where V is the Design speed in kmph.
- 2 nos of signs may be erected on one post in case of space constraints.
- Cautionary and Informatory signs for crash prone location shall not be fixed if the location is not black spot.
- Road marking should be all weather road marking as per the requirements of nighttime and wet retro reflection performance criteria given in section 15 of IRC 35-2015.
- Transverse Bar Marking of varying thickness 5mm, 5mm, 10mm, 10mm shall be applied using Cold applied plastics in one layer and the number of sets of TBM shall be as per Table 11.1 of IRC 35-2015
- Crash barriers shall be Fixed as per IRC 119-2015 / SP 73/ SP 84 / SP 87 manuals
- Spacing of the raised pavement marker shall be considered as per IRC 35 2015 Table no. 5.2.
- Provide Antiglare screen at 1m c/c on median up to 2.5m width. 2m c/c on 5m wide median.
- All plantations and objects in the median for at least 120 m from median tip shall be removed to ensure the visibility between approaching vehicle and that waiting/turning at median openings
- Provide 5 nos of Solar RPM on either side of median opening



Transverse Bar Marking Details		
Approach Speed (Kmph)	Bar Marking (Number TM09)	Distance (d1,d2, d3 & d4) from hazard
Up to 50 kmph	1 set	d1=50m
51 to 65 kmph	2 set	d1=50m, d2=80m
66 to 80 kmph	3 set	d1=50m, d2=80m , d3=120m
81 to 100 kmph	4 set	d1=50m, d2=80m , d3=120m, d4=180m

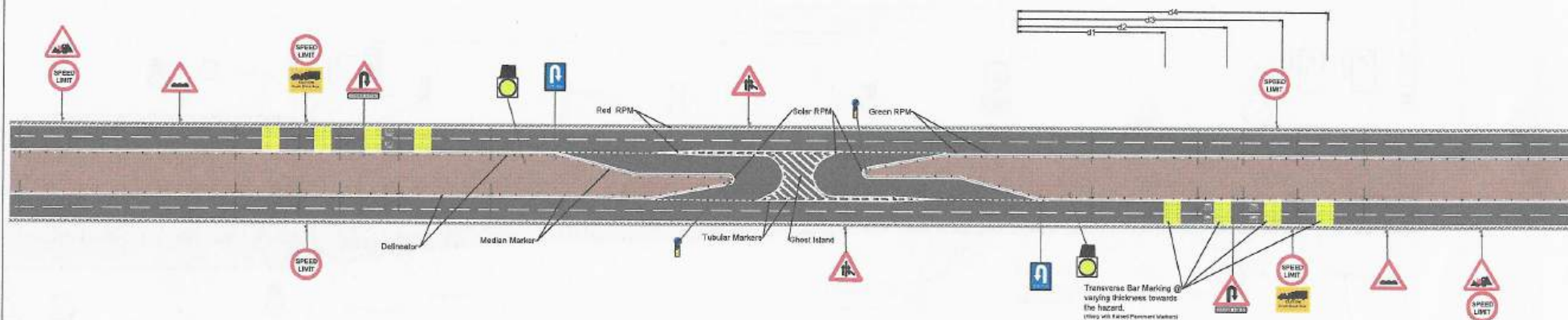
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7b. Mid block U turn Locations - With Storage lane

Notes-

- All Traffic signs shall be as per IRC 67-2022. Minimum Clear Distance between 2 consecutive signs shall be maintained as $0.6 * V$ meters, where V is the Design speed in kmph.
- 2 nos of signs may be erected on one post in case of space constraints.
- Cautionary and Informatory signs for crash prone location shall not be fixed if the location is not black spot.
- Road marking should be all weather road marking as per the requirements of nighttime and wet retro reflection performance criteria given in section 15 of IRC 35-2015.
- Transverse Bar Marking of varying thickness 5mm, 5mm, 10mm, 10mm shall be applied using Cold applied plastics in one layer and the number of sets of TBM shall be as per Table 11.1 of IRC 35-2015
- Crash barriers shall be Fixed as per IRC 119-2015 / SP 73/ SP 84 / SP 87 manuals
- Spacing of the raised pavement marker shall be considered as per IRC 35 2015 Table no. 5.2.
- Provide Antiglare screen at 1m c/c on median up to 2.5m width. 2m c/c on 5m wide median.
- All plantations and objects in the median for at least 120 m from median tip shall be removed to ensure the visibility between approaching vehicle and that waiting/turning at median openings
- Provide 5 nos of Solar RPM on either side of median opening



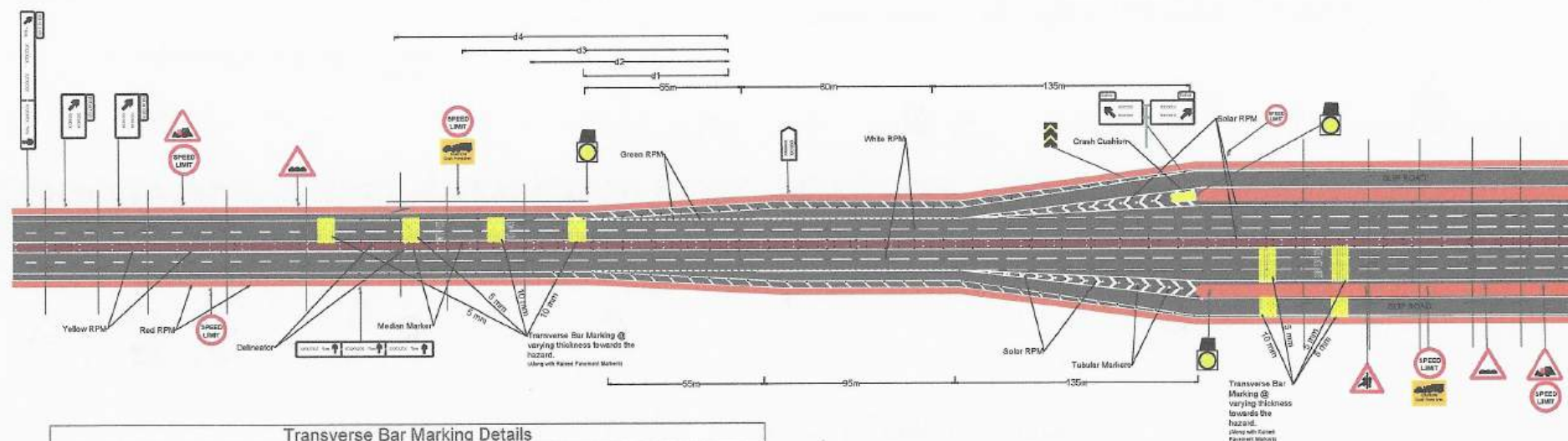
Transverse Bar Marking Details

Approach Speed (Kmph)	Bar Marking (Number TM08)	Distance (d1,d2, d3 & d4) from hazard
Up to 50 kmph	1 set	d1=50m
51 to 65 kmph	2 set	d1=50m, d2=80m
66 to 80 kmph	3 set	d1=50m, d2=80m , d3=120m
81 to 100 kmph	4 set	d1=50m, d2=80m , d3=120m, d4=180m

8. Grade Separated Intersections (VUP/VOP/Flyover)

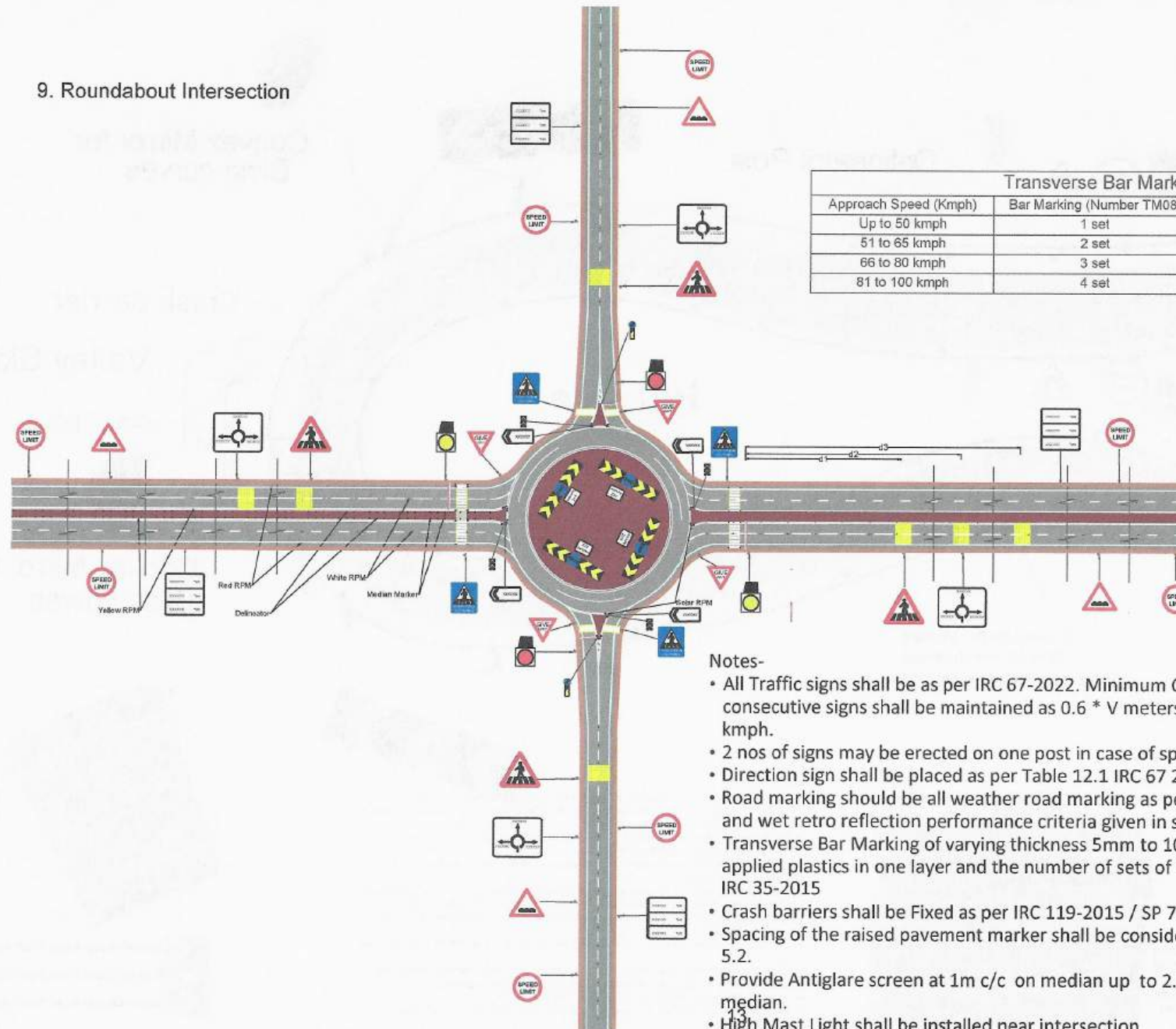
Notes-

- All Traffic signs shall be as per IRC 67-2022. Minimum Clear Distance between 2 consecutive signs shall be maintained as $0.6 * V$ meters, where V is the Design speed in kmph.
- 2 nos of signs may be erected on one post in case of space constraints.
- Direction signs shall be fixed at 2 Km, 1 km and 500 m before exit. Provide butterfly cantilever on exit.
- Cautionary and Informatory signs for crash prone location shall not be fixed if the location is not black spot.
- Road marking should be all weather road marking as per the requirements of nighttime and wet retro reflection performance criteria given in section 15 of IRC 35-2015.
- Transverse Bar Marking of varying thickness 5mm, 5mm, 10mm, 10mm shall be applied using Cold applied plastics in one layer and the number of sets of TBM shall be as per Table 11.1 of IRC 35-2015
- Crash barriers shall be Fixed as per IRC 119-2015 / SP 73/ SP 84 / SP 87 manuals
- Spacing of the raised pavement marker shall be considered as per IRC 35 2015 Table no. 5.2. Solar RPM shall be installed on shoulder and median edges at location where street light will be present (as per Foot note of table 9.1 of IRC SP 84/87)
- Provide Antiglare screen at 1m c/c on median up to 2.5m width. 2m c/c on 5m wide median.
- Provide Solar RPM at 6m spacing along the tip (centre) of merging/diverging markings



Approach Speed (Kmph)	Bar Marking (Number TBM)	Distance (d1, d2, d3 & d4) from hazard
Up to 50 kmph	1 set	d1=50m
51 to 65 kmph	2 set	d1=50m, d2=80m
66 to 80 kmph	3 set	d1=50m, d2=80m , d3=120m
81 to 100 kmph	4 set	d1=50m, d2=80m , d3=120m, d4=180m
101 to 120 kmph	5 set	d1=50m, d2=80m , d3=120m, d4=180m, d5=250m

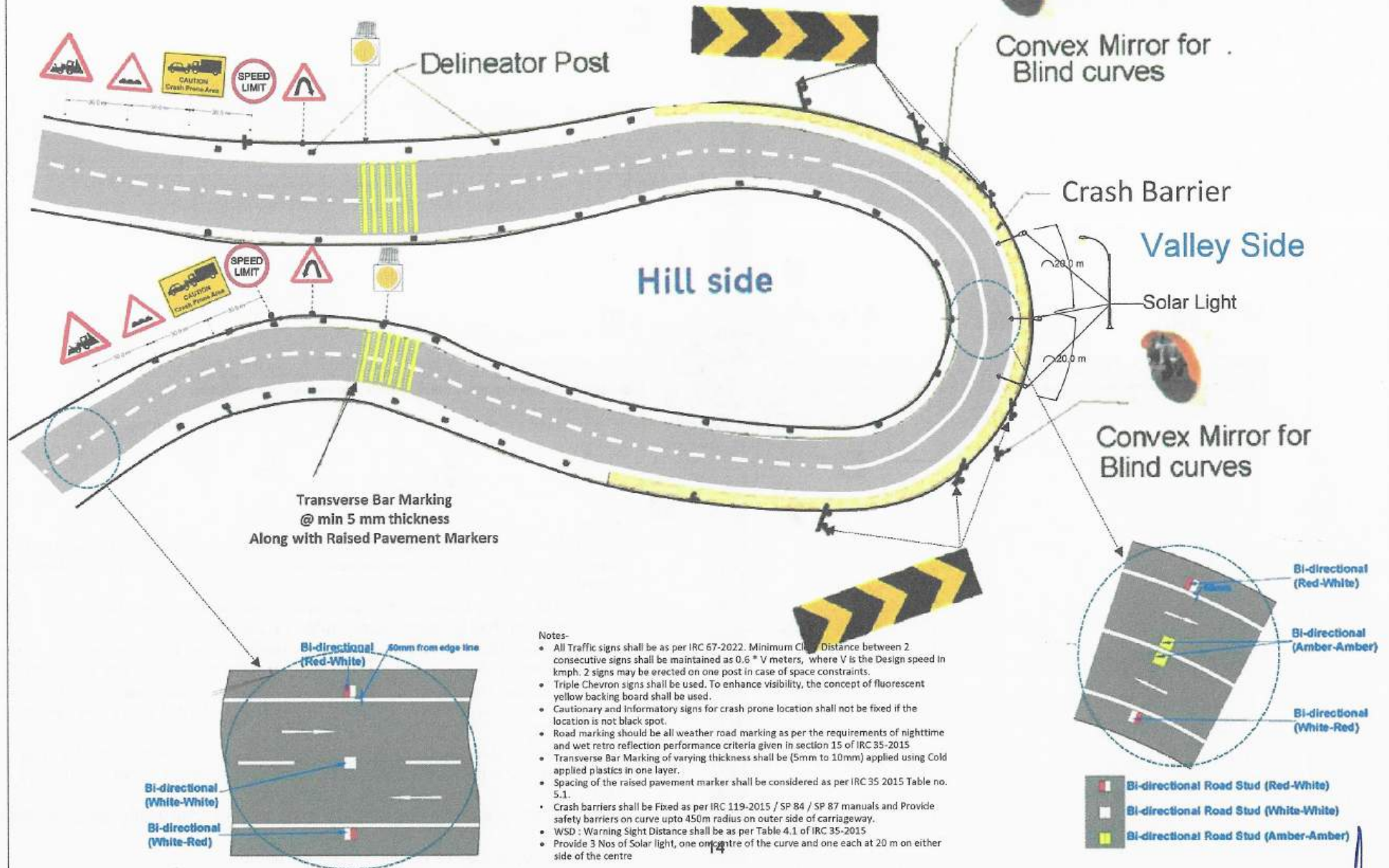
9. Roundabout Intersection



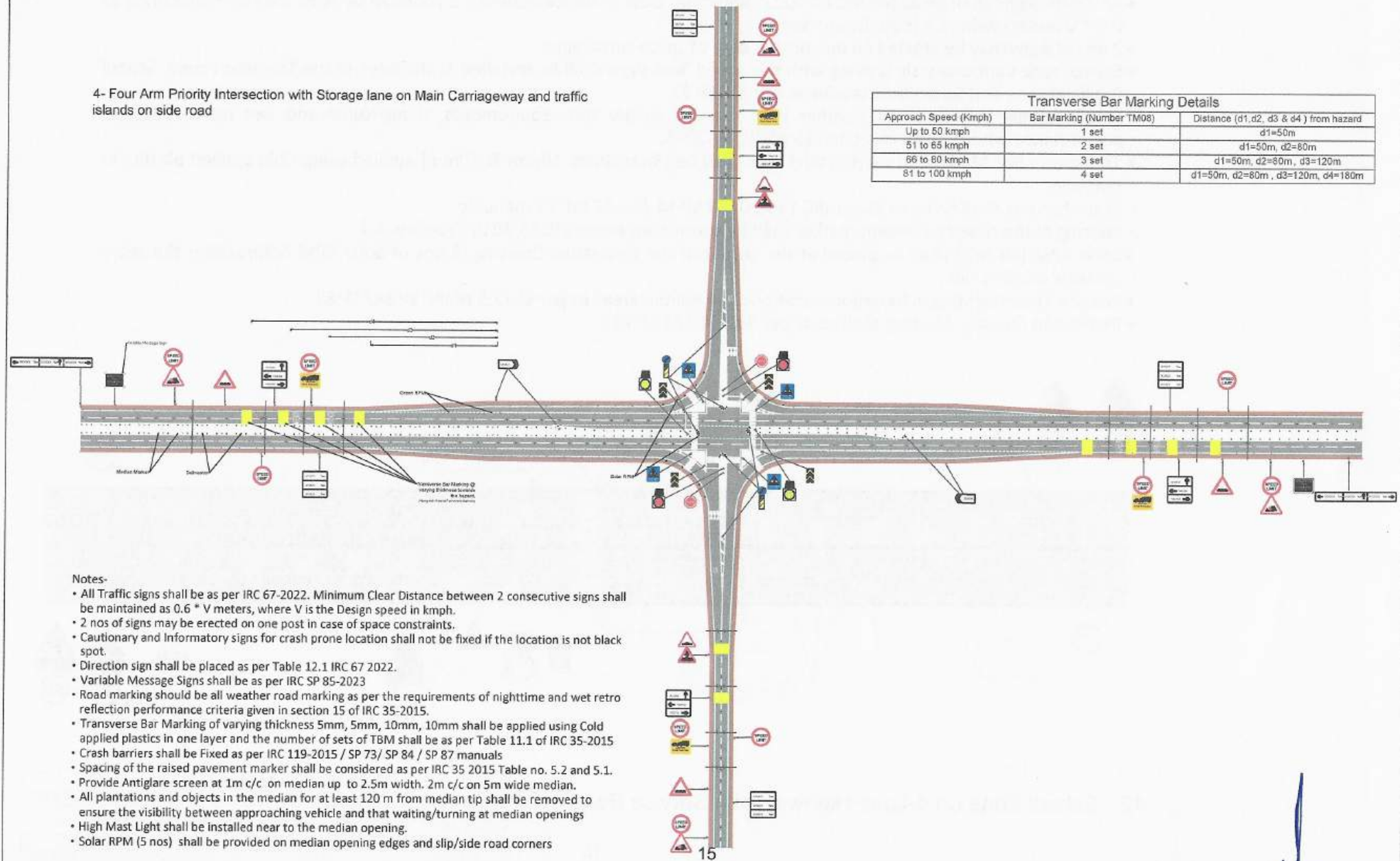
Notes-

- All Traffic signs shall be as per IRC 67-2022. Minimum Clear Distance between 2 consecutive signs shall be maintained as $0.6 * V$ meters, where V is the Design speed in kmph.
- 2 nos of signs may be erected on one post in case of space constraints.
- Direction sign shall be placed as per Table 12.1 IRC 67 2022.
- Road marking should be all weather road marking as per the requirements of nighttime and wet retro reflection performance criteria given in section 15 of IRC 35-2015.
- Transverse Bar Marking of varying thickness 5mm to 10mm shall be applied using Cold applied plastics in one layer and the number of sets of TBM shall be as per Table 11.1 of IRC 35-2015
- Crash barriers shall be Fixed as per IRC 119-2015 / SP 73/ SP 84 / SP 87 manuals
- Spacing of the raised pavement marker shall be considered as per IRC 35 2015 Table no. 5.2.
- Provide Antiglare screen at 1m c/c on median up to 2.5m width. 2m c/c on 5m wide median.
- High Mast Light shall be installed near intersection
- Provide 5 nos of solar RPM on each end of traffic channelising island

10. Hairpin Bend

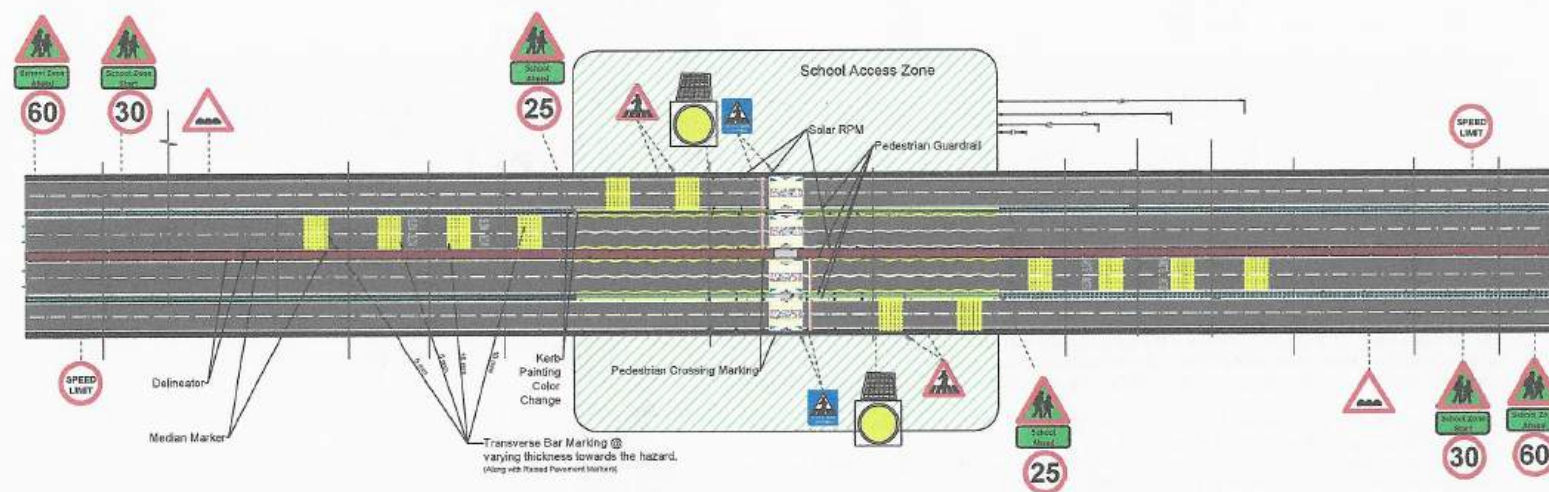


4- Four Arm Priority Intersection with Storage lane on Main Carriageway and traffic islands on side road



Notes-

- All Traffic signs shall be as per IRC 67-2022. Minimum Clear Distance between 2 consecutive signs shall be maintained as $0.6 * V$ meters, where V is the Design speed in kmph.
- 2 nos of signs may be erected on one post in case of space constraints.
- School zone Cautionary signs along with the speed limit signs shall be installed at the edge of the Transition zone, School Proximal zone and School access zone as per IRC SP 32.
- Road marking should be all weather road marking as per the requirements of nighttime and wet retro reflection performance criteria given in section 15 of IRC 35-2015.
- Transverse Bar Marking of varying thickness shall be (5mm, 5mm, 10mm & 10mm) applied using Cold applied plastics in one layer.
- Crash barriers shall be Fixed as per IRC 119-2015 / SP 84 / SP 87 / SP 73 manuals
- Spacing of the raised pavement marker shall be considered as per IRC 35 2015 Table no. 5.2.
- Solar RPM (48 Nos) shall be placed at the corner of the Pedestrian Crossing.(3 nos of Solar RPM before/after the zebra crossing on each side)
- Provide Street Lighting in hazardous locations and builtup areas as per Cl 12.5 of IRC SP 84/ SP 87
- Pedestrian Crossing Marking shall be as per IRC SP 32 Fig: 5-15



12 - School Zone on 4-Lane Highway with Service Road

Transverse Bar Marking Details		
Approach Speed (Kmph)	Bar Marking (Number TM08)	Distance (d1, d2, d3 & d4) from hazard
Up to 50 kmph	1 set	d1=50m
51 to 65 kmph	2 set	d1=50m, d2=80m
66 to 80 kmph	3 set	d1=50m, d2=80m, d3=120m
81 to 100 kmph	4 set	d1=50m, d2=80m, d3=120m, d4=180m