



# **Engineering Procurement and Construction (EPC)**

## **Agreement**

### **For**

**[Construction of Four Lane with paved shoulder of Bhagalpur  
- Kharhara Village (Dhaka More) from Km 0+000 to KM  
36+600 (Total length 36.600 Km) of NH-133E on EPC mode in  
the State of Bihar]**

**Ministry of Road Transport & Highways  
(MoRT&H)**

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**Part I**  
**Preliminary**

## **Engineering, Procurement and Construction Agreement**

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

### **Between**

**The President of India through the Ministry of Road Transport & Highways, Government of India** represented by:

Director General (Road Development) & Special Secretary, Ministry of Road Transport & Highways, Transport Bhawan, Parliament Street, New Delhi-110001/Chief Engineer (Zone, East-I), Ministry of Road Transport & Highways, Transport Bhawan, Parliament Street, New Delhi-110001

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

### **And**

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

### **Whereas:**

- A. [The Government of India] entrusted Construction of Four Lane with paved shoulder of Bhagalpur - Kharhara Village (Dhaka More) from Km 0+000 to KM 36+600 (Total length 36.600 Km) of NH-133E on EPC mode in the State of Bihar**
- B. The Authority resolved to undertake “Construction of Four Lane with paved shoulder of Bhagalpur - Kharhara Village (Dhaka More) from Km 0+000 to KM 36+600 (Total length 36.600 Km) of NH-133E on EPC mode in the State of Bihar”**
- C. The Authority accordingly invited the proposals (the "Request for Proposals" or "RFP") Vide No. RW/PAT/NH-133E/Bhagalpur(73)/2022-23 dated 14.09.2023 from the eligible bidders as per the technical and commercial terms and conditions prescribed in the RFP for undertaking the Project.**
- D. After evaluation of the bids received, the Authority accepted the bid of the selected bidder and issued its Letter of Acceptance No. <insert details> dated <insert date> (hereinafter called the "LOA") to the selected bidder for “Construction of Four Lane with paved shoulder of Bhagalpur - Kharhara Village (Dhaka More) from Km 0+000 to KM 36+600 (Total length 36.600 Km) of NH-133E on EPC mode in the State of Bihar”.**

- (i) to give his consent to enter into this Agreement and the enforceability of the provisions thereof, within 10 (ten) days of the date of issue of LOA;**

(ii) submit Performance Security and Additional Performance Security (if any) as per RFP requirements, and

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

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

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

## Article 1

### **Definitions and Interpretations**

#### **1.1 Definitions**

(i) The words and expressions beginning with capital letters and defined in this Agreement shall, unless the context otherwise requires, have the meaning ascribed thereto herein, and the words and expressions defined in the Schedules and used therein shall have the meaning ascribed thereto in the Schedules.

(ii) In this Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

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

**“Advance Payment”** shall have the meaning set forth in Clause 19.2; **“Affected Party”** shall have the meaning set forth in Clause 21.1;

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

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

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

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

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

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

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

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

**“Authority Default”** shall have the meaning set forth in Clause 23.2;

**“Authority’s Engineer”** shall have the meaning set forth in Clause 18.1;

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

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

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

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

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

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

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

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

**“Change of Scope”** shall have the meaning set forth in Article 13;

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

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

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

**“Completion Certificate”** shall have the meaning set forth in Clause 12.2;

**“Construction”** shall have the meaning set forth in Clause 1.2 (f);

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

**“Construction Zone”** shall have the meaning set forth in Clause 8.3 (i);

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

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

**“Contractor Default”** shall have the meaning set forth in Clause 23.1;

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

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

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

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

**“Defects Liability Period”** shall have the meaning set forth in Clause 17.1;

**“Dispute”** shall have the meaning set forth in Clause 26.1;

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

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

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

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

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

**“EPC”** means engineering, procurement and construction;

**“Final Payment Certificate”** shall have the meaning set forth in Clause 19.15;

**“Final Payment Statement”** shall have the meaning set forth in Clause 19.13;

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

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

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

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

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

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

**“Handover Memorandum”** shall have the meaning set forth in Clause 8.2;

**“IRC”** means the Indian Roads Congress;

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

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

**“Indirect Political Event”** shall have the meaning set forth in Clause 21.3;

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

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

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

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

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

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

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



**“Maintenance Inspection Report”** shall have the meaning set forth in Clause 15.2;

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

**“Maintenance Programme”** shall have the meaning set forth in Clause 14.3;

**“Maintenance Period”** shall have the meaning set forth in Clause 14.1;

**“Maintenance Requirements”** shall have the meaning set forth in Clause 14.2;

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

**“Manual”** shall mean the Manual of Standards and Specifications for Project Highways;

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

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

**“Monthly Maintenance Statement”** shall have the meaning set forth in Clause 19.6;

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

**“Non-Political Event”** shall have the meaning set forth in Clause 21.2;

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

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

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

**“Political Event”** shall have the meaning set forth in Clause 21.4;

**“Programme”** shall have the meaning set forth in Clause 10.1 (iii);

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

**“Project Assets”** means all physical and other assets relating to (a) tangible assets such as civil works and equipment including foundations, embankments, pavements,

road surface, interchanges, bridges, culverts, road over-bridges, drainage works, traffic signals, sign boards, kilometer-stones, [toll plaza(s)], electrical systems, communication systems, rest areas, relief centers, maintenance depots and administrative offices; and  
(b) Project Facilities situated on the Site;

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

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

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

**“Project Highway”** means the Site comprising the existing road {, proposed bypasses and tunnels} forming part of [NH-\*\* from km \*\*to km \*\*] and all Project Assets, and its subsequent development and augmentation in accordance with this Agreement;

**“Project Milestone”** means the project milestone set forth in Schedule-J;

**“Proof Consultant”** shall have the meaning set forth in Clause 10.2;

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

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

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

**“Retention Money”** shall have the meaning set forth in Clause 7.5;

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

**“Safety Consultant”** shall have the meaning set forth in Clause 10.1;

**“Scheduled Completion Date”** shall be the date set forth in Clause 10.3;

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

**“Scope of the Project”** shall have the meaning set forth in Clause 2.1;

**“Section”** means a part of the Project Highway;

**“Site”** shall have the meaning set forth in Clause 8.1;

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

**“Stage Payment Statement”** shall have the meaning set forth in Clause 19.4;

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

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

**“Suspension”** shall have the meaning set forth in Article 22;

**“Taking over Certificate”** shall have the meaning set forth in Clause 14.10;

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

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

**“Termination Notice”** means the communication issued in accordance with this Agreement by one Party to the other Party terminating this Agreement;

**“Termination Payment”** means the amount payable by either Party to the other upon Termination in accordance with Article 23;

**“Terms of Reference” or “TOR”** shall have the meaning set forth in Clause 18.2;

**“Tests”** means the tests set forth in Schedule-K to determine the completion of Works in accordance with the provisions of this Agreement;

**“Time Extension”** shall have the meaning set forth in Clause 10.5;

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

**“Valuation of Unpaid works”** shall have the meaning set forth in Clause 23.5;

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

other things necessary to complete the Project Highway in accordance with this Agreement; and

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

## **1.2 Interpretation**

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

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

writing under the hand of a duly authorized representative of such Party or the Authority's Engineer, as the case may be, in this behalf and not otherwise;

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

### **1.3 Measurements and arithmetic conventions**

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

### **1.4 Priority of agreements and errors/discrepancies**

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

- (a) this Agreement; and
- (b) all other agreements and documents forming part hereof or referred to herein; i.e. this Agreement at (a) above shall prevail over the agreements and documents at (b).

(ii) Subject to the provisions of Clause 1.4 (i), in case of ambiguities or discrepancies within this Agreement, the following shall apply:

- (a) between two or more Clauses of this Agreement, the provisions of a specific Clause relevant to the issue under consideration shall prevail over those in other Clauses;
- (b) between the Clauses of this Agreement and the Schedules, the Clauses shall prevail and between Schedules and Annexes, the Schedules shall prevail;
- (c) between any two Schedules, the Schedule relevant to the issue shall prevail;
- (d) between the written description on the Drawings and the Specifications and Standards, the latter shall prevail;
- (e) between the dimension scaled from the Drawing and its specific written dimension, the latter shall prevail; and
- (f) between any value written in numerals and that in words, the latter shall prevail.

### **1.5 Joint and several liability**

- (i) If the Contractor has formed a Joint Venture of two or more persons for implementing the Project:
  - (a) these persons shall, without prejudice to the provisions of this Agreement or any other agreement, be deemed to be jointly and severally liable to the Authority for the performance of the Agreement; and
  - (b) the Contractor shall ensure that no change in the composition of the Joint Venture is effected without the prior consent of the Authority.
- (ii) Without prejudice to the joint and several liability of all the members of the Joint Venture, the Lead Member shall represent all the members of the Joint Venture and shall always be liable and responsible for discharging the functions and obligations of the Contractor. The Contractor shall ensure that each member of the Joint Venture shall be bound by any decision, communication, notice, action or inaction of the Lead Member on any matter related to this Agreement and the Authority shall be entitled to rely upon any such action, decision or communication of the Lead Member. The Authority shall have the right to release payments solely to the Lead Member and shall not in any manner be responsible or be held liable for the inter se allocation of payments among members of the Joint venture.<sup>6</sup>

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<sup>6</sup> This Clause 1.5 may be omitted if the Contractor is not a Joint venture. Even if the Contractor is a Joint venture, the Authority may, at its discretion, delete this provision.



**Part II**  
**Scope of Project**

## **Article 2**

### **Scope of the Project**

#### **2.1 Scope of the Project**

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

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

## **Article 3**

### **Obligations of the Authority**

#### **3.1 Obligations of the Authority**

- (i) The Authority shall, at its own cost and expense, undertake, comply with and perform all its obligations set out in this Agreement or arising hereunder.
- (ii) The Authority shall be responsible for the correctness of the Scope of the Project, Project Facilities, Specifications and Standards and the criteria for testing of the completed Works.
- (iii) The Authority shall, upon submission of the Performance Security as per the RFP by the Contractor, shall provide to the Contractor:
  - (a) No less than 90% (ninety per cent) of the required Right of Way of the Construction Zone of total length of the Project Highway within a period of 30 (thirty) days from the date of this Agreement, which shall be in contiguous stretches of length not less than 5 (five) kilometer.
  - (b) approval of the general arrangement drawings (the “GAD”) from railway authorities to enable the Contractor to construct road over- bridges/ under-bridges at level crossings on the Project Highway in accordance with the Specifications and Standards, and subject to the terms and conditions specified in such approval, within a period of 60 (sixty) days from the Appointed Date, and reimbursement of all the costs and expenses paid by the Contractor to the railway authorities for and in respect of the road over-bridges/ under bridges; and<sup>7</sup>
  - (c) all environmental clearances as required under Clause 4.3.8
- (iv) Delay in providing the Right of Way or approval of GAD by railway authorities, as the case may be, in accordance with the provisions of Clause 3.1 (iii) shall entitle the Contractor to Damages in a sum calculated in accordance with the provisions of Clause 8.3 of this Agreement and Time Extension in accordance with the provisions of Clause 10.5 of this Agreement. For the avoidance of doubt, the Parties agree that the Damages for delay in approval of GAD by the railway authorities for a particular road over-bridge/ under-bridge shall be deemed to be equal to the Damages payable under the provisions of Clause 8.3 for delay in providing Right of Way for a length of 2 (two) kilometre for each such road over-bridge/ under-bridge.

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<sup>7</sup> Clause (b) may be omitted if the Project does not include a road over-bridge/under-bridge.

<sup>8</sup> Clause 3.1 (iii) (c) may be suitably modified in the event that all the environmental clearances for the Project Highway have been received or are not required. It should be clearly stated that all the environmental clearances for the Project Highway have been received; or such environmental clearances for the Project Highway are not required.

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

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

- (vi) The Authority agrees to provide support to the Contractor and undertakes to observe, comply with and perform, subject to and in accordance with the provisions of this Agreement and the Applicable Laws, the following:

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

### **3.2 Maintenance obligations prior to the Appointed Date**

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

### **3.3 Environmental Clearances**

The Authority represents and warrants that the environmental clearances required for construction of the Project shall be procured by the Authority prior to the date of issue of LOA. For the avoidance of doubt, the present status of environmental clearances is specified in Schedule-A.9

### **3.4 Deemed Termination upon delay**

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

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<sup>9</sup> Clause 3.3 may be suitably modified in the event that all the environmental clearances for the Project Highway have been received or are not required. It should be clearly stated that all the environmental clearances for the Project Highway have been received; or such environmental clearances for the Project Highway are not required.

## Article 4

### **Obligations of the Contractor**

#### **4.1 Obligations of the Contractor**

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

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

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

#### **4.2 Obligations relating to sub-contracts and any other agreements**

- (i) The Contractor, whether Joint Venture or sole, shall not sub-contract any Works in more than **49% (forty nine per cent)** of the Contract Price and shall carry out Works directly under its own supervision and through its own personnel and equipment in at least **51% (fifty one per cent)** of the Contract Price. Further, in case the Contractor is a Joint Venture, then the Lead Member shall carry out Works directly through its own resources (men, material and machines etc.) in at least **51% (fifty one per cent)** of total length of the Project Highway. Provided, however, that in respect of the Works carried out directly by the Contractor, it may enter into contracts for the supply and installation of Materials, Plant, equipment, road furniture, safety devices and labour, as the case may be, for such Works. For the avoidance of doubt, the Parties agree that the Contractor may sub-divide the aforesaid length of **51% (fifty one per cent)** in no more than 5 (five) sections of the Project Highway. The Parties further agree that all obligations and liabilities under this Agreement for the entire project Highway shall at all times remain with the Contractor.
- (ii) In the event any sub-contract for Works, or the aggregate of such sub-contracts with any Sub-contractor, exceeds 5% (five percent) of the Contract Price, the Contractor shall communicate the name and particulars, including the relevant experience of the Sub-contractor, to the Authority 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 may require the Contractor, no later than 15 (fifteen) business days from the date of receiving the communication from the Contractor, not to proceed with the sub-contract, and the Contractor shall comply therewith.
- (iii) In the event any sub-contract referred to in Clause 4.2 (ii) relates to a Sub- contractor who has, over the preceding 3 (three) years, not undertaken at least one work of a similar nature with a contract value exceeding 40% (forty 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), the Authority may, no later than 15 (fifteen) business days from the date of receiving the communication from the Contractor, require the Contractor not to proceed with such sub-contract, and the Contractor shall comply therewith without delay or demur.



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

#### **4.3 Employment of foreign nationals**

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

#### **4.4 Contractor's personnel**

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

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

#### **4.5 Advertisement on Project Highway**

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

#### **4.6 Contractor's care of the Works**

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

#### **4.7 Electricity, water and other services**

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

#### **4.8 Unforeseeable difficulties**

Except as otherwise stated in the Agreement:

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

#### **4.9 Co-ordination of the Works**

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

steps as may be possible to mitigate or neutralize the liability that has arisen, and (b) indemnify the Authority against any such liability and compensate the Authority to that extent.

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

#### **4.10 Environmental Measures**

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

#### **4.11 Site Data**

- (i) The Contractor shall be deemed to have inspected and examined the Site and its surroundings and to have satisfied himself before entering into the Agreement in all material respects including but not limited to:
  - (a) the form and nature of the Site (including, *inter-alia*, the surface and sub-surface conditions and geo-technical factors);
  - (b) the hydrological and climatic conditions;
  - (c) the extent and nature of the works already completed and Materials necessary for the execution and completion of the Works and the remedying of any defects that includes already executed part also.
  - (d) the suitability and the adequacy of the Site for the execution of the Works;
  - (e) the means of access to the Site and the accommodation the Contractor may require;
  - (f) arranging permits as required as per [.] of the Agreement.

- (g) the requirements of operation and maintenance; and
- (h) all other factors and circumstances affecting the Contractor's rights and obligations under the Agreement, the Contract Price and Time for Completion.

#### 4.12 Sufficiency of Contract Price

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

#### 4.13 Clearance of the Site

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

## **Article 5**

### **Representations and Warranties**

#### **5.1 Representations and warranties of the Contractor**

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

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

- (f) No act has been done or has been omitted to be done to entitle any authority or person to cancel, forfeit or modify any intellectual property rights.
  - (g) The Contractor shall notify the Authority of any adverse use of the intellectual property rights or confusingly or deceptively similar to the intellectual property rights.
  - (h) The Contractor shall recognize the Authority's ownership and title to the intellectual property rights and shall not at any time, either directly or indirectly, put to issue the validity or ownership of the intellectual property rights and it will not do any act or thing, either directly or indirectly, which in anyway impairs the validity and ownership of the intellectual property rights.
  - (i) The Contractor shall, promptly execute, acknowledge and deliver all documents which are requested by Authority to record with appropriate governmental agencies and authorities the fact that the Authority has the right to the use of the said intellectual property rights.
  - (j) The Contractor shall not, for any reason, object to, or interfere in any way with the ownership, registration or use of the intellectual property rights by the Authority (or its licensee or assigns) for any purpose whatsoever.
- (iii) The Contractor is fully aware that the Agreement is inter linked with the other Project contracts and the non-performance or deficient performance or default by the Contractor and/or any of the Contractor's personnel or Subcontractors under one among the said contracts will have bearing on the other contracts and the evaluation of the Contractor's performance under the Agreement and the Project itself.
- (iv) If at any time during the Defects Liability Period any item of the Works or Project Facilities or any part thereof, do not conform to the Authority requirements and Specifications and Standards, on being so notified by the Authority, the Contractor shall promptly rectify/remedy such nonconformity to the satisfaction of the Authority solely at the Contractor's expense; failing which the Authority may reject or revoke Taking-Over Certificate, and the Authority may proceed to correct the Contractor's nonconforming Work by the most expeditious means available, the costs of which shall be to the Contractor's account; or the Authority may retain the non-conforming Work and an equitable adjustment reducing the total Contract Price to reflect the diminished value of such non-conforming Work will be made by written amendment.
- (v) In addition to the other warranties, the Contractor represents and warrants as follows:
- (a) The Contractor has (or, if the technology does not currently exist, will have granted at the time of passing to The Employer) in and to the technology used  
  
in the equipment, materials, goods, Works, Contractor's documents, Drawings and Manuals ("**Technology**") -
    - i. all right, title and interest free of any lien, claim or restriction; and

- ii. right to grant to the Authority the right to use the Technology for the purpose of this contract, free of any lien, claim or restriction and on the terms of license as required.
- (b) The Contractor has granted (or, if the technology does not currently exist, will grant at the time of passing to the Authority the property and title in and to the equipment, materials, goods, Works, spares, Contractor's documents, Drawings and Manuals in which it is used) to the Authority the right to use the Technology, free of any lien, claim or restriction.
- (vi) In addition to the other Warranties, the Contractor represents and warrants as follows:
  - (a) No Technology contains any worm (i.e., a program that travels from one computer to another computer but does not attach itself to the operating system of the computer it enters), virus (i.e., a program that travels from one computer to another computer that attaches itself to the operating system it enters) or self-destruct capability.
  - (b) The Technology will not abnormally end or provide invalid or incorrect results as a result of date-dependent data.
  - (c) The Technology can accurately recognize, manage, accommodate, and manipulate date-dependent data, including single and multi-century formulas and leap years.
- (vii) No criminal proceedings instituted against any of the employees or Directors of the Contractor.
- (viii) Till date the services of the Contractor has not been terminated by any person for any breach or non-performance or negligence by the Contractor.

## **5.2 Representations and warranties of the Authority**

The Authority represents and warrants to the Contractor that:

- (a) it has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated herein and that it has taken all actions necessary to execute this Agreement, exercise its rights and perform its obligations, under this Agreement;
- (b) it has taken all necessary actions under the Applicable Laws to authorize the execution, delivery and performance of this Agreement;
- (c) it has the financial standing and capacity to perform its obligations under this Agreement;
- (d) this Agreement constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms hereof;



- (e) it has no knowledge of any violation or default with respect to any order, writ, injunction or any decree of any court or any legally binding order of any Government Instrumentality which may result in any material adverse effect on the Authority's ability to perform its obligations under this Agreement;
- (f) it has complied with Applicable Laws in all material respects;
- (g) it has good and valid right to the Site and has the power and authority to grant the Right of Way in respect thereof to the Contractor; and
- (h) it has procured Right of Way and environment clearances such that the Contractor can commence construction forthwith on 90% (ninety per cent) of the total length of the Project Highway.

### **5.3 Disclosure**

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

## **Article 6**

### **Disclaimer**

#### **6.1 Disclaimer**

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

**Part III**  
**Construction and Maintenance**

## Article 7

### **Performance Security**

#### **7.1 Performance Security**

- (i) (A) Within 30 (thirty) days of receipt of Letter of Acceptance, the selected Bidder shall furnish to the Authority an irrevocable and unconditional guarantee from a Bank in the form set forth in Appendix-VII (the "Performance Security") for an amount equal to 3% (three 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 an irrevocable and unconditional guarantee from a Bank in the same form given at Appendix-VII towards an Additional Performance Security (the "Additional Performance Security") for an amount calculated as under:
  - (a) If the Bid price offered by the selected bidder is lower than 20% of the estimated project cost/cost put to tender, the additional performance security shall be calculated @ 20% of the difference in the (i) Estimated Project Cost (as mentioned in RFP)-20% of the Estimated Project Cost and (ii) the Bid Price offered by the selected Bidder.
  - (b) Maximum limit of additional performance security shall be limited to 3% of the Bid price offered by the selected bidder.
  - (c) The additional performance security shall be treated as part of the performance security.
- (B) The Performance Security shall be valid until 60(sixty) days after the Defects Liability Period. The Additional Performance Security shall be valid until 28 (twenty eight) days after Project Completion Date.
- (ii) The Selected Bidder has the option to provide 50% of the Performance Security and 50% of the Additional Performance Security, if any, within 30 (thirty) days of receipt of Letter of Acceptance, in any case before signing of the Contract Agreement and the remaining Performance Security and Additional Performance Security, if any, shall be submitted within 30 days of signing of this agreement.
- (iii) In the event the Selected Bidder fails to provide the remaining Performance Security and Additional Performance Security, if any, as prescribed herein, it may seek extension of time for a further period upto 60 days by paying the Damages upfront along with the request letter seeking the extension. The Damages shall be the sum calculated at the rate of 0.01% (zero point zero one per cent) of the Bid Price offered by the Selected Bidder for each day until the Performance Security and Additional Performance Security, if any, is provided in full as prescribed herein. The damages at full rate as given above shall be applicable even if a part of the Performance Security and the Additional Performance Security is provided.

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

## **7.2 Extension of Performance Security and Additional Performance Security**

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

## **7.3 Appropriation of Performance Security**

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

## **7.4 Release of Performance Security**

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

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

#### **7.5 Retention Money<sup>10</sup>**

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

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<sup>10</sup> The Authority may, in its discretion, omit Clause 7.5 and in lieu thereof increase the Performance Security under Clause 7.1 from 7.5% (seven point five per cent) to 10% (ten per cent).

## **Article 8**

### **Right of Way**

#### **8.1 The Site**

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

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

#### **8.2 Procurement of the Site**

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

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

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

### **8.3 Damages for delay in handing over the Site**

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



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

Where,

C = the Contract Price;

L = length of the Project Highway in metres; and

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

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

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

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

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

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

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

- (iv) In the event of withdrawal of Works under Clause 8.3 (iii) (a), the Contract Price shall be reduced by an amount equal to 90 (ninety) per cent of the value of the Works withdrawn and the Contractor shall not be entitled to any other compensation or Damages for the withdrawal of Works.

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

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

#### **8.4 Site to be free from Encumbrances**

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

#### **8.5 Protection of Site from encroachments**

On and after signing the memorandum and/or subsequent memorandum referred to in Clause 8.2, and until the issue of the Completion Certificate, the Contractor shall maintain a round-the-clock vigil over the Site and shall ensure and procure that no encroachment takes place thereon. During the Construction Period, the Contractor shall protect the Site from any and all occupations, encroachments or Encumbrances, and

shall not place or create nor permit any Sub-contractor or other person claiming through or under the Agreement to place or create any Encumbrance or security threat over all or any part of the Site or the Project Assets, or on any rights of the Contractor therein or under this Agreement, save and except as otherwise expressly set forth in this Agreement. In the event of any encroachment or occupation on any part of the Site, the Contractor shall report such encroachment or occupation forthwith to the Authority and undertake its removal at its own cost and expenses.

#### **8.6 Special/ temporary Right of Way**

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

#### **8.7 Access to the Authority and the Authority's Engineer**

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

#### **8.8 Geological and archaeological finds**

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

## **Article 9**

### **Utilities and Trees**

#### **9.1 Existing utilities and roads**

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

#### **9.2 Shifting of obstructing utilities**

The contractor shall, subject to Applicable Laws and with assistance of the Authority, undertake shifting of any utility (including electric lines, water pipes and telephone cables), to an appropriate location or alignment, if such utility or obstruction adversely affected the execution of works or maintenance of the project Highway in accordance with this Agreement, as per the scope given in Schedule B and in accordance with applicable standards and specifications of concerned utility owning entity. The cost of shifting of such utilities indicated in Schedule B is payable to the Contractor as per Schedule H. Cost of shifting utilities not included in the Schedule B, if any, shall be treated as Change of Scope. The Authority will provide assistance to the Contractor for obtaining the estimates for shifting of such utilities from the entity owning such electric lines, water pipes or telephone cables, as the case may be. The Contractor shall execute such utility shifting works under the supervision of utility owning agency and Authority Engineer (AE) in accordance with the provision of agreement. The supervision charges only shall be paid by the Authority to the Utility Owning Entity. In the event of any delay in shifting thereof, the Contractor shall be responsible for failure to perform any of its obligations here under if such failure is not as a direct consequence of delay on the part of the entity owning such electric lines, water pipes or telephone cables, as the case may be. The dismantled material/scrap of existing Utility to be shifted dismantled shall belong to the Contractor who would be free to dispose-off the dismantled materials as deemed fit by them. The work of shifting of utilities can be taken up by the Contractor any time after signing of the Agreement.

#### **9.3 New utilities**

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

- (ii) The Authority may, by notice, require the Contractor to connect any adjoining road to the Project Highway, and the connecting portion thereof falling within the Site shall be constructed by the Contractor at the Authority's cost in accordance with Article 10.
- (iii) The Authority may by notice require the Contractor to connect, through a paved road, any adjoining service station, hotel, motel or any other public facility or amenity to the Project Highway, whereupon the connecting portion thereof that falls within the Site shall be constructed by the Contractor on payment of the cost. The cost to be paid by the Authority to the Contractor shall be determined by the Authority's Engineer. For the avoidance of doubt, in the event such road is to be constructed for the benefit of any entity, the Authority may require such entity to make an advance deposit with the Contractor or the Authority, as the case may be, of an amount equal to the estimated cost as determined by the Authority's Engineer and such advance shall be adjusted against the cost of construction as determined by the Authority's Engineer hereunder.
- (iv) In the event construction of any Works is affected by a new utility or works undertaken in accordance with this Clause 9.3, the Contractor shall be entitled to a reasonable Time Extension as determined by the Authority's Engineer.

#### **9.4 Felling of trees**

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

#### **9.5 Dismantling of structures**

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

## **9.6 Development Period**

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

## Article 10

### **Design and Construction of the Project Highway**

#### **10.1 Obligations prior to commencement of Works**

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

iii. the sequence and timing of inspections and tests specified in this Agreement; and

iv. the particulars for the pre-construction reviews and for any other submissions, approvals and consents specified in the Agreement.

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

(c) Part III: Monthly cash flow forecast.

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



## 10.2 Design and Drawings

- (i) Design and Drawings shall be developed in conformity with the Specifications and Standards set forth in Schedule-D. In the event, the Contractor requires any relaxation in design standards due to restricted Right of Way in any section, the alternative design criteria for such section shall be provided for review and approval of the Authority's Engineer.
- (ii) The Contractor shall appoint a proof check consultant (the "Proof Consultant") after proposing to the Authority a panel of three (3) names of qualified and experienced firms from whom the Authority may choose one (1) to be the Proof Consultant. Provided, however, that if the panel is not acceptable to the Authority and the reasons for the same are furnished to the Contractor, the Contractor shall propose to the Authority a revised panel of three (3) names from the firms empanelled as proof consultants by the [Ministry of Road Transport and Highways] for obtaining the consent of the Authority. The Contractor shall also obtain the consent of the Authority for two (2) key personnel of the Proof Consultant who shall have adequate experience and qualifications in highways and bridges respectively. The Authority shall, within 15 (fifteen) days of receiving a proposal from the Contractor hereunder, convey its decision, with reasons, to the Contractor, and if no such decision is conveyed within the said period, the Contractor may proceed with engaging of the Proof Consultant.
- (iii) The Proof Consultant shall:
  - (a) evolve a systems approach with the Design Director so as to minimize the time required for final designs and construction drawings; and
  - (b) proof check the detailed calculations, drawings and designs, which have been approved by the Design Director.
- (iv) In respect of the Contractor's obligations with respect to the design and Drawings of the Project Highway as set forth in Schedule-I, the following shall apply:
  - (a) The Contractor shall prepare and submit, with reasonable promptness and in such sequence as is consistent with the Project Completion Schedule, three (3) copies each of the design and Drawings, duly certified by the Proof Consultant, to the Authority's Engineer for its approval. Provided, however, that in respect of Major Bridges and Structures, the Authority's Engineer may require additional drawings for approval in accordance with Good Industry Practice.
  - (b) by submitting the Drawings for review and approval to the Authority's Engineer, the Contractor shall be deemed to have represented that it has determined and verified that the design and engineering, including field construction criteria related thereto, are in conformity with the Scope of the Project, the Specifications and Standards and the Applicable Laws;

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

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

### **10.3 Construction of the Project Highway**

- (i) The Contractor shall construct the Project Highway as specified in Schedule- B and Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-D. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works. The **730th (Seven hundred and Thirty)** day from the Appointed Date shall be the scheduled completion date (the "Scheduled Completion Date") and the Contractor agrees and undertakes that the construction shall be completed on or before the Scheduled Completion Date, including any extension thereof.
- (ii) The Contractor shall construct the Project Highway in accordance with the Project Completion Schedule set forth in Schedule-J. In the event that the Contractor fails to achieve any Project Milestone or the Scheduled Completion Date within a period of 30 (thirty) days from the date set forth in Schedule-J, unless such failure has occurred due to Force Majeure or for reasons solely attributable to the Authority, it shall pay Damages to the Authority of a sum calculated at the rate of 0.05% (zero point zero five percent) of the Contract Price for delay of each day reckoned from the date specified in Schedule -J and until such Project Milestone is achieved or the Project Highway is completed; provided that if the period for any or all Project Milestones or the Scheduled Completion Date is extended in accordance with the provisions of this Agreement, the dates set forth in Schedule-J shall be deemed to be modified accordingly and the provisions of this Agreement shall apply as if Schedule-J has been amended as above; provided further that in the event the Project Highway is completed within or before the Scheduled Completion Date including any Time Extension, applicable for that work or section, the Damages paid under this Clause 10.3 (ii) shall be refunded by the Authority to the Contractor, but without any interest thereon.

The Parties agree that for determining achievement or delays in completion of the Project Milestones or the Project on the due date, the works affected due to delay in providing the site for which time extension has been granted beyond the Scheduled Completion Date will be excluded. For example on the due date to achieve the Project Milestone-I (i.e., Stage Payments of 10% (ten percent) of Contract Price on 180<sup>th</sup> (one hundred and eighty) day from the Appointed Date), if 5% (five percent) of the project

length corresponding to the Project Milestone-I is not handed over or lately handed over resulting in the extension of completion of this 5% (five percent) length beyond Scheduled Completion Date, Stage Payment of  $10\% \times 0.95 = 9.5\%$  only is to be achieved by 180<sup>th</sup> (one hundred and eighty) day.

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

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

#### **10.4 Maintenance during Construction Period**

- (i) During the Construction Period, the Contractor shall maintain, at its cost, the existing lane(s) of the Project Highway so that the traffic worthiness and safety thereof are at no time materially inferior as compared to their condition on Appointed Date, and shall undertake the necessary repair and maintenance works for this purpose; provided that the Contractor may, at its cost, interrupt and divert the flow of traffic if such interruption and diversion is necessary for the efficient progress of Works and conforms to Good Industry Practice; provided further that such interruption and diversion shall be undertaken by the Contractor only with the prior written approval of the Authority's Engineer which approval shall not be unreasonably withheld. For the avoidance of doubt, it is agreed that the Contractor shall at all times be responsible for ensuring safe operation of the Project Highway. It is further agreed that in the event the Project includes construction of a bypass or tunnel and realignment of the existing carriageway, the Contractor shall maintain the existing highway in such sections until the new Works are open to traffic.
- (ii) Notwithstanding anything to the contrary contained in this Agreement, in the event of default by the Contractor in discharging the obligations specified in Clause 10.4 (i) above, the Authority shall get these maintenance works completed in the manner

recommended by the Authority's Engineer to avoid public inconvenience at the risk and cost of the Contractor in order to keep the road in traffic worthy condition.

#### **10.5 Extension of time for completion**

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

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

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

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

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

Upon receipt of the claim hereunder, the Authority's Engineer shall examine the same in accordance with the provisions of Clause 10.5 (iv) within a period of 30 (thirty) days of the receipt thereof

## **10.6 Incomplete Works**

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

## **10.7 Maintenance Manual**

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

## **10.8 As-Built Records**

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

## **10.9 Contractor's Use of Authority's Documents**

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

## Article 11

### **Quality Assurance, Monitoring and Supervision**

#### **11.1 Quality of Materials and workmanship**

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

#### **11.2 Quality control system**

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

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

- (iii) The Contractor shall procure all documents, apparatus and instruments, fuel, consumables, water, electricity, labor, Materials, samples, and qualified personnel as are necessary for examining and testing the Project Assets and workmanship in accordance with the Quality Assurance Plan.
- (iv) The cost of testing of Construction, Materials and workmanship under this Article 11 shall be borne by the Contractor.

#### **11.3 Methodology**

The Contractor shall, at least 15 (fifteen) days prior to the commencement of the construction, submit to the Authority’s Engineer for review and consent the methodology proposed to be adopted for executing the Works, giving details of equipment to be deployed, traffic management and measures for ensuring safety. The Authority’s Engineer shall complete the review and convey its consent to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.



#### **11.4 Inspection and technical audit by the Authority**

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

#### **11.5 External technical audit**

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

#### **11.6 Inspection of construction records**

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

#### **11.7 Monthly progress reports**

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

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

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

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

## **11.8 Inspection**

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

#### **11.9 Samples**

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

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

#### **11.10 Tests**

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

#### **11.11 Examination of work before covering up**

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

#### **11.12 Rejection**

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

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

#### **11.13 Remedial work**

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

work shall, without prejudice to the rights of the Authority to recover Damages in accordance with the provisions of this Agreement, be recoverable from the Contractor and may be deducted by the Authority from any monies due to be paid to the Contractor.

#### **11.14 Delays during construction**

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

#### **11.15 Quality control records and Documents**

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

#### **11.16 Video recording**

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

#### **11.17 Suspension of unsafe Construction Works**

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

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

#### **11.18 Staff and Labor**

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

(ii) Returns of Labor

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

(iii) Persons in the Service of Others

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

(iv) Labor Laws

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

(v) Facilities for Staff and Labor

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

(vi) Health And Safety

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

(vii) Contractor's Personnel

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

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

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

(viii) Disorderly Conduct

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



## **Article 12**

### **Completion Certificate**

#### **12.1 Tests on Completion**

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

#### **12.2 Completion Certificate**

- (i) Upon completion of all Works forming part of the Project Highway, and the Authority's Engineer determining the Tests to be successful and after the receipt of notarized true copies of the certificate(s) of insurance, copies of insurance policies and premium payment receipts in respect of the insurance defined in Article 20 and Schedule P of this Agreement, it shall, at the request of the Contractor forthwith issue to the Contractor and the Authority a certificate substantially in the form set forth in Schedule-L (the "Completion Certificate").
- (ii) Upon receiving the Completion Certificate, the Contractor shall remove its equipment, materials, debris and temporary works from the Site within a period of 30 (thirty) days thereof, failing which the Authority may remove or cause to be removed, such equipment, materials, debris and temporary works and recover from the Contractor

an amount equal to 120% (one hundred and twenty per cent) of the actual cost of removal incurred by the Authority.

- (iii) Without prejudice to the obligations of the Contractor specified in Articles 14 and 17, the property and ownership of all the completed Works forming part of the Project Highway shall vest in the Authority.

### **12.3 Rescheduling of Tests**

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

## Article 13

### **Change of Scope**

#### **13.1 Change of Scope**

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

#### **13.2 Procedure for Change of Scope**

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

(iii) Upon receipt of a Change of Scope Notice, the Contractor shall, with due diligence, provide to the Authority and the Authority's Engineer such information as is necessary, together with detailed proposal in support of:

- (a) the impact, if any, which the Change of Scope is likely to have on the Project Completion Schedule if the works or services are required to be carried out during the Construction Period; and
- (b) the options for implementing the proposed Change of Scope and the effect, if any, each such option would have on the costs and time thereof, including the following details:
  - i. break-up of the quantities, unit rates and cost for different items of work; and
  - ii. proposed design for the Change of Scope;
  - iii. proposed modifications, if any, to the Project Completion Schedule of the Project Highway.

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

(iv) The parties agree that costs and time for implementation of the proposed Change of Scope shall be determined as per the following:

- (a) For works where Schedule of Rates (SOR) of concerned circle of State's Public Works Department are applicable at the Base Date are available, the same shall be applicable for determination of costs. In case of non-availability of Schedule of Rates at the Base Date, the available Schedule of Rates shall be applied by updating the same based on WPI. In case the Contract Price is lower/ higher than the Estimated Project Cost as per RFP, then the SOR rates shall be reduced/ increased in the same proportion accordingly.

- (b) For item of Works not included in Schedule of Rates as mentioned in sub-para

(a) of Clause 13.2 (iv) above, the cost of same shall be derived on the basis of MORTH Standard Data Book and the Authority's Engineer shall determine the prevailing market rates and discount the same considering WPI to achieve the prevailing rate at the Base Date, and for any item in respect of which MORTH Standard Data Book does not provide the requisite details, the Authority's Engineer shall determine the rate in accordance with Good Industry Practice.

For the avoidance of doubt, in case the cost as determined by the Contractor and the Authority reveals a difference of more than 10% (ten per cent), the cost as determined by the Authority shall be considered as final and binding on the Contractor.

- (c) The design charges shall be considered only for new works or items (i.e. the Works or items not similar to the works or items in the original scope) @ 1% (one per cent) of cost of such new works or items.

- (d) The costs of existing works or items, which are being changed/ omitted shall also be valued as per above procedure and only net cost shall be considered.
- (e) The reasonable time for completion of works to be taken under Change of Scope shall be determined by the Authority's Engineer on the basis of Good Industry Practice and if such time exceeds the Scheduled Completion Date, the issue of Completion Certificate shall not be affected or delayed on account of construction of Change of Scope items/ works remaining incomplete on the date of Tests.
- (v) Upon consideration of the detailed proposal submitted by the Contractor under the Clause 13.2 (iii), the Authority, within 15 (fifteen) days of receipt of such proposal, may in its sole discretion either accept such Change of Scope with modifications, if any, and initiate proceedings thereof in accordance with this Article 13 or reject the proposal and inform the Contractor of its decision and shall issue an order (the "Change of Scope Order") requiring the Contractor to proceed with the performance thereof.

For the avoidance of doubt, the Parties agree that the Contractor shall not undertake any Change of Scope without the express consent of the Authority, save and except any works necessary for meeting any Emergency, that too with verbal approval of Authority which shall be confirmed in writing in next 3 (three) days. In the event that the Parties are unable to agree, the Authority may:

- (a) issue a Change of Scope Order requiring the Contractor to proceed with the performance thereof at the rates and conditions approved by the Authority till the matter is resolved in accordance with Article 26;
- or
- (b) proceed in accordance with Clause 13.5.
- (vi) The provisions of this Agreement, insofar as they relate to Works and Tests, shall apply *mutatis mutandis* to the Works undertaken by the Contractor under this Article 13.

### **13.3 Payment for Change of Scope**

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

### **13.4 Restrictions on Change of Scope**

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

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

### **13.5 Power of the Authority to undertake Works**

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

## Article 14

### Maintenance

#### 14.1 Maintenance obligations of the Contractor

- (i) The Contractor shall maintain the Project Highway for a period of **5 (five) years**, corresponding to the Defects Liability Period, commencing from the date of the Completion Certificate (the “**Maintenance Period**”). For the performance of its Maintenance obligations, the Contractor shall be paid:
  - (a) For flexible pavement with 5 years Maintenance Period including structures: no maintenance charges shall be paid for the first year; 0.50% of the Contract Price each for the second, third and fourth year; and 1% of the Contract Price for the fifth year.
  - (b) Deleted
  - (c) Deleted
  - (d) Deleted
  - (e) Deleted

Above amount for the performance of Contractors' Maintenance obligations shall be, inclusive of all taxes. The amount payable for maintenance shall be adjusted to reflect any increase or decrease arising out of variation in WPI to be determined in accordance with the provisions of Clause 19.12. It is further agreed that the Contract Price hereunder shall be reckoned with reference to the amount specified in Clause 19.1 (i), which shall be adjusted to the extent of Change of Scope and the works withdrawn under the provisions of Clause 8.3 (iii), but shall not include any price adjustments in pursuance of Clause 19.10.

- (ii) During the Maintenance Period, the Authority shall provide to the Contractor access to the Site for Maintenance in accordance with this Agreement. The obligations of the Contractor hereunder shall include:
  - (a) permitting safe, smooth and uninterrupted flow of traffic on the Project Highway;
  - (b) undertaking routine maintenance including prompt repairs of potholes, cracks, joints, drains, embankments, structures, pavement markings, lighting, road signs and other traffic control devices. For the avoidance of doubt, the electricity charges for operation of electrical infrastructure installed along the project length, except the infrastructure being used by the Contractor for its own use, shall be borne by the Authority;
  - (c) undertaking repairs to structures;
  - (d) informing the Authority of any unauthorized use of the Project Highway;

- (e) informing the Authority of any encroachments on the Project Highway; and
  - (f) operation and maintenance of all communication, patrolling, and administrative systems necessary for the efficient maintenance of the Project Highway in accordance with the provisions of this Agreement.
- (iii) In respect of any Defect or deficiency not specified in Schedule-E, the Contractor shall, at its own cost, undertake repair or rectification in accordance with Good Industry Practice, save and except to the extent that such Defect or deficiency shall have arisen on account of any willful default or neglect of the Authority or a Force Majeure Event.
  - (iv) The Contractor shall remove promptly from the Project Highway any waste materials (including hazardous materials and waste water), rubbish and other debris (including, without limitation, accident debris) and keep the Project Highway in a clean, tidy and orderly condition, and in conformity with the Applicable Laws, Applicable Permits and Good Industry Practice.

#### **14.2 Maintenance Requirements**

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

#### **14.3 Maintenance Programme**

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

#### **14.4 Safety, vehicle breakdowns and accidents**

- (i) The Contractor shall ensure safe conditions for the Users, and in the event of unsafe conditions, lane closures, diversions, vehicle breakdowns and accidents, it shall follow the relevant operating procedures for removal of obstruction and debris without delay. Such procedures shall conform to the provisions of this Agreement, Applicable Laws, Applicable Permits and Good Industry Practice.
- (ii) The Contractor shall maintain and operate a round-the-clock vehicle rescue post with 1 (one) mobile crane having the capacity to lift a truck with a Gross Vehicle Weight of 30,000 (thirty thousand) kilograms; and such post shall be located at [\*\*\*\*]. The Contractor shall promptly remove any damaged vehicles and debris from the Project Highway to enable safe movement of traffic and shall report all accidents to the police forthwith.



#### **14.5 Lane closure**

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

#### **14.6 Reduction of payment for non-performance of Maintenance obligations**

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

#### **14.7 Authority's right to take remedial measures**

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

#### **14.8 Restoration of loss or damage to Project Highway**

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

#### **14.9 Overriding powers of the Authority**

- (ii) If in the reasonable opinion of the Authority, the Contractor is in material breach of its obligations under this Agreement and, in particular, the Maintenance Requirements, and such breach is causing or likely to cause material hardship or danger to the Users and pedestrians, the Authority may, without prejudice to any of its rights under this Agreement including Termination thereof, by notice require the Contractor to take reasonable measures immediately for rectifying or removing such hardship or danger, as the case may be.
- (iii) In the event that the Contractor, upon notice under Clause 14.9 (i), fails to rectify or remove any hardship or danger within a reasonable period, the Authority may exercise overriding powers under this Clause 14.9 (ii) and take over the performance of any or all the obligations of the Contractor to the extent deemed necessary by it for rectifying or removing such hardship or danger; provided that the exercise of such overriding powers by the Authority shall be of no greater scope and of no longer duration than is reasonably required hereunder; provided further that any costs and expenses incurred by the Authority in discharge of its obligations hereunder shall be recovered by the Authority from the Contractor, and the Authority shall be entitled to deduct any such costs and expenses incurred from the payments due to the Contractor under Clause 19.7 for the performance of its Maintenance obligations.
- (iii) In the event of a national emergency, civil commotion or any other circumstances specified in Clause 21.3, the Authority may take over the performance of any or all the obligations of the Contractor to the extent deemed necessary by it, and exercise such control over the Project Highway or give such directions to the Contractor as may be deemed necessary; provided that the exercise of such overriding powers by the Authority shall be of no greater scope and of no longer duration than is reasonably required in the circumstances which caused the exercise of such overriding power by the Authority. For the avoidance of doubt, it is agreed that the consequences of such action shall be dealt in accordance with the provisions of Article 21. It is also agreed that the Contractor shall comply with such instructions as the Authority may issue in pursuance of the provisions of this Clause 14.9 (iii), and shall provide assistance and cooperation to the Authority, on a best effort basis, for performance of its obligations hereunder.

#### **14.10 Taking over Certificate**

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

## **Article 15**

### **Supervision and Monitoring during Maintenance**

#### **15.1 Inspection by the Contractor**

- (i) The Authority's Engineer shall undertake regular inspections to evaluate continuously the compliance with the Maintenance Requirements.
- (ii) The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts and drainage system in accordance with the guidelines contained in IRC: SP35. Report of this inspection together with details of proposed maintenance works as required shall be conveyed to the Authority's Engineer forthwith. The Contractor shall complete the proposed maintenance works before the onset of the monsoon and send a compliance report to the Authority's Engineer. Post monsoon inspection shall be undertaken by the Contractor and the inspection report together with details of any damages observed and proposed action to remedy the same shall be conveyed to the Authority's Engineer forthwith.

#### **15.2 Inspection and payments**

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

### **15.3 Tests**

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

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

### **15.4 Reports of unusual occurrence**

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

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

## **Article 16**

### **Traffic Regulation**

#### **16.1 Traffic regulation by the Contractor**

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

## **Article 17**

### **Defects Liability**

#### **17.1 Defects Liability Period**

- (i) The Contractor shall be responsible for all the Defects and deficiencies, except usual wear and tear in the Project Highway or any Section thereof, till the expiry of a period of commencing from the date of Completion Certificate (the “Defects Liability Period”) as specified below:
  - (a) 5 (five) years from the date of completion in case of a road being constructed with flexible pavement;
  - (b) Deleted;
  - (c) Deleted;
  - (d) Deleted;
  - (e) Deleted;
  - (f) Deleted;
  - (g) Deleted;

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

#### **17.2 Remedying Defects**

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

#### **17.3 Cost of remedying Defects**

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

- (a) the design of the Project;
- (b) Plant, Materials or workmanship not being in accordance with this Agreement and the Specifications and Standards;
- (c) improper maintenance during construction of the Project Highway by the Contractor; and/ or

- (d) failure by the Contractor to comply with any other obligation under this Agreement.

#### **17.4 Contractor's failure to rectify Defects**

If the Contractor fails to repair or rectify such Defect or deficiency within the period specified in Clause 17.2, the Authority shall be entitled to get the same repaired, rectified or remedied at the Contractor's cost to make the Project Highway conform to the Specifications and Standards and the provisions of this Agreement. All costs consequent thereon shall, after due consultation with the Authority and the Contractor, be determined by the Authority's Engineer. The cost so determined and an amount equal to 20% (twenty percent) of the cost as Damages shall be recoverable by the Authority from the Contractor and may be deducted by the Authority from any monies due to the Contractor.

#### **17.5 Extension of Defects Liability Period**

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

## **Article 18**

### **Authority's Engineer**

#### **18.1 Appointment of the Authority's Engineer**

- (i) The Authority shall appoint a firm of Consulting Engineers or a Project Monitoring Committee (PMC) substantially in accordance with the selection criteria set forth in Schedule-N, to be the engineer under this Agreement (the "Authority's Engineer"). In unavoidable circumstances, Authority may appoint an officer to act as Authority's Engineer until appointment of a Consulting Engineering firm/ Supervision Consultant/ PMC.
- (ii) The officer in-charge of the Authority (e.g. PD/ RO/ CGM/ Member in the case of NHAI; RO/CE/ADG in the case of MoRTH projects executed through the State PWDs; and PD/ED/Director in the case of NHIDCL) is responsible for the overall supervision and monitoring of the execution of project as the representative of the owner of the project. The Authority's Engineer is appointed to assist the Authority for carrying out the functions as detailed under clause 18.2. As such, an officer of the Authority is vested with all such powers and responsibilities as are enjoined upon the Authority's Engineer and is fully competent to issue any instructions for proper monitoring and supervision of the project, either by himself or through the Authority's Engineer. Instructions issued by the concerned officer of the Authority shall have the same effect as that of the Authority's Engineer in terms of this Agreement. Wherever such concerned officer issues any instructions or notice to the Contractor, he shall endorse a copy thereof to the Authority's Engineer.
- (iii) The Authority's Engineer should be appointed within 10 days from the date of this Agreement or before declaration of Appointed Date, whichever is earlier. The Authority shall notify the appointment or replacement of the Authority's Engineer to the Contractor.
- (iv) The staff of the Authority's Engineer shall include suitably qualified engineers and other professionals who are competent to assist the Authority's Engineer to carry out its duties.

#### **18.2 Duties and authority of the Authority's Engineer**

- (i) The Authority's Engineer shall perform the duties and exercise the authority in accordance with the provisions of this Agreement and substantially in accordance with the terms of reference ("Terms of Reference" or "TOR") set forth in Annexure-I of Schedule N, but subject to obtaining prior written approval of the Authority before determining:
  - (a) any Time Extension;
  - (b) any additional cost to be paid by the Authority to the Contractor;
  - (c) the Termination Payment;



- (d) issuance of Completion Certificate; or
  - (e) any other matter which is not specified in (a), (b), (c) or (d) above and which creates financial liability on either Party.
- (ii) No decision or communication of the Authority's Engineer shall be effective or valid unless it is accompanied by an attested true copy of the approval of the Authority for and in respect of any matter specified in Clause 18.2 (i).
  - (iii) The Authority's Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month. For the avoidance of doubt, the Authority's Engineer shall include in its report, compliance of the recommendations of the Safety Consultant.

### **18.3 Delegation by the Authority's Engineer**

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

### **18.4 Instructions of the Authority's Engineer**

- (i) The Authority's Engineer may issue instructions for remedying any Defect(s) to the Contractor. The Contractor shall take such instructions from the Authority's Engineer, or from an assistant to whom appropriate authority has been delegated under Clause 18.3.
- (ii) The instructions issued by the Authority's Engineer shall be in writing. However, if the Authority's Engineer issues any oral instructions to the Contractor, it shall confirm the oral instructions in writing within 2 (two) working days of issuing them.
- (iii) In case the Contractor does not receive the confirmation of the oral instructions within the time specified in Clause 18.4 (ii), the Contractor shall seek the written confirmation of the oral instructions from the Authority's Engineer. The Contractor shall obtain acknowledgement from the Authority's Engineer of the communication seeking written confirmation. In case of failure of the Authority's Engineer or its delegated

assistant to reply to the Contractor within 2 (two) days of the receipt of the communication from the Contractor, the Contractor may not carry out the instructions.

- (iv) In case of any dispute on any of the instructions issued by the delegated assistant, the Contractor may refer the dispute to the Authority's Engineer, who shall then confirm, reverse or vary the instructions within 3 (three) business days of the dispute being referred.

#### **18.5 Determination by the Authority's Engineer**

- (i) The Authority's Engineer shall consult with each Party in an endeavour to reach agreement wherever this Agreement provides for the determination of any matter by the Authority's Engineer. If such agreement is not achieved, the Authority's Engineer shall make a fair determination in accordance with this Agreement having due regard to all relevant circumstances. The Authority's Engineer shall give notice to both the Parties of each agreement or determination, with supporting particulars.
- (ii) Each Party shall give effect to each agreement or determination made by the Authority's Engineer in accordance with the provisions of this Agreement. Provided, however, that if any Party disputes any instruction, decision, direction or determination of the Authority's Engineer, the Dispute shall be resolved in accordance with the Dispute Resolution Procedure.

#### **18.6 Remuneration of the Authority's Engineer**

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

#### **18.7 Termination of the Authority's Engineer**

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

**Part IV**  
**Financial Covenants**

## Article 19

### Payments

#### **19.1 Contract Price**

- (i) The Authority shall make payments to the Contractor for the Works on the basis of the lump sum price accepted by the Authority in consideration of the obligations specified in this Agreement for an amount of **INR ... .. (INR ... ..)** (the “Contract Price”), which shall be subject to adjustments in accordance with the provisions of this Agreement. For the avoidance of doubt, the Parties expressly agree that the Contract Price shall not include the cost of Maintenance, which shall be paid separately in accordance with the provisions of Clause 19.7. The Parties further agree that save and except as provided in this Agreement, the Contract Price shall be valid and effective until issue of Completion Certificate.
- (ii) The Contract Price includes all duties, taxes, royalty, cess, charges, and fees that may be levied in accordance with the laws and regulations in force as on the Base Date on the Contractor's equipment, Plant, Materials and supplies acquired for the purpose of this Agreement and on the services performed under this Agreement. Nothing in this Agreement shall relieve the Contractor from its responsibility to pay any tax including any tax that may be levied in India on profits made by it in respect of this Agreement.
- (iii) The Contract Price shall not be adjusted for any change in costs stated in Clause 19.1 (ii) above, except as stated in Clauses 19.10 and 19.17.
- (iv) The Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs, unless otherwise provided for in this Agreement.
- (v) Unless otherwise stated in this Agreement, the Contract Price covers all the Contractor's obligations for the Works under this Agreement and all things necessary for the Construction and the remedying of any Defects in the Project Highway.
- (vi) All payments under this Agreement shall be made in Indian Rupees.
- (vii) The Contract Price also includes the cost of shifting of obstructing Utilities (including all centages as applicable by the utility owning department except supervision charges) as given in clause 9.2 and Schedule B.

#### **19.2 Advance Payment**

- (i) The Authority shall make an interest-bearing advance payment (the “Advance Payment”) @ “Bank Rate + 3%”, equal to 10 % (ten percent) of the Contract Price, exclusively for mobilization expenses. The Advance Payment for mobilization expenses shall be made in two installments each equal to 5% (five percent) of the Contract Price. The second 5% (five percent) mobilization advance would be released after submission of utilization certificate by the Contractor for the first 5% (five per cent) advance already released earlier.
- (ii) In addition to above, the Authority shall make an additional interest-bearing Advance Payment against newly purchased key Construction equipment required for the works as per agreed Construction programme and brought to the site, if so requested by the contractor subject to the same terms and condition specified by the Contractor subject

to the same terms and conditions specified for Advance Payment for mobilization expenses in this Agreement. The maximum of such advance shall be 5% (five per cent) of the Contract Price against Bank Guarantee. This advance shall be further subject to the condition that:

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

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

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

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

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

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

### **19.3 Procedure for estimating the payment for the Works**

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

### **19.4 Stage Payment Statement for Works**

The Contractor shall submit a statement (the “Stage Payment Statement”), in 3 (three) copies, by the 7<sup>th</sup> (seventh) day of the month to the Authority’s Engineer in the form set forth in Schedule-O, showing the amount calculated in accordance with Clause 19.3 to which the Contractor considers himself entitled for completed stage(s) of the Works.

The Stage Payment Statement shall be accompanied with the progress reports and any other supporting documents. The Contractor shall not submit any claim for payment of incomplete stages of work.

#### **19.5 Stage Payment for Works**

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

#### **19.6 Monthly Maintenance Statement of the Project Highway**

- (i) The Contractor shall submit to the Authority's Engineer a monthly maintenance statement ("Monthly Maintenance Statement") in 3 (three) copies by the 7<sup>th</sup> (seventh) day of each month in the format set forth in Schedule-O for the Maintenance of the Project Highway during the previous month.
- (ii) The monthly lump sum amount payable for Maintenance shall be 1/12<sup>th</sup> (one-twelfth) of the annual cost of Maintenance as specified in Clause 14.1 (i).

#### **19.7 Payment for Maintenance of the Project Highway**

- (i) Within 15 (fifteen) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Clause 19.6, the Authority's Engineer shall verify the Contractor's monthly maintenance statement and certify the amount to be paid to the Contractor taking into account:

- (a) Compliance with the Maintenance Requirements; and
- (b) reduction for non-compliance with the Maintenance Requirement in accordance with Clause 19.7 (ii).

The Authority's Engineer shall deliver to the Authority an IPC approving or amending the monthly maintenance statement to reflect the amount due to the Contractor in accordance with this Agreement.

- (ii) Maintenance shall be measured in units of one kilometer each; provided, however, that payment thereof shall be made in fixed monthly amounts in accordance with this Agreement. If the Maintenance Requirements set forth in Schedule-E are not met, reduction in payments shall be made in accordance with the provisions of Schedule-M. The reductions for non-compliance with the Maintenance Requirements shall be applied on the basis of monthly inspections by the Authority's Engineer.
- (iii) The deduction made on account of non-compliance with the Maintenance Requirements shall not be subsequently considered for payment after the compliance is achieved by repair or rectification.
- (iv) The Authority shall pay to the Contractor every quarter any amount due under any IPC under this Clause 19.7. The payment shall be made no later than 30 (thirty) days from the date of submission of the last IPC for the relevant quarter.

#### **19.8 Payment of Damages**

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

#### **19.9 Time of payment and interest**

- (i) The Authority shall pay to the Contractor any amount due under any payment certificate issued by the Authority's Engineer in accordance with the provisions of this Article 19, or in accordance with any other clause of this Agreement as follows:
  - (a) payment shall be made no later than 30 (thirty) days from the date of submission of the Stage Payment Statement by the Contractor to the Authority's Engineer for certification in accordance with the provisions of Clause 19.4 for an IPC; provided that, in the event the IPC is not issued by the Authority's Engineer within the aforesaid period of 30 (thirty) days, the Authority shall pay the amount shown in the Contractor's Stage Payment Statement and any discrepancy therein shall be added to, or deducted from, the next payment certificate issued to the Contractor; and



- (b) payment shall be made no later than 30 (thirty) days from the date of submission of the Final Payment Certificate for Works along with the discharge submitted to the Authority's Engineer in accordance with the provisions of Clause 19.15 for certification.
- (ii) In the event of the failure of the Authority to make payment to the Contractor within the time period stated in this Clause 19.9, the Authority shall be liable to pay to the Contractor interest @ Bank Rate + 3% per annum, on all sums remaining unpaid from the date on which the same should have been paid, calculated in accordance with the provisions of sub-Clauses (a) and (b) of Clause 19.9 (i) and till the date of actual payment.

#### **19.10 Price adjustment for the Works**

- (i) The amounts payable to the Contractor for Works shall be adjusted in accordance with the provisions of this Clause 19.10
- (ii) Subject to the provisions of Clause 19.10 (iii), the amounts payable to the Contractor for Works, shall be adjusted in the IPC issued by the Authority's Engineer for the increase or decrease in the index cost of inputs for the Works, by the addition or subtraction of the amounts determined by the formulae prescribed in Clause 19.10 (iv).
- (iii) To the extent that full compensation for any increase or decrease in costs to the Contractor is not covered by the provisions of this or other Clauses in this Agreement, the costs and prices payable under this Agreement shall be deemed to include the amounts required to cover the contingency of such other increase or decrease of costs and prices.
- (iv) The Contract Price shall be adjusted for increase or decrease in rates and price of labour, cement, steel, Plant, machinery and spares, bitumen, fuel and lubricants, and other material inputs in accordance with the principles, procedures and formulae specified below:
  - (a) Price adjustment shall be applied on completion of the specified stage of the respective item of work in accordance with Schedule-H;
  - (b) Adjustment for each item of work/stage shall be made separately;
  - (c) The following expressions and meanings are assigned to the value of the work done:
 

RW= Value of work done for the completion of a stage under the following items of Schedule-H:

    - i. Road works; and
    - ii. Other works

BR = Value of work done for the completion of a stage under the items Major Bridges and Structures (Schedule-H)
  - (d) Price adjustment for changes in cost shall be paid in accordance with the following formulae:

$$(i) \quad VRW = 0.05RW \times \left[ PL \times \frac{L_1 - L_0}{L_0} + PA \times \frac{A_1 - A_0}{A_0} + PF \times \frac{F_1 - F_0}{F_0} + \right. \\ \left. PB \times \frac{B_1 - B_0}{B_0} + PM \times \frac{M_1 - M_0}{M_0} + PC \times \frac{C_1 - C_0}{C_0} + PS \times \frac{S_1 - S_0}{S_0} \right]$$

$$(ii) \quad VBR = 0.05BR \times \left[ PL \times \frac{L_1 - L_0}{L_0} + PA \times \frac{A_1 - A_0}{A_0} + PF \times \frac{F_1 - F_0}{F_0} + PM \times \right. \\ \left. \frac{M_1 - M_0}{M_0} + PC \times \frac{C_1 - C_0}{C_0} + PS \times \frac{S_1 - S_0}{S_0} \right]$$

Where,

VRW = Increase or decrease in the cost of road works/other works during the period under consideration due to changes in the rates for relevant components as stated in sub-paragraph (e).

VBR = Increase or decrease in the cost of Major Bridges and Structures during the period under consideration due to changes in the rates for relevant components as stated in sub-paragraph (e).

PB, PC, PL, PM, and PS are the percentages of bitumen, cement, labour, other materials, and steel/components (including strands and cables) respectively for the relevant item as stated in sub-paragraph (e).

PA is the percentage of Plant, machinery and spares component for the relevant item as stated in sub-paragraph (e).

PF is the percentage of fuel and lubricants for the relevant items as stated in sub-paragraph (e).

A<sub>0</sub> = The wholesale price index as published by the Ministry of Commerce & Industry, Government of India (hereinafter called "WPI") for "Manufacture of machinery for mining, quarrying and construction" for the month of the Base Date.

A<sub>1</sub> = The WPI for construction machinery for the month three months prior to the month to which the IPC relates.

B<sub>0</sub> = The official retail price of bitumen at the nearest refinery at [Haldia] on the Base Date.

B<sub>1</sub> = The official retail price of bitumen at nearest refinery at [Haldia], on the first day of the month three months prior to the month to which the IPC relates.

C<sub>0</sub> = The WPI for Ordinary Portland Cement for the month of the Base Date.

C<sub>1</sub> = The WPI for Ordinary Portland Cement for the month three months prior to the month to which the IPC relates.

- $F_0$  = The official retail price of high speed diesel (HSD) oil at the existing consumer pumps of Indian Oil Corporation ("IOC") in the State of [Bihar] on the Base Date.
- $F_1$  = The official retail price of HSD at the existing consumer pumps of IOC in the State of [Bihar] on the first day of the month three months prior to the month to which the IPC relates.
- $L_0$  = The consumer price index for industrial workers for the [circle Patna in the State of Jharkhand], published by Labor Bureau, Ministry of Labor, Government of India, (hereinafter called "CPI") for the month of the Base Date.
- $L_1$  = The CPI for the month three months prior to the month to which the IPC relates.
- $M_0$  = The WPI for all commodities for the month of the Base Date.
- $M_1$  = The WPI for all commodities for the month three months prior to the month to which the IPC relates.
- $S_0$  = The WPI for Mild Steel –Long Products for the month of the Base Date.
- $S_1$  = The WPI for Mild Steel –Long Products for the month three months prior to the month to which the IPC relates.
- (e) The following percentages shall govern the price adjustment of the Contract Price:

Component	Item				
	Road Works				Major Bridges and Structures
	Earthwork, Granular work, and Other Works	Bituminous work	Cement Concrete Pavement	Culverts, minor bridges and other Structures	
Labour (PL)	[20%]	[20%]	[20%]	[15%]	[15%]
Cement (PC)	[5%]	Nil	[20%]	[15%]	[15%]
Steel (PS)	Nil	Nil	Nil	[15%]	[20%]
Bitumen (PB)	Nil	[15%]	Nil	Nil	Nil
Fuel and lubricants (PF)	[10%]	[10%]	[10%]	[10%]	[10%]
Other Materials (PM)	[50%]	[40%]	[35%]	[30%]	[25%]
Plant, machinery and spares. (PA)	[15%]	[15%]	[15%]	[15%]	[15%]
Total	100%	100%	100%	100%	100%

### 19.11 Restrictions on price adjustment

Price adjustment shall be due and payable only in respect of the stages of Works for which the Stage Payment Statement has been submitted by the Contractor no later than 30 (thirty) days from the date of the applicable Project Milestone or the Scheduled Completion Date, as the case may be, including any Time Extension granted therefore in accordance with the provisions of this Agreement. For the avoidance of doubt, in the event of submission of any Stage Payment Statement after the period specified herein, price adjustment shall be applicable until the date of the respective Project Milestone or the Scheduled Completion Date, as the case may be.

### 19.12 Price adjustment for Maintenance of Project Highway

Lump sum payment for Maintenance shall be adjusted every quarter for changes in rates and prices of various inputs in accordance with the formula given below:

$$V = P \times \frac{W_t - W_0}{W_0}$$

Where

V= Increase or decrease in the quarterly lump sum payment

P= Quarterly lump sum payment due to the Contractor after adjusting any reduction in payment for non-compliance of the Maintenance Requirements

W<sub>0</sub>= The wholesale price index (all commodities) for the month of the Base Date.

W<sub>i</sub>= The wholesale price index (all commodities) for the first day of the quarter under consideration for determining the price adjustment.

### **19.13 Final Payment Statement**

- (i) Within 60 (sixty) days after receiving the Completion Certificate under Clause 12.2, the

Contractor shall submit to the Authority's Engineer for consideration 6 (six) copies of a Final Payment Statement (the "Final Payment Statement") for Works, with supporting documents showing in detail, in the form prescribed by the Authority's Engineer:

- (a) the summary of Contractor's Stage Payment claims for Works as submitted in accordance with Clause 19.4;
- (b) the amounts received from the Authority against each claim; and
- (c) any further sums which the Contractor considers due to it from the Authority.

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

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

### **19.14 Discharge**

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

### **19.15 Final Payment Certificate**

- (i) Within 30 (thirty) days after receipt of the Final Payment Statement for Works under Clause 19.13, and the written discharge under Clause 19.14, and there being undisputed items of claim, the Authority's Engineer shall deliver to the Authority, with a copy to the Contractor, a final payment certificate (the "Final Payment Certificate") stating the amount which, in the opinion of the Authority's Engineer, is finally due under this

Agreement or otherwise. For the avoidance of doubt, before issuing the Final Payment Certificate, the Authority's Engineer shall ascertain from the Authority all amounts previously paid by the Authority and for all sums to which the Authority is entitled, the balance, if any, due from the Authority to the Contractor or from the Contractor to the Authority, as the case may be.

- (ii) The Authority shall, in accordance with the provisions of Clause 19.9, pay to the Contractor the amount which is stated as being finally due in the Final Payment Certificate.

#### **19.16 Final payment statement for Maintenance**

- (i) Within 30 (thirty) days after completion of the Maintenance Period, the Contractor shall submit to the Authority's Engineer 6 (six) copies of the final payment statement for Maintenance of the Project Highway, with supporting documents showing the details set forth below in the form prescribed by the Authority's Engineer:
  - (a) the total amount claimed in accordance with clause 19.7 (i) and
  - (b) any sums which the Contractor considers to be due to it, with supporting documents.
- (ii) The Authority's Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance under Clause 19.16 (i), segregating the items of amount payable from the items of amount disallowed. The Authority shall make payment on the basis of the final payment authorized by the Authority's Engineer within a period of 30 (thirty) days of the receipt of the Final Payment Statement from the Authority's Engineer.
- (iii) If the Authority's Engineer does not prescribe the form within 15 (fifteen) days of the date of issue of the Completion Certificate, the Contractor shall submit the statement in such form as it deems fit.

#### **19.17 Change in law**

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

- (iii) The Authority's Engineer shall, within 15 (fifteen) days from the date of receipt of the notice from the Contractor or the Authority, determine any addition or reduction to the Contract Price, as the case may be, due to the Change in Law.

#### **19.18 Correction of Interim Payment Certificates**

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

#### **19.19 Authority's claims**

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

#### **19.20 Bonus for early completion**

In the event that the Project Completion Date occurs prior to the Scheduled Completion Date, the Contractor shall be entitled to receive a payment of bonus equivalent to 0.03% (zero point zero three per cent) of the Contract Price for each day by which the Project Completion Date precedes the Scheduled Completion Date, but subject to a maximum of 5% (five per cent) of the Contract Price. Provided, however, that the payment of bonus, if any, shall be made only after the issue of the Completion Certificate. For the avoidance of the doubt, the Parties agree that for the purpose of determining the bonus payable hereunder, the works shall always be deemed to be as specified in this Contract Agreement but excluding the works deemed to be deleted from the scope of work under clause 8.3 of this Contract Agreement and the Contract Price shall always be deemed to be the amount specified in Clause 19.1 (i) after excluding the Contract Price of the Works deemed to be deleted from the Scope of Work under clause 8.3 of this Contract Agreement, and shall exclude any revision thereof for any reason. The Parties also agree that bonus shall be payable only if each work for which Time Extension has been granted is completed within respective Extended Time.

## Article 20

### Insurance

#### **20.1 Insurance for Works and Maintenance**

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

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



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

## **20.2 Notice to the Authority**

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

## **20.3 Evidence of Insurance Cover**

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

## **20.4 Remedy for failure to insure**

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

## **20.5 Waiver of subrogation**

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

## **20.6 Contractor's waiver**

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

## **20.7 Cross liabilities**

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

## **20.8 Accident or injury to workmen**

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

## **20.9 Insurance against accident to workmen**

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

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

#### **20.10 Application of insurance proceeds**

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

#### **20.11 Compliance with policy conditions**

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

#### **20.12 General Requirements of Insurance Policies**

The Contractor must:

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

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

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

## **Part V**

### **Force Majeure and Termination**

## **Article 21**

### **Force Majeure**

#### **21.1 Force Majeure**

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

#### **21.2 Non-Political Event**

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

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

#### **21.3 Indirect Political Event**

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

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

#### **21.4 Political Event**

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

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

#### **21.5 Duty to report Force Majeure Event**

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

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

#### **21.6 Effect of Force Majeure Event on the Agreement**

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



expense, claims, demands and proceedings relating to or arising out of occurrence or existence of any Force Majeure Event or exercise of any right pursuant hereto.

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

#### **21.7 Termination Notice for Force Majeure Event**

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

#### **21.8 Termination Payment for Force Majeure Event**

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

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

- (ii) If Termination is on account of an Indirect Political Event, the Termination Payment shall include:

- (a) any sums due and payable under Clause 23.5; and
- (b) the reasonable cost, as determined by the Authority's Engineer, of the Plant and Materials procured by the Contractor and transferred to the Authority for use in Construction or Maintenance, only if such Plant and Materials are in conformity with the Specifications and Standards;

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

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

## **21.9 Dispute resolution**

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

### **21.10 Excuse from performance of obligations**

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

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

## **Article 22**

### **Suspension of Contractor's Rights**

#### **22.1 Suspension upon Contractor Default**

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

#### **22.2 Authority to act on behalf of Contractor**

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

#### **22.3 Revocation of Suspension**

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

#### **22.4 Termination**

- (i) At any time during the period of Suspension under this Article 22, the Contractor may by notice require the Authority to revoke the Suspension and issue a Termination Notice. The Authority shall, within 15 (fifteen) days of receipt of such notice, terminate this Agreement under and in accordance with Article 23.
- (ii) Notwithstanding anything to the contrary contained in this Agreement, in the event that Suspension is not revoked within 90 (ninety) days from the date of Suspension

hereunder, the Agreement shall, upon expiry of the aforesaid period, be deemed to have been terminated by mutual agreement of the Parties and all the provisions of this Agreement shall apply, *mutatis mutandis*, to such Termination as if a Termination Notice had been issued by the Authority upon occurrence of a Contractor Default.

## Article 23

### Termination

#### **23.1 Termination for Contractor Default**

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

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

or if any of the Contractor's personnel, agents or subcontractors gives or offers to give (directly or indirectly) to any person any such inducement or reward as is described in this sub-paragraph (s). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination.

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

## **23.2 Termination for Authority Default**

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

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

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

### **23.3 Termination for Authority's convenience**

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

### **23.4 Requirements after Termination**

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



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

### **23.5 Valuation of Unpaid Works**

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

### **23.6 Termination Payment**

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

- (a) return the Performance Security, Additional Performance Security and Retention Money forthwith;
- (b) encash and appropriate the bank guarantee, if any, for and in respect of the outstanding Advance Payment; and
- (c) pay to the Contractor, by way of Termination Payment, an amount equal to:
  - i. Valuation of Unpaid Works;
  - ii. the reasonable cost of temporary works, as determined by the Authority's Engineer; and
  - iii. 10% (ten per cent) of the cost of the Works and Maintenance that are not commenced or not completed,

and shall adjust from the sum thereof (i) any other amounts payable or recoverable, as the case may be, in accordance with the provisions of this Agreement, and (ii) all taxes due to be deducted at source.

- (iii) Termination Payment shall become due and payable to the Contractor within 30 (thirty) days of a demand being made by the Contractor to the Authority with the necessary particulars, and in the event of any delay, the Authority shall pay interest at Bank Rate + 3% per annum, on the amount of Termination Payment remaining unpaid; provided that such delay shall not exceed 90 (ninety) days. For the avoidance of doubt, it is expressly agreed that Termination Payment shall constitute full discharge by the Authority of its payment obligations in respect thereof hereunder.
- (iv) The Contractor expressly agrees that Termination Payment under this Article 23 shall constitute a full and final settlement of all claims of the Contractor on account of Termination of this Agreement and that it shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

### **23.7 Other rights and obligations of the Parties**

Upon Termination for any reason whatsoever:

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

### **23.8 Survival of rights**

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

### **23.9 Foreclosure with mutual consent**

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

**Part VI**  
**Other Provisions**

## **Article 24**

### **Assignment and Charges**

#### **24.1 Restrictions on assignment and charges**

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

#### **24.2 Hypothecation of Materials or Plant**

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

## **Article 25**

### **Liability and Indemnity**

#### **25.1 General indemnity**

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

#### **25.2 Indemnity by the Contractor**

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

or suspension of the injunction or restraint order. If, in any such suit, action, claim or proceedings, the Project Highway, or any part thereof or comprised therein, is held to constitute an infringement and its use is permanently enjoined, the Contractor shall promptly make every reasonable effort to secure for the Authority a license, at no cost to the Authority, authorizing continued use of the infringing work. If the Contractor is unable to secure such license within a reasonable time, the Contractor shall, at its own expense, and without impairing the Specifications and Standards, either replace the affected work, or part, or process thereof with non-infringing work or part or process or modify the same so that it becomes non-infringing.

### **25.3 Notice and contest of claims**

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

### **25.4 Defence of claims**

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

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

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

## **25.5 Survival on Termination**

The provisions of this Article 25 shall survive Termination.



## Article 26

### **Dispute Resolution**

#### **26.1 Dispute Resolution**

- (i) Any dispute, difference or controversy of whatever nature howsoever arising under or out of or 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 in accordance with the conciliation procedure set forth in Clause 26.2.
- (ii) The Parties agree to use their best efforts for resolving all Disputes arising under or in respect of this Agreement promptly, equitably and in good faith, and further agree to provide each other with reasonable access during normal business hours to all non-privileged records, information and data pertaining to any Dispute.

#### **26.2 Conciliation**

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

#### **26.3 Arbitration**

- (i) *Any dispute which remains unresolved between the parties through the mechanisms available/ prescribed in the Agreement, irrespective of any claim value, which has not*

*been agreed upon/ reached settlement by the parties, will be referred to the Arbitral Tribunal as per the Arbitration and Conciliation Act.*

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

#### **26.4 Adjudication by Regulatory Authority, Tribunal or Commission**

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

## **Article 27**

### **Miscellaneous**

#### **27.1 Governing law and jurisdiction**

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the courts at [Delhi] shall have exclusive jurisdiction over matters arising out of or relating to this Agreement.

#### **27.2 Waiver of immunity**

Each Party unconditionally and irrevocably:

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

#### **27.3 Delayed payments**

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

#### **27.4 Waiver**

- (i) Waiver, including partial or conditional waiver, by either Party of any default by the other Party in the observance and performance of any provision of or obligations under this Agreement:-
  - (a) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;

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

## **27.5 Liability for review of Documents and Drawings**

Except to the extent expressly provided in this Agreement:

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

## **27.6 Exclusion of implied warranties etc.**

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

## **27.7 Survival**

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

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

## **27.8 Entire Agreement**

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

## **27.9 Severability**

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

## **27.10 No partnership**

This Agreement shall not be interpreted or construed to create an association, joint venture or partnership between the Parties, or to impose any partnership obligation or liability upon either Party, and neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

## **27.11 Third parties**

This Agreement is intended solely for the benefit of the Parties and their respective successors and permitted assigns, and nothing in this Agreement shall be construed to create any duty to, standard of care with reference to, or any liability to, any person not a Party to this Agreement.

## **27.12 Successors and assigns**

This Agreement shall be binding upon, and inure to the benefit of the Parties and their respective successors and permitted assigns.

## **27.13 Notices**

Any notice or other communication to be given by any Party to the other Party under or in connection with the matters contemplated by this Agreement shall be in writing and shall:

- (a) in the case of the Contractor, be given by facsimile or e-mail and by letter delivered by hand to the address given and marked for attention of the person set out below or to such other person as the Contractor may from time to time designate by notice to the Authority; provided that notices or other communications to be given to an address outside [Delhi] may, if they are subsequently confirmed by sending a copy thereof by registered acknowledgement due, air mail or by courier, be sent by facsimile or e-mail to the person as the Contractor may from time to time designate by notice to the Authority;  
[\*\*\*]
- (b) in the case of the Authority, be given by facsimile or e-mail and by letter delivered by hand and be addressed to the [Chairman] of the Authority with a copy delivered to the Authority Representative or such other person as the Authority may from time to time designate by notice to the Contractor; provided that if the Contractor does not have an office in [Delhi] it may send such notice by facsimile or e-mail and by registered acknowledgement due, air mail or by courier; and
- (c) any notice or communication by a Party to the other Party, given in accordance herewith, shall be deemed to have been delivered when in the normal course of post it ought to have been delivered and in all other cases, it shall be deemed to have been delivered on the actual date and time of delivery; provided that in the case of facsimile or e- mail, it shall be deemed to have been delivered on the working day following the date of its delivery.

#### **27.14 Language**

All notices required to be given by one Party to the other Party and all other communications, Documentation and proceedings which are in any way relevant to this Agreement shall be in writing and in English language.

#### **27.15 Counterparts**

This Agreement may be executed in two counterparts, each of which, when executed and delivered, shall constitute an original of this Agreement.

#### **27.16 Confidentiality**

The Parties shall treat the details of this Agreement as private and confidential, except to the extent necessary to carry out obligations under it or to comply with Applicable Laws. The Contractor shall not publish, permit to be published, or disclose any particulars of the Works in any trade or technical paper or elsewhere without the previous agreement of the Authority.

#### **27.17 Copyright and Intellectual Property rights**

- (i) As between the Parties, the Contractor shall retain the copyright and other Intellectual Property rights in the Contractor's documents and other design documents made by (or on behalf of) the Contractor. The Contractor shall be deemed (by signing this Agreement) to give to the Authority a non-terminable transferable non-exclusive

royalty-free license to copy, use and communicate the Contractor's documents, including making and using modifications of them. This license shall:

- (a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works;
  - (b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works; and
  - (c) in the case of Contractor's documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by this Agreement, including replacements of any computers supplied by the Contractor.
- (ii) The Contractor's documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Authority for purposes other than those permitted under this Clause 27.17.
- (iii) As between the Parties, the Authority shall retain the copyright and other intellectual property rights in this Agreement and other documents made by (or on behalf of) the Authority. The Contractor may, at its cost, copy, use, and obtain communication of these documents for the purposes of this Agreement. They shall not, without the Authority's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the contract.

#### **27.18 Limitation of Liability**

- (i) Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with this Agreement, save and except as provided under Articles 23 and 25.
- (ii) The total liability of one Party to the other Party under and in accordance with the provisions of this Agreement, save and except as provided in Articles 23 and 25, shall not exceed the Contract Price. For the avoidance of doubt, this Clause shall not limit the liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

### **27.19 Care and Supply of Documents**

- (i) Each of the Contractor's documents shall be in the custody and care of the Contractor, unless and until taken over by the Authority. Unless otherwise stated in the Agreement, the Contractor shall supply to the Authority 2 (two) copies of each of the Contractor's documents.
- (ii) The Contractor shall keep, on the Site, a copy of the Agreement, publication named in the Authority's requirements, the Contractor's documents, and variations and other communications given under the Agreement. The Authority's personnel shall have the right of access to all these documents at all reasonable times.
- (iii) If a Party becomes aware of an error or defect of a technical nature in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other party of such error or defect.

### **27.20 Authority's Use of Contractor's Documents.**

- (i) As between the Parties, the Contractor shall retain the copyright and other Intellectual Property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.
- (ii) The Contractor hereby gives to the Authority a non-terminable transferable nonexclusive royalty-free license to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This license shall:
  - (a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,
  - (b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and
  - (c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contractor, including replacements of any computers supplied by the Contractor.
- (iii) The Contractor's Documents and other design documents made by or on behalf of the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Authority for purposes other than those permitted under this Sub-Clause.

### **27.21 Contractor's Use of Authority's Documents**

As between the Parties, the Authority shall retain the copyright and other intellectual property rights in the Authority's requirements and other Documents made by (or on behalf of) the Authority. The Contractor may, at its cost copy, use, and obtain communication of these documents for the purpose of the Agreement. They shall not without the Authority's consent, be copied, used or communicating to a third party by the Contractor, except as necessary for the purposes of the Agreement.



## **27.22 Access to the Site by Others**

The Contractor shall, at all times, afford access to the Site to the authorized representatives of the Authority, the Authority's Engineer and anyone else authorized by the Authority to access the site and to the persons duly authorized by any Governmental Agency having jurisdiction over the Project, including those concerned with safety, security or environmental protection to inspect the Project Highway and to investigate any matter within their authority and upon reasonable notice, the Contractor shall provide to such persons reasonable assistance necessary to carry out their respective duties and functions with minimum disruption to the construction, operation and maintenance of the Project Highway consistent with the purpose for which such persons have gained such access to the Site.

## **27.23 Term**

This Agreement shall come into force and effect from the date first hereinabove written and shall remain in force and effect till the Termination Date i.e. the Parties perform all their respective obligations or is terminated by any of the Parties for the reasons and in the manner provided for in the Agreement.

## **27.24 Amendments**

The Agreement may not be supplemented, amended, modified or changed except by an instrument in writing signed by the Contractor and the Authority and expressed to be a supplement, modification or change to the Agreement.

## **27.25 Representation and Bribes**

The Contractor represents and warrants to the Authority that:

- (a) No representation or warranty by the Contractor contained herein or in any other document furnished by it to the Authority, or to any Governmental Instrumentality in relation to Applicable Permits contains or will contain any untrue statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading; and
- (b) It warrants that no sums, in cash or kind, have been paid or will be paid by or on behalf of the Contractor, to any person by way of fees, commission or otherwise for securing or entering into the Contractor for influencing or attempting to influence any officer or employee of the Authority or GOI in connection therewith.

## **27.26 No Agency**

The Agreement does not constitute either Party as the agent, partner or legal representative of the other for any purposes whatsoever, and neither Party shall have any express or implied right or authority to assume or to create any obligation or responsibility on behalf of or in the name of the other Party.

## **Schedules**

## **Schedule-A**

*(See Clauses 2.1 and 8.1)*

### **Site of the Project**

#### **1 The Site**

- (i) Site of the [Four-Lane] Project Highway shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.
- (ii) The dates of handing over the Right of Way to the Contractor are specified in Annex-II of this Schedule-A.
- (iii) An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2 (i) of this Agreement.
- (iv) The alignment plans of the Project Highway are specified in Annex-III. In the case of sections where no modification in the existing alignment of the Project Highway is contemplated, the alignment plan has not been provided. Alignment plans have only been given for sections where the existing alignment is proposed to be upgraded. The proposed profile of the Project Highways shall be followed by the contractor with minimum FRL as indicated in the alignment plan. The Contractor, however, improve/upgrade the Road Profile as indicated in Annex-III based on site/design requirement.
- (v) The status of the environment clearances obtained or awaited is given in Annex-IV.

**Annex – I**  
**(Schedule-A)**  
**Site for The Project**

**1. Site**

The Site of the Four-Lane Project Highway comprises the section of National Highway 133E commencing from existing km 4+000 from Bhagalpur to km 36+600 at Kharhara village (Dhaka more) in the State of Bihar. The land, carriageway and structures comprising the Site are described below.

**2. Land**

The Site of the Project Highway comprises the land as described below:

S. No.	Design Chainage (Km)		Right of Way (m)	Remarks
	From	To		
1	4.000	36.600	Varying from 14m to 69m	

Details of EROW (as per revenue map) are mentioned below at 50m interval:

Sl.No	Exisitng Chainge	Exisitng ROW (m)	Remarks
1	15.800	28	
2	15.850	38	
3	15.900	37	
4	15.950	36	
5	16.000	43	
6	16.050	42	
7	16.100	42	
8	16.150	40	
9	16.200	39	
10	16.250	39	
11	16.300	39	
12	16.350	40	
13	16.400	37	
14	16.450	37	
15	16.500	37	
16	16.550	37	
17	16.600	37	
18	16.650	39	
19	16.700	36	
20	16.750	37	
21	16.800	40	
22	16.850	39	
23	16.900	38	
24	16.950	37	
25	17.000	36	
26	17.050	34	

Sl.No	Exisitng Chaiange	Exisitng ROW (m)	Remarks
27	17.100	37	
28	17.150	42	
29	17.200	41	
30	17.250	43	
31	17.300	32	
32	17.350	31	
33	17.400	36	
34	17.450	40	
35	17.500	38	
36	17.550	39	
37	17.600	38	
38	17.650	37	
39	17.700	40	
40	17.750	28	
41	17.800	27	
42	17.850	27	
43	17.900	28	
44	17.950	26	
45	18.000	25	
46	18.050	26	
47	18.100	26	
48	18.150	26	
49	18.200	26	
50	18.250	29	
51	18.300	29	
52	18.350	29	
53	18.400	30	
54	18.450	30	
55	18.500	29	
56	18.550	28	
57	18.600	28	
58	18.650	29	
59	18.700	29	
60	18.750	30	
61	18.800	33	
62	18.850	29	
63	18.900	31	
64	18.950	27	
65	19.000	25	
66	19.050	25	
67	19.100	23	
68	19.150	23	
69	19.200	23	
70	19.250	18	
71	19.300	18	
72	19.350	18	
73	19.400	23	
74	19.450	23	
75	19.500	21	
76	19.550	20	
77	19.600	20	

Sl.No	Exisitng Chaiange	Exisitng ROW (m)	Remarks
78	19.650	26	
79	19.700	23	
80	19.750	21	
81	19.800	22	
82	19.850	22	
83	19.900	22	
84	19.950	20	
85	20.000	20	
86	20.050	21	
87	20.100	21	
88	20.150	20	
89	20.200	20	
90	20.250	33	
91	20.300	32	
92	20.350	33	
93	20.400	35	
94	20.450	37	
95	20.500	38	
96	20.550	38	
97	20.600	20	
98	20.650	20	
99	20.700	18	
100	20.750	19	
101	20.800	20	
102	20.850	20	
103	20.900	21	
104	20.950	21	
105	21.000	21	
106	21.050	20	
107	21.100	20	
108	21.150	21	
109	21.200	20	
110	21.250	19	
111	21.300	20	
112	21.350	22	
113	21.400	23	
114	21.450	25	
115	21.500	24	
116	21.550	21	
117	21.600	22	
118	21.650	19	
119	21.700	24	
120	21.750	24	
121	21.800	24	
122	21.850	21	
123	21.900	22	
124	21.950	22	
125	22.000	21	
126	22.050	20	
127	22.100	19	
128	22.150	20	

Sl.No	Exisitng Chaiange	Exisitng ROW (m)	Remarks
129	22.200	23	
130	22.250	21	
131	22.300	20	
132	22.350	19	
133	22.400	23	
134	22.450	26	
135	22.500	26	
136	22.550	30	
137	22.600	40	
138	22.650	33	
139	22.700	36	
140	22.750	37	
141	22.800	32	
142	22.850	32	
143	22.900	42	
144	22.950	34	
145	23.000	39	
146	23.050	38	
147	23.100	37	
148	23.150	37	
149	23.200	41	
150	23.250	37	
151	23.300	43	
152	23.350	43	
153	23.400	40	
154	23.450	41	
155	23.500	35	
156	23.550	37	
157	23.600	38	
158	23.650	38	
159	23.700	34	
160	23.750	34	
161	23.800	28	
162	23.850	31	
163	23.900	26	
164	23.950	23	
165	24.000	16	
166	24.050	18	
167	24.100	22	
168	24.150	24	
169	24.200	23	
170	24.250	24	
171	24.300	23	
172	24.350	24	
173	24.400	27	
174	24.450	23	
175	24.500	24	
176	24.550	35	
177	24.600	41	
178	24.650	41	
179	24.700	35	

Sl.No	Exisitng Chaiange	Exisitng ROW (m)	Remarks
180	24.750	39	
181	24.800	39	
182	24.850	40	
183	24.900	37	
184	24.950	36	
185	25.000	36	
186	25.050	34	
187	25.100	32	
188	25.150	34	
189	25.200	36	
190	25.250	31	
191	25.300	30	
192	25.350	32	
193	25.400	34	
194	25.450	31	
195	25.500	33	
196	25.550	36	
197	25.600	38	
198	25.650	39	
199	25.700	42	
200	25.750	40	
201	25.800	40	
202	25.850	40	
203	25.900	40	
204	25.950	37	
205	26.000	41	
206	26.050	43	
207	26.100	43	
208	26.150	44	
209	26.200	42	
210	26.250	40	
211	26.300	39	
212	26.350	39	
213	26.400	41	
214	26.450	38	
215	26.500	33	
216	26.550	30	
217	26.600	41	
218	26.650	41	
219	26.700	40	
220	26.750	36	
221	26.800	32	
222	26.850	27	
223	26.900	28	
224	26.950	25	
225	27.000	24	
226	27.050	26	
227	27.100	27	
228	27.150	22	
229	27.200	23	
230	27.250	33	



Sl.No	Exisitng Chaiange	Exisitng ROW (m)	Remarks
231	27.300	33	
232	27.350	38	
233	27.400	40	
234	27.450	41	
235	27.500	36	
236	27.550	44	
237	27.600	33	
238	27.650	33	
239	27.700	30	
240	27.750	26	
241	27.800	24	
242	27.850	23	
243	27.900	27	
244	27.950	26	
245	28.000	22	
246	28.050	21	
247	28.100	14	
248	28.150	23	
249	28.200	27	
250	28.250	29	
251	28.300	28	
252	28.350	27	
253	28.400	29	
254	28.450	33	
255	28.500	31	
256	28.550	35	
257	28.600	38	
258	28.650	38	
259	28.700	37	
260	28.750	39	
261	28.800	39	
262	28.850	41	
263	28.900	32	
264	28.950	34	
265	29.000	30	
266	29.050	36	
267	29.100	37	
268	29.150	39	
269	29.200	25	
270	29.250	24	
271	29.300	23	
272	29.350	21	
273	29.400	19	
274	29.450	21	
275	29.500	21	
276	29.550	21	
277	29.600	21	
278	29.650	20	
279	29.700	21	
280	29.750	21	
281	29.800	21	

Sl.No	Exisitng Chaiange	Exisitng ROW (m)	Remarks
282	29.850	19	
283	29.900	20	
284	29.950	23	
285	30.000	24	
286	30.050	23	
287	30.100	24	
288	30.150	24	
289	30.200	22	
290	30.250	21	
291	30.300	22	
292	30.350	21	
293	30.400	21	
294	30.450	19	
295	30.500	18	
296	30.550	21	
297	30.600	22	
298	30.650	22	
299	30.700	22	
300	30.750	18	
301	30.800	36	
302	30.850	36	
303	30.900	36	
304	30.950	42	
305	31.000	37	
306	31.050	36	
307	31.100	35	
308	31.150	35	
309	31.200	38	
310	31.250	38	
311	31.300	37	
312	31.350	35	
313	31.400	33	
314	31.450	31	
315	31.500	27	
316	31.550	27	
317	31.600	30	
318	31.650	36	
319	31.700	29	
320	31.750	31	
321	31.800	32	
322	31.850	31	
323	31.900	32	
324	31.950	31	
325	32.000	35	
326	32.050	37	
327	32.100	37	
328	32.150	36	
329	32.200	34	
330	32.250	36	
331	32.300	37	
332	32.350	36	

Sl.No	Exisitng Chaiange	Exisitng ROW (m)	Remarks
333	32.400	37	
334	32.450	39	
335	32.500	42	
336	32.550	35	
337	32.600	35	
338	32.650	37	
339	32.700	37	
340	32.750	36	
341	32.800	26	
342	32.850	25	
343	32.900	25	
344	32.950	24	
345	33.000	24	
346	33.050	22	
347	33.100	30	
348	33.150	26	
349	33.200	29	
350	33.250	30	
351	33.300	31	
352	33.350	32	
353	33.400	34	
354	33.450	35	
355	33.500	35	
356	33.550	37	
357	33.600	38	
358	33.650	39	
359	33.700	39	
360	33.750	39	
361	33.800	39	
362	33.850	39	
363	33.900	41	
364	33.950	42	
365	34.000	43	
366	34.050	44	
367	34.100	45	
368	34.150	46	
369	34.200	46	
370	34.250	45	
371	34.300	45	
372	34.350	44	
373	34.400	43	
374	34.450	42	
375	34.500	41	
376	34.550	40	
377	34.600	38	
378	34.650	37	
379	34.700	37	
380	34.750	37	
381	34.800	37	
382	34.850	38	
383	34.900	38	

Sl.No	Exisitng Chaiange	Exisitng ROW (m)	Remarks
384	34.950	40	
385	35.000	41	
386	35.050	39	
387	35.100	38	
388	35.150	39	
389	35.200	40	
390	35.250	41	
391	35.300	43	
392	35.350	42	
393	35.400	41	
394	35.450	38	
395	35.500	32	
396	35.550	37	
397	35.600	35	
398	35.650	35	
399	35.700	34	
400	35.750	32	
401	35.800	38	
402	35.850	40	
403	35.900	45	
404	35.950	41	
405	36.000	40	
406	36.050	41	
407	36.100	41	
408	36.150	40	
409	36.200	38	
410	36.250	40	
411	36.300	40	
412	36.350	40	
413	36.400	42	
414	36.450	42	
415	36.500	43	
416	36.550	41	
417	36.600	38	
418	36.680	43	

### 3. Carriageway

The present carriageway of the Project Highway is Four Lane. The type of the existing pavement is flexible.

S.No.	Exesting Chainage (km)		Road Name	Carriageway width(m)
1	4.025	36.680	Bhagalpur-Kharhara Village	7.0

#### 4. Major Bridges

The Site includes the following Major Bridges:

S. No.	Existing Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width(m)	Remarks
		Foundation	Sub-structure	Super-structure			
1	8.535	Well			2x13.3+16.4	7.0	
2	12.067	Pile		RCC T-Beam	2x14.7 + 3x14.5	9.5	

#### 5. Road over-bridges (ROB)/ Road under-bridges (RUB)

The Site includes the following ROB (road over railway line)/RUB (road under railway line):

Sl.no	Chainage (km)	Type of Structure		No. of Spans with span length (m)	Width (m)	ROB/ RUB
		Foundation	Superstructure			
NIL						

#### 6. Grade separators

The Site includes the following grade separators:

S. No.	Chainage (km)	Type of Structure		No. of Spans with span length (m)	Width (m)
		Foundation	Superstructure		
NIL					

#### 7. Minor bridges

The Site includes the following minor bridges:

S. No.	Existing Chainage (km)	Type of Structure			No. of span length (m)	Width (m)	Remarks
		Foundation	Sub-structure	Super-structure			
1	4.573			RCC SLAB	2x6.2+7	6..5	
2	6.835			SLAB	2x6.3	7.1	
3	8.983	Well		Balance cantilever	2x13.3+16.4	6.9	
4	9.651	Pile		T-BEAM	2x16.5	8.4	
5	10.958			SLAB	2x6.5+4x6.8	6	
6	11.748			SLAB	2x6.5	7.3	
7	13.446	Pile		RCC T-Beam	3x16.5	9.3	
8	14.461	Pile		RCC T-Beam	3x16.7	9.5	

S. No.	Exesting Chainage (km)	Type of Structure			No. of span length (m)	Width (m)	Remarks
		Foundation	Sub-structure	Super-structure			
9	15.299			SLAB	6.5+6.8+6.5	5.7	
10	15.722	Pile		RCC T-Beam	2x16.5	9.5	
11	28.251	Pile		RCC T-Beam	2x16.5	9.5	
12	34.469	Pile		RCC T-Beam	2x18.5	9.4	

## 8. Railway level crossings

The Site includes the following railway level crossings:

S. No.	Location (km)	Remarks
NIL		

## 9. Underpasses (vehicular, non-vehicular)

The Site includes the following underpasses:

S. No.	Chainage (km)	Type of Structure	Type	Span length (m)	Width(m)
NIL					

## 10. Culverts

The Site has the following culverts:

Sr. No	Ex Chainage	TYPE	SPAN (m)	Remarks
1	4+34	HP	1 X 900	
2	4+902	ARCH	1 X 2.5	
3	5+047	SLAB	1X6.0	
4	6+429	RCC BOX	1X6.0	
5	7+236	SLAB	1X6.0	
6	7+748	SLAB	1X0.9	
7	8+019	RCC BOX	1X6.0	
8	8+818	RCC BOX	1X6.0	
9	9+248	HP	2X600	
10	9+473	HP	1X600	
11	10+066	SLAB	1X5.8	
12	10+305	SLAB	1X5.5	
13	10+518	SLAB	1X6.0	
14	10+725	SLAB	1X5.3	
15	11+088	HP	1X0.6	
16	11+309	HP	2X600	
17	12+871	HP	1X0.6	
18	13+756	HP	3X900	

Sr. No	Ex Chainage	TYPE	SPAN (m)	Remarks
19	14+037	HP	1X900	
20	14+614	SLAB	1X1.0	
21	14+833	RCC BOX	1X6.0	
22	15+485	HP	2X900	
23	16+316	HP	1X900	
24	16+607	HP	1X900	
25	17+718	RCC BOX	1X2.0	
26	17+985	RCC BOX	1X2.0	
27	18+785	HP	1X900	
28	19+383	HP	1X900	
29	19+62	HP	2X1000	
30	19+995	RCC BOX	1X2.0	
31	20+346	RCC BOX	1X2.0	
32	20+751	HP	1X1000	
33	21+036	RCC BOX	1X2.0	
34	21+452	RCC BOX	1X2.0	
35	21+616	HP	1X900	
36	22+28	HP	1X900	
37	22+537	HP	1X1000	
38	22+741	RCC BOX	1X2.0	
39	23+04	HP	1X1000	
40	23+379	RCC BOX	1X900	
41	23+974	RCC BOX	1X2.0	
42	24+587	RCC BOX	1X2.0	
43	25+03	RCC BOX	1X2.0	
44	25+375	RCC BOX	1X2.0	
45	26+14	RCC BOX	1X2.0	
48	29+182	HP	1X900	
49	29+808	RCC BOX	1X2.0	
50	30+593	HP	1X900	
51	30+774	RCC BOX	1X2.0	
52	30+932	HP	1X900	
53	31+434	HP	1X0.7	
54	31+624	RCC BOX	1X3.0	
55	33+081	HP	4X900	
56	33+868	SLAB	1X3.0	
57	34+596	RCC BOX	1X2.0	
58	36+627	HP	1X900	

## 11. Bus Bays

The details of bus shelter on the Site are as follows:

S. No.	Chainage (km)	Length (m)	LHS/RHS
NIL			

## 12. Truck Lay byes

The details of truck lay byes are as follows:

S. No.	Chainage (km)	Length (m)	Left Hand Side/ Right Hand Side	Remarks
NIL				

## 13. Road side drains

The details of the roadside drains are as follows:

S. No.	Location		Type	
	From km	to km	Masonry/cc (Pucca)	Earthen (Kutcha)
NIL				

## 14. Major junctions

The details of major junctions are as follows:

Sl.NO	Chainage	At Grade	Category of Cross Road			
			NH	SH	MDR	Others
1	4.025	X	NH			

(NH: National Highway, SH: State Highway, MDR: Major District Road)

## 15. Minor junctions

The details of the minor junctions are as follows:

Sl.no.	Existing Chainage	Side	Type of Junction	Cross Road
1	5.575	RHS	T	
2	6.225	RHS	T	
3	6.405	LHS	T	
4	6.813	RHS	T	
5	7.514	RHS	T	
6	8.800	LHS	Y	
7	9.860	RHS	Y	
8	10.475	Booth Side	X	
9	11.225	RHS	y	
10	11.305	RHS	T	
11	12.775	LHS	T	
12	13.050	RHS	Y	
13	14.350	RHS	T	
14	14.875	LHS	T	Sanhola More
15	16.335	LHS	T	
16	17.375	RHS	Y	
17	17.970	LHS	T	
18	18.141	RHS	T	



Sl.no.	Existing Chainage	Side	Type of Junction	Cross Road
19	18.560	LHS	T	
20	18.645	RHS	T	
21	19.985	RHS	x	
22	20.330	LHS	T	
23	21.025	RHS	T	
24	21.319	RHS	T	
25	21.787	LHS	T	
26	22.187	RHS	Y	
27	22.74	LHS	T	
28	23.035	RHS	T	
29	23.366	LHS	T	To Jagdishpur-Sanhola Road
30	23.425	RHS	T	To Amarpur Road
31	23.815	RHS	T	
32	24.915	LHS	T	
33	26.125	Booth Side	X	
34	26.913	Booth Side	X	
35	28.580	LHS	Y	
36	29.500	LHS	Y	
37	30.005	LHS	T	
38	30.755	RHS	T	
39	30.950	LHS	T	
40	32.475	Booth Side	X	Punsiya-Dhoraiya and Amarpur-Fatehpur Road
41	33.025	RHS	Y	
42	33.160	LHS	T	
43	33.654	LHS	T	
44	34.580	Booth Side	X	
45	35.255	LHS	T	
46	35.452	Booth Side	X	
47	36.615	LHS	Y	

#### 16. Bypasses/Realignment

The details of the existing road sections proposed to be bypassed are as follows:

S. No.	Chainage		Name of bypass(town)	Length (inKm)	Remarks
	From	To			
1	8.125	8.687	Near Phulwaria Bridge	0.562	Bridge Realignment

#### 17. Toll Plaza

The details of the toll plaza are as follows:

S. No.	Toll plaza	Chainage (km)	Toll Lanes	Remarks
NIL				

## 18 Utilities:

### (i) Electrical Utilities

The site includes the following electrical utilities:

#### a) Extra HighTension lines (EHT Lines)

Sr No.	Chainage	Circuit (TC/DC/SC)	Length of Line (Route Length in km)				No of Crossings			
			132 KV	220 KV	400KV	765 KV	132KV	220 KV	400 KV	765KV
1	13.300	DC	0.8	1.3	-	-	-	1	-	-
2	14.650	DC	1.3	-	-	-	1	-	-	-

#### b) HighTension/ Low Tension lines (HT/LT Lines)

Sl.No.	Ext.Chainage		Length of Line (in km)			Transformer				
	From	To	33KV	11KV	LT in AB CABLE	33 KV	11 KV	LT	No	Capacity
1	4.025	14.800	13.50	8.00	11	6	10	6	47	63KVA X 40 100 KAV X 4 200 KVA X 3
2	14.800	36.680	12.00	16.00	21.0	3	19	17	29	25KVA X 5 63 KVA X 8 100 KVA X12 200KVA X 4

#### c) Public Health Utilities (Water/Sewage pipe Lines)

Sl.NO	Type of Utility	Unit	Quantity (Minimum)	Location
1	Water Sewage Pipeline		-	
2	Sewage		-	
3	Hand Pump	No	92	
4	Di Pipe 300mm	meters	8800	
5	HDPE pipe 140mm	meters	1000	
6	HDPE pipe 110mm	meters	1300	
7	CI Pipe	meters	2800	
8	HDPE Pipe 90mm	meters	8800	
9	HDPE Pipe 75mm	meters	4500	
10	GI Pipe 75mm	meters	500	
11	HDPE pipe 63mm	meters	2200	
12	House Connection for House Hold	No	255	

**Note:** No changes of Scope shall be paid for any over-ground utilities. However, for any underground utilities not mentioned in Schedule 'B' shall form change of scope, which shall be worked out as per the estimation of the concerned utility owning dept. and shall be payable.

## Annex – II

(As per Clause 8.3 (i))

### (Schedule-A)

#### Dates for providing Right of Way of Construction Zone

The dates on which the Authority shall provide Right of Way of Construction Zone to the Contractor on different stretches of the Site are stated below:

Sl. No	Chainage (Km)		Length (km)	Width (m)	Date of providing ROW*
	From	To			
1	2	3	4	5	6
(i) Full Right of Way (full width)	4+000	4+280		62	90% ROW to be handed over on Appointed Date.
	4+280	5+140		45	
	5+140	8+010		35	
	8+010	8+747		37	
	8+747	9+300		30	
	9+300	10+030		35	
	10+030	10+868		45	
	10+868	11+539		35	
	11+539	12+216		30	
	12+216	12+991		30	
	12+991	13+540		30	
	13+540	15+000		45	
	15+000	15+765		30	
	15+765	16+035		45	
	16+035	17+300		30	
	17+300	19+470		39	
	19+470	20+240		45	
	20+240	20+700		30	
	20+700	22+780		35	
	22+780	23+830		45	
	23+830	25+985		30	
	25+985	28+860		39	
	28+860	29+350		30	
	29+350	29+850		39	
	29+850	31+890		30	
	31+890	32+865		45	
	32+865	33+990		30	
	33+990	35+970		45	
	35+970	36+600		30	
(ii) Part Right of Way (part width)					
(iii) Balance Right of Way (width)	-	-	-	-	10% balance ROW to be handed over within 150 days from Appointed date

\*The dates specified herein shall in no case be beyond 150 (one hundred and fifty) days after the Appointed Date.

### **Annex - III**

*(Schedule-A)*

#### **Alignment Plans**

1. The alignment of the Project Highway is enclosed in alignment plan. Finished road level indicated in the alignment plan shall be treated minimum FRL. The contractor shall raise the road profile of the project highway based on site/design requirement specified in Schedule-D with approval of Authority Engineer.
2. Traffic Signage plan of the Project Highway showing numbers & location of traffic signs is enclosed. The contractor shall, however, improve/upgrade upon the traffic signage plan as indicated in Annexure-III based on site/design requirement as per IRC: SP:84-2019 & IRC:67-2012 and any amendment thereon.

**Annex – IV**

*(Schedule-A)*

**Environment Clearances**

Not Applicable for this Projects Highway

### Coordinates of Center Line & Right of Way

Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
1	4+000	497224.3347	2787838.8040	497255.3225	2787837.906	497193.3634	2787840.158
2	4+050	497222.5191	2787788.8369	497253.4987	2787787.711	497191.5396	2787789.963
3	4+100	497220.5077	2787738.8776	497251.4787	2787737.537	497189.5367	2787740.218
4	4+150	497218.3324	2787688.9250	497249.3005	2787687.519	497187.3643	2787690.331
5	4+200	497216.0645	2787638.9765	497247.0326	2787637.57	497185.0964	2787640.383
6	4+250	497213.7967	2787589.0279	497244.7648	2787587.622	497182.8286	2787590.434
7	4+300	497211.5288	2787539.0794	497241.7589	2787537.707	497181.2673	2787540.453
8	4+350	497209.3991	2787489.1250	497237.8201	2787488.292	497180.9015	2787489.961
9	4+400	497209.0127	2787439.1331	497235.651	2787439.894	497182.3363	2787438.371
10	4+450	497211.6897	2787389.2127	497236.4442	2787391.473	497186.9347	2787386.952
11	4+500	497217.4714	2787339.5558	497240.2693	2787343.002	497194.6942	2787336.113
12	4+550	497225.4956	2787290.2050	497247.6777	2787293.974	497203.3134	2787286.436
13	4+600	497233.5507	2787240.8584	497255.7676	2787244.416	497211.3338	2787237.301
14	4+650	497241.4085	2787191.4797	497264.2299	2787195.099	497218.4609	2787187.84
15	4+700	497249.2409	2787142.0970	497273.8758	2787146.004	497224.4931	2787138.172
16	4+750	497257.0733	2787092.7143	497280.9855	2787096.507	497233.06	2787088.906
17	4+800	497264.9056	2787043.3316	497287.1279	2787046.856	497242.6834	2787039.807
18	4+850	497272.7573	2786993.9519	497294.9752	2786997.503	497250.7824	2786990.439
19	4+900	497280.6495	2786944.5787	497302.8675	2786948.13	497259.4191	2786941.185
20	4+950	497288.5418	2786895.2055	497310.7597	2786898.757	497267.3113	2786891.812
21	5+000	497296.4341	2786845.8323	497318.652	2786849.384	497275.2036	2786842.439
22	5+050	497304.3263	2786796.4591	497324.7704	2786799.727	497283.3901	2786793.112
23	5+100	497312.2186	2786747.0859	497330.1938	2786749.959	497293.7509	2786744.134
24	5+150	497320.1109	2786697.7127	497337.3915	2786700.475	497302.8302	2786694.95
25	5+200	497328.0031	2786648.3395	497345.2837	2786651.102	497310.7225	2786645.577
26	5+250	497335.8954	2786598.9663	497353.176	2786601.729	497318.6148	2786596.204
27	5+300	497343.7877	2786549.5932	497361.0683	2786552.355	497326.507	2786546.831
28	5+350	497351.6799	2786500.2200	497368.9605	2786502.982	497334.3993	2786497.458
29	5+400	497359.1443	2786450.7811	497376.4652	2786453.279	497341.8235	2786448.284
30	5+450	497366.2801	2786401.2929	497383.6009	2786403.79	497348.9592	2786398.795
31	5+500	497373.4158	2786351.8047	497390.7367	2786354.302	497356.0949	2786349.307
32	5+550	497380.5515	2786302.3165	497397.8724	2786304.814	497363.2307	2786299.819
33	5+600	497387.6873	2786252.8283	497405.0081	2786255.326	497370.3664	2786250.331
34	5+650	497394.8020	2786203.3371	497412.1362	2786205.741	497377.4679	2786200.933
35	5+700	497401.1354	2786153.7414	497418.5288	2786155.67	497383.742	2786151.813
36	5+750	497406.0929	2786103.9893	497423.5332	2786105.434	497388.6526	2786102.545
37	5+800	497409.6667	2786054.1187	497427.1403	2786055.079	497392.193	2786053.159
38	5+850	497411.8539	2786004.1681	497429.3475	2786004.642	497394.3604	2786003.694
39	5+900	497412.6530	2785954.1761	497430.153	2785954.197	497395.1531	2785954.155
40	5+950	497412.3656	2785904.1771	497429.8651	2785904.037	497394.8662	2785904.317
41	6+000	497411.9657	2785854.1787	497429.4651	2785854.039	497394.4662	2785854.319
42	6+050	497411.5657	2785804.1803	497429.0652	2785804.04	497394.0663	2785804.32

Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
43	6+100	497411.1658	2785754.1819	497428.6652	2785754.042	497393.6664	2785754.322
44	6+150	497410.7659	2785704.1835	497428.2653	2785704.044	497393.2664	2785704.323
45	6+200	497410.3659	2785654.1851	497427.8654	2785654.045	497392.8665	2785654.325
46	6+250	497409.9660	2785604.1867	497427.4654	2785604.047	497392.4665	2785604.327
47	6+300	497409.5660	2785554.1883	497427.0655	2785554.048	497392.0666	2785554.328
48	6+350	497409.1661	2785504.1899	497426.6655	2785504.05	497391.6666	2785504.33
49	6+400	497408.7661	2785454.1915	497426.2656	2785454.052	497391.2667	2785454.331
50	6+450	497408.4126	2785404.1928	497425.9126	2785404.216	497390.9126	2785404.17
51	6+500	497408.9781	2785354.1973	497426.472	2785354.658	497391.4842	2785353.737
52	6+550	497410.7691	2785304.2304	497428.2522	2785304.998	497393.2859	2785303.462
53	6+600	497412.8313	2785254.2732	497430.3242	2785254.773	497395.3384	2785253.774
54	6+650	497413.3085	2785204.2803	497430.805	2785203.927	497395.8121	2785204.633
55	6+700	497411.3000	2785154.3256	497428.7569	2785153.098	497393.8431	2785155.553
56	6+750	497406.7973	2785104.5338	497424.171	2785102.436	497389.4235	2785106.632
57	6+800	497399.8116	2785055.0292	497419.2036	2785051.697	497379.74	2785058.478
58	6+850	497390.5517	2785005.8969	497410.4445	2785001.846	497370.5056	2785009.979
59	6+900	497380.5562	2784956.9061	497397.7027	2784953.406	497363.4098	2784960.406
60	6+950	497370.5562	2784907.9163	497387.7027	2784904.416	497353.4098	2784911.416
61	7+000	497360.5563	2784858.9265	497377.7027	2784855.427	497343.4098	2784862.427
62	7+050	497350.8956	2784809.8698	497368.1313	2784806.84	497333.6599	2784812.9
63	7+100	497343.5190	2784760.4262	497360.9206	2784758.573	497326.1175	2784762.28
64	7+150	497339.6447	2784710.5867	497357.1329	2784709.944	497322.1565	2784711.229
65	7+200	497338.6474	2784660.5995	497356.1472	2784660.512	497321.1476	2784660.687
66	7+250	497338.4170	2784610.6000	497355.9168	2784610.521	497320.9172	2784610.679
67	7+300	497338.1913	2784560.6005	497355.6911	2784560.521	497320.6915	2784560.679
68	7+350	497337.9656	2784510.6010	497355.4654	2784510.522	497320.4658	2784510.68
69	7+400	497337.7399	2784460.6015	497355.2397	2784460.523	497320.24	2784460.681
70	7+450	497337.7542	2784410.6021	497355.2526	2784410.838	497320.2558	2784410.366
71	7+500	497338.9279	2784360.6172	497356.415	2784361.29	497321.4409	2784359.944
72	7+550	497341.3508	2784310.6772	497358.8181	2784311.747	497323.8836	2784309.607
73	7+600	497344.4191	2784260.7714	497361.8861	2784261.845	497326.9521	2784259.697
74	7+650	497347.4876	2784210.8656	497364.9547	2784211.94	497330.0206	2784209.792
75	7+700	497350.5561	2784160.9599	497368.0232	2784162.034	497333.0891	2784159.886
76	7+750	497353.6247	2784111.0541	497371.0917	2784112.128	497336.1576	2784109.98
77	7+800	497356.6932	2784061.1484	497374.1602	2784062.222	497339.2261	2784060.074
78	7+850	497359.7617	2784011.2426	497377.2287	2784012.317	497342.2947	2784010.169
79	7+900	497362.8302	2783961.3369	497380.2972	2783962.411	497345.3632	2783960.263
80	7+950	497365.8987	2783911.4311	497383.3657	2783912.505	497348.4317	2783910.357
81	8+000	497368.9672	2783861.5254	497386.4342	2783862.599	497351.5002	2783860.451
82	8+050	497372.2012	2783811.6304	497390.6511	2783812.991	497353.7513	2783810.27
83	8+100	497376.2098	2783761.7919	497394.6345	2783763.459	497357.7851	2783760.124
84	8+150	497381.0483	2783712.0271	497399.4427	2783714.001	497362.654	2783710.053
85	8+200	497386.7086	2783662.3490	497405.0761	2783664.559	497368.3411	2783660.139
86	8+250	497392.6821	2783612.7071	497411.0496	2783614.917	497374.3146	2783610.497

Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
87	8+300	497398.6557	2783563.0652	497417.0232	2783565.275	497380.2882	2783560.855
88	8+350	497404.6292	2783513.4234	497422.9967	2783515.634	497386.2617	2783511.213
89	8+400	497410.6027	2783463.7815	497428.9702	2783465.992	497392.2352	2783461.571
90	8+450	497416.5762	2783414.1396	497434.9437	2783416.35	497398.2087	2783411.929
91	8+500	497422.5497	2783364.4977	497440.9172	2783366.708	497404.1822	2783362.287
92	8+550	497428.6297	2783314.8690	497446.9675	2783317.315	497410.2921	2783312.423
93	8+600	497435.7290	2783265.3767	497454.0144	2783268.187	497417.4436	2783262.567
94	8+650	497443.3231	2783215.9568	497461.6085	2783218.767	497425.0377	2783213.147
95	8+700	497450.9171	2783166.5369	497469.2025	2783169.347	497432.6318	2783163.727
96	8+750	497458.5112	2783117.1169	497476.2378	2783119.841	497441.2142	2783114.459
97	8+800	497466.1053	2783067.6970	497482.8448	2783070.269	497449.3669	2783065.125
98	8+850	497473.6993	2783018.2770	497490.0079	2783020.783	497457.3908	2783015.771
99	8+900	497481.2724	2782968.8539	497497.5869	2782971.321	497464.958	2782966.386
100	8+950	497488.7496	2782919.4162	497503.5809	2782921.659	497473.9183	2782917.173
101	9+000	497496.2268	2782869.9784	497511.0581	2782872.222	497481.3954	2782867.735
102	9+050	497503.7039	2782820.5406	497518.5353	2782822.784	497488.8726	2782818.297
103	9+100	497511.1811	2782771.1029	497526.0124	2782773.346	497496.3498	2782768.86
104	9+150	497518.6583	2782721.6651	497533.4896	2782723.908	497503.8269	2782719.422
105	9+200	497526.1354	2782672.2274	497540.9668	2782674.471	497511.3041	2782669.984
106	9+250	497533.6126	2782622.7896	497548.4449	2782625.033	497518.7804	2782620.546
107	9+300	497541.0898	2782573.3518	497558.393	2782575.969	497523.7866	2782570.735
108	9+350	497548.6350	2782523.9245	497565.909	2782526.728	497531.361	2782521.121
109	9+400	497557.6106	2782474.7428	497574.7101	2782478.465	497540.5111	2782471.02
110	9+450	497570.0851	2782426.3365	497586.8396	2782431.39	497553.3307	2782421.283
111	9+500	497585.1850	2782378.6730	497601.8117	2782384.132	497568.5582	2782373.214
112	9+550	497600.7837	2782331.1685	497622.0182	2782338.141	497579.5492	2782324.196
113	9+600	497616.3826	2782283.6640	497636.4799	2782290.263	497596.2856	2782277.065
114	9+650	497631.9815	2782236.1595	497648.6081	2782241.619	497615.3549	2782230.7
115	9+700	497647.6135	2782188.6660	497664.1936	2782194.265	497631.0334	2782183.067
116	9+750	497664.0836	2782141.4578	497680.5186	2782147.47	497647.6487	2782135.446
117	9+800	497681.7015	2782094.6656	497698.0313	2782100.958	497665.3718	2782088.374
118	9+850	497699.6789	2782048.0093	497716.0086	2782054.301	497683.3492	2782041.717
119	9+900	497717.6562	2782001.3529	497734.9038	2782007.999	497700.4087	2781994.707
120	9+950	497735.6336	2781954.6966	497754.7551	2781962.064	497716.512	2781947.329
121	10+000	497753.6109	2781908.0402	497774.6063	2781916.13	497732.6156	2781899.95
122	10+050	497771.5883	2781861.3839	497792.5836	2781869.474	497750.5929	2781853.294
123	10+100	497789.5656	2781814.7275	497810.561	2781822.817	497768.5703	2781806.638
124	10+150	497807.5430	2781768.0712	497828.5383	2781776.161	497786.5476	2781759.981
125	10+200	497825.5203	2781721.4148	497846.5157	2781729.505	497804.525	2781713.325
126	10+250	497843.4977	2781674.7585	497864.493	2781682.848	497822.5023	2781666.669
127	10+300	497861.4752	2781628.1022	497882.4632	2781636.211	497840.4873	2781619.993
128	10+350	497879.9514	2781581.6431	497900.6464	2781590.476	497859.2577	2781572.81
129	10+400	497900.8347	2781536.2240	497920.8608	2781546.486	497880.8107	2781525.963
130	10+450	497924.8887	2781492.4016	497944.1667	2781504.007	497905.612	2781480.797



Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
131	10+500	497951.3332	2781449.9698	497970.2731	2781462.116	497932.3933	2781437.824
132	10+550	497978.3321	2781407.8858	497997.2694	2781420.036	497959.3947	2781395.736
133	10+600	498005.3323	2781365.8027	498024.2697	2781377.953	497986.3949	2781353.653
134	10+650	498032.3325	2781323.7196	498051.2699	2781335.87	498013.3951	2781311.57
135	10+700	498059.3328	2781281.6365	498078.2702	2781293.787	498040.3954	2781269.486
136	10+750	498086.3330	2781239.5534	498105.2704	2781251.704	498067.3956	2781227.403
137	10+800	498113.3332	2781197.4703	498130.6739	2781208.596	498095.7431	2781186.185
138	10+850	498140.3335	2781155.3872	498156.0755	2781165.487	498124.0986	2781144.971
139	10+900	498167.3337	2781113.3041	498182.0628	2781122.754	498152.6046	2781103.854
140	10+950	498194.3339	2781071.2210	498209.063	2781080.671	498179.6048	2781061.771
141	11+000	498221.3342	2781029.1379	498236.0633	2781038.588	498206.6051	2781019.688
142	11+050	498248.1574	2780986.9425	498263.0768	2780996.089	498233.2381	2780977.796
143	11+100	498273.2289	2780943.6929	498288.7508	2780951.775	498257.7071	2780935.611
144	11+150	498294.8766	2780898.6358	498310.9502	2780905.556	498278.8029	2780891.716
145	11+200	498313.9857	2780852.4336	498330.2306	2780858.941	498297.7408	2780845.926
146	11+250	498332.5768	2780806.0184	498348.8222	2780812.525	498316.3314	2780799.512
147	11+300	498351.1676	2780759.6030	498367.4129	2780766.11	498334.9222	2780753.096
148	11+350	498369.7584	2780713.1877	498386.0037	2780719.694	498353.513	2780706.681
149	11+400	498388.3491	2780666.7724	498404.5945	2780673.279	498372.1038	2780660.266
150	11+450	498406.5341	2780620.1977	498422.9199	2780626.342	498390.1482	2780614.053
151	11+500	498424.1456	2780573.4023	498440.456	2780579.745	498407.8353	2780567.06
152	11+550	498442.5960	2780526.9315	498458.8393	2780533.444	498426.3528	2780520.419
153	11+600	498461.2020	2780480.5222	498475.6345	2780486.308	498447.2792	2780474.94
154	11+650	498479.8080	2780434.1130	498493.7308	2780439.695	498465.8852	2780428.531
155	11+700	498498.4140	2780387.7038	498512.3367	2780393.286	498484.4912	2780382.122
156	11+750	498517.0199	2780341.2945	498530.9427	2780346.876	498503.0972	2780335.713
157	11+800	498535.6248	2780294.8848	498549.562	2780300.431	498521.6877	2780289.339
158	11+850	498553.0629	2780248.0341	498567.3682	2780252.546	498538.755	2780243.521
159	11+900	498566.1800	2780199.8062	498580.8563	2780202.906	498551.5026	2780196.706
160	11+950	498575.6484	2780150.7134	498590.4025	2780153.418	498560.8943	2780148.008
161	12+000	498584.6650	2780101.5331	498599.4191	2780104.238	498569.9109	2780098.828
162	12+050	498593.6795	2780052.3525	498608.4389	2780055.028	498578.9201	2780049.676
163	12+100	498602.0157	2780003.0548	498616.8587	2780005.219	498587.1724	2780000.89
164	12+150	498607.7293	2779953.3902	498622.6848	2779954.545	498592.7727	2779952.236
165	12+200	498610.3298	2779903.4657	498625.3272	2779903.746	498595.3319	2779903.185
166	12+250	498610.1588	2779853.4693	498625.1558	2779853.168	498595.1618	2779853.771
167	12+300	498609.1209	2779803.4801	498624.1176	2779803.166	498594.1242	2779803.794
168	12+350	498608.0747	2779753.4911	498623.0714	2779753.177	498593.078	2779753.805
169	12+400	498607.0285	2779703.5020	498622.0252	2779703.188	498589.5323	2779703.868
170	12+450	498605.9823	2779653.5130	498623.4784	2779653.147	498586.1832	2779653.927
171	12+500	498604.9361	2779603.5239	498624.7606	2779603.109	498585.4678	2779603.931
172	12+550	498603.8899	2779553.5348	498622.9003	2779553.137	498588.7902	2779553.851
173	12+600	498602.8436	2779503.5458	498617.8404	2779503.232	498587.8469	2779503.86
174	12+650	498601.7974	2779453.5567	498616.7942	2779453.243	498586.8007	2779453.871

Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
175	12+700	498600.7512	2779403.5677	498615.7479	2779403.254	498585.7545	2779403.882
176	12+750	498599.3744	2779353.5870	498614.3675	2779353.133	498584.3812	2779354.041
177	12+800	498597.8608	2779303.6099	498612.854	2779303.156	498582.8677	2779304.064
178	12+850	498596.3473	2779253.6328	498611.3404	2779253.179	498581.3542	2779254.087
179	12+900	498594.8338	2779203.6557	498609.8269	2779203.202	498579.8407	2779204.11
180	12+950	498593.3203	2779153.6786	498608.3134	2779153.225	498578.3271	2779154.133
181	13+000	498592.4280	2779103.6878	498607.4281	2779103.645	498577.428	2779103.731
182	13+050	498592.6436	2779053.6887	498607.6432	2779053.805	498577.6441	2779053.573
183	13+100	498593.0138	2779003.6901	498608.0137	2779003.734	498578.0138	2779003.646
184	13+150	498592.6290	2778953.6931	498607.6246	2778953.329	498577.6332	2778954.057
185	13+200	498591.0267	2778903.7193	498606.0167	2778903.171	498576.0367	2778904.268
186	13+250	498589.1982	2778853.7527	498604.1882	2778853.204	498574.2082	2778854.301
187	13+300	498587.3697	2778803.7862	498602.3596	2778803.238	498572.3797	2778804.335
188	13+350	498585.5412	2778753.8196	498600.7689	2778753.262	498570.3134	2778754.377
189	13+400	498583.7127	2778703.8531	498600.2016	2778703.25	498567.2237	2778704.456
190	13+450	498581.8841	2778653.8865	498598.3731	2778653.283	498565.3952	2778654.49
191	13+500	498580.0556	2778603.9199	498599.3533	2778603.214	498560.758	2778604.626
192	13+550	498578.2271	2778553.9534	498600.7116	2778553.119	498555.7426	2778554.788
193	13+600	498575.9724	2778504.0055	498598.4281	2778502.594	498553.5163	2778505.417
194	13+650	498572.1702	2778454.1525	498594.5678	2778452.008	498549.7723	2778456.297
195	13+700	498566.9405	2778404.4274	498589.305	2778401.961	498544.5761	2778406.893
196	13+750	498561.4606	2778354.7286	498583.8251	2778352.263	498539.0962	2778357.195
197	13+800	498555.9808	2778305.0298	498578.3452	2778302.564	498533.6163	2778307.496
198	13+850	498550.5009	2778255.3310	498572.8654	2778252.865	498528.1364	2778257.797
199	13+900	498545.0210	2778205.6322	498567.3855	2778203.166	498522.6566	2778208.098
200	13+950	498539.5412	2778155.9334	498561.9056	2778153.467	498517.1767	2778158.399
201	14+000	498534.0613	2778106.2346	498556.4249	2778103.769	498511.6977	2778108.7
202	14+050	498528.7046	2778056.5226	498546.1259	2778054.864	498511.2834	2778058.181
203	14+100	498525.0411	2778006.6640	498540.0339	2778006.155	498510.0497	2778007.172
204	14+150	498524.7750	2777956.6749	498539.7659	2777957.238	498509.7856	2777956.112
205	14+200	498528.0773	2777906.7943	498542.9897	2777908.425	498513.1662	2777905.163
206	14+250	498534.9168	2777857.2742	498552.1473	2777860.334	498517.6864	2777854.215
207	14+300	498544.3376	2777808.1716	498566.3885	2777812.644	498522.2866	2777803.699
208	14+350	498554.2792	2777759.1699	498576.3299	2777763.644	498532.2285	2777754.696
209	14+400	498564.2211	2777710.1683	498586.2718	2777714.642	498542.1703	2777705.694
210	14+450	498574.1629	2777661.1667	498596.2136	2777665.641	498552.1122	2777656.693
211	14+500	498584.1047	2777612.1650	498606.1555	2777616.639	498562.054	2777607.691
212	14+550	498594.0466	2777563.1634	498616.0973	2777567.637	498571.9959	2777558.69
213	14+600	498603.9884	2777514.1618	498626.0392	2777518.636	498581.9377	2777509.688
214	14+650	498613.9303	2777465.1602	498635.981	2777469.634	498591.8795	2777460.686
215	14+700	498623.8721	2777416.1585	498645.9229	2777420.632	498601.8214	2777411.685
216	14+750	498633.9714	2777367.1894	498655.9834	2777371.85	498611.9595	2777362.529
217	14+800	498644.3289	2777318.2740	498666.3409	2777322.935	498622.3169	2777313.613
218	14+850	498654.6864	2777269.3585	498676.6983	2777274.019	498632.6744	2777264.698

Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
219	14+900	498665.0439	2777220.4430	498687.0558	2777225.104	498643.0319	2777215.782
220	14+950	498675.4013	2777171.5276	498697.4133	2777176.188	498653.3894	2777166.867
221	15+000	498685.7588	2777122.6121	498707.77	2777127.273	498663.7476	2777117.951
222	15+050	498696.1163	2777073.6966	498714.216	2777077.529	498678.0166	2777069.864
223	15+100	498706.4738	2777024.7812	498722.6159	2777028.199	498690.3317	2777021.363
224	15+150	498716.8298	2776975.8654	498732.9776	2776979.257	498700.6821	2776972.474
225	15+200	498726.5678	2776926.8251	498741.3486	2776929.38	498711.7864	2776924.27
226	15+250	498734.1149	2776877.4026	498748.9947	2776879.297	498719.2348	2776875.508
227	15+300	498740.1779	2776827.7718	498755.071	2776829.559	498725.2848	2776825.984
228	15+350	498746.1356	2776778.1280	498761.0288	2776779.915	498731.2425	2776776.341
229	15+400	498752.0934	2776728.4842	498766.9865	2776730.272	498737.2002	2776726.697
230	15+450	498758.4815	2776678.8951	498773.329	2776681.029	498743.6341	2776676.761
231	15+500	498766.0899	2776629.4786	498780.8795	2776631.983	498751.3005	2776626.974
232	15+550	498774.9260	2776580.2668	498789.6618	2776583.069	498760.1901	2776577.464
233	15+600	498784.2679	2776531.1473	498799.0038	2776533.95	498769.5321	2776528.345
234	15+650	498793.6099	2776482.0277	498808.3457	2776484.83	498778.874	2776479.225
235	15+700	498802.9518	2776432.9082	498817.6877	2776435.711	498788.216	2776430.106
236	15+750	498812.2938	2776383.7887	498827.0297	2776386.591	498797.5579	2776380.986
237	15+800	498820.1896	2776334.4228	498835.98	2776336.795	498806.3089	2776332.337
238	15+850	498827.6178	2776284.9776	498845.4105	2776287.651	498813.9395	2776282.923
239	15+900	498835.0461	2776235.5325	498856.5118	2776238.757	498821.06	2776233.431
240	15+950	498842.4743	2776186.0874	498863.6785	2776189.273	498828.1806	2776183.94
241	16+000	498849.9025	2776136.6422	498869.1466	2776139.533	498835.3011	2776134.449
242	16+050	498857.2554	2776087.1860	498872.1025	2776089.322	498842.4083	2776085.05
243	16+100	498864.3758	2776037.6956	498879.2229	2776039.832	498849.5287	2776035.56
244	16+150	498871.4962	2775988.2052	498886.3433	2775990.341	498856.6491	2775986.069
245	16+200	498878.4539	2775938.6921	498893.3285	2775940.627	498863.5792	2775936.757
246	16+250	498884.8706	2775889.1055	498899.7466	2775891.03	498869.9945	2775887.181
247	16+300	498891.2853	2775839.5187	498906.1613	2775841.443	498876.4092	2775837.594
248	16+350	498897.6999	2775789.9319	498912.576	2775791.856	498882.8239	2775788.008
249	16+400	498904.1146	2775740.3451	498918.9906	2775742.27	498889.2385	2775738.421
250	16+450	498910.5293	2775690.7583	498925.4053	2775692.683	498895.6532	2775688.834
251	16+500	498916.9439	2775641.1715	498931.82	2775643.096	498902.0679	2775639.247
252	16+550	498923.3586	2775591.5847	498938.2346	2775593.509	498908.4825	2775589.66
253	16+600	498929.7732	2775541.9978	498944.6493	2775543.922	498914.8972	2775540.073
254	16+650	498936.1879	2775492.4110	498951.064	2775494.335	498921.3119	2775490.487
255	16+700	498942.6026	2775442.8242	498957.4786	2775444.749	498927.7265	2775440.9
256	16+750	498949.0172	2775393.2374	498963.8933	2775395.162	498934.1412	2775391.313
257	16+800	498955.4319	2775343.6506	498970.3079	2775345.575	498940.5559	2775341.726
258	16+850	498961.8466	2775294.0638	498976.7226	2775295.988	498946.9705	2775292.139
259	16+900	498968.2612	2775244.4770	498983.1373	2775246.401	498953.3852	2775242.553
260	16+950	498974.6759	2775194.8902	498989.5519	2775196.815	498959.7999	2775192.966
261	17+000	498981.0906	2775145.3033	498995.9666	2775147.228	498966.2145	2775143.379
262	17+050	498987.5052	2775095.7165	499002.3813	2775097.641	498972.6292	2775093.792

Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
263	17+100	498994.3219	2775046.1844	499010.9436	2775048.718	498978.0844	2775043.709
264	17+150	499002.3513	2774996.8346	499020.5646	2775000.079	498984.1379	2774993.59
265	17+200	499011.6117	2774947.7009	499029.7383	2774951.399	498993.4852	2774944.002
266	17+250	499022.0265	2774898.7984	499040.4409	2774902.825	499003.6412	2774894.778
267	17+300	499032.7069	2774849.9524	499051.7569	2774854.118	499013.657	2774845.787
268	17+350	499043.3874	2774801.1064	499062.4373	2774805.272	499024.3375	2774796.941
269	17+400	499054.0678	2774752.2605	499073.1177	2774756.426	499035.0179	2774748.095
270	17+450	499064.7483	2774703.4145	499083.7982	2774707.58	499045.6983	2774699.249
271	17+500	499075.4287	2774654.5685	499094.4786	2774658.734	499056.3788	2774650.403
272	17+550	499086.1091	2774605.7226	499105.1591	2774609.888	499067.0592	2774601.557
273	17+600	499096.7896	2774556.8766	499115.8395	2774561.042	499077.7397	2774552.711
274	17+650	499107.4203	2774508.0199	499126.5094	2774512.002	499088.3312	2774504.038
275	17+700	499117.5200	2774459.0506	499136.6203	2774462.979	499098.4198	2774455.122
276	17+750	499127.5921	2774410.0756	499146.6924	2774414.004	499108.4918	2774406.147
277	17+800	499137.6642	2774361.1005	499156.7644	2774365.029	499118.5639	2774357.172
278	17+850	499147.7363	2774312.1255	499166.8365	2774316.054	499128.636	2774308.197
279	17+900	499157.8083	2774263.1505	499176.9086	2774267.079	499138.7081	2774259.222
280	17+950	499167.8804	2774214.1755	499186.9807	2774218.104	499148.7801	2774210.247
281	18+000	499177.7777	2774165.1652	499196.9408	2774168.774	499158.6144	2774161.556
282	18+050	499186.3748	2774115.9121	499205.6475	2774118.881	499167.1018	2774112.944
283	18+100	499193.3256	2774066.3998	499212.6866	2774068.724	499173.9644	2774064.075
284	18+150	499198.7655	2774016.6977	499218.1661	2774018.664	499179.3649	2774014.732
285	18+200	499203.8060	2773966.9524	499223.2067	2773968.918	499184.4053	2773964.987
286	18+250	499208.8464	2773917.2071	499228.2471	2773919.173	499189.4457	2773915.241
287	18+300	499213.8868	2773867.4618	499233.2875	2773869.428	499194.4862	2773865.496
288	18+350	499218.9272	2773817.7166	499238.3279	2773819.682	499199.5266	2773815.751
289	18+400	499223.9676	2773767.9713	499243.3683	2773769.937	499204.567	2773766.005
290	18+450	499229.0081	2773718.2260	499248.4087	2773720.192	499209.6074	2773716.26
291	18+500	499234.0540	2773668.4812	499253.4449	2773670.54	499214.663	2773666.422
292	18+550	499239.6360	2773618.7941	499259.0088	2773621.018	499220.2632	2773616.57
293	18+600	499245.3378	2773569.1202	499264.7106	2773571.344	499225.965	2773566.897
294	18+650	499251.0396	2773519.4464	499270.4124	2773521.67	499231.6668	2773517.223
295	18+700	499256.7414	2773469.7726	499276.1142	2773471.996	499237.3686	2773467.549
296	18+750	499262.4432	2773420.0988	499281.816	2773422.322	499243.0704	2773417.875
297	18+800	499268.1450	2773370.4249	499287.5178	2773372.649	499248.7722	2773368.201
298	18+850	499273.8468	2773320.7511	499293.2196	2773322.975	499254.474	2773318.527
299	18+900	499279.5486	2773271.0773	499298.9214	2773273.301	499260.1758	2773268.854
300	18+950	499285.2504	2773221.4034	499304.6232	2773223.627	499265.8776	2773219.18
301	19+000	499290.9522	2773171.7296	499310.325	2773173.953	499271.5794	2773169.506
302	19+050	499296.6540	2773122.0558	499316.0268	2773124.279	499277.2812	2773119.832
303	19+100	499302.3558	2773072.3819	499321.7286	2773074.606	499282.983	2773070.158
304	19+150	499308.0576	2773022.7081	499327.4304	2773024.932	499288.6848	2773020.484
305	19+200	499313.7594	2772973.0343	499333.1321	2772975.258	499294.3866	2772970.811
306	19+250	499319.6067	2772923.3774	499338.9704	2772925.678	499300.2429	2772921.076

Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
307	19+300	499325.5065	2772873.7267	499344.8703	2772876.028	499306.1428	2772871.426
308	19+350	499331.4064	2772824.0760	499350.7702	2772826.377	499312.0427	2772821.775
309	19+400	499337.3063	2772774.4253	499356.6701	2772776.726	499317.9426	2772772.124
310	19+450	499343.2062	2772724.7747	499362.57	2772727.076	499323.8425	2772722.474
311	19+500	499349.1061	2772675.1240	499368.4699	2772677.425	499329.7424	2772672.823
312	19+550	499355.0060	2772625.4733	499375.6996	2772627.932	499334.315	2772623.015
313	19+600	499360.9059	2772575.8226	499383.2487	2772578.478	499338.5631	2772573.168
314	19+650	499366.8058	2772526.1719	499389.1486	2772528.827	499344.463	2772523.517
315	19+700	499372.7057	2772476.5212	499395.0485	2772479.176	499350.3629	2772473.866
316	19+750	499378.6056	2772426.8705	499400.9484	2772429.525	499356.2628	2772424.216
317	19+800	499384.5055	2772377.2198	499406.8483	2772379.875	499362.1627	2772374.565
318	19+850	499390.2729	2772327.5536	499412.6257	2772330.123	499367.9201	2772324.984
319	19+900	499395.9832	2772277.8808	499418.336	2772280.45	499373.6305	2772275.311
320	19+950	499401.6936	2772228.2079	499424.0464	2772230.778	499379.3408	2772225.638
321	20+000	499407.2962	2772178.5230	499429.681	2772180.796	499384.9111	2772176.25
322	20+050	499411.4101	2772128.6976	499433.8816	2772129.83	499388.9376	2772127.566
323	20+100	499412.8177	2772078.7235	499435.3176	2772078.661	499390.3172	2772078.786
324	20+150	499412.1403	2772028.7292	499434.6354	2772028.261	499389.6452	2772029.197
325	20+200	499411.0997	2771978.7400	499433.5948	2771978.272	499388.6046	2771979.208
326	20+250	499410.0590	2771928.7508	499432.5542	2771928.283	499387.5639	2771929.219
327	20+300	499409.0184	2771878.7617	499431.5135	2771878.293	499386.5233	2771879.23
328	20+350	499407.9778	2771828.7725	499430.4729	2771828.304	499385.4827	2771829.241
329	20+400	499406.9371	2771778.7833	499429.4323	2771778.315	499384.442	2771779.252
330	20+450	499405.8965	2771728.7942	499428.3916	2771728.326	499383.4014	2771729.262
331	20+500	499404.8559	2771678.8050	499427.351	2771678.337	499382.3607	2771679.273
332	20+550	499403.8152	2771628.8158	499426.3104	2771628.348	499381.3201	2771629.284
333	20+600	499402.7746	2771578.8267	499425.2697	2771578.358	499380.2795	2771579.295
334	20+650	499401.7340	2771528.8375	499422.5608	2771528.404	499380.9071	2771529.271
335	20+700	499400.6933	2771478.8483	499418.1895	2771478.484	499383.1971	2771479.213
336	20+750	499399.6527	2771428.8592	499417.1489	2771428.495	499382.1565	2771429.223
337	20+800	499398.6121	2771378.8700	499416.1083	2771378.506	499381.1158	2771379.234
338	20+850	499397.5714	2771328.8808	499415.0676	2771328.517	499380.0752	2771329.245
339	20+900	499396.5308	2771278.8916	499414.027	2771278.527	499379.0346	2771279.256
340	20+950	499395.4901	2771228.9025	499412.9864	2771228.538	499377.9939	2771229.267
341	21+000	499394.4495	2771178.9133	499411.9457	2771178.549	499376.9533	2771179.278
342	21+050	499393.4089	2771128.9241	499410.9051	2771128.56	499375.9127	2771129.288
343	21+100	499392.3682	2771078.9350	499409.8644	2771078.571	499374.872	2771079.299
344	21+150	499391.3276	2771028.9458	499408.8238	2771028.582	499373.8314	2771029.31
345	21+200	499390.2870	2770978.9566	499407.7832	2770978.592	499372.7908	2770979.321
346	21+250	499389.2463	2770928.9675	499406.7425	2770928.603	499371.7501	2770929.332
347	21+300	499388.2209	2770878.9780	499405.7183	2770878.677	499370.7235	2770879.279
348	21+350	499387.3833	2770828.9850	499404.8809	2770828.692	499369.8858	2770829.278
349	21+400	499386.5470	2770778.9920	499404.0445	2770778.699	499369.0494	2770779.285
350	21+450	499385.7107	2770728.9990	499403.2082	2770728.706	499368.2131	2770729.292

Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
351	21+500	499384.8743	2770679.0060	499402.3719	2770678.713	499367.3768	2770679.299
352	21+550	499384.0380	2770629.0130	499401.5356	2770628.72	499366.5405	2770629.306
353	21+600	499383.2017	2770579.0200	499400.6992	2770578.727	499365.7041	2770579.313
354	21+650	499382.3654	2770529.0270	499399.8629	2770528.734	499364.8678	2770529.32
355	21+700	499381.5290	2770479.0340	499399.0266	2770478.741	499364.0315	2770479.327
356	21+750	499380.6927	2770429.0410	499398.1903	2770428.748	499363.1952	2770429.334
357	21+800	499379.8564	2770379.0480	499397.3539	2770378.755	499362.3588	2770379.341
358	21+850	499379.0201	2770329.0549	499396.5176	2770328.762	499361.5225	2770329.348
359	21+900	499378.1837	2770279.0619	499395.6813	2770278.769	499360.6862	2770279.355
360	21+950	499377.3474	2770229.0689	499394.845	2770228.776	499359.8498	2770229.362
361	22+000	499376.5111	2770179.0759	499394.0086	2770178.783	499359.0135	2770179.369
362	22+050	499375.6747	2770129.0829	499393.1723	2770128.79	499358.1772	2770129.376
363	22+100	499374.8384	2770079.0899	499392.336	2770078.797	499357.3409	2770079.383
364	22+150	499373.9926	2770029.0971	499391.4888	2770028.731	499356.4964	2770029.463
365	22+200	499372.6142	2769979.1166	499390.1019	2769978.459	499355.1265	2769979.774
366	22+250	499370.4030	2769929.1661	499387.8773	2769928.218	499352.9287	2769930.115
367	22+300	499367.3597	2769879.2594	499384.8157	2769878.02	499349.9036	2769880.499
368	22+350	499363.6495	2769829.3973	499381.0997	2769828.079	499346.1992	2769830.716
369	22+400	499359.8820	2769779.5394	499377.5784	2769778.202	499342.1856	2769780.877
370	22+450	499356.1146	2769729.6816	499373.962	2769728.333	499338.267	2769731.03
371	22+500	499352.3472	2769679.8237	499370.3456	2769678.464	499334.3484	2769681.184
372	22+550	499348.5797	2769629.9659	499366.7292	2769628.594	499330.4298	2769631.337
373	22+600	499344.8123	2769580.1080	499363.1129	2769578.725	499326.5112	2769581.491
374	22+650	499341.0449	2769530.2501	499359.4965	2769528.856	499322.5926	2769531.644
375	22+700	499337.2774	2769480.3923	499355.8801	2769478.987	499318.674	2769481.798
376	22+750	499333.5100	2769430.5344	499352.2637	2769429.117	499314.7555	2769431.952
377	22+800	499329.7426	2769380.6765	499349.3059	2769379.198	499310.1767	2769382.155
378	22+850	499325.9751	2769330.8187	499347.3335	2769329.205	499304.6142	2769332.433
379	22+900	499322.2077	2769280.9608	499344.6426	2769279.266	499299.7729	2769282.656
380	22+950	499318.4403	2769231.1030	499340.8754	2769229.408	499296.0052	2769232.798
381	23+000	499314.6728	2769181.2451	499337.1082	2769179.55	499292.2375	2769182.94
382	23+050	499310.9054	2769131.3872	499333.341	2769129.692	499288.4698	2769133.083
383	23+100	499307.1380	2769081.5294	499329.5738	2769079.834	499284.7021	2769083.225
384	23+150	499303.3554	2769031.6727	499325.7875	2769029.927	499280.9232	2769033.419
385	23+200	499299.4751	2768981.8235	499321.9072	2768980.077	499277.043	2768983.57
386	23+250	499295.5948	2768931.9743	499318.027	2768930.228	499273.1627	2768933.72
387	23+300	499291.7145	2768882.1250	499314.1467	2768880.379	499269.2824	2768883.871
388	23+350	499287.8342	2768832.2758	499310.2664	2768830.53	499265.4021	2768834.022
389	23+400	499283.9539	2768782.4266	499306.3861	2768780.681	499261.5218	2768784.173
390	23+450	499280.0737	2768732.5774	499302.5058	2768730.831	499257.6415	2768734.324
391	23+500	499276.1934	2768682.7282	499298.6255	2768680.982	499253.7612	2768684.474
392	23+550	499272.3131	2768632.8790	499294.7452	2768631.133	499249.8809	2768634.625
393	23+600	499268.4328	2768583.0298	499290.8649	2768581.284	499246.0006	2768584.776
394	23+650	499264.5525	2768533.1806	499286.9846	2768531.434	499242.1204	2768534.927

Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
395	23+700	499260.6722	2768483.3314	499283.1044	2768481.585	499238.2401	2768485.078
396	23+750	499256.7919	2768433.4822	499279.2241	2768431.736	499234.3598	2768435.228
397	23+800	499252.9116	2768383.6330	499275.3438	2768381.887	499230.4795	2768385.379
398	23+850	499249.0313	2768333.7838	499271.4635	2768332.038	499226.5992	2768335.53
399	23+900	499245.1511	2768283.9346	499266.2587	2768282.292	499224.0434	2768285.578
400	23+950	499241.2708	2768234.0854	499256.2255	2768232.921	499226.316	2768235.249
401	24+000	499237.3905	2768184.2362	499252.3452	2768183.072	499222.4357	2768185.4
402	24+050	499233.5102	2768134.3870	499248.465	2768133.223	499218.5554	2768135.551
403	24+100	499229.6299	2768084.5377	499244.5847	2768083.374	499214.6751	2768085.702
404	24+150	499225.7496	2768034.6885	499240.7044	2768033.524	499210.7949	2768035.853
405	24+200	499221.8693	2767984.8393	499236.8241	2767983.675	499206.9146	2767986.003
406	24+250	499217.9890	2767934.9901	499232.9438	2767933.826	499203.0343	2767936.154
407	24+300	499214.1087	2767885.1409	499229.0635	2767883.977	499199.154	2767886.305
408	24+350	499210.2285	2767835.2917	499225.1832	2767834.128	499195.2737	2767836.456
409	24+400	499206.3482	2767785.4425	499221.3029	2767784.278	499191.3934	2767786.607
410	24+450	499202.4679	2767735.5933	499217.4226	2767734.429	499187.5131	2767736.757
411	24+500	499198.5876	2767685.7441	499213.5424	2767684.58	499183.6328	2767686.908
412	24+550	499194.7073	2767635.8949	499209.6621	2767634.731	499179.7525	2767637.059
413	24+600	499190.8270	2767586.0457	499205.7818	2767584.882	499175.8723	2767587.21
414	24+650	499186.9467	2767536.1965	499201.9015	2767535.032	499171.992	2767537.361
415	24+700	499183.0664	2767486.3473	499198.0212	2767485.183	499168.1117	2767487.511
416	24+750	499179.1862	2767436.4981	499194.1409	2767435.334	499164.2314	2767437.662
417	24+800	499175.3059	2767386.6489	499190.2606	2767385.485	499160.3511	2767387.813
418	24+850	499171.4256	2767336.7997	499186.3803	2767335.636	499156.4708	2767337.964
419	24+900	499167.4847	2767286.9552	499182.4378	2767285.771	499152.5315	2767288.14
420	24+950	499163.5360	2767237.1114	499178.4892	2767235.927	499148.5829	2767238.296
421	25+000	499159.5873	2767187.2675	499174.5405	2767186.083	499144.6342	2767188.452
422	25+050	499155.6387	2767137.4237	499170.5918	2767136.239	499140.6855	2767138.608
423	25+100	499151.6900	2767087.5799	499166.6432	2767086.395	499136.7369	2767088.764
424	25+150	499147.7413	2767037.7360	499162.6945	2767036.551	499132.7882	2767038.921
425	25+200	499143.7927	2766987.8922	499158.7458	2766986.708	499128.8395	2766989.077
426	25+250	499139.8440	2766938.0483	499154.7972	2766936.864	499124.8909	2766939.233
427	25+300	499135.8954	2766888.2045	499150.8485	2766887.02	499120.9422	2766889.389
428	25+350	499131.9467	2766838.3607	499146.8998	2766837.176	499116.9935	2766839.545
429	25+400	499127.9980	2766788.5168	499142.9512	2766787.332	499113.0449	2766789.701
430	25+450	499124.0494	2766738.6730	499139.0025	2766737.488	499109.0962	2766739.858
431	25+500	499120.1007	2766688.8292	499135.0538	2766687.645	499105.1475	2766690.014
432	25+550	499116.1520	2766638.9853	499131.1052	2766637.801	499101.1989	2766640.17
433	25+600	499112.2034	2766589.1415	499127.1565	2766587.957	499097.2502	2766590.326
434	25+650	499108.2547	2766539.2977	499123.2078	2766538.113	499093.3015	2766540.482
435	25+700	499104.3060	2766489.4538	499119.2592	2766488.269	499089.3529	2766490.638
436	25+750	499100.1667	2766439.6260	499115.0985	2766438.198	499085.2341	2766441.047
437	25+800	499094.9073	2766389.9046	499115.1227	2766387.508	499074.4908	2766392.325
438	25+850	499089.0125	2766340.2533	499111.3555	2766337.601	499066.6694	2766342.906

Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
439	25+900	499083.1176	2766290.6020	499105.4606	2766287.949	499060.7745	2766293.255
440	25+950	499077.2226	2766240.9507	499099.5657	2766238.298	499054.8796	2766243.603
441	26+000	499071.3277	2766191.2994	499093.6708	2766188.647	499048.9847	2766193.952
442	26+050	499065.4328	2766141.6482	499087.7759	2766138.995	499043.0897	2766144.301
443	26+100	499059.5379	2766091.9969	499081.881	2766089.344	499037.1948	2766094.65
444	26+150	499053.6430	2766042.3456	499075.9861	2766039.693	499031.2999	2766044.998
445	26+200	499047.7481	2765992.6943	499070.0912	2765990.042	499025.405	2765995.347
446	26+250	499041.8533	2765943.0430	499064.2033	2765940.449	499019.5033	2765945.637
447	26+300	499036.5868	2765893.3224	499058.9947	2765891.288	499014.1868	2765895.356
448	26+350	499032.5646	2765843.4857	499053.2409	2765842.07	499012.2988	2765844.873
449	26+400	499029.1498	2765793.6024	499048.6043	2765792.271	499009.6953	2765794.934
450	26+450	499025.7350	2765743.7192	499045.1895	2765742.387	499006.2805	2765745.051
451	26+500	499022.3202	2765693.8359	499041.7747	2765692.504	499002.8657	2765695.168
452	26+550	499018.9054	2765643.9527	499038.3599	2765642.621	498999.4509	2765645.284
453	26+600	499015.4906	2765594.0694	499034.945	2765592.738	498996.0361	2765595.401
454	26+650	499012.0758	2765544.1862	499031.5302	2765542.854	498992.6213	2765545.518
455	26+700	499008.6610	2765494.3029	499028.1154	2765492.971	498989.2065	2765495.635
456	26+750	499005.2461	2765444.4197	499024.7006	2765443.088	498985.7917	2765445.751
457	26+800	499001.8313	2765394.5364	499021.2858	2765393.205	498982.3769	2765395.868
458	26+850	498998.4165	2765344.6532	499017.871	2765343.321	498978.9621	2765345.985
459	26+900	498995.3942	2765294.7458	499014.8754	2765293.891	498975.9129	2765295.6
460	26+950	498994.4291	2765244.7601	499013.9287	2765244.968	498974.9302	2765244.552
461	27+000	498995.9633	2765194.7887	499015.4296	2765195.942	498976.4975	2765193.635
462	27+050	498999.7292	2765144.9328	499019.1545	2765146.638	498980.3039	2765143.228
463	27+100	499004.1073	2765095.1249	499023.5323	2765096.833	498984.6822	2765093.417
464	27+150	499008.4865	2765045.3170	499028.9089	2765047.113	498988.064	2765043.521
465	27+200	499012.8657	2764995.5092	499035.2792	2764997.48	498990.4521	2764993.539
466	27+250	499017.2449	2764945.7013	499039.6584	2764947.672	498994.8313	2764943.731
467	27+300	499021.6241	2764895.8935	499044.0376	2764897.864	498999.2105	2764893.923
468	27+350	499026.0033	2764846.0856	499048.4168	2764848.056	499003.5897	2764844.115
469	27+400	499030.6093	2764796.2988	499052.9777	2764798.733	499008.2414	2764793.865
470	27+450	499037.0223	2764746.7168	499059.2409	2764750.269	499014.8045	2764743.164
471	27+500	499045.9027	2764697.5168	499067.9181	2764702.162	499023.8875	2764692.871
472	27+550	499056.7721	2764648.7137	499078.6976	2764653.766	499034.8467	2764643.662
473	27+600	499067.9991	2764599.9905	499089.9245	2764605.043	499046.0736	2764594.938
474	27+650	499079.2260	2764551.2672	499101.1515	2764556.319	499057.3005	2764546.215
475	27+700	499090.4529	2764502.5439	499111.2438	2764507.335	499069.662	2764497.753
476	27+750	499101.6798	2764453.8207	499120.8514	2764458.238	499082.5083	2764449.403
477	27+800	499113.1966	2764405.1659	499132.1086	2764409.919	499094.2847	2764400.413
478	27+850	499125.8679	2764356.7995	499144.6551	2764362.023	499107.0806	2764351.575
479	27+900	499139.7442	2764308.7649	499158.3949	2764314.457	499121.0934	2764303.073
480	27+950	499154.8168	2764261.0921	499173.3276	2764267.224	499136.306	2764254.96
481	28+000	499170.5905	2764213.6454	499189.0941	2764219.799	499152.087	2764207.492
482	28+050	499186.3694	2764166.2004	499204.873	2764172.354	499167.8659	2764160.047



Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
483	28+100	499202.1484	2764118.7555	499220.6519	2764124.909	499183.6448	2764112.602
484	28+150	499217.9273	2764071.3105	499236.4308	2764077.464	499199.4238	2764065.157
485	28+200	499233.7062	2764023.8655	499252.2098	2764030.019	499215.2027	2764017.712
486	28+250	499249.1352	2763976.3066	499267.7677	2763982.058	499230.5026	2763970.555
487	28+300	499263.4029	2763928.3868	499282.1666	2763933.694	499244.6391	2763923.079
488	28+350	499276.9587	2763880.2595	499295.729	2763885.544	499258.1884	2763874.975
489	28+400	499290.5087	2763832.1305	499309.279	2763837.415	499271.7384	2763826.846
490	28+450	499304.0587	2763784.0016	499322.829	2763789.286	499285.2885	2763778.717
491	28+500	499317.2388	2763735.7710	499336.1211	2763740.64	499298.3564	2763730.902
492	28+550	499329.4751	2763687.2916	499348.3905	2763692.031	499310.5598	2763682.553
493	28+600	499341.6265	2763638.7906	499360.5419	2763643.53	499322.7111	2763634.052
494	28+650	499353.7779	2763590.2896	499372.6932	2763595.029	499334.8625	2763585.551
495	28+700	499365.9292	2763541.7887	499384.8446	2763546.528	499347.0138	2763537.05
496	28+750	499378.0806	2763493.2877	499396.9959	2763498.027	499359.1652	2763488.549
497	28+800	499390.2319	2763444.7867	499409.1473	2763449.526	499371.3165	2763440.048
498	28+850	499402.3905	2763396.2875	499421.3045	2763401.032	499383.4764	2763391.543
499	28+900	499414.5555	2763347.7900	499433.4696	2763352.534	499395.6415	2763343.046
500	28+950	499426.7206	2763299.2925	499445.6347	2763304.037	499407.8066	2763294.548
501	29+000	499438.8857	2763250.7949	499457.7997	2763255.539	499419.9716	2763246.051
502	29+050	499451.0508	2763202.2974	499469.9648	2763207.042	499432.1367	2763197.553
503	29+100	499463.2158	2763153.7998	499482.1299	2763158.544	499444.3018	2763149.055
504	29+150	499475.3724	2763105.3002	499494.2896	2763110.032	499456.4551	2763100.569
505	29+200	499487.5046	2763056.7944	499506.4219	2763061.526	499468.5874	2763052.063
506	29+250	499499.6369	2763008.2887	499518.5542	2763013.02	499480.7197	2763003.557
507	29+300	499511.7692	2762959.7829	499531.6578	2762964.757	499491.8806	2762954.808
508	29+350	499523.9015	2762911.2772	499545.729	2762916.737	499502.0739	2762905.818
509	29+400	499536.0337	2762862.7714	499557.8613	2762868.231	499514.2061	2762857.312
510	29+450	499548.1660	2762814.2657	499569.9936	2762819.725	499526.3384	2762808.806
511	29+500	499560.2983	2762765.7599	499582.1259	2762771.219	499538.4707	2762760.3
512	29+550	499572.4305	2762717.2542	499594.2581	2762722.714	499550.603	2762711.795
513	29+600	499584.5628	2762668.7484	499606.3904	2762674.208	499562.7352	2762663.289
514	29+650	499596.6951	2762620.2427	499618.5227	2762625.702	499574.8675	2762614.783
515	29+700	499608.8070	2762571.7318	499630.6649	2762577.069	499586.9491	2762566.395
516	29+750	499619.9038	2762522.9829	499641.9716	2762527.371	499597.8355	2762518.594
517	29+800	499627.9555	2762473.6458	499650.2965	2762476.316	499605.6127	2762470.975
518	29+850	499632.4834	2762423.8611	499654.9522	2762425.046	499610.0137	2762422.676
519	29+900	499634.4477	2762373.9013	499656.938	2762374.562	499611.9574	2762373.241
520	29+950	499635.9141	2762323.9229	499658.4044	2762324.583	499613.4238	2762323.263
521	30+000	499637.3804	2762273.9444	499659.8707	2762274.604	499614.8901	2762273.285
522	30+050	499638.8468	2762223.9659	499657.2603	2762224.506	499620.4332	2762223.426
523	30+100	499640.3131	2762173.9874	499655.3066	2762174.427	499625.3195	2762173.547
524	30+150	499641.7794	2762124.0089	499656.773	2762124.449	499626.7859	2762123.569
525	30+200	499643.2458	2762074.0304	499658.2393	2762074.47	499628.2522	2762073.59
526	30+250	499644.7121	2762024.0519	499659.7057	2762024.492	499629.7186	2762023.612

Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
527	30+300	499646.1784	2761974.0734	499661.172	2761974.513	499631.1849	2761973.633
528	30+350	499647.6448	2761924.0949	499662.6383	2761924.535	499632.6512	2761923.655
529	30+400	499649.1111	2761874.1164	499666.6036	2761874.63	499631.6187	2761873.603
530	30+450	499650.5775	2761824.1379	499665.571	2761824.578	499635.5839	2761823.698
531	30+500	499652.0438	2761774.1594	499667.0373	2761774.599	499637.0503	2761773.72
532	30+550	499653.5101	2761724.1809	499668.5037	2761724.621	499638.5166	2761723.741
533	30+600	499654.9765	2761674.2024	499669.97	2761674.642	499639.9829	2761673.763
534	30+650	499656.4428	2761624.2239	499671.4364	2761624.664	499641.4493	2761623.784
535	30+700	499657.9092	2761574.2454	499672.9027	2761574.685	499642.9156	2761573.806
536	30+750	499659.3755	2761524.2670	499674.369	2761524.707	499644.3819	2761523.827
537	30+800	499660.8418	2761474.2885	499675.8354	2761474.728	499645.8483	2761473.849
538	30+850	499662.3082	2761424.3100	499677.3017	2761424.75	499647.3146	2761423.87
539	30+900	499663.7745	2761374.3315	499678.7681	2761374.771	499648.781	2761373.892
540	30+950	499665.2408	2761324.3530	499680.3179	2761324.795	499650.2473	2761323.913
541	31+000	499666.7072	2761274.3745	499681.7007	2761274.814	499651.7136	2761273.935
542	31+050	499668.1735	2761224.3960	499683.1671	2761224.836	499653.18	2761223.956
543	31+100	499669.6399	2761174.4175	499684.6334	2761174.857	499654.6463	2761173.978
544	31+150	499671.1062	2761124.4390	499686.0997	2761124.879	499656.1127	2761123.999
545	31+200	499672.5725	2761074.4605	499687.5661	2761074.9	499657.579	2761074.021
546	31+250	499674.0389	2761024.4820	499689.0324	2761024.922	499659.0453	2761024.042
547	31+300	499675.5052	2760974.5035	499690.4988	2760974.943	499660.5117	2760974.064
548	31+350	499676.9716	2760924.5250	499691.9651	2760924.965	499661.978	2760924.085
549	31+400	499678.4379	2760874.5465	499693.4314	2760874.986	499663.4443	2760874.107
550	31+450	499679.9506	2760824.5695	499694.9406	2760825.118	499664.9597	2760824.047
551	31+500	499681.7577	2760774.6022	499696.7479	2760775.144	499666.7675	2760774.06
552	31+550	499683.5648	2760724.6348	499698.555	2760725.177	499668.5746	2760724.093
553	31+600	499685.3718	2760674.6675	499700.362	2760675.21	499670.3816	2760674.125
554	31+650	499687.1789	2760624.7002	499702.1691	2760625.242	499672.1887	2760624.158
555	31+700	499688.9860	2760574.7328	499703.9762	2760575.275	499673.9958	2760574.191
556	31+750	499690.7931	2760524.7655	499710.2848	2760525.47	499671.3014	2760524.061
557	31+800	499692.6002	2760474.7982	499715.0855	2760475.611	499670.1149	2760473.985
558	31+850	499694.4072	2760424.8308	499716.8925	2760425.644	499671.9219	2760424.018
559	31+900	499696.2143	2760374.8635	499718.6996	2760375.677	499673.729	2760374.05
560	31+950	499698.0214	2760324.8962	499720.5067	2760325.709	499675.5361	2760324.083
561	32+000	499699.8285	2760274.9288	499722.3138	2760275.742	499677.3432	2760274.116
562	32+050	499701.6355	2760224.9615	499724.1208	2760225.775	499679.1502	2760224.148
563	32+100	499703.4426	2760174.9942	499725.9279	2760175.807	499680.9573	2760174.181
564	32+150	499705.1603	2760125.0238	499727.6528	2760125.605	499682.6683	2760124.426
565	32+200	499706.4124	2760075.0395	499728.9054	2760075.602	499683.9195	2760074.477
566	32+250	499707.6617	2760025.0551	499730.1546	2760025.617	499685.1687	2760024.493
567	32+300	499708.9109	2759975.0707	499731.4038	2759975.633	499686.4179	2759974.509
568	32+350	499710.1601	2759925.0864	499732.6531	2759925.648	499687.6671	2759924.524
569	32+400	499711.4093	2759875.1020	499733.9023	2759875.664	499688.9163	2759874.54
570	32+450	499712.6585	2759825.1176	499735.1515	2759825.68	499690.1655	2759824.555

Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
571	32+500	499713.9077	2759775.1332	499736.4007	2759775.695	499691.4147	2759774.571
572	32+550	499715.1569	2759725.1488	499737.6499	2759725.711	499692.6639	2759724.587
573	32+600	499716.4061	2759675.1644	499738.8994	2759675.716	499693.9132	2759674.602
574	32+650	499717.6553	2759625.1800	499740.1483	2759625.742	499695.1624	2759624.618
575	32+700	499718.9046	2759575.1956	499741.3975	2759575.758	499696.4116	2759574.633
576	32+750	499720.1538	2759525.2112	499742.6468	2759525.773	499697.6608	2759524.649
577	32+800	499721.4030	2759475.2268	499743.896	2759475.789	499698.91	2759474.665
578	32+850	499722.6522	2759425.2424	499745.1452	2759425.805	499700.1592	2759424.68
579	32+900	499723.9014	2759375.2580	499746.3944	2759375.82	499701.4084	2759374.696
580	32+950	499725.1506	2759325.2736	499747.6436	2759325.836	499702.6576	2759324.712
581	33+000	499726.3998	2759275.2893	499744.5362	2759275.743	499708.2635	2759274.836
582	33+050	499727.6490	2759225.3049	499742.6444	2759225.68	499712.6537	2759224.93
583	33+100	499728.8983	2759175.3205	499743.8936	2759175.695	499713.9029	2759174.946
584	33+150	499730.1475	2759125.3361	499745.1428	2759125.711	499715.1522	2759124.961
585	33+200	499731.3967	2759075.3517	499746.392	2759075.726	499716.4014	2759074.977
586	33+250	499732.6459	2759025.3673	499747.6412	2759025.742	499717.6506	2759024.993
587	33+300	499733.8951	2758975.3829	499748.8904	2758975.758	499718.8998	2758975.008
588	33+350	499735.1443	2758925.3985	499750.1396	2758925.773	499720.149	2758925.024
589	33+400	499736.3935	2758875.4141	499751.3889	2758875.789	499721.3982	2758875.039
590	33+450	499737.6427	2758825.4297	499752.6381	2758825.804	499722.6474	2758825.055
591	33+500	499738.8919	2758775.4453	499753.8881	2758775.782	499723.8954	2758775.122
592	33+550	499739.9136	2758725.4558	499754.9106	2758725.755	499724.9165	2758725.157
593	33+600	499740.9100	2758675.4657	499755.907	2758675.765	499725.913	2758675.167
594	33+650	499741.9064	2758625.4757	499756.9035	2758625.775	499726.9094	2758625.177
595	33+700	499742.9029	2758575.4856	499757.8999	2758575.785	499727.9059	2758575.187
596	33+750	499743.8993	2758525.4955	499758.8963	2758525.794	499728.9023	2758525.197
597	33+800	499744.8958	2758475.5054	499759.8928	2758475.804	499729.8987	2758475.207
598	33+850	499745.8922	2758425.5154	499760.8892	2758425.814	499730.8952	2758425.216
599	33+900	499746.8886	2758375.5253	499761.8857	2758375.824	499731.8916	2758375.226
600	33+950	499747.8851	2758325.5352	499762.8821	2758325.834	499732.8881	2758325.236
601	34+000	499748.8815	2758275.5452	499765.9359	2758275.885	499731.8271	2758275.205
602	34+050	499749.8780	2758225.5551	499772.3735	2758226.003	499727.3824	2758225.107
603	34+100	499750.8744	2758175.5650	499773.3699	2758176.013	499728.3789	2758175.117
604	34+150	499751.8708	2758125.5750	499774.3664	2758126.023	499729.3753	2758125.127
605	34+200	499752.8673	2758075.5849	499775.3628	2758076.033	499730.3717	2758075.136
606	34+250	499753.8637	2758025.5948	499776.3592	2758026.043	499731.3682	2758025.146
607	34+300	499754.8601	2757975.6047	499777.3557	2757976.053	499732.3646	2757975.156
608	34+350	499755.8566	2757925.6147	499778.3521	2757926.063	499733.361	2757925.166
609	34+400	499756.8530	2757875.6246	499779.3485	2757876.073	499734.3575	2757875.176
610	34+450	499757.8495	2757825.6345	499780.345	2757826.083	499735.3539	2757825.186
611	34+500	499758.8459	2757775.6445	499781.3414	2757776.093	499736.3504	2757775.196
612	34+550	499759.8423	2757725.6544	499782.3383	2757726.074	499737.3463	2757725.229
613	34+600	499760.7266	2757675.6622	499783.2231	2757676.058	499738.2301	2757675.266
614	34+650	499761.6064	2757625.6700	499784.1029	2757626.066	499739.1099	2757625.274

Sl.No	Design Chainage (Km)	Center Line		Left ROW Line		Right Row Line	
		X/Easting	Y/Northing	X/Easting	Y/Northing	X/Easting	Y/Northing
615	34+700	499762.4862	2757575.6777	499784.9827	2757576.074	499739.9896	2757575.282
616	34+750	499763.3659	2757525.6854	499785.8625	2757526.081	499740.8708	2757525.21
617	34+800	499764.2457	2757475.6932	499786.7422	2757476.089	499741.7492	2757475.297
618	34+850	499765.1255	2757425.7009	499787.622	2757426.097	499742.629	2757425.305
619	34+900	499766.0053	2757375.7087	499788.5018	2757376.105	499743.5088	2757375.313
620	34+950	499766.8851	2757325.7164	499789.3816	2757326.112	499744.3886	2757325.32
621	35+000	499767.7649	2757275.7241	499790.2614	2757276.12	499745.2706	2757275.202
622	35+050	499768.6447	2757225.7319	499791.1412	2757226.128	499746.1481	2757225.336
623	35+100	499769.5244	2757175.7396	499792.021	2757176.136	499747.0279	2757175.344
624	35+150	499770.4042	2757125.7474	499792.9007	2757126.143	499747.9077	2757125.351
625	35+200	499771.3358	2757075.7561	499793.8285	2757076.33	499748.8428	2757075.182
626	35+250	499773.5144	2757025.8078	499795.961	2757027.358	499751.0735	2757024.178
627	35+300	499778.1282	2756976.0260	499800.4724	2756978.67	499755.7885	2756973.344
628	35+350	499784.4476	2756926.4274	499806.7568	2756929.351	499762.1384	2756923.503
629	35+400	499790.9456	2756876.8514	499813.2547	2756879.776	499768.6364	2756873.927
630	35+450	499797.3946	2756827.2691	499819.7286	2756829.997	499775.0636	2756824.517
631	35+500	499802.6191	2756777.5470	499825.0544	2756779.251	499780.1829	2756775.843
632	35+550	499805.4068	2756727.6298	499827.8993	2756728.211	499782.9164	2756726.97
633	35+600	499805.8026	2756677.6348	499828.3013	2756677.395	499783.3038	2756677.874
634	35+650	499805.1975	2756627.6385	499827.6957	2756627.357	499782.6992	2756627.92
635	35+700	499804.5719	2756577.6424	499827.0701	2756577.361	499782.0736	2756577.924
636	35+750	499803.9463	2756527.6463	499826.4445	2756527.365	499781.448	2756527.928
637	35+800	499803.3207	2756477.6502	499825.8189	2756477.369	499780.8225	2756477.932
638	35+850	499802.6951	2756427.6542	499825.1933	2756427.373	499780.1969	2756427.936
639	35+900	499802.0695	2756377.6581	499824.5678	2756377.377	499779.5713	2756377.94
640	35+950	499801.4439	2756327.6620	499823.9422	2756327.38	499778.9457	2756327.944
641	36+000	499800.8183	2756277.6659	499819.2214	2756277.436	499782.4152	2756277.896
642	36+050	499800.1928	2756227.6698	499815.1916	2756227.482	499785.1939	2756227.857
643	36+100	499799.5672	2756177.6737	499814.566	2756177.486	499784.5683	2756177.861
644	36+150	499798.9416	2756127.6776	499813.9404	2756127.49	499783.9428	2756127.865
645	36+200	499798.3160	2756077.6816	499813.3148	2756077.494	499783.3172	2756077.869
646	36+250	499797.6904	2756027.6855	499812.6892	2756027.498	499782.6916	2756027.873
647	36+300	499797.0648	2755977.6894	499812.0636	2755977.502	499782.066	2755977.877
648	36+350	499796.4392	2755927.6933	499811.438	2755927.506	499781.4404	2755927.881
649	36+400	499795.8136	2755877.6972	499810.8125	2755877.51	499780.8148	2755877.885
650	36+450	499795.1880	2755827.7011	499810.1869	2755827.513	499780.1892	2755827.889
651	36+500	499794.5625	2755777.7050	499809.5613	2755777.517	499779.5636	2755777.893
652	36+550	499793.9307	2755727.7090	499808.9295	2755727.518	499778.9319	2755727.9
653	36+600	499793.2958	2755677.7465	499808.2946	2755677.556	499778.297	2755677.937



## **SCHEDULE - B**

### **Schedule - B**

*(See Clause 2.1)*

#### **Development of the Project Highway**

##### **1. Development of the Project Highway**

Development of the Project Highway shall include design and construction of the Project Highway as described in this Schedule-B and in Schedule-C. The alignment plans of the Project Highway are specified in Annex-III of Schedule A and shall be deemed to be part of this Schedule-B.

##### **2. Rehabilitation and augmentation**

Rehabilitation and augmentation shall include Four-Laning with paved shoulder of the Project Highway as described in Annex-I of this Schedule-B and in Schedule-C.

### 3. **Specifications and Standards**

The Project Highway shall be designed and constructed in conformity with the Specifications and Standards specified in Annex-I of Schedule-D.

#### **Annex – I**

#### **(Schedule-B)**

#### **DESCRIPTION OF FOUR LANING WITH PAVED SHOULDERS**

**Construction of Four lane with Paved Shoulder from Km 0+000 to Km 36+600 (Bhagalpur to Kharhara Village (Dhaka More) Section- of NH-133E on EPC mode in the State of Bihar**

**Note:** Description of Project Highway shall be given by the Authority in detail together with explanatory drawing (where necessary) to explain the Authority's requirements precisely in order to avoid subsequent changes in the scope of the Project. The particulars that must be specified in this Schedule-B are listed below as per the requirements of the Manual of Specifications and Standards for Four lining of Highway (IRC SP: 84 2019). If any standards, specifications or details are not given in the Manual, the minimum design /construction requirement shall be specified in this Schedule. In addition to these particulars, all other

essential project specific details, as required, should be provided in order to define the scope of the Project clearly and precisely

## 1. Construction & Widening of the Existing Highway

1.1.1. The Project Highway shall follow the existing alignment unless otherwise specified by the Authority and shown in the alignment plans specified in Annex-III of Schedule-A. Geometric deficiencies, if any, in the existing horizontal and vertical profiles shall be corrected as per the prescribed standards for plain/rolling terrain to the extent land is available.

### 1.1.2. Width of Carriageway

- a) Four-lane divided carriageway with paved shoulders shall be undertaken. The Paved carriageway width for the project highway shall be provided as indicated below in Built-up areas and referred to in paragraph 2.9 of this Schedule–B and Annex –I of Schedule–D.

TCS	Description of TCS	Width of Carriageway	Length (m)
TCS III	Typical Cross Section for 4 Lane Divided Highway with Service Road and with Flush Median in Built-Up Section.	(7m) wide Carriageway with 2x2.0m Paved Shoulder and 2x3.5m Service Road	1682
TCS III	Typical Cross Section for 4 Lane Divided Highway with Service Road and with Flush Median in Built-Up Section.	(7m) wide Carriageway with 2x2.0m Paved Shoulder and 2x3.5m Service Road	1179
TCS III	Typical Cross Section for 4 Lane Divided Highway with Service Road and with Flush Median in Built-Up Section.	(7m) wide Carriageway with 2x2.0m Paved Shoulder and 2x3.5m Service Road	245
TCS III	Typical Cross Section for 4 Lane Divided Highway with Service Road and with Flush Median in Built-Up Section.	(7m) wide Carriageway with 2x2.0m Paved Shoulder and 2x3.5m Service Road	441
TCS V	Typical Cross Section for 4 Lane Divided Highway with Service Road and with Flush Median in Built-Up Section.	(7m) wide Carriageway with 2x2.0m Paved Shoulder and 2x3.5m Service Road	657
TCS IV	Typical Cross Section for 4 Lane Divided Highway with 5.5m Service Road and with Flush Median in Built-Up Section	(7m) wide Carriageway with 2x2.0m Paved Shoulder and 2x5.0m Service Road	2170
TCS III	Typical Cross Section for 4 Lane Divided Highway with Service Road and with Flush Median in Built-Up Section.	(7m) wide Carriageway with 2x2.0m Paved Shoulder and 2x3.5m Service Road	2080
TCS IV	Typical Cross Section for 4 Lane Divided Highway with 5.5m Service Road and with Flush Median in Built-Up Section	(7m) wide Carriageway with 2x2.0m Paved Shoulder and 2x5.0m Service Road	2153
TCS IV	Typical Cross Section for 4 Lane Divided Highway with 5.5m Service Road and with Flush Median in Built-Up Section	(7m) wide Carriageway with 2x2.0m Paved Shoulder and 2x5.0m Service Road	678
TCS IV	Typical Cross Section for 4 Lane Divided Highway with 5.5m Service Road and with Flush Median in Built-Up Section	(7m) wide Carriageway with 2x2.0m Paved Shoulder and 2x5.0m Service Road	500

Note: The length of road in built-up section is tentative, and it may vary as per site condition. In case of increase of length, no positive change of scope will be payable.



- b) Except as otherwise provided in this Agreement, the width of the paved carriageway and cross-sectional features shall conform to paragraph above clauses.

## 2.0 Geometric design and general features

### 2.1 General

Geometric design and general features of the Project Highway shall be in accordance with Section 2 of the IRC: SP: SP:84-2019.

### 2.2 Design speed

The design speed shall be the ruling/minimum design speed specified in Clause 2.2 of the IRC: SP:84-2019.

### 2.3 Improvement of the existing road geometrics

In the following stretches, where improvement of the existing road geometrics to the prescribed standards is not possible, the existing road geometrics shall be improved to the extent possible within the given right of way and proper road signs and safety measures shall be provided:

S. No.	Design Chainage (in km)		Type of Deficiency	Remarks
	Start	End		
1	8+200	8+570	Bridge Realignment	Near Phulwaria Bridge

### 2.4 Right of Way

Details of the Right of Way are given in Annex II of Schedule-A.

### 2.5 Type of shoulders

The shoulder composition is as follows:

- (a) In open country, paved shoulders of 1.5 m width shall be provided and balance 2.0m width shall be covered with compacted granular layer.
- (b) In Built-up section, Paved shoulders of minimum 2.5m width shall be provided and covered drains cum footpath shall be provided as per clause 6 of schedule -B.
- (c) Design and Specifications of paved shoulders and granular material shall confirm to the requirements specified in the relevant Manual.

### 2.6 Lateral and vertical clearances at underpasses

- (a) Lateral and vertical clearances of at underpasses shall be provided as given below.
- (b) Provision of Guard rails/crash barriers shall be provided as Per Manual.

SL.NO	Design Chainage	Span Details (Lateral clearances)	Vertical clearances	Total Width (m)	Remarks
-------	-----------------	-----------------------------------	---------------------	-----------------	---------

1	4+712	1x24.0	5.5	2X11	New Construction
2	10+400	1x12.0	5.5	2X11	
3	14+778	1x12.0	5.5	2X11	
4	19+895	1x12.0	5.5	2X11	
5	23+310	1x24.0	5.5	2X11	
6	32+400	1x23.0	5.5	2X11	
7	34+500	1x23.0	5.5	2X11	
8	35+450	1x23.0	5.5	2X11	

### 2.6.1 Lateral and vertical clearances at overpasses

- (a) Lateral and Vertical clearances of at overpasses shall be provided as per Manual.
- (b) Lateral Clearances: The width of the opening at the overpasses shall be as follows:

Sl.no	Chainage	Span(m)	Remarks
NIL			

### 2.7 Service Roads/Slip Roads/Connecting Roads

Service Roads/ Slip Roads shall be constructed at the locations and for the lengths indicated below:

Sl. No.	Location of Service Roads/Slip Roads (Design Chainage in Km)		Right Hand Side (RHS)/Left Hand Side) or Both Sides	Length (m)	Remarks
	From	To			
A	Slip Road				
NIL					
B	Service Road				
1	4+000	4+280	Both Side	280	BHAGALPUR BYPASS JUNCTION POERTION
2	4+280	4+503	Both Side	223	VUP APPROACH
3	4+515	4+700	Both Side	185	VUP APPROACH
4	4+724	5+140	Both Side	416	VUP APPROACH
5	5+140	6+822	Both Side	1682	BUILT-UP SECTION
6	6+831	8+010	Both Side	1179	BUILT-UP SECTION
7	8+010	8+365	Both Side	355	BRIDGE APPROACH
8	8+490	8+747	Both Side	257	BRIDGE APPROACH
9	9+300	9+545	Both Side	245	BUILT-UP SECTION
10	9+589	10+030	Both Side	441	BUILT-UP SECTION
11	10+030	10+394	Both Side	364	VUP APPROACH
12	10+406	10+868	Both Side	462	VUP APPROACH

Sl. No.	Location of Service Roads/Slip Roads (Design Chainage in Km)		Right Hand Side (RHS)/Left Hand Side) or Both Sides	Length (m)	Remarks
	From	To			
13	10+882	11+539	Both Side	657	BUILT-UP SECTION
14	13+540	14+000	Both Side	460	VUP APPROACH
15	14+000	14+300	Both Side	300	VIADUCT PORTION
16	14+300	14+363	Both Side	63	VUP APPROACH
17	14+383	14+772	Both Side	389	VUP APPROACH
18	14+784	15+000	Both Side	216	VUP APPROACH
19	17+300	19+470	Both Side	2170	BUILT-UP SECTION
20	19+470	19+895	Both Side	425	VUP APPROACH
21	19+907	20+240	Both Side	333	VUP APPROACH
22	20+700	22+780	Both Side	2080	BUILT-UP SECTION
23	22+780	23+298	Both Side	518	VUP APPROACH
24	23+322	23+830	Both Side	508	VUP APPROACH
25	25+985	28+138	Both Side	2153	BUILT-UP SECTION
26	28+182	28+860	Both Side	678	BUILT-UP SECTION
27	29+350	29+850	Both Side	500	BUILT-UP SECTION
28	31+890	32+389	Both Side	499	VUP APPROACH
29	32+412	32+865	Both Side	453	VUP APPROACH
30	33+990	34+489	Both Side	499	VUP APPROACH
31	34+512	35+379	Both Side	867	VUP APPROACH
32	35+391	35+438	Both Side	47	VUP APPROACH
33	35+461	35+970	Both Side	509	VUP APPROACH
<b>Linear Length (m)</b>				<b>20413</b>	
<b>Total Length (m)</b>				<b>2 x 20413 = 40826 m</b>	

**Note:**

1. Above length of the service/ slip/ connecting roads is indicative and minimum specified. The actual length of the service/ slip/ connecting roads shall be determined by the Contractor in accordance with the IRC: SP:84-2019 requirements with approval from the Authority's Engineer. Any increase in the length specified in this Clause of Schedule-B shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.
2. The realignment of existing track to the Underpass outside the PROW and connecting roads between consecutive underpasses wherever required as per plan & profile uploaded with bid document and specified in Annex III of schedule A is to be constructed by the contractor as per site requirement in consultation with Authority Engineer and the same would not

constitute any change of scope.

3. Entry and exit approaches with slip road shall be provided for all way side amenities/ truck parking (mentioned in Schedule C) with proper acceleration / deceleration lane. The structures falling within these stretches shall also be constructed and the same shall not constitute a Change of Scope.

## 2.8 Grade separated structures

Grade separated structures shall be provided as per IRC: SP:84-2019. Proposed finished levels at structure locations as shown in plan & profile specified in Annex-III of schedule A are only for guidance and any changes in levels shall not constitute any change of scope. The requisite particulars are given below:

### Flyover/ Via duct

Sl.No	Design Chainage (Km)	Span Arrangement (m)	Total Length	Type of Structure	Total Width	Remarks
1	14+150	10x30.0	300	PSC Box Girder	22.0	

### LVUP

Sl. No.	Design Chainage (In Km)	Type of structure	Span Arrangement (m) (Clear Opening)	Total Width (m)	Remarks
1	10+400	RCC Box	1x12.0/5.5	2 x 11.0	
2	14+778	RCC Box	1x12.0/5.5	2 x 11.0	
3	19+895	RCC Box	1x12.0/5.5	2 x 11.0	

### VUP

Sl. No.	Design Chainage (In Km)	Type of structure	Span Arrangement (m)	Total Width (m)	Remarks
1	4+712	RCC T-Beam	1x24.0/5.5	2 x 11.0	
2	23+310	RCC T-Beam	1x24.0/5.5	2 x 11.0	
3	32+400	RCC T-Beam	1x23.0/5.5	2 x 11.0	
4	34+500	RCC T-Beam	1x23.0/5.5	2 x 11.0	
5	35+450	RCC T-Beam	1x23.0/5.5	2 x 11.0	

#### Note:

- Proper finishing of retaining wall/ U-through wall by tiles/ marble shall be provided from inside.

- Pump station, sump tank, cross drainage facilities and lighting shall be as per GAD and other relevant manual requirements.
- The minimum vertical clearance of all underpasses structures shall be as indicated in this schedule.
- Any change in skew angle as per site requirement shall not be treated as change of scope.
- Any other structures falling within acceleration / deceleration lane /taper shall be constructed to the required width. These changes shall not be treated as change of scope.
- Crash barrier shall be provided on abutment side and on sides of piers as a suitable protection against collision of vehicles as per relevant manual.

## 2.9 Typical Cross Section of Project Highway

SL.NO	Chainage		Length	TCS	Description	Remarks
	From	To				
1	0+000	4+000	4000		No Improvement	
2	4+000	4+280	280	TCS I	Typical Cross Section for 4 Lane Divided Highway with Service Road and with Flush Median in Start Location Near Bhagalpur bypass.	
3	4+280	4+503	223	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP /LVUP	
4	4+503	4+515	12	TCS XIII	Typical Cross Section of BRIDGE	
5	4+515	4+700	185	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP /LVUP	
6	4+700	4+724	24	TCS X	Typical Cross Section of VUP	
7	4+724	5+044	320	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP /LVUP	
8	5+044	5+140	96		Tapper	
9	5+140	6+822	1682	TCS III	Typical Cross Section for 4 Lane Divided Highway with Service Road and with Flush Median in Built-Up Section.	
10	6+822	6+831	9	TCS IX	Typical Cross Section of BRIDGE	
11	6+831	8+010	1179	TCS III	Typical Cross Section for 4 Lane Divided Highway with Service Road and with Flush Median in Built-Up Section.	
12	8+010	8+365	355	TCS VIII	Typical Cross Section for 4 Lane Divided Highway with Service Road and with Flush Median at Bridge Approach	
13	8+365	8+490	125	TCS XI	Typical Cross Section of BRIDGE	
14	8+490	8+747	257	TCS VIII	Typical Cross Section for 4 Lane Divided Highway with Service Road and with Flush Median at Bridge Approach	

SL.NO	Chainage		Length	TCS	Description	Remarks
	From	To				
15	8+747	8+823	76	TCS II	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
16	8+823	8+884	61		Tapper	
17	8+884	8+917	33	TCS XI	Typical Cross Section of BRIDGE	
18	8+917	9+200	283	TCS II	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
19	9+200	9+300	100		Tapper	
20	9+300	9+545	245	TCS III	Typical Cross Section for 4 Lane Divided Highway with Service Road and with Flush Median in Built-Up Section.	
21	9+545	9+589	44	TCS IX	Typical Cross Section of BRIDGE	
22	9+589	9+860	271	TCS III	Typical Cross Section for 4 Lane Divided Highway with Service Road and with Flush Median in Built-Up Section.	
23	9+860	10+030	170		Tapper	
24	10+030	10+394	364	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	
25	10+394	10+406	12	TCS X	Typical Cross Section of LVUP	
26	10+406	10+750	344	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	
27	10+750	10+868	118		Tapper	
28	10+868	10+882	14	TCS XI	Typical Cross Section of BRIDGE	
29	10+882	11+539	657	TCS V	Typical Cross Section for 4 Lane Divided Highway with Service Road and with Flush Median in Built-Up Section.	
30	11+539	11+639	100	TCS II	Tapper	
31	11+639	11+689	50	TCS XII	Typical Cross Section of BRIDGE	
32	11+689	11+945	256	TCS II	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
33	11+945	12+020	75	TCS XII	Typical Cross Section of BRIDGE	
34	12+020	12+216	196	TCS II	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
35	12+216	12+991	775	TCS VI	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	

SL.NO	Chainage		Length	TCS	Description	Remarks
	From	To				
36	12+991	13+237	246	TCS II	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
37	13+237	13+286	49	TCS XI	Typical Cross Section of BRIDGE	
38	13+286	13+315	29	TCS II	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
39	13+315	13+540	225	TCS II	Tapper	
40	13+540	14+000	460	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	With Tapper
41	14+000	14+300	300	TCS XIV	Typical Cross Section of FLYOVER	
42	14+300	14+363	63	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	With Tapper
43	14+363	14+383	20	TCS XIII	Typical Cross Section of BRIDGE	
44	14+383	14+772	389	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	
45	14+772	14+784	12	TCS X	Typical Cross Section of LVUP	
46	14+784	15+000	216	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	
47	15+000	15+194	194		Tapper	
49	15+194	15+227	33	TCS XII	Typical Cross Section of BRIDGE	
50	15+227	15+618	391	TCS II	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
51	15+618	15+651	33	TCS XII	Typical Cross Section of BRIDGE	
52	15+651	15+765	114	TCS II	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
53	15+765	16+035	270		Typical Cross section of TOLL PLAZA	
54	16+035	17+075	1040	TCS VI	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
55	17+075	17+300	225		Tapper	
56	17+300	19+470	2170	TCS IV	Typical Cross Section for 4 Lane Divided Highway with 5.5m Service Road and with Flush Median in Built- UP	
57	19+470	19+600	130		Tapper	

SL.NO	Chainage		Length	TCS	Description	Remarks
	From	To				
58	19+600	19+895	295	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	
59	19+895	19+907	12	TCS X	Typical Cross Section of LVUP	
60	19+907	20+150	243	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	
61	20+150	20+375	225	TCS VII	Tapper	
62	20+375	20+475	100	TCS VI	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
63	20+475	20+700	225		Tapper	
64	20+700	22+755	2055	TCS III	Typical Cross Section for 4 Lane Divided Highway with 3.5 m Service Road and with Flush Median in Built-Up	
65	22+755	22+880	125	TCS III	Tapper	
66	22+880	23+298	418	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	
67	23+298	23+322	24	TCS X	Typical Cross Section of LVUP	
68	23+322	23+720	398	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	
69	23+720	23+951	231		Tapper	
70	23+951	25+760	1809	TCS VI	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
71	25+760	25+985	225		Tapper	
72	25+985	28+000	2015	TCS IV	Typical Cross Section for 4 Lane Divided Highway with 5.5m Service Road and with Flush Median in Built- UP	
73	28+000	28+138	138		Tapper	
74	28+138	28+182	44	TCS XI	Typical Cross Section of BRIDGE	
75	28+182	28+300	118		Tapper	Tapper
76	28+300	28+860	560	TCS IV	Typical Cross Section for 4 Lane Divided Highway with 5.5m Service Road and with Flush Median in Built- UP	
77	28+860	29+083	223	TCS IV	Tapper	
78	29+083	29+125	42	TCS VI	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
79	29+125	29+350	225		Tapper	



SL.NO	Chainage		Length	TCS	Description	Remarks
	From	To				
80	29+350	29+850	500	TCS IV	Typical Cross Section for 4 Lane Divided Highway with 5.5m Service Road and with Flush Median in Built- UP	
81	29+850	30+100	250		Tapper	
82	30+100	31+717	1617	TCS VI	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
83	31+717	31+942	225		Tapper	
84	31+942	32+389	447	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	
85	32+389	32+412	23	TCS X	Typical Cross Section of VUP	
86	32+412	32+800	388	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	
87	32+800	33+022	222		Tapper	
88	33+022	33+990	968	TCS VI	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
89	33+990	34+200	210		Tapper	
90	34+200	34+489	289	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	
91	34+489	34+512	23	TCS X	Typical Cross Section of VUP	
92	34+512	35+379	867	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	
93	35+379	35+391	12	TCS XIII	Typical Cross Section of BRIDGE	
94	35+391	35+438	47	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	
95	35+438	35+461	23	TCS X	Typical Cross Section of VUP	
96	35+461	35+800	339	TCS VII	4-Lane Divided Highway with Both Side Service Road and with Flush Median at Approaches to Flyover/VUP/LVUP	
97	35+800	36+025	225		Tapper	
98	36+025	36+600	575	TCS VI	Typical Cross Section for 4 Lane Divided Highway without Service road and with Flush Median in Rural Areas	
<b>Total Length</b>			<b>36.600</b>			

Typical Cross sections are attached in Appendix B-II of this schedule.

**Note:**

- Lane increase and lane reduction, TCS at Interchange locations to be read in conjunction with interchange layout plan.
- TCS schedule as given above shall be treated as an approximate assessment. Actual length of the TCS schedule shall be prepared by the contractor based on detailed investigations and site requirements. Any variation in length of respective TCS specified in Schedule B shall not constitute a change of scope, save and except any variations in the length arising out of a change of scope expressly undertaken in accordance with the provisions of Article 13

### 3. Intersections and Grade Separators

All intersections and grade separators shall be as per Section 3 of the IRC: SP:84-2019. Existing intersections which are deficient shall be improved to the prescribed standards/as per design drawing.

Properly designed intersections shall be provided at the locations and of the types and features given in the tables below:

#### 1. Major At-grade Intersection

Sl.no	Design Chainage	Side	Type of Junction	Location	Remarks
1	4+000	Booth Side	+	Bhagalpur Bypass	NH-33

#### 2. Minor At-grade Intersection

Sl.no.	Design Chainage	Side	Type of Junction	Remarks
1	5+570	RHS	T	
2	6+215	RHS	T	
3	6+395	LHS	T	
4	6+805	RHS	T	
5	7+455	RHS	T	
6	8+715	LHS	Y	
7	9+775	RHS	Y	
8	10+400	Booth Side	X	
9	11+130	RHS	y	
10	11+220	RHS	T	
11	12+695	LHS	T	
12	12+967	RHS	Y	
13	14+263	RHS	T	
14	14+778	LHS	T	
15	16+244	LHS	T	
16	17+287	RHS	Y	
17	17+880	LHS	T	
18	18+050	RHS	T	
19	18+470	LHS	T	
20	18+556	RHS	T	
21	19+895	RHS	x	
22	20+240	LHS	T	

Sl.no.	Design Chainage	Side	Type of Junction	Remarks
23	20+937	RHS	T	
24	21+230	RHS	T	
25	21+698	LHS	T	
26	22+096	RHS	Y	
27	22+650	LHS	T	
28	22+950	RHS	T	
29	23+280	LHS	T	
30	23+340	RHS	T	
31	23+730	RHS	T	
32	24+825	LHS	T	
33	26+035	Booth Side	X	
34	26+820	Booth Side	X	
35	28+490	LHS	Y	
36	29+415	LHS	Y	
37	29+920	LHS	T	
38	30+670	RHS	T	
39	30+865	LHS	T	
40	32+400	Booth Side	X	
41	32+945	RHS	Y	
42	33+080	LHS	T	
43	33+575	LHS	T	
44	34+500	Booth Side	X	
45	35+175	LHS	T	
46	35+370	Booth Side	X	
47	36+535	LHS	Y	

**Note:**

- (i) Type of Junction to be improved as per IRC: SP:84-2019 and MoRTH type design for intersection on National Highways, 1992.
- (ii) Any other junction not mentioned above but observed during the construction of the project shall be improved as per IRC: SP:84-2019 requirements. The same shall not constitute a Change of Scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.  
However, since the project is access controlled, any additional SVUP/LVUP/VUP at cross-road locations not provided for in the Schedule B but required during the execution of work will be dealt under the provisions of Article 13.
- (iii) The contractor shall take up 'Detailed Engineering study' to ascertain further details of all intersections and treatment of the intersections shall be designed in accordance with the latest guidelines mentioned out in section-3 of IRC: SP:84-2019. The same shall not constitute a Change of Scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.
- (iv) Junction improvement under grade separators shall be carried out as per IRC: SP:84-2019 with proper entry/exit to cross roads and slip/service roads and pavement composition as indicated in clause 5.3 of this Schedule B.  
Location and span arrangement of grade-separated structures are indicative. Exact location may be decided in consultation with Authority Engineer. Any Change in span arrangement

shall not be treated as change of scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 16.

#### **4 Road embankment and cut section**

Widening and improvement of the existing road embankment/cuttings and Construction of new road embankment/cuttings shall conform to the Specifications and Standards given in section 4 of the IRC: SP:84-2019 and the specified cross-sectional details. Deficiencies in the plan and profile of the existing road shall be corrected.

- 4.1** Notwithstanding anything to the contrary contained in this Agreement or IRC: SP:84-2019, the proposed profile of the project highway as indicated in the Annex-III of Schedule A shall be deemed to be part of this Schedule B and shall be treated as minimum FRL. Based on site/design requirement specified in Schedule-D, the Contractor shall design the alignment plans and profiles of the project highway within the available Right of Way.

- 4.2 Raising of the existing road: NIL**

#### **5 Pavement design**

- 5.1** Pavement design shall be carried out in accordance with Section-5 of the IRC: SP:84-2019, IRC 37-2018 and IRC 58-2015.

##### **5.2 Type of pavement**

- a) The pavement shall be flexible pavement for the main carriageway for the entire length of project highway.
- (b) For connecting road/Service Road/Slip Road Rigid pavement shall be proposed.
- (c) Rigid Pavement shall be provided at Toll Plaza.

##### **5.3 Design requirements**

###### **5.3.1 Design Period and strategy**

- (a) Flexible pavement shall be constructed for the main carriageway including paved shoulders for the entire length of project highway. Flexible pavement shall be designed for a minimum design period of 20 years and minimum effective sub grade CBR of 8%.
- (b) For slip/ service roads and interconnecting roads to VUPs/ LVUPs/ SVUPs, rigid pavement shall be provided for minimum 10 MSA traffic and subgrade effective CBR of 8%.
- (c) Rigid Pavement for Toll Plaza shall be designed for a minimum design period of 30 years and subgrade effective CBR of 8%.
- (d) Stage construction shall not be permitted.

###### **5.2.2 Recommended Pavement Design and Design Traffic**

Notwithstanding anything to the contrary contained in this Agreement or the IRC: SP:84-2019, the Contractor shall design the pavement of main carriageway including paved shoulder for 140 MSA. The pavement for connecting/service/slip road shall be designed

for design traffic of 10 MSA while pavement beneath the pavement at toll plaza shall be designed by the Contractor as rigid pavement.

Note: (1) De-bonding interlayer of polythene sheet having a minimum thickness of 125 microns is recommended separation layer between DLC and PQC.

(2) Tack coat shall be used before laying of each bituminous layer as per clause 500.4.3 of MORTH Specifications.

#### 5.4 Reconstruction of stretches

The following stretches of the existing road shall be reconstructed. These shall be designed as new pavement.

S. No.	Design Chainage		Remarks
	From	To	
1	4+000	36+600	

#### 6 Road side drainage

Drainage system including surface and subsurface drains for the Project Highway shall be provided as per Section 6 of the IRC: SP:84-2019.

RCC Covered drain and Load Bearing drain shall be provided on Service road both side of Built-up areas. RCC Cover drain and Load Bearing drain to be provided at the following stretches.

##### a) RCC Cover Drain cum Footpath

Sl.no	Design Chainage (Km)		Length (m)	Type of TCS	Remarks
	From	To			
1	4+000	4+280	280	TCS 1	
2	4+28	4+503	223	TCS VII	
3	4+515	4+700	185	TCS VII	
4	4+724	5+044	320	TCS VII	
5	10+030	10+394	364	TCS VII	
6	10+406	10+750	344	TCS VII	
7	13+54	14+000	460	TCS VII	
8	14+000	14+300	300	TCS XIV	
9	14+300	14+363	63	TCS VII	
10	14+383	14+772	389	TCS VII	
11	14+784	15+000	216	TCS VII	
12	17+300	19+470	2170	TCS IV	
13	19+600	19+895	295	TCS VII	
14	19+907	20+15	243	TCS VII	
15	22+88	23+298	418	TCS VII	
16	23+322	23+72	398	TCS VII	
17	25+985	28.000	2015	TCS IV	
18	28+300	28+860	560	TCS IV	
19	29+350	29+850	500	TCS IV	
20	31+942	32+389	447	TCS VII	

21	32+412	32+800	388	TCS VII	
22	34+200	34+489	289	TCS VII	
23	34+512	35+379	867	TCS VII	
24	35+391	35+438	47	TCS VII	
25	35+461	35+800	339	TCS VII	

**b) RCC Load Bearing drain cum service road**

Sl.no	Design Chainage (Km)		Length (m)	Type of TCS	Remarks
	From	To			
1	5+140	6+822	1682	TCS III	
2	6+831	8+010	1179	TCS III	
3	8+010	8+365	355	TCS VIII	
4	8+490	8+747	257	TCS VIII	
5	9+300	9+545	245	TCS III	
6	9+589	9+860	271	TCS III	
7	10+882	11+539	657	TCS V	
8	20+700	22+755	2055	TCS III	

## 7 Design of structures

### 7.1 General

7.1.1 All bridges, culverts and structures shall be designed and constructed in accordance with section-7 of the IRC: SP:84-2019 and shall conform to the cross-sectional features and other details specified therein. Special vehicle loading is to be considered in Design of structures. Congestion factor is not to be considered in calculation of live load.

7.1.2 Width of the carriageway of new bridges and structures more than 60.0 m length having carriageway width less than 7.5m shall be as follows:

S. No.	Bridge at Km	Width of carriageway and cross-sectional features
NIL		

7.1.3 The following structures shall be provided with footpaths:

**A) Major Bridge:**

S. No.	Design Chainage (Km)	Remarks
1	8+427	
2	11+982	

**B) Minor Bridge:**

Sl.No	Design Chainage (Km)	Remarks
1	4+509	On Service Road
2	6+827	On Service Road
3	8+900	
4	9+567	On Service Road
5	10+875	
6	11+664	

Sl.No	Design Chainage (Km)	Remarks
7	13+262	
8	14+373	On Service Road
9	15+211	
10	15+635	
11	28+251	
12	35+385	On Service Road

7.1.4 All bridges shall be high-level bridges.

7.1.5 The following structures shall be designed to carry utility services specified in table below:

S. No.	Design Chainage (Km)	Utility service to be carried	Remarks
All Bridges to be Designed to carry Utility Services through cable tray			

7.1.6 Cross-section of all structures including new culverts and bridges at deck level for the Project Highway shall conform to the typical cross-sections given in section 7 of the IRC: SP:84-2019 and TCS in Para 2.8 of Annex-I of this Schedule B.

## 7.2 Culverts

7.2.1 Overall width of all culverts shall be equal to the roadway width of the approaches.

7.2.2 Reconstruction of existing culverts:

Sl. No	Design Chainage	Span Arrangement (m)	Type	Remarks
1	4+276	1X2.0	RCC Box	
2	4+838	1X3.0	RCC Box	
3	4+984	1X6.0	RCC Box	
4	6+420	1X6.0	RCC Box	
5	7+175	1X6.0	RCC Box	
6	7+687	1X2.0	RCC Box	
7	7+958	1X6.0	RCC Box	
8	8+735	1X6.0	RCC Box	
9	9+164	1X2.0	RCC Box	
10	9+390	1X2.0	RCC Box	
11	9+984	1X6.0	RCC Box	
12	10+223	1X6.0	RCC Box	
13	10+436	1X6.0	RCC Box	
14	10+642	1X6.0	RCC Box	
15	11+005	1X2.0	RCC Box	
16	11+226	1X2.0	RCC Box	
17	12+787	1X2.0	RCC Box	
18	13+671	1X3.0	RCC Box	
19	13+949	1X2.0	RCC Box	
20	14+526	1X2.0	RCC Box	
21	14+745	1X6.0	RCC Box	

Sl. No	Design Chainage	Span Arrangement (m)	Type	Remarks
22	15+399	1X2.0	RCC Box	
23	16+226	1X2.0	RCC Box	
24	16+516	1X2.0	RCC Box	
25	17+628	1X2.0	RCC Box	
26	17+895	1X2.0	RCC Box	
27	18+695	1X2.0	RCC Box	
28	19+293	1X2.0	RCC Box	
29	19+529	1X2.0	RCC Box	
30	19+904	1X2.0	RCC Box	
31	20+256	1X2.0	RCC Box	
32	20+661	1X2.0	RCC Box	
33	20+946	1X2.0	RCC Box	
34	21+362	1X2.0	RCC Box	
35	21+526	1X2.0	RCC Box	
36	22+189	1X2.0	RCC Box	
37	22+446	1X2.0	RCC Box	
38	22+650	1X2.0	RCC Box	
39	22+954	1X2.0	RCC Box	
40	23+293	1X2.0	RCC Box	
41	23+888	1X2.0	RCC Box	
42	24+496	1X2.0	RCC Box	
43	24+938	1X2.0	RCC Box	
44	25+283	1X2.0	RCC Box	
48	29+096	1X2.0	RCC Box	
49	29+722	1X2.0	RCC Box	
50	30+507	1X2.0	RCC Box	
51	30+688	1X2.0	RCC Box	
52	30+845	1X2.0	RCC Box	
53	31+350	1X2.0	RCC Box	
54	31+540	1X3.0	RCC Box	
55	33+000	1X3.0	RCC Box	
56	33+787	1X3.0	RCC Box	
57	34+519	1X2.0	RCC Box	
58	36+546	1X2.0	RCC Box	

### 7.2.3 Widening of existing culverts - Nil

**7.2.4** New culverts (given in table below) shall be constructed for width equal to the roadway width of the Project Highway & as per typical cross-section given in the TCS and alignment plan. The details are given as under:

Sl. No.	Chainage (in km)	Type of Culvert	Proposed Span (m)	Remarks
1	26+955	1X2.0	RCC Box	New Construction
2	27+369	1X2.0	RCC Box	New Construction



In addition to above, 15 nos. of additional box culverts of size 2m x 2m shall be provided as per site requirements for facilitating access of farmers to field channels on either side of the carriageway. The location of such culverts shall be decided in consultation with Authority Engineer.

**Note:**

1. The overall width of the above culverts shall be equal to Roadway width including the gap between main carriageway & service road, in case there is any service road. Any additional Barrel length required as per site conditions shall not constitute a Change of Scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.
2. Location of the above culverts are indicative and span arrangement is minimum specified. Exact location of these culverts shall be decided in consultation with Authority Engineer. The actual vent way/span arrangements of culverts shall be determined on the basis of detailed investigations by the Contractor in accordance with the Specifications and Standards. Any variations in vent way/span arrangements specified in this Schedule-B shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

**7.2.5** Repairs/replacements of railing/parapets, flooring and protection works of the existing culverts shall be undertaken as follows:

Sl. No.	Design Chainage (Km)	Type of repair required
NIL		

**7.2.6** Floor protection works shall be as specified in the relevant IRC Codes and Specifications.

**7.2.7** In case of culverts proposed for widening/repair as per details in Clause 7.2.3 above, the same shall be re-constructed if the design shows that these are unsafe for design loads. No change of scope shall be considered in such cases.

### **7.3 Bridges**

**7.3.1** Existing bridges to be re-constructed/widened

(1) The existing bridges at the following locations shall be Re-constructed:

Sl.No	Bridge location (km)	Salient details of existing bridge	Proposed Span	Type	TCS	Remarks
1	4+509	2x6.3	2x6.0	RCC BOX	TCS XIII	
2	8+900	2x6.3	2x16.5	RCC T BEAM	TCS XI	
3	9+567	2x16.5	2x11.0	RCC SOLID SLAB	TCS IX	
4	10+875	2x6.5	2x7.0	RCC BOX	TCS XI	
5	13+262	3x16.5	2x12.5	RCC T BEAM	TCS XI	
6	14+373	6.2+6.5+6.2	2x11.0	RCC T BEAM	TCS XII	
7	28+160	2x18.5	2x22.0	RCC T BEAM	TCS XI	

(2) The existing bridges at the following locations shall be Widened: **NIL**

### 7.3.2 Additional New bridges

New bridges at the following locations on the Project Highway shall be constructed. GADs for the new bridges are attached in the drawings folder.

#### A) Major Bridge:

Sl. No.	Design Chainage (In Km)	Span Arrangement c/c Expansion (m)	Structure Type	Total Width (m)	Remarks
1	8+427	5x25.0	RCC T-Beam	2x12.5	
2	11+982	3x25.0	RCC T-Beam	1x12.5	

#### Note:

- Continuous superstructure with bearings and expansion joint after every 3 spans of structure shall be used.
- Vertical clearance of 5.5m shall be maintained from existing cross road level in obligatory span in case of VUP cum Major Bridge

\* The span arrangements and vertical clearance are minimum and the same shall be followed as per approved GAD by the concerned Irrigation Authority and any change shall not be treated as change in scope of work. Free board of 1.5 m shall be maintained from maximum water level of storage.

#### B) Minor Bridges with service road

Sl. No.	Design Chainage (In Km)	Span Arrangement c/c Expansion (m)	Structure Type	Total Width (m)	Remarks
1	4+509	2x6.0	RCC BOX	2X11.0	Service Road
2	6+827	2x9.0	RCC BOX	2X9.0	Service Road
3	9+567	4X11	RCC SLAB	2X9.0	Service Road
4	14+373	1X20.0	RCC T-BEAM	2X11.0	Service Road
5	35+385	2X6.0	RCC BOX	2X11.0	Service Road

#### Note:

- In case of RCC Box structure in above table span arrangement mentioned is clear span
- \*The span arrangements and vertical clearance are minimum and the same shall be followed as per approved GAD by the concerned Pipeline, Irrigation Authority and any change shall not be treated as change in scope of work.

**7.3.3** The railings of existing bridges shall be replaced by crash barriers at the following locations: **NIL**

**7.3.4 Repair/Replacements of Railing/Parapets of the existing bridges shall be undertaken as follows:**

Sl. No.	Location at km	Remarks
1	6+827	Railing/ Parapets/Bearing shall be repaired as per relevant manual and latest guidelines.
2	11+664	
3	11+982	
4	15+211	
5	15+635	

**7.3.5 Drainage system for bridge decks**

An effective drainage system for bridge decks shall be provided as specified in paragraph 6.80 of the IRC: SP:84-2019.

**7.3.6 Structures in marine environment: NIL**

**7.4 Rail-road bridges**

**7.4.4** Design, construction and detailing of ROB/RUB shall be as specified in section 7 of the manual.

**7.4.5** Road over bridges (ROB shall be provided at the following locations, as per GAD drawings attached:

Sl. No.	Design Chainage	Proposed Span Arrangement (m)	Name of crossing (m)	Total Width (m)	Remarks
NIL					

**7.4.6** Road under bridges (road under railway line) shall be provided at the following level crossings, as per GAD drawings attached:

Sl. No.	Design Chainage	Proposed Span Arrangement (m)	Name of crossing (m)	Total Width (m)	Remarks
NIL					

**7.5 Grade separated structures**

The grade separator shall be provided as specified at para 2.8 of Annex-I of Schedule B.

**7.6 Repairs and strengthening of Bridge/Structures**

The existing structures to be repaired/ strengthened, and the nature and extent of repairs strengthening required: **Nil**

**7.7 List of Structures**

The following is the list of the Major Bridges and Structures:

Sl. No.	Name of the Structure	Total Numbers
1	ROB	-
2	Major Bridge	02
3	Minor Bridge	12
4	SVUP	0
5	Flyover/Viaduct	1
6	VUP	6
7	VOP	0
8	LVUP	2
9	Interchange Structures	0
10	Culverts	58 (56 Reconstruction + 2 New Construction)

## 8.0 Traffic control devices and road safety works

Traffic control devices and road safety works shall be provided in accordance with relevant manuals

### (a) Traffic Signs:

Traffic signs include roadside signs, overhead signs and curb mounted signs along the entire Project Highway shall be provided in accordance with as per IRC 67-2022 and clause 9.2 of IRC: SP: 84-2019. Locations of road signs are indicated in Annexure-III of Schedule-A (traffic signage plan) of schedule -A.

### (b) Road Marking:

Pavement markings shall cover road marking for the entire Project Highway as per IRC 35- and clause 9.2 of IRC: SP: 84-2019.

### (c) Road Delineators

The Road Delineators on project highway shall be provided in accordance with IRC: 79 and clause 9.4 of IRC: SP:84-2019.

### (d) Solar Studs

The Solar Studs shall be provided throughout the project highway in accordance with table 5.2 of IRC: 35 and clause 9.5 of IRC: SP:84-2019. Colour of road studs shall be provided as per clause 5.4 of IRC 35.

### (c) Safety Barrier:

RCC crash barriers shall be provided in entire project length on outer side of granular / hard shoulder and median of each main carriageway and Service Road as per TCS referred in this Schedule-B but excluding stretches covered by bridges and RE wall structures, where concrete barriers to be provided.

Thrie Beam crash barrier and RCC Railing shall be provided as per proposed Typical cross section attached as Appendix B-II of Schedule B.

## 9.0 Roadside furniture

**9.1** Roadside furniture like km/Hectometer Stones, Railings, Traffic Impact Attenuators, Delineators shall be provided in accordance with the provisions of Section 9 and Section 10 of IRC: SP:84-2019 and Traffic Signage plan as indicated in Annexure-III of Schedule-A and deemed to be part of this Schedule-B.

S. No.	Project Facility	Location	Design Requirements
1	Traffic Signs and Pavement Markings	Entire length of project road	As per Schedule C
2	Kilometer and 200m stones	Entire length of project road	As per Schedule C
3	Road side Delineators	Entire length of project road	As per Schedule C

**9.2** Traffic Signs (excluding overhead signs at Toll Plaza). Traffic sign boards as per details given below shall be provided in the project highway as per the road signage plan indicated in Annexure-III of Schedule-A and deemed to be part of this Schedule-B

Sl. No.	Type of Sign
1	One Way Object Hazard Marker (OHM)
2	Two Way Object Hazard Marker (OHM)
3	Height restriction (Regulatory Sign)
4	Speed Limit Signs (Regulatory Sign)
5	Merging Traffic Ahead (Cautionary Sign)
6	Compulsory Keep Left Sign (Regulatory Sign)
7	Compulsory Ahead Sign (Regulatory Sign)
8	U-Turn Prohibited Sign (Regulatory Sign)
9	Give way sign (Regulatory Sign)
10	Chevron Marker (At Curves)
11	Triple Chevron Marker (At roundabout)
12	Reassurance Sign (Direction & Place Identification Sign)
13	Roundabout Sign (Cautionary Sign)
14	Left/ Right Hand Curve (Cautionary Sign)
15	Highway Route Marker Sign
16	Entry/ Exit Highway Sign (Information Sign)
17	End of Highway Sign
18	Map type Advance Direction Sign
19	Flag type Advance Direction Sign
20	Advance Direction Sign on ROB Viaduct Superstructure
21	Advance Directional Sign (Overhead Cantilever)
22	Advance Directional Sign (Overhead Gantry)

Sl. No.	Type of Sign
23	Rest Area Information Sign (Overhead Cantilever/ Gantry)

**Note: (1)** The numbers and location of Traffic Signages shown in Traffic Signage plan as indicated in Annexure-III of Schedule-A are tentative and minimum specified. The actual numbers and location of Traffic Signages shall be determined by the Contractor in accordance with the IRC: SP: 84-2019 requirements with approval from the Authority's Engineer. Any variation in the number and type of road sign boards specified in this Clause of Schedule-B shall not constitute a Change of Scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

**(2)** Advance Directional sign boards shall be provided at all Junctions along with the cross road (NH/SH/MDR) as per IRC 67- and IRC: SP: 84-2019 and any amendments thereon. Minimum 13 nos. of Overhead Gantry mounted boards (LHS+RHS) shall be provided as per the enclosed Traffic Signage plan.

#### 10.0 Compulsory Afforestation

Minimum 8200 no. of trees are required to be planted by the contractor as compensatory afforestation in accordance with IRC: SP: 84-2019 keeping in view IRC: SP:21-2009. Any increase in no. of trees as per forest clearance obtained from MoEF & CC, shall not be treated as change of scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13

#### 11.0 Hazardous Locations

Safety barriers shall be provided at the following hazardous location in consultation with the NHAI/Authority Engineer. **Nil**

#### 12.0 RE wall/ Retaining Wall/ Toe Wall

Toe Wall/Retaining walls and protection works shall be provided at locations as indicated below and as provided in TCS schedule in cl. 2.8 of Schedule-B.

##### (A) Stretches for Provision of Reinforced Earth Wall

Sl. No.	Design Chainage (in Km)		Length (m)	Side	Remarks
	From	To			
1	4+280	4+503	223	Booth	
2	4+515	4+700	185	Booth	
3	4+724	5+140	416	Booth	
4	8+010	8+365	355	Booth	
5	8+490	8+747	257	Booth	
6	10+030	10+394	364	Booth	
7	10+406	10+868	462	Booth	
8	13+540	14+000	460	Booth	
9	14+300	14+363	63	Booth	
10	14+383	14+772	389	Booth	
11	14+784	15+000	216	Booth	

12	19+470	19+895	425	Booth	
13	19+907	20+240	333	Booth	
14	22+780	23+298	518	Booth	
15	23+322	23+830	508	Booth	
16	31+890	32+389	499	Booth	
17	32+412	32+865	453	Booth	
18	33+990	34+489	499	Booth	
19	34+512	35+379	867	Booth	
20	35+391	35+438	47	Booth	
21	35+461	35+970	509	Booth	

**(B) Stretches for Provision of Toe Wall**

Sl. No.	Design Chainage (Km)		Length (m)	Side	Remarks
	From	To			
1	8+747	8+884	0.137	Booth Side	
2	8+917	9+300	0.383	Booth Side	
3	11+539	11+639	0.100	Booth Side	
4	11+689	11+945	0.256	Booth Side	
5	12+020	12+216	0.196	Booth Side	
6	12+991	13+237	0.246	Booth Side	
7	13+286	13+540	0.254	Booth Side	
8	15+000	15+194	0.194	Booth Side	
10	15+227	15+618	0.391	Booth Side	
11	15+651	15+765	0.114	Booth Side	

**Note:**

- *RE wall shall be of full Height of embankment and closed with Friction Slab. No part RE wall shall be permitted.*

Above length and height of Retaining wall and Reinforced Earth Wall is tentative and minimum specified. The actual length and height of Retaining wall and Reinforced Earth Wall shall be determined by the Contractor in accordance with the IRC: SP: 84-2019 requirements with approval from the Authority's Engineer. Any variation in the length and height specified in this Clause of Schedule-B shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

**13.0 Special Requirement for Hill Roads: Nil**

**14.0 Utility Shifting**

Shifting of obstructing existing utilities to an appropriate location in accordance with the standards and specifications of concerned Utility Departments is a part of scope of work for the contractor. Shifting of all over ground utilities including electrical/power utilities shall be responsibility of the contractor, whether indicated in Schedule-B or not. No Change of Scope (CoS) shall be allowed for such over ground utilities whether indicated in Schedule -B or not. However, Underground utilities as indicated in the Schedule-B will only be considered as part of scope of work. Underground utilities, if any, not included in the Schedule-B shall be treated

as Change of Scope. The bidder may visit the site and assess the quantum of shifting of utilities for the project before submission of their bid.

**Notes:**

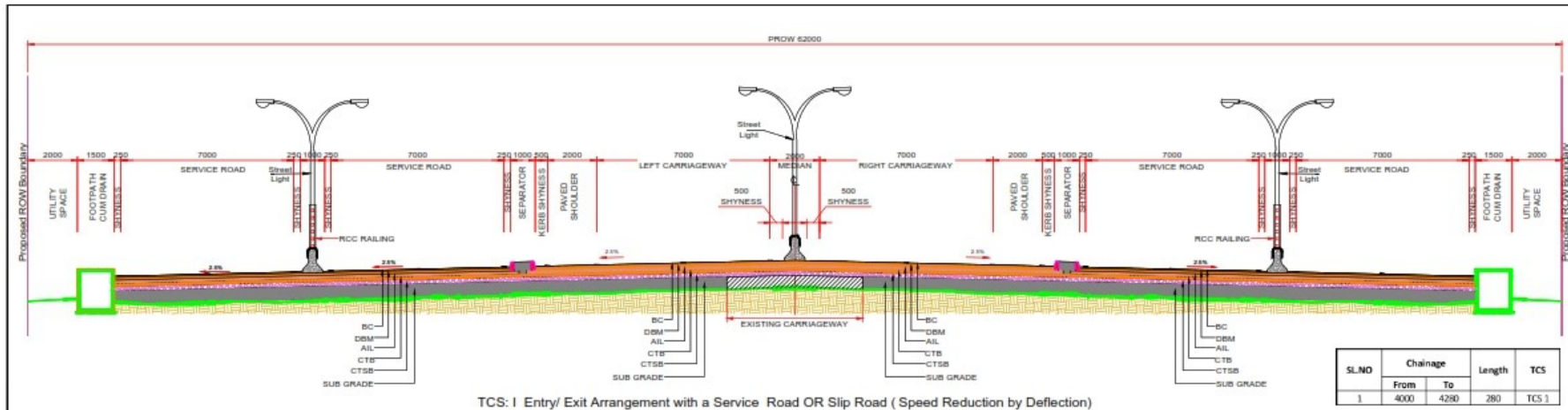
- (a) The type/spacing/size/specifications of poles/towers/lines/cables to be used in shifting work shall be as per the guidelines of utility owning department and it is to be agreed solely between the Contractor/Contractor and the utility owning department. No change of scope shall be admissible and no cost shall be paid for using different type/spacing/size/specifications in shifted work in comparison to those in the existing work or for making any overhead crossings to underground as per requirement of utility owning department and/or construction of project highway. The Contractor/Contractor\* shall carry out joint inspection with utility owning department and get the estimates from utility owning department. The assistance of the Authority is limited to giving forwarding letter on the proposal of Contractor/Contractor to utility owning department whenever asked by the Contractor/Contractor. The decision/approval of utility owning department shall be binding on the Contractor/Contractor.
- (b) The supervision charges at the rates/charges applicable of the Utility Owning Department shall be paid directly by the Authority to the Utility owning Department as and when Contractor / Contractor furnishes demand of Utility Owning Department along with a copy of estimates cost given by the utility owning agencies.
- (c) The dismantled material /scrap of existing Utility to be shifted/dismantled shall belong to the Contractor/Contractor who would be free to dispose-off the dismantled material as deemed fit by them unless the Contractor/Contractor is required to deposit the dismantled material to utility owning department as per the norms and practice and, in that case the amount of credit for dismantled material may be availed by the Contractor/Contractor as per the estimate agreed between them.
- (d) The utilities shall be handed over after shifting work is completed to Utility Owning Department to their entire satisfaction. The maintenance liability shall rest with the Utility Owning Department after handing over process is complete as far as utility shifting works are concerned.

Note II: - Copy of Utility shifting plans enclosed as Appendix B-II to Schedule-B.

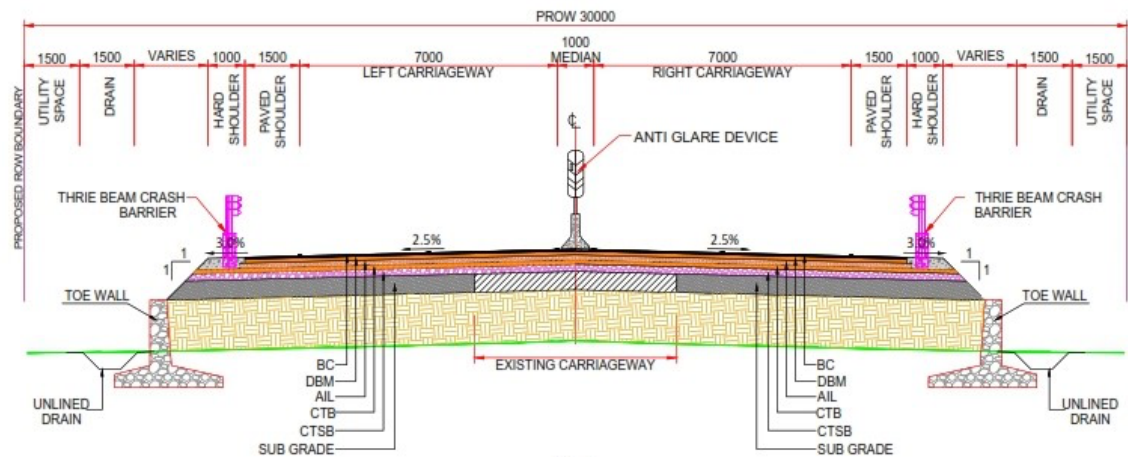
## **15 Change of Scope**

The length of structures and bridges specified hereinabove, except for structures over existing water bodies like ponds, lakes etc. shall be treated as an approximate assessment. The proposed span arrangement of structures may be changed based on innovative design of structures, latest construction techniques and aesthetics of structures except obligatory spans crossing over river, canal, stream, roads, bunds, railway crossing etc. Actual lengths of structures and bridges as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Existing water bodies like ponds, lakes etc., which are to be preserved from environment impact mitigation point of view, shall be bridged to the extent of full ponding level at peak rainy season as per requirement of EMP submitted to MoEF at the time of Environmental Clearance. Any increase in the lengths specified in this Schedule-B shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of relevant Article.





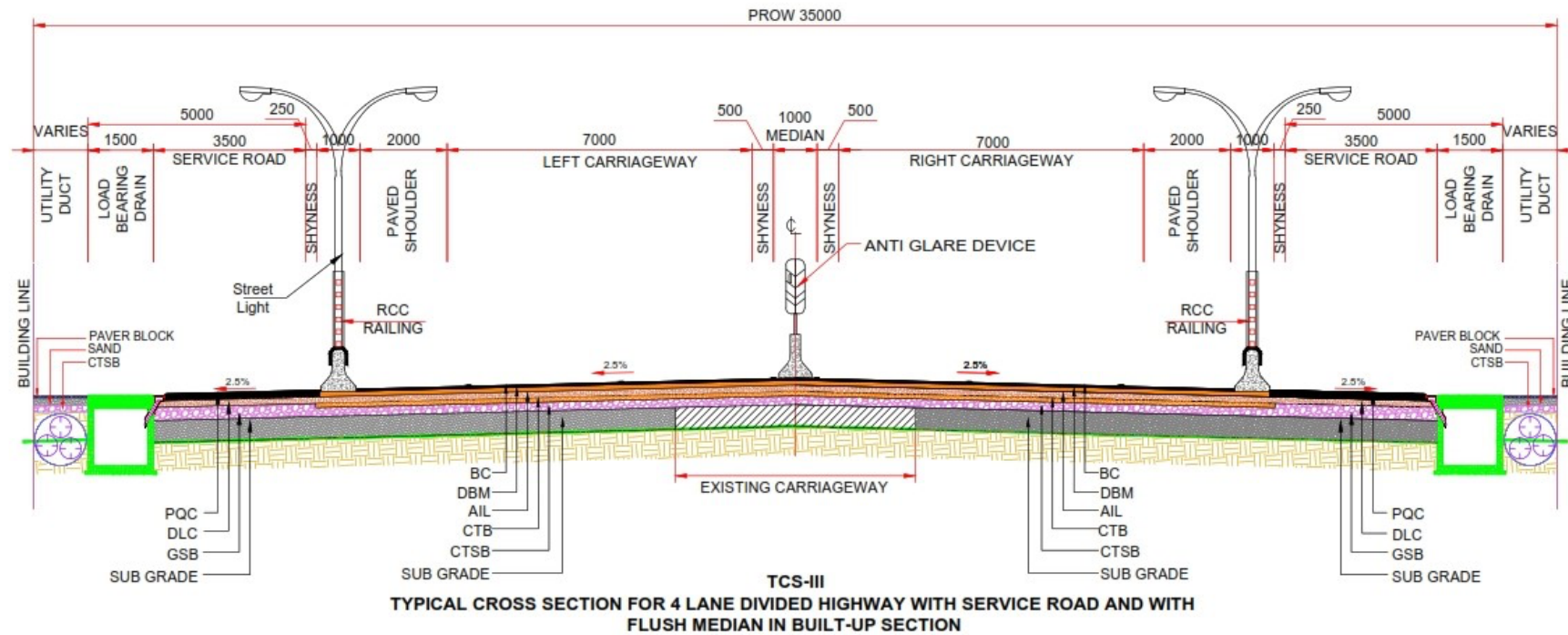
TCS-I Entry/ Exit Arrangement with a Service Road OR Slip Road (Speed Reduction by Deflection)



TCS-II  
TYPICAL CROSS SECTION FOR 4 LANE DIVIDED HIGHWAY WITHOUT SERVICE ROADS  
AND WITH FLUSH MEDIAN IN RURAL AREAS

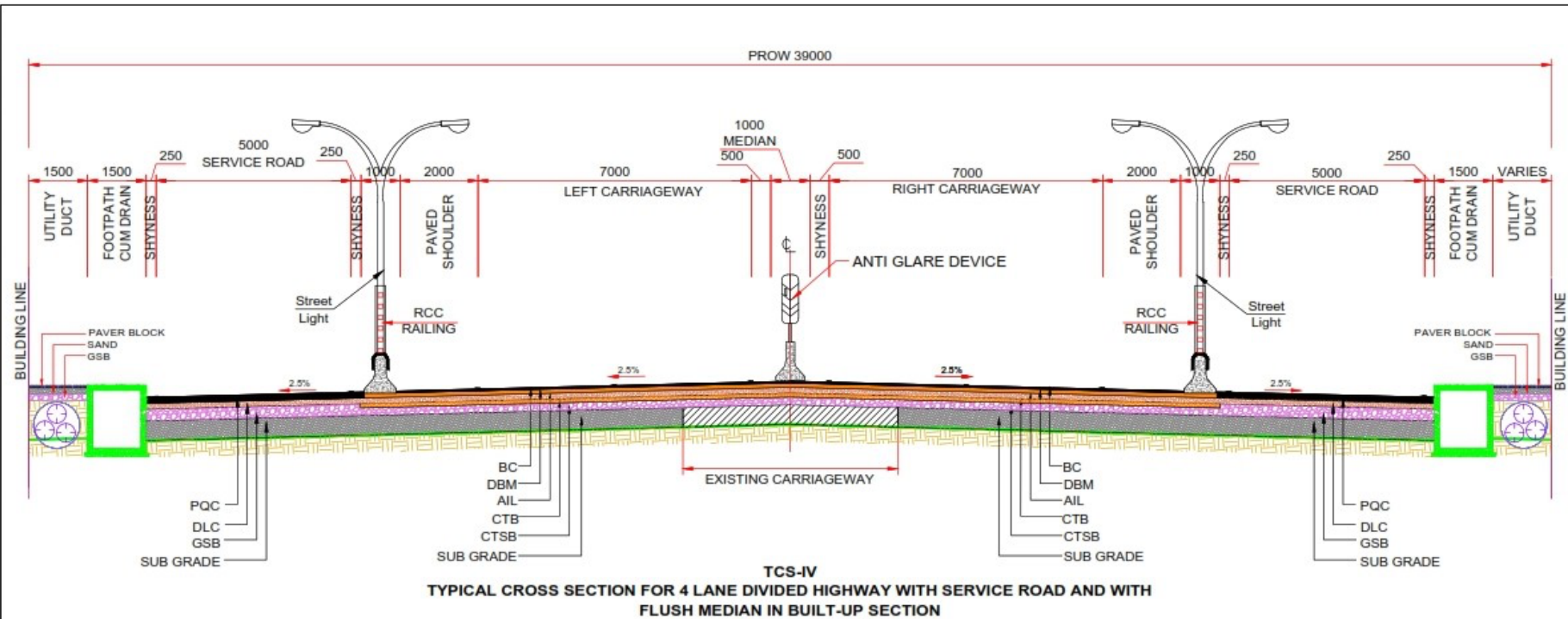
NOTE:-

1. All dimensions are in mm unless otherwise specified.
2. Street Light(lightning post) shall be provided at 30m c/c.



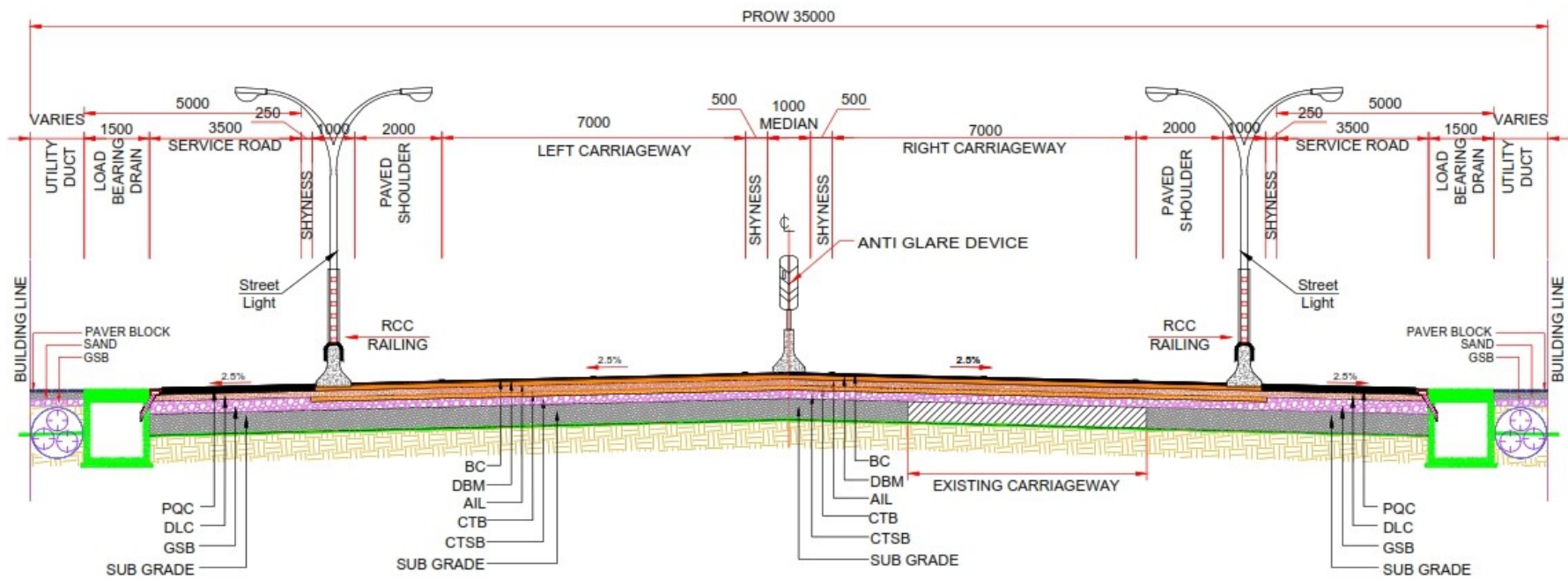
## NOTE:-

1. All dimensions are in mm unless otherwise specified.
2. Street Light (lighting post) shall be provided at 30m c/c.



## NOTE:-

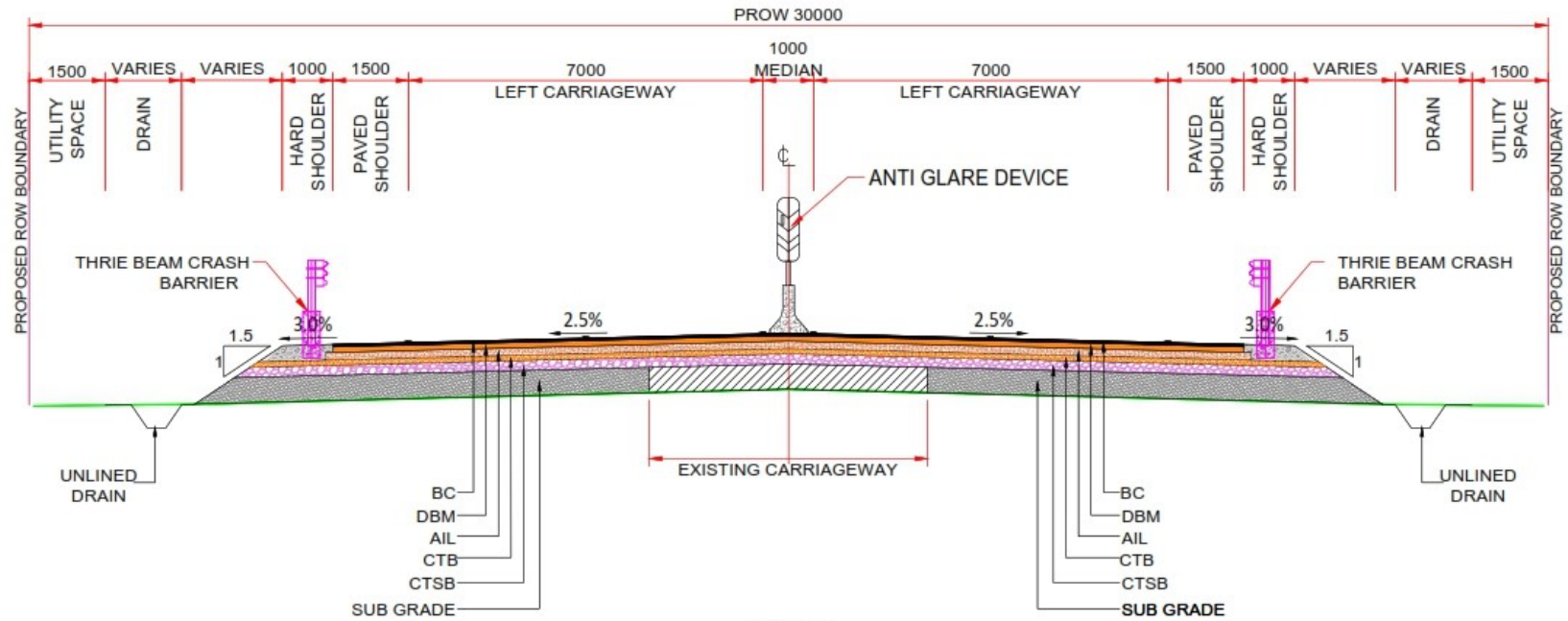
1. All dimensions are in mm unless otherwise specified.
2. Street Light(lightning post) shall be provided at 30m c/c.



**TCS-V**  
**TYPICAL CROSS SECTION FOR 4 LANE DIVIDED HIGHWAY WITH SERVICE ROAD AND WITH FLUSH MEDIAN IN BUILT-UP SECTION**

**NOTE:-**

1. All dimensions are in mm unless otherwise specified.
2. Street Light(lighting post) shall be provided at 30m c/c.



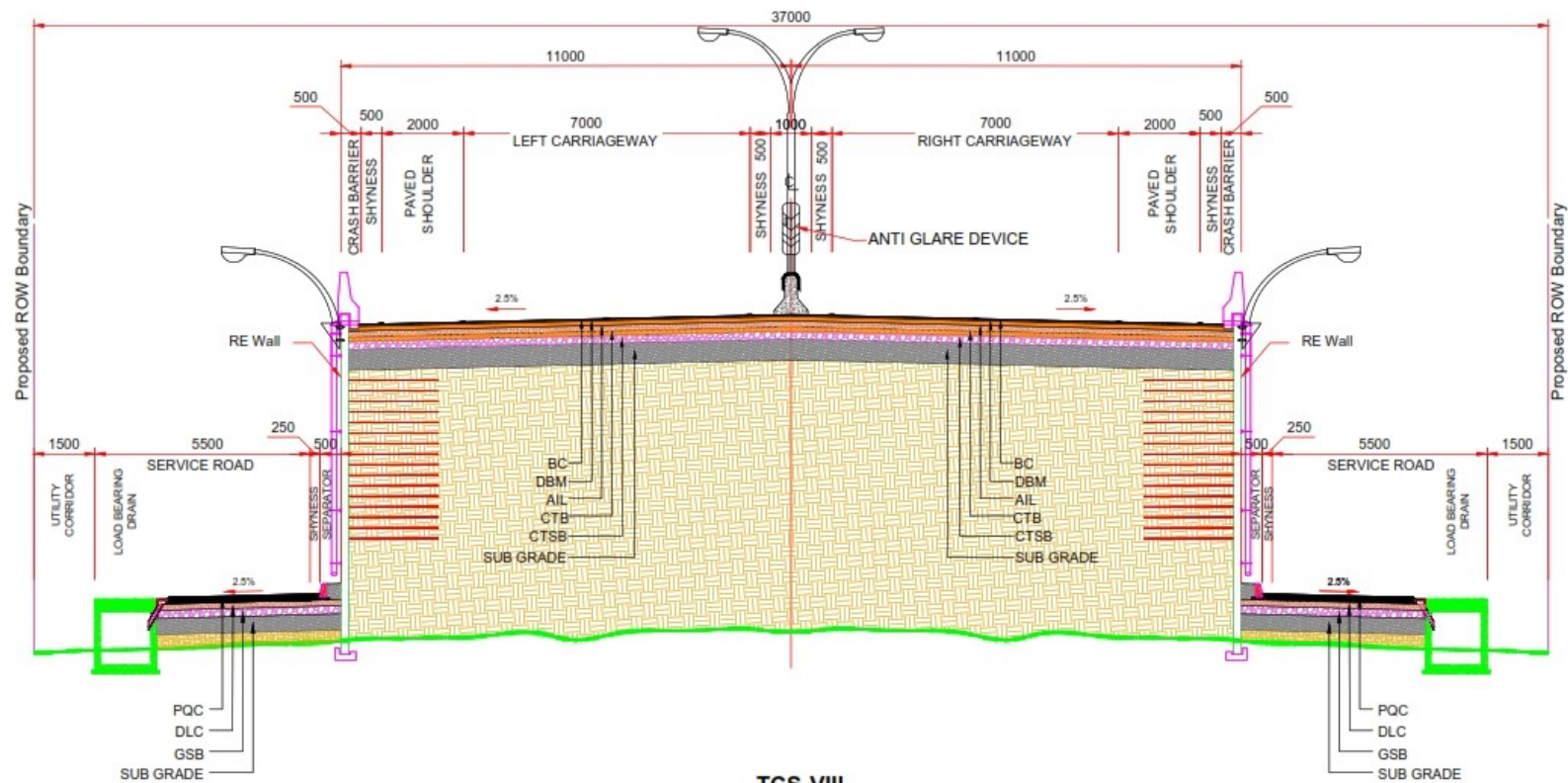
**TCS-VI**  
**TYPICAL CROSS SECTION FOR 4 LANE DIVIDED HIGHWAY WITHOUT SERVICE ROADS**  
**AND WITH FLUSH MEDIAN IN RURAL AREAS**

## NOTE:-

1. All dimensions are in mm unless otherwise specified.
2. Street Light(lightning post) shall be provided at 30m c/c.



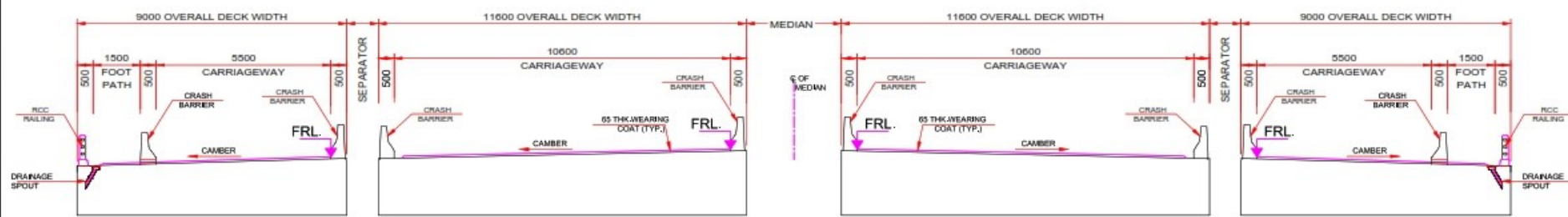




**TCS-VIII**  
**4-LANE DIVIDED HIGHWAY WITH BOTH SIDE SERVICE ROAD AND WITH FLUSH MEDIAN AT**  
**(BRIDGE APPROACHES)**

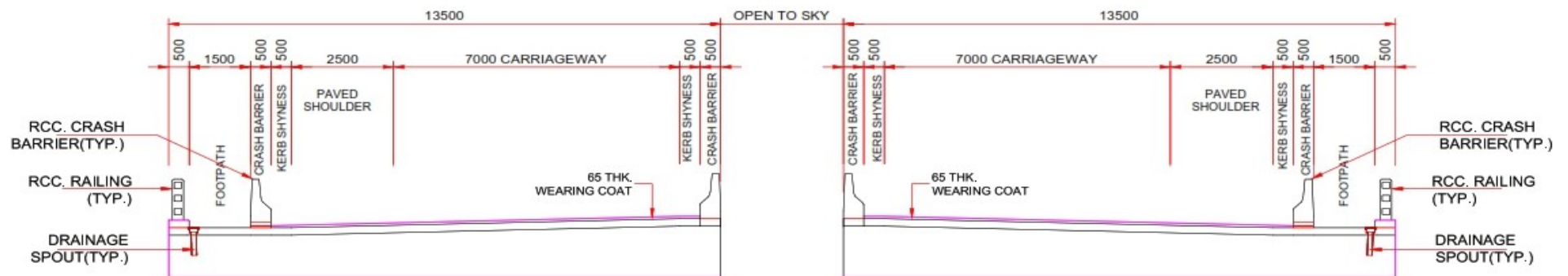
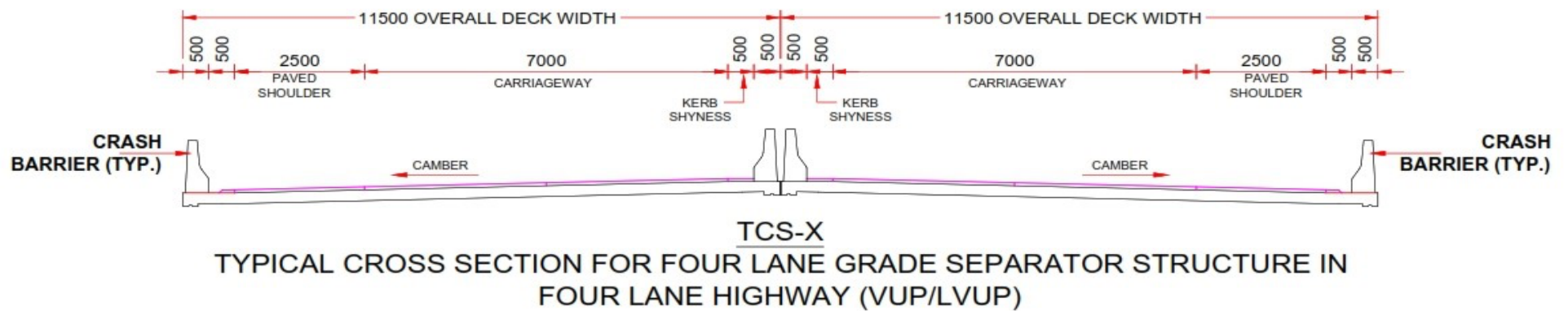
**NOTE:-**

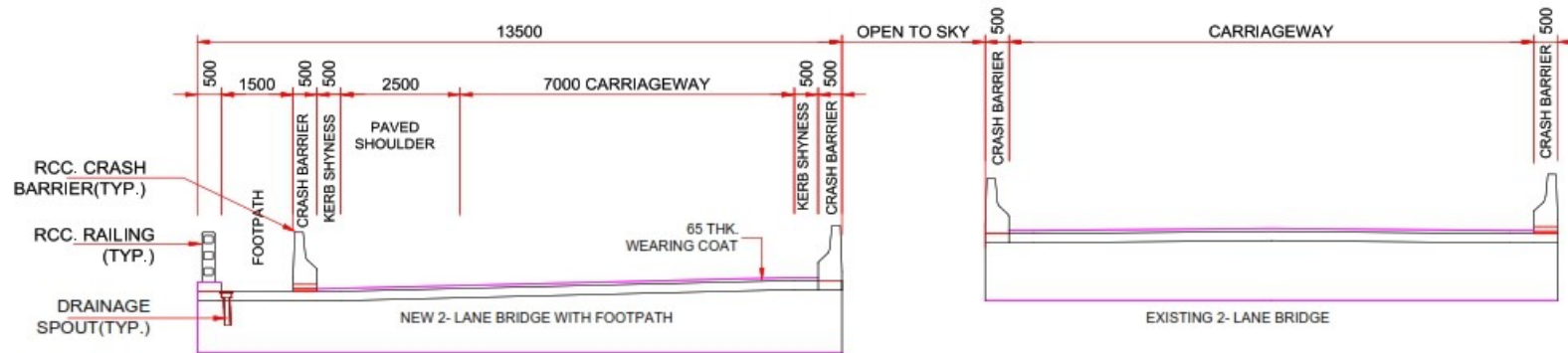
1. All dimensions are in mm unless otherwise specified.
2. Street Light(lightning post) shall be provided at 30m c/c.



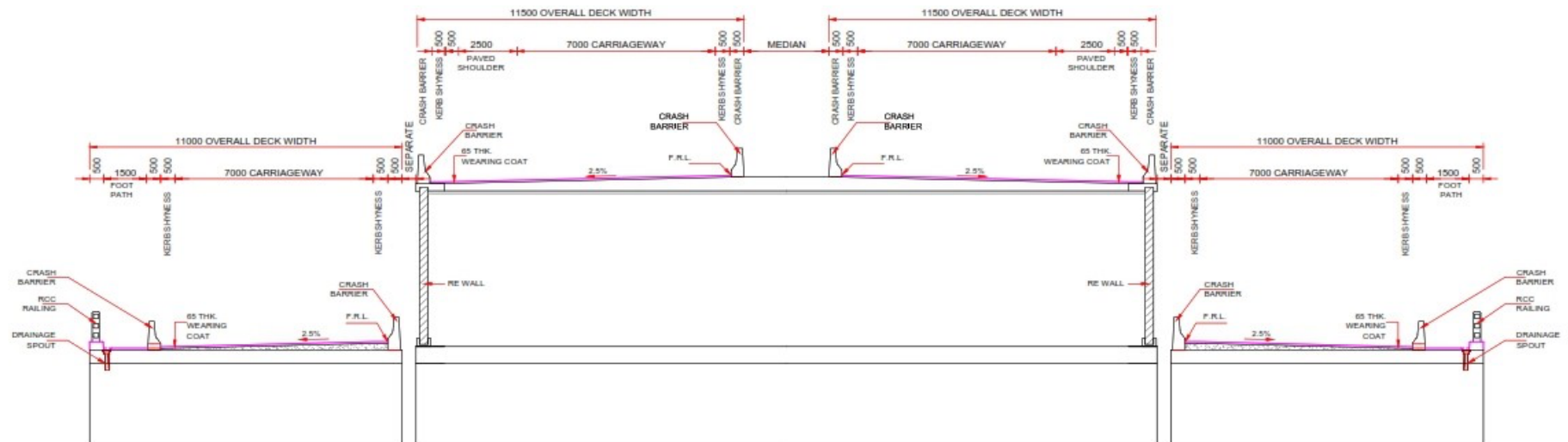
TCS-IX (FIG. 7.2A) :  
TYPICAL CROSS SECTION FOR BRIDGE AT DECK LEVEL- WITH SERVICE  
ROAD BRIDGE AND FOOTPATH



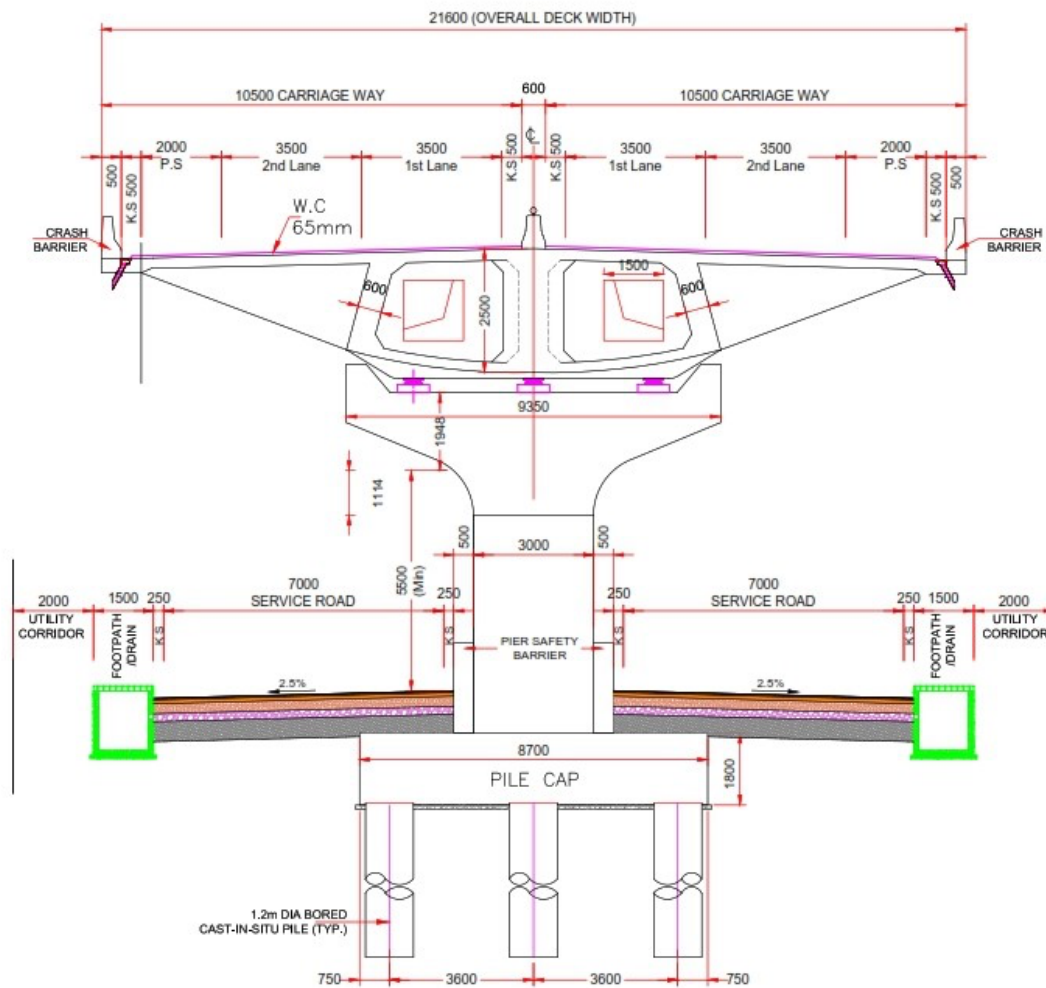




TCS-XII (FIG. 7.4B) : Cross Section of Bridge at Deck without Footpath  
4 Lane Divided Highway (One side new Bridge and other sides Existing for 2-Lane Bridge)



TCS - XIII (Fig. 7.2C) TYPICAL CROSS SECTION FOR NEW BRIDGES  
WITH SERVICE ROAD IN APPROACHES TO UNDERPASS



**TCS-XIV**  
**Typical Cross section for Flyover**

## Schedule - C

(See Clause 2.1)

### Project Facilities

#### 1. Project Facilities

The Contractor shall construct the Project Facilities in accordance with the provisions of this Agreement. Such Project Facilities shall include:

- a) Toll plazas;
- b) Roadside furniture;
- c) Pedestrian facilities;
- d) Tree Plantation;
- e) Truck lay-byes;
- f) Way-side amenities;
- g) Bus-bays and Passenger shelters;
- h) Highway Patrol Units
- i) Highway lighting
- j) Emergency Medical Services
- k) Crane Services
- l) Overhead Signage
- m) Operation and Maintenance Center & others

#### 2. Description of Project Facilities

##### 2.1 Toll Plazas

Toll Plaza shall be provided as per as stipulated in section 10 of the Manual. Canopy of Toll Plaza should be designed to withstand load of solar panels in addition to other design loads. Location of toll plaza is as per the following details.

Sl.No	Toll Plaza	Design Chainage	No. of toll lanes (ETC + Extra Wide)	Location	Remarks
1	Main Carriageway	15+900	4+4(1+1)	Near Sanhola Road	

**Note:**

- Installation of two number dedicated ETC lane (one lane in each direction) and Hybrid ETC System with provision of medium speed WIM with bending plate technology in each lane, and Static Weigh Bridge (one lane in each direction) at Toll Plaza and Configuration with Advance Traffic Management System.
- Above mentioned toll lanes are indicative. However, the actual requirement of toll lanes shall be assessed by Contractor as per actual site condition and Manual. The increase in number of toll lanes shall not be treated as change of scope.

- Solar panels shall be erected over the Toll Plaza Canopy to generate the green energy. Same shall be utilized for toll plaza lighting and other energy requirement within toll plaza area along with conventional lighting.

## **2.2 Road side furniture**

### **2.2.1 Kilometer and Hectometer Stones**

Kilometer and Hectometer stones shall be provided on both side of project highway.

The design and specifications of Kilometer and Hectometer stones shall conform to IRC:8 and IRC:26 respectively.

### **2.2.2 Road Signs**

The Road Signs on project highway shall be provided in accordance with IRC: 67 2022 and as per schedule D. Locations of road signs are indicated in Annex-III of Schedule A (Traffic Signage Plan).

### **2.2.3 Road Marking**

The Road Marking on project highway shall be provided in accordance with IRC: 35 and clause 9.3 of IRC: SP:84.

### **2.2.4 Road Delineators**

The Road Delineators on project highway shall be provided in accordance with IRC: 79 and clause 9.4 of IRC: SP:84.

### **2.2.5 Solar Studs**

The Solar Studs shall be provided throughout the project highway in accordance with table 5.2 of IRC: 35 and clause 9.5 of IRC: SP:84. Color of road studs shall be provided as per clause 5.4 of IRC 35.

### **2.2.6 Emergency Medical Services**

Two ambulances shall be provided as per section 12 of IRC: SP:84. All facilities and equipment shall be provided as indicated in Annexure- D of section 12 of IRC: SP:84.

### **2.2.7 Crane Services**

Two numbers of Cranes shall be provided of minimum 20MT capacity with all necessary equipment and fitted with GPS based tracking system as per clause 12.12 of IRC: SP:84.

### **2.2.8 Crash Barrier**

Three beam metal crash barriers, new jersey crash barrier and Rcc Railing shall be provided as per TCS referred in Schedule-B and IRC :119-2015 and any amendments thereon but excluding stretches covered by bridges and RE wall structures, where concrete barriers to be provided.

Concrete crash barriers shall be provided on Service Road /bridges/structures, RE Walls/ retaining walls as specified in Schedule B and Schedule D.

## **2.3 Operation and Maintenance centers**

Dedicated operation and maintenance center shall be provided near toll plaza along the project highway in accordance to clause 12.15 of IRC: SP:84-2019. The land for the same shall be arranged by the contractor at his own cost and risk meeting all requirements specified in Schedule-D

## **2.4 Overhead Signs**

Traffic sign boards as per details given below including the signage plan indicated in this Schedule shall be provided in the project highway in accordance to manual.

Sl. No.	Type of Sign
1	One Way Object Hazard Marker (OHM)
2	Two Way Object Hazard Marker (OHM)
3	Height restriction (Regulatory Sign)
4	Speed Limit Signs (Regulatory Sign)
5	Merging Traffic Ahead (Cautionary Sign)
6	Compulsory Keep Left Sign (Regulatory Sign)
7	Compulsory Ahead Sign (Regulatory Sign)
8	U-Turn Prohibited Sign (Regulatory Sign)
9	Give way sign (Regulatory Sign)
10	Chevron Marker (At Curves)
11	Triple Chevron Marker (At roundabout)
12	Reassurance Sign (Direction & Place Identification Sign)
13	Roundabout Sign (Cautionary Sign)
14	Left/ Right Hand Curve (Cautionary Sign)
15	Highway Route Marker Sign
16	Entry/ Exit Highway Sign (Information Sign)
17	End of Highway Sign
18	Map type Advance Direction Sign
19	Flag type Advance Direction Sign
20	Advance Directional Sign (Overhead Cantilever/ Gantry)
21	Rest Area Information Sign (Overhead Cantilever/ Gantry)
22	Slogan Gantry

**Note:**

1. The actual numbers and location of Traffic Signages shall be determined by the Concessionaire in accordance with manual requirements with approval from the Independent Engineer.
2. Any increase in the number and type of road sign shall not constitute a Change of Scope.
3. Adequate signs for toll plaza shall be provided as given in this schedule and manual.

## **2.5 Pedestrian facilities;**

Pedestrian Guard rails shall be provided at junctions, Truck lay byes, bus bays and near schools and hospitals as per provisions in section 9.8 of the Manual

- i. Pedestrian guardrail: Provide pedestrian guardrail at each bus stop location and at other locations as per manual.
- ii. Pedestrian Crossings: Provide pedestrian crossing facilities on locations as recommended in Schedule D.
- iii. Pedestrian footpath: Provision of pedestrian footpath shall be made above the utility duct along the Project highway using base/subbase layer, sand and paver blocks in accordance with the IRC: SP:63-2018 and IS 15658: 2021 as shown in TCS-III, V and VIII. specified in Schedule-D

## **2.6 Land Scaping and Tree Plantation**

Land Scaping and Tree plantation of the highway shall be provided as per section 11 of the manual. The locations for these provisions shall be finalized in consultation with Authority Engineer. Total 8200 nos. of trees (approx.) are identified to be affected in the proposed ROW, new trees to be planted by the EPC Contractor as per applicable law/guidelines. Any variation in no. of trees shall not constitute a change of scope.

**Tree plantation:** the minimum numbers (as per prevailing guidelines/ norms of State Govt.) of trees shall be planted and maintained for 5 years as per manual IRC: SP-21 and National Green Highway policy 2015

## 2.7 Truck lay-byes

Truck Lay bye shall be provided at the following locations in accordance with clause 12.6 of IRC: SP:84-2019 at 2 locations.

Sl. No.	Design Chainage (m)	Side	Location
1	12+300	LHS	
2	12+550	RHS	

## 2.8 Way-side Amenities

As stipulated in section 12.10 of the manual, Way-side Amenities shall be provided at the following locations:

S. No.	Design Chainage	Side	Remarks
NIL			

## 2.9 Bus- shelters

Bus shelters shall be provided at service road in accordance with clause 12.7 of IRC: SP:84-2019 at following locations.

Sr.No.	Design Chainage	LHS/RHS		Sr.No.	Design Chainage	LHS/RHS
1	5+500	LHS		14	18+825	RHS
2	5+600	RHS		15	19+845	RHS
3	6+300	LHS		16	20+000	LHS
4	7+380	RHS		17	21+930	LHS
5	10+165	LHS		18	22+275	RHS
6	10+565	RHS		19	26+145	LHS
7	11+175	LHS		20	26+135	RHS
8	11+180	RHS		21	27+600	LHS
9	13+760	LHS		22	27+600	RHS
10	13+765	RHS		23	32+245	RHS
11	14+685	RHS		24	32+500	LHS
12	14+845	LHS		25	34+350	RHS
13	18+815	LHS		26	34+660	LHS

## 2.10 Lighting

The Concessionaire shall provide lighting as per Schedule - D at following locations of the Project Highway.

- (i) Toll Plazas area
  - (ii) Operation and maintenance centers
  - (iii) Built-Up / Service Areas including service/slips roads
  - (iv) Smaller parking places with toilet facilities including service/slips roads
  - (v) Bus bays/Truck lay bye/Truck Parking Areas including service/slips roads
  - (vi) Flyovers/Viaducts/Bridges/ROB including approaches
  - (vii) Vehicular Underpasses/ Light Vehicular Underpasses/ Small Vehicular Underpasses, Vehicular Overpasses and all grade separated structures including approaches
  - (viii) Entry/Exit locations of slip/service road
  - (ix) Traffic aid posts, vehicle rescue posts, medical aid posts and all other facility & service buildings.
- 1) In addition to above locations, continuous lighting along the project highway shall also be provided as per proposed TCS mentioned in Appendix B-I (AI) of schedule B.
  - 2) The top and underside of the Vehicular Underpasses/ Light Vehicular Underpasses/ Small Vehicular Underpasses, Vehicular Overpasses, Interchange and all grade separated structures area at the ground level up to 50 m beyond the point from center on all legs of interchange/crossing both at top and bottom shall be provided with lighting
  - 3) Minimum level illumination on locations of the Project Highway where exterior lighting is provided shall be 40 lux. In general, 'code of practice for lighting of public thoroughfare IS 1944 shall be followed. All facility buildings shall be illuminated adequately.
  - 4) The lighting fittings (with LED features) shall be powered by solar system with back up facilities (power and battery both) at all locations.
  - 5) Light poles shall be fixed on RCC bracket outside the barrier on Shoulder/footpath side for adequate lighting for VRUs.
  - 6) Galvanized iron octagonal pole shall be provided
  - 7) The solar light system will be used for the entire project highway. The solar panel at interchange, Way side amenities, toll plazas and bridges shall be grid connected whereas the other places shall be battery backup. The electrical connection with all its infrastructures shall be done by the contractor. Additional power backup with Generator/solar battery should be provided.
  - 8) All electrical lighting fixer except on poles should be concealed to make it theft proof.

## **2.10 Utility Pipe ducts**

Utility pipe ducts in C.C. Pipe- 600 mm dia NP-4 Pipe across the project highway along with inspection box/chamber at a spacing of 500m shall be provided for crossing of underground utilities in built-up section. In built-up section the ducts shall be constructed along the project road for linear underground utility lines. Location for such utility crossing shall be finalized in consultation with Authority Engineer.

## **2.11 Facilities provided to Employer for project Supervision/ monitoring**

Two Inspection vehicle (Scorpio/Innova including fuel) one for RO, MoRTH Patna and one for Authority for the period till completion of Civil Work in all respect.



## **Schedule - D**

*(See Clause 2.1)*

### **Specifications and Standards**

#### **1. Construction**

The Contractor shall comply with the Specifications and Standards set forth in Annex-I of this Schedule-D for construction of the Project Highway.

#### **2. Design Standards**

The Project Highway including Project Facilities shall conform to design requirements set out in the following documents:

- a) Manual of Specifications and Standards for Four Laning of Highways (IRC: SP: 84-2019), referred to herein as the Manual.

## **Annex – I**

*(Schedule-D)*

### **Specifications and Standards for Construction**

#### **1. Specifications and Standards**

- ii. Four laning of the Project Highway shall conform to the ‘Manual of Specifications and Standards for Highways’ published as IRC: SP: 84-2019 with all amendments and additions till date. (An authenticated copy of the Manual has been provided to the Concessionaire as part of the bid documents. (Referred to as “Manuals” in this Schedule) and MORTH Specifications for Road and Bridge Works (5th revision). Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority Engineer & Independent Engineer.

#### **2. Deviations from the Specifications and Standards**

- (i) The terms “Concessionaire”, “Independent Engineer” and “Concession Agreement” used in the Manual shall be deemed to be substituted by the terms “Contractor”, “Authority’s Engineer” and “Agreement” respectively.
- (ii) Specifications and Standards shall apply to the Project Highway, and for purposes of this Agreement, the aforesaid Specifications and Standards shall be deemed to be amended to the extent set forth below.
- (iii) Deviations from the aforesaid Specifications and Standards shall be listed out here. Such deviations shall be specified only if they are considered essential in view of project-specific requirements.

<b>S. No.</b>	<b>Clause No./Section as per Manual</b>	<b>Details of Item</b>	<b>Description of Deviation</b>
1	2.3	Right of Way	The proposed Right of Way (ROW) shall be as per Annexure-II of Schedule A.
2	2.5.1	Median	The median shall be as per proposed Typical Cross section (TCS) given in Schedule B.
3	2.6	Shoulders	Paved shoulders and Earthen shoulders shall be as per Typical Cross section (TCS) given in Schedule B.
4	2.10	Lateral and Vertical Clearance at VUP/LVUP/SVUP	The lateral and vertical clearance of all underpasses shall be as given in Schedule B.

S. No.	Clause No./Section as per Manual	Details of Item	Description of Deviation
5	2.11.2	Vertical Clearance	Minimum Vertical Clearance shall be as specified in Schedule B
6	2.12.2	Service Roads/Slip road	The location & width of the Service/Slip roads shall be as per Typical Cross section (TCS) given in Schedule B.
7	2.17	Typical Cross Section	The Typical cross section shall be as given in Schedule B.
8	Section 3	Intersections and Grade Separators	Intersections and Grade Separators shall be provided as per Schedule B
9	4.2.2	Embankment Fill Side Slope	The slope of embankment fills for the proposed Highway shall be as per Typical Cross section (TCS) given in Schedule B.
10	6.2	Side Drains	Lined/unlined Side Drains shall be provided throughout the Project as per typical cross section except cross drainage (River, nala etc.)
11	7.3	Overall width of structures	The Overall Deck Configuration of all structures shall be as per Schedule B.
12	9.7.1	Road side safety barriers	Three beam metal crash barriers/new jersey crash barrier and RCC Railing shall be provided Typical Cross section (TCS) given in Schedule B.
13	Section 12	Project Facilities	The project facilities and building structures shall be constructed in accordance with Schedule C and to Annex III of this Schedule.
14	12.5	Street lighting	Swaged steel tabular pole with swan neck shall be used for road side lighting conforming to IS 2713-1980 controlled by suitable digital time switch.

## **Schedule - E**

*(See Clauses 2.1 and 14.2)*

### **Maintenance Requirements**

#### **1. Maintenance Requirements**

- (i) The Contractor shall, at all times maintain the Project Highway in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits.
- (ii) The Contractor shall repair or rectify any Defect or deficiency set forth in Paragraph 2 of this Schedule-E within the time limit specified therein and any failure in this behalf shall constitute non-fulfilment of the Maintenance obligations by the Contractor. Upon occurrence of any breach hereunder, the Authority shall be entitled to effect reduction in monthly lump sum payment as set forth in Clause 14.6 of this Agreement, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.
- (iii) All Materials, works and construction operations shall conform to the MORTH Specifications for Road and Bridge Works, and the relevant IRC publications. Where the specifications for a work are not given, Good Industry Practice shall be adopted.

[Specify all the relevant documents]

#### **2. Repair/rectification of Defects and deficiencies**

The obligations of the Contractor in respect of Maintenance Requirements shall include repair and rectification of the Defects and deficiencies specified in Annex - I of this Schedule-E within the time limit set forth therein.

#### **3. Other Defects and deficiencies**

In respect of any Defect or deficiency not specified in Annex - I of this Schedule-E, the Authority's Engineer may, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards, and any deviation or deterioration beyond the permissible limit shall be repaired or rectified by the Contractor within the time limit specified by the Authority's Engineer.

4. Extension of time limit

Notwithstanding anything to the contrary specified in this Schedule-E, if the nature and extent of any Defect or deficiency justifies more time for its repair or rectification than the time specified herein, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Authority's Engineer and conveyed to the Contractor and the Authority with reasons thereof.

5. Emergency repairs/restoration

Notwithstanding anything to the contrary contained in this Schedule-E, if any Defect, deficiency or deterioration in the Project Highway poses a hazard to safety or risk of damage to property, the Contractor shall promptly take all reasonable measures for eliminating or minimizing such danger.

6. Daily inspection by the Contractor

The Contractor shall, through its engineer, undertake a daily visual inspection of the Project Highway and maintain a record thereof in a register to be kept in such form and manner as the Authority's Engineer may specify. Such record shall be kept in safe custody of the Contractor and shall be open to inspection by the Authority and the Authority's Engineer at any time during office hours.

7. Pre-monsoon inspection / Post-monsoon inspection

The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts and drainage system before [1st June] every year in accordance with the guidelines contained in IRC: SP35. Report of this inspection together with details of proposed maintenance works as required on the basis of this inspection shall be sent to the Authority's Engineer before the [10th June] every year. The Contractor shall complete the required repairs before the onset of the monsoon and send to the Authority's Engineer a compliance report. Post monsoon inspection shall be done by the [30th September] and the inspection report together with details of any damages observed and proposed action to remedy the same shall be sent to the Authority's Engineer.

8. Repairs on account of natural calamities

All damages occurring to the Project Highway on account of a Force Majeure Event or wilful default or neglect of the Authority shall be undertaken by the Authority at its own cost. The Authority may instruct the Contractor to undertake the repairs at the rates agreed between the Parties.

## Annex – I

### (Schedule-E)

#### Repair/rectification of Defects and deficiencies

The Contractor shall repair and rectify the Defects and deficiencies specified in this Annex-I of Schedule-E within the time limit set forth in the table below.

Table -1: Maintenance Criteria for Pavements:

Asset Type	Perform ance Paramet er	Level of Service (LOS)		Freque ncy of Inspect ion	Tools/Equip ment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintena nce Specificati ons
		Desirable	Accepta ble					
Flexible Pavement (Pavement of MCW, Service Road, approache	Potholes	Nil	< 0.1 % of area and subject to limit of 10 mm in depth	Daily	Length Measuremen t Unit like Scale, Tape, odometer etc.	IRC 82: 2015 and Distress Identification Manual for Long Term Pavement Performance Program, FHWA 2003 ( <a href="http://www.tfhrcc.com/pavement/ltp/reports/03031/">http://www.tfhrcc.com/pavement/ltp/reports/03031/</a> )	24-48 hours	MORT&H Specificatio n 3004.2

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/Repair	Maintenance Specifications
		Desirable	Acceptable					
Types of Grade structure, approaches of connecting roads, slip roads, lay byes etc. as applicable)	Cracking	Nil	< 5 % subject to limit of 0.5 sqm for any 50 m length	Daily			7-15 days	MORT&H Specification 3004.3
	Rutting	Nil	< 5 mm	Daily	Straight Edge		15 -30 days	MORT&H Specification 3004.2
	Corrugations and Shoving	Nil	< 0.1 % of area	Daily	Length Measurement Unit like		2-7 days	IRC:82-2015



Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/Repair	Maintenance Specifications
		Desirable	Acceptable					
	Bleeding	Nil	< 1 % of area	Daily	Scale, Tape, odometer etc.		3-7 days	MORT&H Specification 3004.4
	Ravelling / Stripping	Nil	< 1 % of area	Daily			7-15 days	IRC:82-2015 read with IRC SP 81
	Edge Deformation/ Breaking	Nil	< 1 m for any 100 m section and width < 0.1 m at any location, restricted	Daily			7- 15 days	IRC:82-2015

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/Repair	Maintenance Specifications
		Desirable	Acceptable					
			up to 30 cm from the edge					
	Roughness BI	2000 mm/km	2400 mm/km	Bi-Annually	Class I Profilometer SCRIM (Sideway-force Coefficient Routine Investigation Machine or equivalent)	Class I Profilometer : ASTM E950 (98) :2004 –Standard Test Method for measuring Longitudinal Profile of Travelled Surfaces with Accelerometer Established Inertial Profiling Reference ASTM E1656 -94: 2000- Standard Guide for Classification of Automatic Pavement Condition Survey Equipment	180 days	IRC:82-2015
	Skid Number	60SN	50SN	Bi-Annually			180 days	BS: 7941-1: 2006
	Pavement Condition Index	3	2.1	Bi-Annually			180 days	IRC:82-2015

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/Repair	Maintenance Specifications
		Desirable	Acceptable					
	Other Pavement Distresses			Bi-Annually			2-7 days	IRC:82-2015
	Deflection/Remaining Life			Annually	Falling Weight Deflectometer	IRC 115: 2014	180 days	IRC:115-2014
Rigid Pavement (Pavement of MCW, Service Road, Grade structure,	Roughness BI	2200m m/km	2400mm /km	Bi-Annually	Class I Profilometer	ASTM E950 (98) :2004 and ASTM E1656 - 94: 2000	180 days	IRC:SP:83-2008
	Skid	Skid Resistance no. at different speed of vehicles		Bi-Annually	SCRIM (Sideway-force	IRC:SP:83-2008	180 days	IRC:SP:83-2008

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/Repair	Maintenance Specifications
		Desirable	Acceptable					
approaches of connecting roads, slip roads, lay byes etc. as applicable)		Minimum SN	Traffic Speed (Km/h)		Coefficient Routine Investigation Machine or equivalent)			
		36	50					
		33	65					
		32	80					
		31	95					
		31	110					

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/Repair	Maintenance Specifications
		Desirable	Acceptable					
Embankment/ Slope	Edge drop at shoulders	Nil	40mm	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC	7-15 days	MORT&H Specification 408.4
	Slope of camber/cross fall	Nil	<2% variation in prescribed slope of camber/cross fall	Daily			7-15 days	MORT&H Specification 408.4
	Embankment Slopes	Nil	<15 % variation in prescribe	Daily			7-15 days	MORT&H Specification 408.4

Asset Type	Perform ance Paramet er	Level of Service (LOS)		Freque ncy of Inspect ion	Tools/Equip ment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintena nce Specificati ons
		Desirable	Accepta ble					
			side slope					
	Embankme nt Protection	Nil	Nil	Daily	NA		7-15 days	MORT&H Specification
	Rain Cuts/ Gullies in slope	Nil	Nil	Daily Speciall y During Rainy Season	NA		7-15 days	MORT&H Specification

In addition to the above performance criterion, the contractor shall strictly maintain the rigid pavements as per requirements in the following table

Table -2: Maintenance Criteria for Rigid Pavements:

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
CRACKING						
1	Single Discrete Cracks Not intersecting with any joint	$w$ = width of crack $L$ = length of crack $d$ = depth of crack $D$ = depth of slab	0	Nil, not discernible	No Action	Not applicable
			1	$w < 0.2$ mm. hair cracks		
			2	$w = 0.2 - 0.5$ mm, discernible from slow-moving car	Seal without delay	Seal, and stitch if $L > 1$ m.  Within 7days
			3	$w = 0.5 - 1.5$ mm, discernible from fast-moving car		

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
2	Single Transverse (or Diagonal) Crack intersecting with one or more joints	$w$ = width of crack $L$ = length of crack $d$ = depth of crack $D$ = depth of slab	4	$w = 1.5 - 3.0 \text{ mm}$	Seal, and stitch if $L > 1 \text{ m}$ .	Staple or Dowel Bar Retrofit, FDR for affected portion.
			5	$w > 3 \text{ mm}$ .	Within 7 days	Within 15days
			0	Nil, not discernible	No Action	
			1	$w < 0.2 \text{ mm}$ , hair cracks	Route and seal with epoxy.	Staple or Dowel Bar Retrofit.
			2	$w = 0.2 - 0.5 \text{ mm}$ , discernible from slow vehicle	Within 7 days	Within 15days
			3	$w = 0.5 - 3.0 \text{ mm}$ , discernible from fast vehicle	Route, seal and stitch, if $L > 1 \text{ m}$ . Within 7 days	



S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			4	$w = 3.0 - 6.0 \text{ mm}$	Dowel Bar Retrofit. Within 15 days	Full Depth Repair Dismantle and reconstruct affected.  Portion with norms and specifications - See Para 5.5 & 9.2
			5	$w > 6 \text{ mm}$ , usually associated with spalling, and/or slab rocking under traffic	Not Applicable, as it may be full depth	Within 15days
			0	Nil, not discernible	No Action	
3	Single Crack with joints	Longitudinal intersecting one or more				
		$w$ = width of crack $L$ = length of crack $d$ = depth of crack $D$ = depth of slab	1	$w < 0.5 \text{ mm}$ , discernable from slow moving vehicle	Seal with epoxy, if $L > 1$ m.  Within 7 days	Staple or dowel bar retrofit.  Within 15days

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			2	$w = 0.5 - 3.0$ mm, discernible from fast vehicle	Route seal and stitch, if $L > 1$ m. Within 15 days	-
			3	$w = 3.0 - 6.0$ mm	Staple, if $L > 1$ m. Within 15 days	Partial Depth Repair with stapling.
			4	$w = 6.0 - 12.0$ mm, usually associated with spalling	Not Applicable, as it may be full depth	Within 15 days
			5	$w > 12$ mm, usually associated with spalling, and/or slab rocking under traffic		Full Depth Repair Dismantle and reconstruct affected portion as per norms and specifications -

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
						See Para 5.6.4 Within 15 days
4	Multiple Cracks intersecting with one or more joints	$w$ = width of crack	0	Nil, not discernible	No Action	-
			1	$w < 0.2$ mm, hair cracks	Seal, and stitch if $L > 1$ m.	
			2	$w = 0.2 - 0.5$ mm. discernible from slow vehicle	Within 15 days	
			3	$w = 0.5 - 3.0$ mm, discernible from fast vehicle	Full depth repair within 15 days	Dismantle, Reinstatement subbase, Reconstruct whole slab as per specifications within 30 days
			4	$w = 3.0 - 6.0$ mm panel broken into 2 or 3 pieces		
			5	$w > 6$ mm and/or panel broken		

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
				into more than 4 pieces		
5	Corner Break	w = width of crack L = length of crack	0	Nil, not discernible	No Action	-
			1	w < 0.5 mm; only 1 corner broken	Seal with low viscosity epoxy to	Seal with epoxy seal with epoxy
			2	w < 1.5 mm; L < 0.6 m, only one corner broken	secure broken parts Within 7 days	Within 7 days
			3	w < 1.5 mm; L < 0.6 m, two corners broken	Partial Depth (Refer Figure 8.3 of IRC:SP: 83-2008) Within 15 days	Full depth repair
			4	w > 1.5 mm; L > 0.6 m or three corners broken		
			5	ree or four corners broken		Reinstate sub-base, and reconstruct the

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
						slab as per norms and specifications within 30days
6	Punchout (Applicable to Continuous Reinforced Concrete Pavement only)	w = width of crack L = length (m/m <sup>2</sup> )	0	Nil, not discernible		No Action
			1	$w < 0.5 \text{ mm}; L < 3 \text{ m/m}^2$	Not Applicable, as it may be full depth	Seal with low viscosity epoxy to secure broken parts.
			2	either $w > 0.5 \text{ mm}$ or $L < 3 \text{ m/m}^2$		Within 15days
			3	$w > 1.5 \text{ mm}$ and $L < 3 \text{ m/m}^2$		
			4	$w > 3 \text{ mm}$ , $L < 3 \text{ m/m}^2$ and deformation		Full depth repair - Cut out and replace damaged area taking care not to damage reinforcement.
			5	$w > 3 \text{ mm}$ , $L > 3 \text{ m/m}^2$ and deformation		Within 30days

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
Surface Defects						
7	Ravelling Honeycomb surface	$r$ = area damaged orsurface/total surface of slab (%) $h$ = maximum depth of damage	0	Nil, not discernible	Short Term	Long Term
					No action.	Not Applicable
			1	$r < 2 \%$	Local repair of areas damaged	
			2	$r = 2 - 10 \%$	and liable to be damaged. Within 15 days	
			3	$r = 10-25\%$	Bonded Inlay, 2 or 3 slabs if	
			4	$r = 25 - 50 \%$	affecting.	

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
					Within 30 days	
			5	$r > 50\%$ and $h > 25$ mm	Reconstruct slabs, 4 or more slabs if affecting. Within 30 days	
8	Scaling	$r = \frac{\text{damaged surface}}{\text{total surface of slab}} (\%)$ $h = \text{maximum depth of damage}$	0	Nil, not discernible	Short Term	Long Term
					No action.	
			1	$r < 2\%$	Local repair of areas damaged	Not Applicable
			2	$r = 2 - 10\%$	and liable to be damaged. Within 7days	

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			3	$r = 10 - 20\%$	Bonded Inlay within 15 days	
			4	$r = 20 - 30 \%$		
			5	$r > 30 \%$ and $h > 25 \text{ mm}$	Reconstruct slab within 30 days	
9	Polished Surface/Glazing	$t$ = texture depth, sand patch test	0		No action.	Not Applicable
			1	$t > 1 \text{ mm}$		
			2 '	$t = 1 - 0.6 \text{ mm}$	Monitor rate of deterioration	
			3	$t = 0.6 - 0.3 \text{ mm}$		
			4	$t = 0.3 - 0.1 \text{ mm}$		



S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			5	$t < 0.1 \text{ mm}$	Diamond Grinding if affecting 50% or more slabs in a continuous stretch of minimum 5 km. Within 30 days	
10	Popout (Small Hole), Pothole Refer Para 8.4	$n = \text{number}/\text{m}^2$ $d = \text{diameter}$ $h = \text{maximum depth}$	0	$d < 50 \text{ mm}; h < 25 \text{ mm}; n < 1 \text{ per } 5 \text{ m}^2$	No action.	Not Applicable
			1	$d = 50 - 100 \text{ mm}; h < 50 \text{ mm}; n < 1 \text{ per } 5 \text{ m}^2$	Partial depth repair 65 mm deep.	
			2	$d = 50 - 100 \text{ mm}; h > 50 \text{ mm}; n < 1 \text{ per } 5 \text{ m}^2$	Within 15 days	

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			3	$d = 100 - 300 \text{ mm}; h < 100 \text{ mm}$ $n < 1 \text{ per } 5 \text{ m}^2$	Partial depth repair 110mm	
			4	$d = 100 - 300 \text{ mm}; h > 100 \text{ mm}; n < 1 \text{ per } 5 \text{ m}^2$	i.e.10 mm more than the depth of the hole. Within 30 days	
			5	$d > 300 \text{ mm}; h > 100 \text{ mm}; n > 1 \text{ per } 5 \text{ m}^2$	Full depth repair. Within 30 days	

Joint Defects						
11	Joint Seal Defects	Loss or damage L = Length as % total joint length	0	Difficult to discern.	Short Term	Long Term
					No action.	Not Applicable
			1	Discernible, L < 25% but of little immediate consequence with regard to ingress of water or trapping incompressible material.	Clean joint, inspect later.	
			3	Notable. L > 25% insufficient protection against ingress of water and trapping incompressible material. Within 7 days	Clean and reapply sealant in selected locations.	
			5	Severe; w > 3 mm negligible protection against ingress of water	Clean, widen and reseal the joint. Within 7 days	

				and trapping incompressible material.		
12	Spalling of Joints	w = width on either side of the joint L = length of spalled portion (as % joint length)	0	Nil, not discernible	No action.	Not Applicable
			1	w < 10 mm	Apply low viscosity epoxy resin/ mortar in cracked portion.	
			2	w = 10 - 20 mm, L < 25%	Within 7 days	
			3	w = 20 - 40 mm, L > 25%	Partial Depth Repair. Within 15 days	
			4	w = 40 - 80 mm, L > 25%	30 - 50 mm deep, h = w + 20% of w, within 30 days	
			5	w > 80 mm, and L > 25%	50 - 100 mm deep repair. H = w + 20% of w. Within 30 days	
13	Faulting (or Stepping)	f = difference of level	0	not discernible, < 1 mm	No action.	No action.

	in Cracks or Joints		1	$f < 3 \text{ mm}$		
			2	$f = 3 - 6 \text{ mm}$	Determine cause and observe, take action for diamond grinding	Replace the slab as appropriate.
			3	$f = 6 - 12 \text{ mm}$	Diamond Grinding	Within 30days
			4	$f = 12 - 18 \text{ mm}$	Raise sunken slab.	Replace the slab as appropriate. Within 30days
			5	$f > 18 \text{ mm}$	Strengthen subgrade and sub-base by grouting and raising sunken slab	
14	Blowup or Buckling	h = vertical displacement from normal profile	0	Nil, not discernible	Short Term	Long Term
					No Action	
			1	$h < 6 \text{ mm}$		
			2	$h = 6 - 12 \text{ mm}$	Install Signs to Warn Traffic	

			3	h = 12 - 25 mm	within 7 days	
			4	h > 25 mm	Full Depth Repair. Within 30 days	
			5	shattered slabs, ie 4 or more pieces	Replace broken slabs. Within 30 days	
15	Depression	h = negative vertical displacement from normal profile L =length	0	Not discernible, h < 5 mm	No action.	Not Applicable
			1	h = 5 - 15 mm		
			2	h = 15-30 mm, Nos <20% joints	Install Signs to Warn Traffic within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or joints > 20%	Strengthen subgrade. Reinstate pavement at normal level	

			5	h > 100 mm	if L < 20 m. Within 30 days	
16	Heave	h = positive vertical displacement from normal profile.  L = length	0	Not discernible. h < 5 mm	Short Term	Long Term
					No action.	scrabble
			1	h = 5 - 15 mm	Follow up.	
			2	h = 15 - 30 mm, Nos <20% joints	Install Signs to Warn Traffic  within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Stabilise subgrade. Reinstate pavement at normal level if length < 20 m. Within 30 days	
			5	h > 100 mm		
17	Bump	h = vertical	0	h < 4 mm	No action	

		displacement from normal profile	1	$h = 4 - 7 \text{ mm}$	Grind, in case of new construction within 7 days	Construction Limit for New Construction.
			3	$h = 7 - 15 \text{ mm}$	Grind, in case of ongoing Maintenance within 15 days	Replace in case of new construction. Within 30days
			5	$h > 15 \text{ mm}$	Full Depth Repair. Within 30 days	Full Depth Repair. Within 30days
18	Lane Shoulder Dropoff	to f = difference of level	0	Nil, not discernible $< 3 \text{ mm}$	Short Term	Long Term
					No action.	
			1	$f = 3 - 10 \text{ mm}$	Spot repair of shoulder within 7 days	
			2	$f = 10 - 25 \text{ mm}$		
			3	$f = 25 - 50 \text{ mm}$	Fill up shoulder	



			4	f = 50 - 75 mm	within 7 dayss	For any 100 m stretch Reconstruct shoulder, if affecting 25% or more of stretch.  Within 30days
			5	f > 75 mm		
Drainage						
19	Pumping	quantity of fines and water expelled through open joints and cracks Nos	0	not discernible	No Action	
			1 to 2	slight/ occasional Nos < 10%	Repair cracks and joints Without delay.	Inspect and repair sub-drainage at distressed sections and upstream.
			3 to 4	appreciable/ Frequent 10 - 25%	Lift or jack slab within 30 days.	
		Nos/100 m stretch	5	abundant, crack development > 25%	Repair distressed pavement sections. Strengthen subgrade and subbase. Replace slab.  Within 30 days	

20	Ponding	Ponding on slabs due to blockage of drains	0-2	No discernible problem	No action.	Action required to stop water damaging foundation within 30 days.
			3 to 4	Blockages observed in drains, but water flowing	Clean drains etc within 7 days, Follow up	
			5	Ponding, accumulation of water observed	-do-	

Table -3: Maintenance Criteria for Safety Related Items and Other Furniture Items:

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Highway	Availability of Safe Sight Distance	As per IRC SP :84-2014, a minimum of safe stopping sight distance shall be available throughout.			Monthly	Manual Measurements with Odometer along with video/ image backup	Removal of obstruction within 24 hours, in case of sight line affected by temporary objects such as trees, temporary encroachments.		IRC:SP 84-2014
		Design Speed, kmph	Desirable Minimum Sight Distance (m)	Safe Stopping Sight Distance (m)			In case of permanent structure or design deficiency: Removal of obstruction/improvement of deficiency at the earliest Speed Restriction boards and suitable traffic calming measures such as transverse bar marking, blinkers, etc. shall be applied during the period of rectification.		
		100	360	180					
		80	260	130					
Pavement Marking	Wear	<70% of marking remaining			Bi-Annually	Visual Assessment as per Annexure-F of IRC:35-2015	Re - painting	Cat-1 Defect – within 24 hours Cat-2 Defect – within 2 months	IRC:35-2015

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards		
	Day Visibility	During expected life Service Time Cement Road - 130mcd/m <sup>2</sup> /lux Bituminous Road - 100mcd/m <sup>2</sup> /lux	Monthly	As per Annexure-D of IRC:35-2015	Re - painting	Cat-1 Defect – within 24 hours Cat-2 Defect – within 2 months	IRC:35-2015		
	Night Visibility	<u>Initial and Minimum Performance for Dry Retro reflectivity during night time:</u>		Bi-Annually	As per Annexure-E of IRC:35-2015	Re - painting	Cat-1 Defect – within 24 hours Cat-2 Defect – within 2 months	IRC:35-2015	
		Design Speed	(RL) Retro Reflectivity (mcd/m <sup>2</sup> /lux)						
			Initial (7 days)						Minimum Threshold level (TL) & warranty period required up to 2 years
		Up to 65	200						80
		65 - 100	250						120
		Above 100	350						150
		<u>Initial and Minimum Performance for Night Visibility under wet condition (Retro reflectivity):</u>							

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		Initial 7 days Retro reflectivity: 100 mcd/m <sup>2</sup> /lux Minimum Threshold Level: 50 mcd/m <sup>2</sup> /lux					
	Skid Resistance	Initial and Minimum performance for Skid Resistance: Initial (7days): 55BPN Min. Threshold: 44BPN *Note: shall be considered under urban/city traffic condition encompassing the locations like pedestrian crossings, bus bay, bus stop, cycle track intersection delineation, transverse bar markings etc	Bi-Annually	As per Annexure-G of IRC:35-2015		Within 24 hours	IRC:35-2015
Road Signs	Shape and Position	Shape and Position as per IRC:67-2012. Signboard should be clearly visible for the design speed of the section.	Daily	Visual with video/image backup	Improvement of shape, in case if shape is damaged. Relocation as per requirement	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs)  15 Days in case of Gantry/Cantilever Sign boards	IRC:67-2012
	Retro reflectivity	As per specifications in IRC:67-2012	Bi-Annually	Testing of each signboard	Change of signboard	48 hours in case of Mandatory	IRC:67-2012

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
				signboard using Retro Reflectivity Measuring Device. In accordance with ASTM D 4956-09.		Signs, Cautionary and Informatory Signs (Single and Dual post signs)  1 Month in case of Gantry/Cantilever Sign boards	
Kerb	Kerb Height	As per IRC 86:1983 depending upon type of Kerb	Bi-Annually	Use of distance measuring tape	Raising Kerb Height	Within 1 Month	RC 86:1983
	Kerb Painting	<u>Functionality</u> : Functioning of Kerb painting as intended	Daily	Visual with video/image backup	Kerb Repainting	Within 7-days	RC 35:2015
Other Road Furniture	Reflective Pavement Markers (Road Studs)	Numbers and Functionality as per specifications in IRC:SP:84-2014 and IRC:35-2015, unless specified in Schedule-B.	Daily	Counting	New Installation	Within 2 months	IRC:SP:84-2014, IRC:35-2015
	Pedestrian Guardrail	<u>Functionality</u> : Functioning of guardrail as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:SP:84-2014
	Traffic Safety Barriers	<u>Functionality</u> : Functioning of Safety Barriers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014, IRC:119-2015
	End Treatment of	<u>Functionality</u> : Functioning of End Treatment as intended	Daily	Visual with video/image	Rectification	Within 7 days	IRC:SP:84-2014,

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Traffic Safety Barriers			backup			IRC:119-2015
	Attenuators	Functionality: Functioning of Attenuators as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP-2014, IRC:119-2015
	Guard Posts and Delineators	Functionality: Functioning of Guard Posts and Delineators as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC: 79 - 1981
	Overhead Sign Structure	Overhead sign structure shall be structurally adequate	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:67-2012
	Traffic Blinkers	Functionality: Functioning of Traffic Blinkers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014
Highway Lighting System	Highway Lights	Illumination: Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:84-2014
		No major failure in the lighting system	Daily	-	Rectification of failure	24 hours	IRC:SP:84-2014
		No minor failure in the lighting system	Monthly	-	Rectification of failure	8 hours	IRC:SP:84-2014
	Toll Plaza Canopy Lights	Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:84-2014
		No major/minor failure in the lighting system	Daily	-	Rectification of failure	8 hours	IRC:SP:84-2014

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Trees and Plantation including median plantation	Obstruction in a minimum head-room of 5.5 m above carriageway or obstruction in visibility of road signs	No obstruction due to trees	Monthly	Visual with video/image backup	Removal of trees	Immediate	IRC:SP:84-2014
	Deterioration in health of trees and bushes	Health of plantation shall be as per requirement of specifications & instructions issued by Authority from time to time	Daily	Visual with video/image backup	Timely watering and treatment. Or Replacement of Trees and Bushes.	Within 90 days	IRC:SP:84-2014
	Vegetation affecting sight line and road structures	Sight line shall be free from obstruction by vegetation	Daily	Visual with video/image backup	Removal of Trees	Immediate	IRC:SP 84-2014
Rest Areas	Cleaning of toilets	-	Daily	-	-	Every 4 hours	
	Defects in electrical, water and sanitary installations	-	Daily	-	Rectification	24 hours	



Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Other Project Facilities and Approach roads	Damage or deterioration in Approach Roads, pedestrian facilities, truck lay-bys, bus-bays, bus-shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and other works		Daily	-	Rectification	15 days	IRC:SP 84-2014

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Pipe/box/slab culverts	Free waterway/unobstructed flow section	85% of culvert normal flow area to available.	2 times in a year (before and after rainy season)	Inspection by Bridge Engineer as per IRC SP: 35-1990 and recording of depth of silting and area of vegetation.	Cleaning silt up soils and debris in culvert barrel after rainy season, removal of bushes and vegetation, U/s of barrel, under barrel and D/s of barrel before rainy season.	15 days before onset of monsoon and within 30 days after end of rainy season.	IRC 5-2015, IRC SP:40-1993 and IRC SP:13-2004
	Leak-proof expansion joints if any	No leakage through expansion joints	Bi-Annually	Physical inspection of expansion joints as per IRC SP: 35-1990 if any, for leakage strains on walls at joints.	Fixing with sealant suitably	30 days or before onset of rains whichever comes earlier	IRC SP:40-1993 and IRC SP:69-2011
	Structurally sound	Spalling of concrete not more than 0.25 sqm	Bi-Annually	Detailed inspection of all components of culvert as per IRC SP:35-1990 and recording the defects	Repairs to spalling, cracking, delamination, rusting shall be followed as per IRC:SP:40-1993.	15 days	IRC SP 40-1993 and MORTH Specification clause 2800
		Delamination of concrete not more than 0.25 sq.m.					
		Cracks wider than 0.3 mm not more than 1m aggregate length					

	Protection works in good condition	Damaged of rough stone apron or bank revetment in not more than 3 sqm, damage to solid apron (concrete apron) not more than 1 sqm	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-1993 and IRC:SP:13-2004.
Bridges including ROBs Flyover etc. as applicable	Riding quality or user comfort	No pothole in wearing coat on bridge deck	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC or wearing coat	15 days	MORT&H Specification 2811
Bridge -Super Structure	Bumps	No bump at expansion joint	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC on either side of expansion joints, profile correction course on approach slab in case of settlement to approach embankment	15 days	MORT&H Specification 3004.2 & 2811.
	User safety (condition of crash barrier and guard rail)	No damaged or missing stretch of crash barrier or pedestrian hand railing	Daily	Visual inspection and detailed condition survey as per IRC SP: 35-1990.	Repairs and replacement of safety barriers as the case may be	3days	IRC: 5-1998, IRC SP: 84-2014 and IRC SP: 40-1993.

Rusted reinforcement	Not more than 0.25 sq.m	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out the repairs to affected concrete portion with epoxy mortar / concrete.	15 days	IRC SP: 40-1993 and MORTH Specification 1600.
Spalling of concrete	Not more than 0.50 sq.m					
Delamination	Not more than 0.50 sq.m					
Cracks wider than 0.30 mm	Not more than 1m total length	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting with epoxy mortar, investigating causes for cracks development and carry out necessary rehabilitation.	48 Hours	IRC SP: 40-1993 and MORTH Specification 2800.
Rainwater seepage through deck slab	Leakage - nil	Quarterly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting of deck slab at leakage areas, waterproofing, repairs to drainage spouts	1 months	MORTH specifications 2600 & 2700.
Deflection due to permanent loads and	Within design limits.	Once in every 10 years for spans more	Load test method	Carry out major rehabilitation works on bridge to retain original design loads capacity	6 months	IRC SP: 51-1999.

live loads		than 40 m				
Vibrations in bridge deck due to moving trucks	Frequency of vibrations shall not be more than 5 Hz	Once in every 5 years for spans more than 30m and every 10 years for spans between 15 to 30 m	Laser displacement sensors or laser vibro-meters	Strengthening of super structure	4 months	AASHTO LRFD specifications
Leakage in Expansion joints	No damage to elastomeric sealant compound in strip seal expansion joint, no leakage of rain water through expansion joint in case of buried and asphalt plug and copper strip joint.	Bi-Annually	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge Inspection Unit	Replace of seal in expansion joint	15 days	MORTH specifications 2600 and IRC SP: 40-1993.
Debris and dust in strip seal	No dust or debris in expansion joint	Monthly	Detailed condition survey as per IRC SP:35-1990 using	Cleaning of expansion joint gaps thoroughly	3 days	MORTH specifications 2600 and

	expansion joint	gap.		Mobile Bridge Inspection Unit			IRC SP: 40-1993.
	Drainage spouts	No down take pipe missing/broken below soffit of the deck slab. No silt, debris, clogging of drainage spout collection chamber.	Monthly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Cleaning of drainage spouts thoroughly. Replacement of missing/broken down take pipes with a minimum pipe extension of 500mm below soffit of slab. Providing sealant around the drainage spout if any leakages observed.	3 days	MORTH specification 2700.
Bridge-substructure	Cracks/spalling of concrete/rusted steel	No cracks, spalling of concrete and rusted steel	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out repairs to substructure by grouting/guniting and micro concreting depending on type of defect noticed	30 days	IRC SP: 40-1993 and MORTH specification 2800.

	Bearings	Delamination of bearing reinforcement not more than 5%, cracking or tearing of rubber not more than 2 locations per side, no rupture of reinforcement or rubber	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	In case of failure of even one bearing on any pier/abutment, all the bearings on that pier/abutment shall be replaced, in order to get uniform load transfer on to bearings.	3 months	MORTH specification 2810 and IRC SP: 40-199.
Bridge Foundations	Scouring around foundations	Scouring shall not be lower than maximum scour level for the bridge	Bi-Annually	Condition survey and visual inspection as per IRC SP:35-1990 using Mobile Bridge Inspection Unit. In case of doubt, use Underwater camera for inspection of deep wells in major Rivers.	Suitable protection works around pier/abutment	1 month	IRC SP: 40-1993, IRC 83-2014, MORTH specification 2500
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching.	30 days after defect observation or 2	IRC: SP 40-1993 and IRC:SP:13-2004.

		sq.m, damage to solid apron (concrete apron) not more than 1 sq.m				weeks before onset of rainy season whichever is earlier.	
<p><b>Note:</b> Any Structure during the entire contract period which is found that does not complies with all requirements of this Table will be prepared, rehabilitated or even reconstructed under the scope of the contractor.</p>							

Table 4: Maintenance Criteria for Structures and Culverts:



Table 5: Maintenance Criteria for Hill Roads-NA

In addition to above, for hill roads the following provisions for maintenance is also to done.

Hill Roads		
(i)	Damage to Retaining wall/ Breast wall	7 (Seven) days
(ii)	Landslides requiring clearance	12 (Twelve) hours
(iii)	Snow requiring clearance	24 (Twenty Four) hours

Note: For all tables 1 to 5 above, latest BIS & IRC standards (even those not indicated herewith) along with MoRTH specifications shall be binding for all maintenance activities.

A. Flexible Pavement

Nature of Defect or deficiency		Time limit for repair/ rectification
(b) Granular earth shoulders, side slopes, drains and culverts		
(i)	Variation by more than 1 % in the prescribed slope of camber/cross fall (shall not be less than the camber on the main carriageway)	7 (seven) days
(ii)	Edge drop at shoulders exceeding 40 mm	7 (seven) days
(iii)	Variation by more than 15% in the prescribed side (embankment) slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (seven) days
(v)	Damage to or silting of culverts and side drains	7 (seven) days
(vi)	Desilting of drains in urban/semi- urban areas	24 (twenty four) hours
(vii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
(c) Road side furniture including road sign and pavement marking		
(i)	Damage to shape or position, poor visibility or loss of retro- reflectivity	48 (forty eight) hours
(ii)	Painting of km stone, railing, parapets, crash barriers	As and when required/ Once every year
(iii)	Damaged/missing signs road requiring replacement	7 (seven) days
(iv)	Damage to road mark ups	7 (seven) days
(d) Road lighting		
(i)	Any major failure of the system	24 (twenty four) hours
(ii)	Faults and minor failures	8 (eight) hours
(e) Trees and plantation		

Nature of Defect or deficiency		Time limit for repair/rectification
(i)	Obstruction in a minimum head- room of 5 m above carriageway or obstruction in visibility of road signs	24 (twenty four)hours
(ii)	Removal of fallen trees from carriageway	4 (four) hours
(iii)	Deterioration in health of trees and bushes	Timely watering and treatment
(iv)	Trees and bushes requiring replacement	30 (thirty) days
(v)	Removal of vegetation affecting sight line and road structures	15 (fifteen) days
(f) Rest area		
(i)	Cleaning of toilets	Every 4 (four) hours
(ii)	Defects in electrical, water and sanitary installations	24 (twenty four) hours
(g) [Toll Plaza]		
(h)	Other Project Facilities and Approach roads	
(i)	Damage in approach roads, pedestrian facilities, truck lay- byes, bus-bays, bus-shelters, cattle crossings, [Traffic Aid Posts, Medical Aid Posts] and service roads	15 (fifteen) days
(ii)	Damaged vehicles or debris on the road	4 (four) hours
(iii)	Malfunctioning of the mobile crane	4 (four) hours
Bridges		
(a) Superstructure		
(i)	Any damage, cracks, spalling/ scaling Temporary measures Permanent measures	within 48 (forty eight) hours within 15 (fifteen) days or as specified by the Authority's Engineer
(b) Foundations		

Nature of Defect or deficiency		Time limit for repair/ rectification
(i)	Scouring and/or cavitation	15 (fifteen) days
(c) Piers, abutments, return walls and wing walls		
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days
(d) Bearings (metallic) of bridges		
(i)	Deformation, damages, tilting or shifting of bearings	15 (fifteen) days Greasing of metallic bearings once in a year
(e) Joints		
(i)	Malfunctioning of joints	15 (fifteen) days
(f) Other items		
(i)	Deforming of pads in elastomeric bearings	7 (seven) days
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (immediately within 24 hours if posing danger to safety)
(iv)	Rain-cuts or erosion of banks of the side slopes of approaches	7 (seven) days
(v)	Damage to wearing coat	15 (fifteen) days
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds	30 (thirty) days
(vii)	Growth of vegetation affecting the structure or obstructing the waterway	15 (fifteen) days
(g) Hill Roads		
(i)	Damage to retaining wall/breast wall	7 (seven) days
(ii)	Landslides requiring clearance	12 (twelve) hours

Nature of Defect or deficiency		Time limit for repair/ rectification
(iii)	Snow requiring clearance	24 (twenty four) hours

[Note: Where necessary, the Authority may modify the time limit for repair/rectification, or add to the nature of Defect or deficiency before issuing the bidding document, with the approval of the competent authority.]

## Schedule - F

*(See Clause 4.1 (vii)(a))*

### Applicable Permits

#### 1. Applicable Permits

- (i) The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits:
  - (a) Permission of the State Government for extraction of boulders from quarry;
  - (b) Permission of Village Panchayats and Pollution Control Board for installation of crushers;
  - (c) Licence for use of explosives;
  - (d) Permission of the State Government for drawing water from river/reservoir;
  - (e) Licence from inspector of factories or other competent Authority for setting up batching plant;
  - (f) Clearance of Pollution Control Board for setting up batching plant;
  - (g) Clearance of Village Panchayats and Pollution Control Board for setting up asphalt plant;
  - (h) Permission of Village Panchayats and State Government for borrow earth; and
  - (i) Any other permits or clearances required under Applicable Laws.
- (ii) Applicable Permits, as required, relating to environmental protection and conservation shall have been procured by the Authority in accordance with the provisions of this Agreement.

## Schedule – G

*(See Clauses 7.1 and 19.2)*

### Annex-I

*(See Clause 7.1)*

#### Form of Bank Guarantee

[Performance Security/Additional Performance Security]

[DG(RD)&SS,

Ministry of Road Transport & Highways Transport Bhawan, New Delhi]

WHEREAS:

- (A) \_\_\_\_\_ [name and address of contractor] (hereinafter called the “Contractor”) and [name and address of the authority], (hereinafter called the “Authority”) have entered into an agreement (hereinafter called the “Agreement”) for the construction of the \*\*\*\*\* section of [National Highway No. \*\*] on Engineering, Procurement and Construction (the “EPC”) basis, subject to and in accordance with the provisions of the Agreement
- (B) The Agreement requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the {Construction Period/ Defects Liability Period and Maintenance Period} (as defined in the Agreement) in a sum of Rs..... cr. (Rupees ..... crore) (the “Guarantee Amount”).
- (C) We, ..... through our branch at ..... (the “Bank”) have agreed to furnish this bank guarantee (*hereinafter called the* “Guarantee”) 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 Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an officer not below the rank of

[General Manager in the 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 Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfillment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority 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 authorised 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 Agreement.

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

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number and other details of the head office of the Bank as

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

well as of issuing branch should be mentioned on the covering letter of issuing branch.

## Annex – II

*(Schedule - G)*

*(See Clause 19.2)*

### Form for Guarantee for Advance Payment

[DG(RD)&SS,

Ministry of Road Transport & Highways Transport Bhawan, New Delhi]

WHEREAS:

- (A) [name and address of contractor] (hereinafter called the "Contractor") has executed an agreement (hereinafter called the "Agreement") with the [name and address of the authority], (hereinafter called the "Authority") for the construction of the \*\*\*\*\* section of [National Highway No. \*\*] on Engineering, Procurement and Construction (the "EPC") basis, subject to and in accordance with the provisions of the Agreement
- (B) In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest bearing @Bank Rate + 3% advance payment (herein after called "Advance Payment") equal to 10% (ten per cent) of the Contract Price; and that the Advance Payment shall be made in two installments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equivalent to 110% (one hundred and ten percent) of such installment to remain effective till the complete and full repayment of the installment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second} installment of the Advance Payment is Rs. ----- cr. (Rupees ----- crore) and the amount of this Guarantee is Rs. ----- cr. (Rupees ----- crore) (the "Guarantee Amount")\$.
- (C) We, ..... through our branch at ..... (the "Bank") have agreed to furnish this bank guarantee (*hereinafter called the "Guarantee"*) for the Guarantee Amount.

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

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid instalment of the Advance Payment under and in accordance with the Agreement, and agrees and undertakes to pay to the

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\$ The Guarantee Amount should be equivalent to 110% of the value of the applicable instalment.

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.

A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways Authority of India], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the instalment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

2. 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.
3. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
4. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
5. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.

6. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
7. The Guarantee shall cease to be in force and effect on \*\*\*\*.§ Unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder.
8. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
9. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
10. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

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

SIGNED, SEALED AND DELIVERED

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

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.

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§ Insert a date being 90 (ninety) days after the end of one year from the date of payment of the Advance payment to the Contractor (in accordance with Clause 19.2 of the Agreement).

- (ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.
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**SCHEDULE – H**  
**(See Clause 10.1.4 and 19.3)**

**Contract Price Weightages**

1.1 The Contract Price for this Agreement is Rs.			
1.2 Proportions of the Contract Price for different stages of Construction of the Project Highway shall be as specified below:			
Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
Road works including culverts, widening and repair of culverts.	49.63%	<b>A- Widening and strengthening of existing road</b>	
		(1) Earthwork up to top of the sub-grade	6.37%
		(2) Sub-Base course	17.68%
		(3) Non Bituminous Base Course	5.37%
		(4) Bituminous Base Course	12.67%
		(5) Wearing Coat	10.19%
		(6) Widening and repair of culverts	0.00%
		<b>B-1 Reconstruction/New 4-lane realignment/bypass (Flexible pavement)</b>	
		(1) Earthwork up to top of the sub-grade	0.48%
		(2) Sub-base Course	5.06%
		(3) Non Bituminous Base Course	1.81%
		(4) Bituminous Base Course	4.85%
		(5) Wearing Coat	3.91%
		<b>B-2 Reconstruction/New 2-lane realignment/bypass (Rigid pavement)</b>	
		(1) Earthwork up to top of the sub-grade	0.00%
		(2) Sub-base Course	0.00%
		(3) Dry Lean Concrete (DLC) Course	0.00%
		(4) Pavement Quality Control (PQC) Course	0.00%
		<b>C-1 Reconstruction/New service road (Flexible pavement)</b>	
		(1) Earthwork up to top of the sub-grade	0.03%
		(2) Sub-base Course	0.36%
		(3) Non Bituminous Base Course	0.11%
		(4) Bituminous Base Course	0.25%
		(5) Wearing Coat	0.20%
		<b>C-2 Reconstruction/New service road (Rigid pavement)</b>	
		(1) Earthwork up to top of the sub-grade	0.62%

		(2) Sub-base Course	4.72%
		(3) Dry Lean Concrete (DLC) Course	4.60%
		(4) Pavement Quality Control (PQC) Course	16.33%
		<b>D- Re-construction and New culverts on existing road, realignments, bypasses:</b>	
		Culverts (Length < 6 m)	4.38%
Minor Bridges/Underpasses/Overpasses	19.74%	<b>A-1 Widening and repairs of Minor Bridges (Length &gt; 6 m and &lt; 60 m)</b>	
		Minor Bridges	6.83%
		<b>A-2 New Minor Bridges (Length &gt; 6 m and &lt; 60 m)</b>	
		<b>(1) Foundation + Sub-structure:</b> On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	16.79%
		<b>(2) Super-structure:</b> On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect.	6.41%
		<b>(3) Approaches:</b> On completion of approaches including retaining walls, stone pitching, protection works complete in all respect and fit for use.	13.01%
		<b>(4) Guide Bunds and River Training Works:</b> On completion of Guide Bunds and river training works complete in all respects	0.00%
		<b>B.1- Widening and repair of underpasses/overpasses</b>	
		Underpasses/Overpasses	0.00%
		<b>B.2- New underpasses/overpasses</b>	
		<b>(1) Foundation + Sub-structure:</b> On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	9.92%
		<b>(2) Super-structure:</b> On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect.	5.11%
		Wearing coat (a) in case of Overpass- wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified.	

		<b>(3) Approaches:</b> On completion of approaches including retaining walls/Reinforced Earth Walls, stone pitching, protection works complete in all respect and fit for use.	41.94%
Major Bridge (length>60 m) works and ROB/RUB/elevated sections/flyovers including viaducts, if any	<b>10.23%</b>	<b>A.1- Widening and repairs of Major Bridges</b>	
		(1) Foundation	2.72%
		(2) Sub-structure	1.55%
		(3) Super-Structure (Including Bearings)	1.80%
		(4) Wearing Coat including expansion joints	0.23%
		(5) Miscellaneous Items like hand rails, Crash barriers, road markings etc.)	0.11%
		(6) Wing walls/return walls	0.00%
		(7) Guide Bunds, River Training Works etc.	0.00%
		(8) Approaches (including retaining walls, stone pitching, protection works)	0.59%
		<b>A.2- New Major Bridges</b>	
		(1) Foundation	9.05%
		(2) Sub-structure	5.17%
		(3) Super-Structure (Including Bearings)	6.00%
		(4) Wearing Coat including expansion joints	0.78%
		(5) Miscellaneous Items like hand rails, Crash barriers, road markings etc.)	0.35%
		(6) Wing walls/return walls	0.00%
		(7) Guide Bunds, River Training Works etc.	0.00%
		(8) Approaches (including retaining walls, stone pitching, protection works)	9.81%
		<b>B.1- Widening and repair of (a) ROB (b) RUB</b>	
		(1) Foundation	0.00%
		(2) Sub-structure	0.00%
		(3) Super-Structure (Including Bearings)	0.00%
		(4) Wearing Coat (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	0.00%
		(5) Miscellaneous Items like hand rails, Crash barriers, road markings etc.)	0.00%
		(6) Wing walls/return walls	0.00%
		(7) Approaches (including retaining walls, stone pitching, protection works	0.00%
		<b>B.2- New ROB/RUB</b>	



		<b>(a) ROB</b>	
		<b>(b) RUB</b>	
		(1) Foundation	0.00%
		(2) Sub-structure	0.00%
		(3) Super-Structure (Including Bearings)	0.00%
		(4) Wearing Coat (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	0.00%
		(5) Miscellaneous Items like hand rails, Crash barriers, road markings etc.)	0.00%
		(6) Wing walls/return walls	0.00%
		(7) Approaches (including retaining walls, stone pitching, protection works	0.00%
		<b>C.1- Widening and repair of Elevated Sections/Flyover/Grade Separators</b>	
		(1) Foundation	0.00%
		(2) Sub-structure	0.00%
		(3) Super-Structure (Including Bearings)	0.00%
		(4) Wearing Coat including expansion joints	0.00%
		(5) Miscellaneous Items like hand rails, Crash barriers, road markings etc.)	0.00%
		(6) Wing walls/return walls	0.00%
		(7) Approaches (including retaining walls/Reinforced Earth Wall, stone pitching, protection works)	0.00%
		<b>C.2- New Elevated Sections/Flyover/Grade Separators</b>	
		(1) Foundation	18.00%
		(2) Sub-structure	10.42%
		(3) Super-Structure (Including Bearings)	12.79%
		(4) Wearing Coat including expansion joints	1.42%
		(5) Miscellaneous Items like hand rails, Crash barriers, road markings etc.)	0.95%
		(6) Wing walls/return walls	0.00%
		(7) Approaches (including retaining walls/Reinforced Earth Wall, stone pitching, protection works)	18.26%
Other Works	20.40%	(i) Toll Plaza	5.58%
		(ii) Road side drains	20.63%
		(iii) Road signs, markings, km stones, safety devices, ....	3.04%
		(iv) Project facilities	
		(a) Bus Shelter	0.14%
		(b) Truck lay-byes	0.57%

		(c) Rest areas	0.00%
		(d) Others	16.52%
		(v) Protection works (incl. Metal Beam Crash Barrier & RCC Crash Barrier, Toe Wall)	30.18%
		(vi) Utility Shifting (PHE & Electrical)	23.34%
		(vii) Repair of protection works other than approaches to the bridges, elevated sections/ flyovers/grade separators and ROB/RUBs.	0.00%
		(viii) Safety and traffic management during construction	0.00%

## Schedule - I

*(See Clause 10.2 (iv))*

### Drawings

#### 1. Drawings

In compliance of the obligations set forth in Clause 10.2 of this Agreement, the Contractor shall furnish to the Authority's Engineer, free of cost, all Drawings listed in Annex-I of this Schedule-I.

#### 2. Additional Drawings

If the Authority's Engineer determines that for discharging its duties and functions under this Agreement, it requires any drawings other than those listed in Annex-I, it may by notice require the Contractor to prepare and furnish such drawings forthwith. Upon receiving a requisition to this effect, the Contractor shall promptly prepare and furnish such drawings to the Authority's Engineer, as if such drawings formed part of Annex-I of this Schedule-I.

Annex – I

*(Schedule - I)*

List of Drawings

[Note: The Authority shall describe in this Annex-I, all the Drawings that the Contractor is required to furnish under Clause 10.2.]

## Schedule - J

*(See Clause 10.3 (ii))*

### Project Completion Schedule

1. Project Completion Schedule

During Construction period, the Contractor shall comply with the requirements set forth in this Schedule-J for each of the Project Milestones and the Scheduled Completion Date. Within 15 (fifteen) days of the date of each Project Milestone, the Contractor shall notify the Authority of such compliance along with necessary particulars thereof.

2. Project Milestone-I

- (i) Project Milestone-I shall occur on the date falling on the [35% of the Scheduled Construction Period] 256<sup>th</sup> day from the Appointed Date (the "Project Milestone- I").
- (ii) Prior to the occurrence of Project Milestone-I, the Contractor shall have commenced construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 10% (ten per cent) of the Contract Price.

3. Project Milestone-II

- (i) Project Milestone-II shall occur on the date falling on the [60% of the Scheduled Construction Period] 438<sup>th</sup> day from the Appointed Date (the "Project Milestone- II").
- (ii) Prior to the occurrence of Project Milestone-II, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 35% (thirty five per cent) of the Contract Price and should have started construction of all bridges

4. Project Milestone-III

- (i) Project Milestone-III shall occur on the date falling on the [85% of the Scheduled Construction Period] 612<sup>th</sup> day from the Appointed Date (the "Project Milestone- III").
- (ii) Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 70% (seventy per cent) of the Contract Price and should have started construction of all project facilities.

5. Scheduled Completion Date

- (i) The Scheduled Completion Date shall occur on the 730th day from the Appointed Date.
- (ii) On or before the Scheduled Completion Date, the Contractor shall have completed construction in accordance with this Agreement.

6. Extension of time

Upon extension of any or all of the aforesaid Project Milestones or the Scheduled Completion Date, as the case may be, under and in accordance with the provisions of this Agreement, the Project Completion Schedule shall be deemed to have been amended accordingly.

## Schedule - K

*(See Clause 12.1 (ii))*

### Tests on Completion

#### 1. Schedule for Tests

- (i) The Contractor shall, no later than 30 (thirty) days prior to the likely completion of construction, notify the Authority's Engineer and the Authority of its intent to subject the Project Highway to Tests, and no later than 10 (ten) days prior to the actual date of Tests, furnish to the Authority's Engineer and the Authority detailed inventory and particulars of all works and equipment forming part of Works.
- (ii) The Contractor shall notify the Authority's Engineer of its readiness to subject the Project Highway to Tests at any time after 10 (ten) days from the date of such notice, and upon receipt of such notice, the Authority's Engineer shall, in consultation with the Contractor, determine the date and time for each Test and notify the same to the Authority who may designate its representative to witness the Tests. The Authority's Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Article 12 and this Schedule-K.

#### 2. Tests

- (i) Visual and physical test: The Contractor shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include [\*\*\*].
- (ii) Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a Network Survey Vehicle (NSV) fitted with latest equipments and the maximum permissible roughness for purposes of this Test shall be [2,000 (two thousand)] mm for each kilometre. Ministry's Letter No. RW/NH-33044/32/2019 S&R(P&B) GoI, Dated 13th Nov. 2019 regarding NSV be conducted by contractor.
- (iii) Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Nondestructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing. Test should be conducted by contractor.
- (iv) Other tests: The Authority's Engineer may require the Contractor to carry out or cause to be carried additional tests, in accordance with Good Industry Practice, for determining the compliance of the Project Highway with Specifications and Standards, except tests as specified in clause 5, but shall include measuring the reflectivity of road markings and road signs; and measuring the illumination level (lux) of lighting using requisite testing equipment.

- (v) Environmental audit: The **Contractor** shall carry out a check to determine conformity of the Project Highway with the environmental requirements set forth in Applicable Laws and Applicable Permits.
- (vi) Safety Audit: The **Contractor** shall carry out, or cause to be carried out, a safety audit to determine conformity of the Project Highway with the safety requirements and Good Industry Practice.

3. Agency for conducting Tests

All Tests set forth in this Schedule-K shall be conducted by the **Contractor** or such other agency or person as it may specify in consultation with the Authority.

4. Completion Certificate

Upon successful completion of Tests, the Authority's Engineer shall issue the Completion Certificate in accordance with the provisions of Article 12.

- 5. The **Contractor** will carry out tests with following equipment at his own cost in the presence of contractor's representative.

Sr. No.	Key metrics of Asset	Equipment to be used	Frequency of condition survey
1	Surface defects of pavement	Network Vehicle (NSV) Survey	At least twice a year (As per survey months defined for the state basis rainy season)
2	Roughness of pavement	Network Vehicle (NSV) Survey	At least twice a year (As per survey months defined for the state basis rainy season)
3	Strength of pavement	Falling Weight Deflectometer (FWD)	At least once a year
4	Bridges	Mobile Bridge Inspection Unit (MBU)	At least twice a year (As per survey months defined for the state basis rainy season)
5	Road signs	Retro-reflectometer	At least twice a year (As per survey months defined for the state basis rainy season)

The first testing with the help of NSV shall be conducted at the time of issue of Completion Certificate.



## Schedule - L

*(See Clause 12.2)*

### Completion Certificate

- 1 I, ..... (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated ..... (the "Agreement"), for [construction of the \*\*\*\*section (km \*\* to km \*\*) of National Highway No. \*\*\*] (the "Project Highway") on Engineering, Procurement and Construction (EPC) basis through ..... (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safely and reliably placed in service of the Users thereof.
- 2 It is certified that, in terms of the aforesaid Agreement, all works forming part of Project Highway have been completed, and the Project Highway is hereby declared fit for entry into operation on this the ..... day of ..... 20....., Scheduled Completed Date for which was the ..... day of .....20.....

SIGNED, SEALED AND DELIVERED

For and on behalf of the Authority's Engineer by:

(Signature)

(Name)

(Designation) (Address)

## Schedule - M

*(See Clauses 14.6, 15.2 and 19.7)*

### Payment Reduction for Non-Compliance

1. Payment reduction for non-compliance with the Maintenance Requirements
  - (i) Monthly lump sum payments for maintenance shall be reduced in the case of non-compliance with the Maintenance Requirements set forth in Schedule-E.
  - (ii) Any deduction made on account of non-compliance with the Maintenance Requirements shall not be paid even after compliance subsequently. The deductions shall continue to be made every month until compliance is done.
  - (iii) The Authority's Engineer shall calculate the amount of payment reduction on the basis of weightage in percentage assigned to non-conforming items as given in Paragraph 2.
2. Percentage reductions in lump sum payments on monthly basis
  - (i) The following percentages shall govern the payment reduction:

S. No.	Item/Defect/Deficiency	Percentage
(a)	Carriageway/Pavement	
(i)	Potholes, cracks, other surface defects	15%
(ii)	Repairs of Edges, Rutting	5%
(b)	Road, Embankment, Cuttings, Shoulders	
(i)	Edge drop, inadequate cross fall, undulations, settlement, potholes, ponding, obstructions	10%
(ii)	Deficient slopes, raincuts, disturbed pitching, vegetation growth, pruning of trees	5%
(c)	Bridges and Culverts	
(i)	Desilting, cleaning, vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to foundations	20%
(ii)	Any Defects in superstructures, bearings and sub-structures	10%

S. No.	Item/Defect/Deficiency	Percentage
(iii)	Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers	5%
(d)	Roadside Drains	
(i)	Cleaning and repair of drains	5%
(e)	Road Furniture	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5 <sup>th</sup> km stones	5%
(f)	Miscellaneous Items	
(i)	Removal of dead animals, broken down/accident vehicles, fallen trees, road blockades or malfunctioning of mobile crane	10%
(ii)	Any other Defects in accordance with paragraph 1.	5%
(g)	Defects in Other Project Facilities	5%

- (ii) The amount to be deducted from monthly lump-sum payment for non-compliance of particular item shall be calculated as under:

$$R = \frac{P}{100} \times (M1 \text{ or } M2) \times \frac{L1}{L}$$

Where,

P= Percentage of particular item/Defect/deficiency for deduction

M1= Monthly lump-sum payment in accordance para 1.2 above of this Schedule

M2= Monthly lump-sum payment in accordance para 1.2 above of this Schedule

L1= Non-complying length L = Total length of the road,

R= Reduction (the amount to be deducted for non-compliance for a particular item/Defect/deficiency)

The total amount of reduction shall be arrived at by summation of reductions for such items/Defects/deficiency or non-compliance.

For any Defect in a part of one kilometer, the non-conforming length shall be taken as one kilometer.

## Schedule - N

*(See Clause 18.1 (i))*

### Selection of Authority's Engineer

#### 1. Selection of Authority's Engineer

- (i) The provisions of the Model Request for Proposal for Selection of Technical Consultants, issued by the Ministry of Finance in May 2009, or any substitute thereof shall apply for selection of an experienced firm to discharge the functions and duties of an Authority's Engineer.
- (ii) In the event of termination of the Technical Consultants appointed in accordance with the provisions of Paragraph 1.1, the Authority shall appoint another firm of Technical Consultants forthwith and may engage a government-owned entity in accordance with the provisions of Paragraph 3 of this Schedule-N.

#### 2. Terms of Reference

The Terms of Reference for the Authority's Engineer (the "TOR") shall substantially conform with Annex 1 to this Schedule N.

#### 3. Appointment of Government entity as Authority's Engineer

Notwithstanding anything to the contrary contained in this Schedule, the Authority may in its discretion appoint a government-owned entity as the Authority's Engineer; provided that such entity shall be a body corporate having as one of its primary functions the provision of consulting, advisory and supervisory services for engineering projects; provided further that a government-owned entity which is owned or controlled by the Authority shall not be eligible for appointment as Authority's Engineer.

Annex – I

*(Schedule - N)*

Terms of Reference for Authority's Engineer

1. Scope

- (i) These Terms of Reference (the “TOR”) for the Authority’s Engineer are being specified pursuant to the EPC Agreement dated ..... (the “Agreement”), which has been entered into between the [name and address of the Authority] (the “Authority”) and ..... (the “Contractor”) for Widening and Reconstruction to 4 Lane/4 lane with Service road including structures from Bhagalpur at km 4.000(Ex Km 4+065) to Kharhara Village (Dhaka More) at km 36.600 (Ex Km 36+680) of NH-133E in the State of Bihar on EPC mode (Job No. NH-133E.....2022-23-321) and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.

# - In case the bid of Authority’s Engineer is invited simultaneously with the bid of EPC project, then the status of bidding of EPC project only to be indicated

- (ii) The TOR shall apply to construction and maintenance of the Project Highway.

2. Definitions and interpretation

- (i) The words and expressions beginning with or in capital letters and not defined herein but defined in the Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Agreement.
- (ii) References to Articles, Clauses and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be references to the Articles, Clauses and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.
- (iii) The rules of interpretation stated in Article 1 of the Agreement shall apply, mutatis mutandis, to this TOR.

3. General

- (i) The Authority’s Engineer shall discharge its duties in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.
- (ii) The Authority’s Engineer shall perform the duties and exercise the authority in accordance with the provisions of this Agreement, but subject to obtaining prior written approval of the Authority before determining:
- (a) any Time Extension;
- (b) any additional cost to be paid by the Authority to the Contractor;

- (c) the Termination Payment; or
  - (d) issuance of Completion Certificate or
  - (e) any other matter which is not specified in (a), (b), (c) or (d) above and which creates a financial liability on either Party.
- (iii) The Authority's Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month.
  - (iv) The Authority's Engineer shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority's prior approval in accordance with the provisions of Clause 18.2.
  - (v) The Authority's Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article 13.
  - (vi) In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Authority's Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

#### 4. Construction Period

- (i) During the Construction Period, the Authority's Engineer shall review and approve the Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 10.1 (vi). The Authority's Engineer shall complete such review and approval and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended upto 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.
- (ii) The Authority's Engineer shall review and approve any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving such Drawings.
- (iii) The Authority's Engineer shall review and approve the Quality Assurance Plan submitted by the Contractor and shall convey its comments to the Contractor within a period of 21 (twenty one) days stating the modifications, if any, required thereto.

- (iv) The Authority's Engineer shall complete the review and approve of the methodology proposed to be adopted by the Contractor for executing the Works, and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.
- (v) The Authority's Engineer shall grant written approval to the Contractor, where necessary, for interruption and diversion of the flow of traffic in the existing lane(s) of the Project Highway for purposes of maintenance during the Construction Period in accordance with the provisions of Clause 10.4.
- (vi) The Authority's Engineer shall review the monthly progress report furnished by the Contractor and send its comments thereon to the Authority and the Contractor within 7 (seven) days of receipt of such report.
- (vii) The Authority's Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Authority's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.
- (viii) The Authority's Engineer shall conduct the pre-construction review of manufacturer's test reports and standard samples of manufactured Materials, and such other Materials as the Authority's Engineer may require.
- (ix) For determining that the Works conform to Specifications and Standards, the Authority's Engineer shall require the Contractor to carry out, or cause to be carried out, tests at such time and frequency and in such manner as specified in the Agreement and in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph 4 (ix), the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the "Quality Control Manuals") or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.
- (x) The Authority's Engineer shall test check at least 50 (fifty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.
- (xi) The timing of tests referred to in Paragraph 4 (ix), and the criteria for acceptance/rejection of their results shall be determined by the Authority's Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.
- (xii) In the event that results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Authority's Engineer shall require the Contractor to carry out remedial measures.

- (xiii) The Authority's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.
- (xiv) In the event that the Contractor fails to achieve any of the Project Milestones, the Authority's Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority's Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority's Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.
- (xv) The Authority's Engineer shall obtain from the Contractor a copy of all the Contractor's quality control records and documents before the Completion Certificate is issued pursuant to Clause 12.2.
- (xvi) Authority's Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measure, the Authority's Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.
- (xvii) In the event that the Contractor carries out any remedial measures to secure the safety of suspended works and Users, and requires the Authority's Engineer to inspect such works, the Authority's Engineer shall inspect the suspended works within 3 (three) days of receiving such notice, and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.
- (xviii) The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate, as the case may be. For carrying out its functions under this Paragraph 4 (xviii) and all matters incidental thereto, the Authority's Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-K.

## 5. Maintenance Period

- (i) The Authority's Engineer shall aid and advise the Contractor in the preparation of its monthly Maintenance Programme and for this purpose carry out a joint monthly inspection with the Contractor.
- (ii) The Authority's Engineer shall undertake regular inspections, at least once every month, to evaluate compliance with the Maintenance Requirements and submit a Maintenance Inspection Report to the Authority and the Contractor.



- (iii) The Authority's Engineer shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Project Highway is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and the remedial measures, if any, taken by the Contractor in this behalf.
- (iv) In respect of any defect or deficiency referred to in Paragraph 3 of Schedule- E, the Authority's Engineer shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.
- (v) The Authority's Engineer shall examine the request of the Contractor for closure of any lane(s) of the Project Highway for undertaking maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Authority's Engineer shall monitor the reopening of such lane(s), and in case of delay, determine the Damages payable by the Contractor to the Authority under Clause 14.5.

#### 6. Determination of costs and time

- (i) The Authority's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.
- (ii) The Authority's Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.
- (iii) The Authority's Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 18.5.

#### 7. Payments

- (i) The Authority's Engineer shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority's Engineer in accordance with the provisions of Clause 10.2 (iv) (d).
- (ii) Authority's Engineer shall -
  - (a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 19.4, determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment, pending issue of the Interim Payment Certificate; and
  - (b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable to the

Contractor, after adjustments in accordance with the provisions of Clause 19.10.

- (iii) The Authority's Engineer shall, within 15 (fifteen) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Clause 19.6, verify the Contractor's monthly statement and certify the amount to be paid to the Contractor in accordance with the provisions of the Agreement.
- (iv) The Authority's Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance in accordance with the provisions of Clause 19.16.

8. Other duties and functions

The Authority's Engineer shall perform all other duties and functions as specified in the Agreement.

9. Miscellaneous

- (i) A copy of all communications, comments, instructions, Drawings or Documents sent by the Authority's Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Authority's Engineer thereon, shall be furnished by the Authority's Engineer to the Authority forthwith.
- (ii) The Authority's Engineer shall retain at least one copy each of all Drawings and Documents received by it, including 'as-built' Drawings, and keep them in its safe custody.
- (iii) Within 90 (ninety) days of the Project Completion Date, the Authority's Engineer shall obtain a complete set of as-built Drawings, in 2 (two) hard copies and in micro film form or in such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities; and shall hand them over to the Authority against receipt thereof.
- (iv) The Authority's Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.
- (v) The Authority's Engineer shall inform the Authority and the Contractor of any event of Contractor's Default within one week of its occurrence.

## Schedule - O

*(See Clauses 19.4 (i), 19.6 (i), and 19.8 (i))*

### Forms of Payment Statements

#### 1. Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

- (a) the estimated amount for the Works executed in accordance with Clause 19.3 (i) subsequent to the last claim;
- (b) amounts reflecting adjustments in price for the aforesaid claim;
- (c) the estimated amount of each Change of Scope Order executed subsequent to the last claim;
- (d) amounts reflecting adjustment in price, if any, for (c) above in accordance with the provisions of Clause 13.2 (iii) (a);
- (e) total of (a), (b), (c) and (d) above;
- (f) Deductions:
  - i. Any amount to be deducted in accordance with the provisions of the Agreement except taxes;
  - ii. Any amount towards deduction of taxes; and
  - iii. Total of (i) and (ii) above.
- (g) Net claim: (e) – (f) (iii);
- (h) The amounts received by the Contractor upto the last claim:
  - i. For the Works executed (excluding Change of Scope orders);
  - ii. For Change of Scope Orders, and
  - iii. Taxes deducted

#### 2. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

- (a) the monthly payment admissible in accordance with the provisions of the Agreement;
- (b) the deductions for maintenance work not done;
- (c) net payment for maintenance due, (a) minus (b);
- (d) amounts reflecting adjustments in price under Clause 19.12; and
- (e) amount towards deduction of taxes

#### 3. Contractor's claim for Damages

Note: The Contractor shall submit its claims in a form acceptable to the Authority.

## Schedule - P

*(See Clause 20.1)*

### Insurance

#### 1. Insurance during Construction Period

- (i) The Contractor shall effect and maintain at its own cost, from the Appointed Date till the date of issue of the Completion Certificate, the following insurances for any loss or damage occurring on account of Non Political Event of Force Majeure, malicious act, accidental damage, explosion, fire and terrorism:
  - (a) insurance of Works, Plant and Materials and an additional sum of [15 (fifteen)] per cent of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature; and
  - (b) insurance for the Contractor's equipment and Documents brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.
- (ii) The insurance under sub para (a) and (b) of paragraph 1(i) above shall cover the Authority and the Contractor against all loss or damage from any cause arising under paragraph 1.1 other than risks which are not insurable at commercial terms.

#### 2. Insurance for Contractor's Defects Liability

The Contractor shall effect and maintain insurance cover of not less than 15% of the Contract Price for the Works from the date of issue of the Completion Certificate until the end of the Defects Liability Period for any loss or damage for which the Contractor is liable and which arises from a cause occurring prior to the issue of the Completion Certificate. The Contractor shall also maintain other insurances for maximum sums as may be required under the Applicable Laws and in accordance with Good Industry Practice.

#### 3. Insurance against injury to persons and damage to property

- (i) The Contractor shall insure against its liability for any loss, damage, death or bodily injury, or damage to any property (except things insured under Paragraphs 1 and 2 of this Schedule or to any person (except persons insured under Clause 20.9), which may arise out of the Contractor's performance of this Agreement. This insurance shall be for a limit per occurrence of not less than the amount stated below with no limit on the number of occurrences.

The insurance cover shall be not less than: Rs. [\*\*\*\*\*]

- (ii) The insurance shall be extended to cover liability for all loss and damage to the Authority's property arising out of the Contractor's performance of this Agreement excluding:
  - (a) the Authority's right to have the construction works executed on, over, under, in or through any land, and to occupy this land for the Works; and
  - (b) damage which is an unavoidable result of the Contractor's obligations to execute the Works.
- 4. Insurance to be in joint names

The insurance under paragraphs 1 to 3 above shall be in the joint names of the Contractor and the Authority.

## Schedule-Q

*(See Clause 14.10)*

### Tests on Completion of Maintenance Period

1. Riding Quality test:

Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be [2,200 (two thousand and two hundred only)] mm for each kilometre.

2. Visual and physical test:

*The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include measurement of cracking, rutting, stripping and potholes and shall be as per the requirement of maintenance mentioned in Schedule-E.*

## Schedule-R

*(See Clause 14.10)*

### Taking Over Certificate

I, ..... (Name and designation of the Authority's Representative) under and in accordance with the Agreement dated ..... (the "Agreement"), for [construction of the \*\*\*\*section (km \*\* to km \*\*) of

\*\*\*\*] (the "Project Highway") on Engineering, Procurement and Construction (EPC) basis through ..... (Name of Contractor), hereby certify that the Tests on completion of Maintenance Period in accordance with Article 14 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement and I hereby certify that the Authority has taken over the Project highway from the Contractor on this day.....

SIGNED, SEALED AND DELIVERED

(Signature)

(Name and designation of Authority's Representative)

(Address)

\*\*\*\*\* End of the Document \*\*\*\*\*