भारत सरकार / Government of India

रेल मंत्रालय / Ministry of Railways

(रेलवे बोर्ड / Railway Board)

No.2018/CE-I/CT/36-EPC Contract Policy Pt-I **New Delhi, Dated 07.04.2025**

To,
As per list attached.

Sub: Standard Engineering, Procurement and Construction (EPC) Tender Document for Single Stage Two Packet System

Ref: (i) Railway Board's letter No. 2018/CE-I/CT/36-EPC Contract Policy dated 29.10.2019

(ii) Railway Board's letters of even number dated 15.11.2021, 20.05.2022, 19.12.2022, 15.05.2023, 07.08.2023, 11.10.2023, 29.12.2023 & 01.03.2024

The documents for Request for Proposal (RFP) and Standard Engineering, Procurement and Construction (EPC) Agreement for Single Stage Two Packet System of Tendering were issued vide Board's letters dated 29.10.2019 & 15.11.2021, and the same were uploaded on IR website www.indianrailways.gov.in >> "About Indian Railways" >> "Railway Board Directorates" >> "Civil Engineering" >> "EPC Tender Document (Single Stage)". Later on, the same were amended vide letters dated 20.05.2022, 19.12.2022, 15.05.2023, 07.08.2023, 11.10.2023, 29.12.2023 & 01.03.2024.

2. Now, Board (MI, MF, CRB & CEO) have approved further modifications in certain items and accordingly new documents have been prepared for Request for Proposal (RFP) and Standard EPC Agreement (with or without Schedule G-1) for Single Stage Two Packet System of Tendering duly incorporating all the amendments issued earlier and the same are available on the above Indian Railways website.

3. This issues with the concurrence of Finance Directorate of Ministry of Railways.

DA: As Above

अजीत कुमार झा 7.4.25
(अजीत कुमार झा) 7.4.25

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No.2018/CE-I/CT/36-EPC Contract Policy Pt-I **New Delhi, Dated 07.04.2025**

Copy forwarded for information to:

1. The PFAs, All Indian Railways.
2. Dy. Comptroller and Auditor General of India (Railways), Room No. 224, Rail Bhawan, New Delhi

For **Member Finance**

LIST FOR DISTRIBUTION (No. 2018/CE-I/CT/36-EPC Contract Policy Pt-I dated 07.04.2025)

1. General Managers, All Indian Railways & Production Units
2. General Manager (Con), N.F. Railway, Guwahati
3. General Manager /CORE, Allahabad
4. Chief Administrative Officers (Con), All Indian Railways (Except N.F. Railway)
5. Principal Chief Engineers, All Indian Railways

(A)

1. CAO, COFMOW, Tilak Bridge, New Delhi
2. Principal CAO, Diesel Loco Modernization Works, Patiala (Punjab)
3. CAO (Workshop Projects), Chamber Bhawan, Judge's Court Road, Anta Ghat, Patna-800001, Bihar

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1. Director General, RDSO, Manak Nagar, Lucknow
2. Director General, NAIR, Vadodara
3. Director General, IRICEN, Pune – 411 001 (Maharashtra)
4. Director General, IRIEEN, PB No.-233, Nasik Road-422101 (Maharashtra)
5. Director General, IRISET, Taa Naka Road, Lalla Guda, Secunderabad-500017
6. Director, IRIMEE, Jamalpur Distt-Jamalpur, PIN-811214 (Bihar)
7. Director General, IRITM, Sarswati Residential Estate, IRITM Campus, Manak Nagar, Lucknow

(C)

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4. CMD, RVNL, August Kranti Bhawan,Plot No.25, 1st Floor, Bhikaji Cama Place, New Delhi
5. CMD, MRVC Ltd., Churchgate Station Bldg, Mumbai- 400020
6. CMD, KONKAN Railway Corporation Ltd, Rail Bhawan, New Delhi-110001
7. MD, DFCCIL, 5th Floor, Pragati Maidan Metro Station Building Complex, New Delhi-110001
8. Chairman, RLDA, Near Safdarjung Railway Station, Moti Bagh, Phase-I, New Delhi- 110021
9. MD, CRIS, Chanakyapur, New Delhi
10. CMD, RailTel Corporation of India Ltd. Plot No. 143, Institutional Area, Sector-44, Gurgaon – 122003
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13. CMD, IRCTC Ltd., B-148, 11th Floor, Statesman House, Barakhamba Road, New Delhi 110001
14. CMD, Braithwaite & Co. limited, 5 Hide Road Kolkata 700043

Copy to:

(A)

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2. General Secretary, AIRF, Rail Bhawan, New Delhi
3. General Secretary, NFIR, Rail Bhawan, New Delhi
4. General Secretary, IRPOF, Rail Bhawan, New Delhi
5. General Secretary, FROA, Rail Bhawan, New Delhi
6. General Secretary, AIRPA, Rail Bhawan, New Delhi
7. General Secretary, AISC & STREA, Rail Bhawan, New Delhi
8. The Secretary, RBSS, Group (A) Offices Association, Rail Bhawan
9. The Secretary, RBSS, Group (B) Offices Association, Rail Bhawan
10. General Secretary, RBSSS Association, Rail Bhawan
11. The Secretary, RBMSA, Rail Bhawan
12. The Secretary, Railway, Group (D) Employees Association, Rail Bhawan

(B)

1. Concerned PSO for kind information of Chairman cum CEO, M/Infra, M/T&RS M/O&BD, M/Finance, Railway Board
2. Adv./MR, EDPG/MR, OSD/MR, OSR(Co-ord)/MR
3. Chief Vigilance Officers, All Indian Railways
4. DG(RHS), DG(RPF), AM(CE), AM(Works), AM(B), AM(Elec.), AM(RS), AM(ME), AM/Tele, AM/C&IS, AM/Sig., AM(Plg.), PED(B&S), PED(Vigilance), EDCE(P), PED/Safety, PED/Gati Shakti, EDCE(G), EDTK(M&MC), EDCE(B&S), EDF(X), ED/GS(Civil-I), ED/GS(Civil-II), ED/GS(Elect.), ED/GS(S&T), ED/GS/SD, EDW(Plg.), ED(L&A), ED(PSU), EDVE, ED(Safety), ED(Sig. Dev.), ED(Tele), EDRS(G), EDEE(G), EDFE, EDE(N), ED(Accounts), ED/T&MPP, EDME(Chg.), EDME(Frt.), ED/Plg., JS(conf), JS(P), JS(G), JS(D), Vigilance-III, Vig(Conf) of Railway Board.

7.4.25

Standard Engineering, Procurement and Construction (EPC) Agreement without Schedule G-1 for Railway Projects

Ministry of Railways

Government of India

April 2025

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P R E A M B L E

Need for EPC contracts:

Railways had hitherto been undertaking construction projects through the conventional item rate contracts where the Authority provides the detailed design as well as the estimates of quantities for different items of work (Bill of Quantities). Payments to the contractor are made on the basis of measurements of the work done in respect of each item. Experience in railway projects shows that item rate contracts are prone to excessive time and cost overruns due to delays in design and drawing, variation in items and quantities and inadequate fund provisions as allocation of construction risks are largely to the Authority Considerable time of Project Engineers is consumed in dealing with variations in quantities, introduction of Non-Schedule Items and variation in contract price

The growing requirements of the economy will necessitate faster expansion of the freight network through new capacity creation. Considering that improved and modernised project execution capabilities would be critical for speedy capacity creation, it has been decided to adopt the Engineering, Procurement and Construction (EPC) mode of contracting for construction of railway projects.

On Indian Railways, EPC model has been used earlier in a limited way for constructing some bridges on Jammu-Udhampur rail link. However, in railway sector, EPC model has been extensively and successfully used by Delhi Metro Rail Corporation (DMRC) over the years. Accordingly, the processes for design approval, supervision and monitoring etc have been suitably incorporated in the Model EPC Agreement as per the practices being followed in DMRC.

Based on the Railways' experiences (above 5 years), a 10 member SAG review committee (convener HAG) was constituted by Railway Board to evaluate relevant provisions. Following a detailed assessments, deliberations of committee’s findings and consultation with all stakeholders, revised provisions were proposed and accepted.

Model EPC Agreement:

The aforesaid drawbacks of item rate contracting can be addressed by adopting the EPC approach that relies on assigning the responsibility for investigations, design and construction to the contractor for a lump sum price determined through competitive bidding. The objective is to ensure speedy implementation of the project to the specified standards and effective designs, and least time overrun while assigning & balancing various risks judiciously between contractor and authority.

This Standard EPC Agreement provides a contractual framework that balances the allocation of risks and rewards, provides equity of obligations and penalties between Authority and the Contractor, minimises the ambiguities and uncertainties, thus improves the predictability of

cost & time. It also follows the global best practices related to force majeure, termination and dispute resolution, apart from transparent and fair procedures

The Contractor also has full freedom to plan the construction schedule for efficient use of its manpower, equipment and other resource while payments are linked to specified stages of construction (payment milestones) vis-à-vis the payment for individual items/units under the item rate contract. Awarding contract for a lump sum price ensures value engineering, balancing of risks and financial discipline, both for the contractor and the Authority. The contract price is subject to adjustment on account of price variation during the contract period as per specified formula

Technical parameters:

The Standard EPC Agreement specifies the required design standards and allows the Contractor to design and construct the project using design engineering and global best practices to achieve quality, speed, efficiency and economy as compared to the item rate contract that relies on a fixed design provided by the Authority.

Only the core requirements of design and construction of the railway project that have a bearing on the quality and safety of assets are to be specified and enough room would be left for the contractor to add value. This would provide the requisite flexibility to the contractor in evolving and adopting the efficient designs without compromising on the quality and safety.

Contract period:

The contract period is determined on a project-specific basis depending on the volume of construction work involved. The Contractor shall be liable to pay Damages at the specified rate for each day of delay beyond the specified date of completion, subject to the total amount of Damages not exceeding 10 per cent of the Contract Price. However, the Contractor shall be entitled to time extension arising out of delays on account of change of scope and force majeure or delays caused by or attributable to the Authority

Selection of contractor:

Selection of the contractor will be based on open competitive bidding. All project parameters such as the contract period, price adjustments and technical parameters are to be clearly stated upfront along with lump sum price for the Railway Project.

Risk allocation:

Projects risks such as soil conditions and weather or commercial and technical risks relating to design and construction have been assigned to the Contractor. The Authority accepts its liability to pay damages to the Contractor for any delays in handing over the land, approvals from road authorities for road over-bridges/under-bridges at level crossings, environment clearances, shifting of utilities and approvals in respect of engineering scale plan and signalling interlocking plan.

Design and Construction:

It defines the scope of the railway project with precision and predictability to enable the Contractor to determine its costs and obligations. It also lays down a ceiling of 25 per cent of contract price to cater for any changes in the scope of project, the cost of which the Authority will bear.

The Contractor shall carry out survey and investigations and also develop designs and drawings in conformity with the specifications and standards laid down in the Agreement. Authority's engineer shall review the design and drawings to ensure that these conform to the scope of the project, design standards and specifications. The EPC agreement also stipulates provisions for quality control and quality assurance.

Monitoring and Supervision:

Monitoring and supervision of construction are proposed to be undertaken through an engineer to be designated as 'Authority's Engineer', who would be assisted by requisite organizational support for day-to-day interaction between the Authority and the Contractor. Typical organizational structure proposed to be followed for Authority's Engineer shall be in line with the organizational set up being followed by DMRC for monitoring and supervision of their EPC contracts. The Authority's Engineer will act as a single window for coordination with the contractor.

The Agreement provides for the schedule indicating the timeline within which Authority will ensure the clearances of design proposals submitted by the contractor. Any comment by the Authority on the design proposals submitted by the contractor will be communicated in totality once in a time-bound manner as indicated in the schedule. The contractor will be free to proceed with construction after the expiry of specified period in case no remarks/clearances are given by the Authority.

Milestone based payments:

A simple and rational method for estimating interim payments to the Contractor has been provided in the Agreement. It ensures that payments are made for works conforming to the Agreement and commensurate with the stages of completion of works. Works have been broadly divided into three categories, namely, civil and track works, signalling and telecommunication works and electrification works, which could be taken together under a single project or separately under different projects. Each item of work has been further sub-divided into stages and payment will be made for each completed stage of work.

A provision has been made for damages which the Contractor shall pay to Authority for not achieving the prescribed milestones. Authority will pay bonus to the Contractor for completion of the project before the scheduled completion date.

Defects liability period:

Though normally a defects liability period of one year is specified in most contracts, a defects liability period of two years has been specified in the Agreement in order to provide additional comfort to the Authority.

Termination dispute resolution:

In the event the Authority terminates the Agreement on account of any of the specified defaults of the Contractor, the Agreement allows the Authority to forfeit the performance security & retention money of the Contractor. Similarly, defaults by the Authority are proposed to qualify for adequate compensatory payments to the contractor. The Agreement also addresses issues relating to dispute resolution and provides a mechanism for the same

****

Part I

Preliminary

ENGINEERING, PROCUREMENT AND CONSTRUCTION AGREEMENT

THIS AGREEMENT[1] is entered into on this the …….. day of ……, 20…..

BETWEEN

1 [The President of India, represented by ***, *** Railway, [Delhi], and having its principal offices at ******, [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

2 {……}[2,] means the selected bidder[3] having its registered office at ……, (hereinafter referred to as the "**Contractor**" which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns) of the Other Part.

WHEREAS:

(A) The Authority has the responsibility to develop, operate and maintain the Indian Railways in the territorial jurisdiction of the ****[4] Railway zone[5].

(B) The Authority had resolved to [undertake the construction of new railway line between **** and**** in the **** Railway zone] on Engineering, Procurement, Construction ("**EPC**") basis in accordance with the terms and conditions to be set forth in an agreement to be entered into.

(C) The Authority had prescribed the Technical and Financial terms and conditions, and invited Request for Participation (RFP) No. ----------dated ----------from the bidders for undertaking the Project.

(D) After evaluation of the bids received, the Authority had accepted the bid of the selected bidder and issued its Letter of Acceptance No. *** dated *** (hereinafter

---

[1] Serially numbered footnotes in this Agreement are for guidance of the Authorityand should be omitted from the draft EPC Agreement forming part of Bid Documents. Footnotes marked $ shall be retained in the draft Agreement.

[2]All provisions enclosed in curly parenthesis shall be retained in the Bid Documents and shall be modified as required after the selected bidder has been identified.

[3]Refers to the single entity or the lead member of the Consortium/Joint venture, which is the selected bidder

[4]All asterisks in this Agreement should be substituted by project-specific particulars in the draft Agreement forming part of the Bid Documents.

[5]All project-specific provisions in this Standardl EPCAgreement have been enclosed in square parenthesis and may be modified, as necessary, before issuing the draft EPC Agreement forming part of Bid Documents

called the "**LOA**") to the selected bidder for construction of the above railway line at the Contract Price specified hereinafter, requiring the selected bidder to inter alia:

(i) deliver to the Authority a legal opinion from the legal counsel of the selected bidder with respect to the authority of the selected bidder to enter into this Agreement and the enforceability of the provisions thereof, within 10 (ten) days of the date of issue of LOA; and

(ii) execute this Agreement within 60 (Sixty) 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 and agreements 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 INTERPRETATION

1.1 Definitions

The words and expressions beginning with capital letters and defined in this Agreement (including those in Article 26) 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.

1.2 Interpretation

1.2.1 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, labour, delivery, transportation, installation, processing, fabrication, testing, and commissioning of the Railway Project, 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) reference to a "**business day**" shall be construed as reference to a day (other than a Sunday) on which banks in the State 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 "reorganisation" 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, reorganisation, 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, licence or document of any description shall be construed as reference to that agreement, deed, instrument, licence or other document as amended, varied, supplemented, modified or suspended at the time of such reference; provided that this Sub-clause(s) 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, authorisation, notice, communication, information or report required under or pursuant to this Agreement from or by any Party or the Authority Engineer shall be valid and effective only if it is in writing under the hand of a duly authorised representative of such Party or the Authority 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, Provisos or Schedules in this Agreement shall, except where the context otherwise requires, mean references to Recitals, Articles, Clauses, Sub-clauses, Provisos and Schedules of or to this Agreement; reference to an Annex shall, subject to anything to the contrary specified therein, be construed as a reference to an Annex to the Schedule in which such reference occurs; and reference to a Paragraph shall, subject to anything to the contrary specified therein, be construed as a reference to a Paragraph of the Schedule or Annex, as the case may be, 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 (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.

1.2.2 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.

1.2.3 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.

1.2.4 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

1.4.1 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 EPC 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).

1.4.2 Subject to the provisions of Clause 1.4.1, 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

1.5.1 If the Contractor has formed a Consortium/Joint Venture of two or more persons for implementing the Project:

(a) these persons shall, without prejudice to the provisions of this 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 Consortium/Joint Venture is effected without the prior consent of the Authority.

1.5.2 Without prejudice to the joint and several liability of all the members of the Consortium/Joint Venture, the Lead Member shall represent all the members of the Consortium/Joint Venture and shall at all times be liable and responsible for

discharging the functions and obligations of the Contractor. The Contractor shall ensure that each member of the Consortium/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 liable for the *inter se* allocation of payments among members of the {Consortium/Joint Venture}}.

Part II

Scope of the 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 Railway Project on the Site set forth in Schedule-A and as specified in Schedule-B together with provision of Project Facilities as specified in Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-**D, with Contractor's own Material Supplies including[mainline sleepers],Turnout sleepers, Special sleepers (for SEJ/Guard Rails,/LXings etc), Points (switches) & Crossings with all matching fastening components, Glued Joints, H-beam/Composite sleepers over Girder Bridges, SEJs, Guard rails, Check Rails, [fishplates], [welding portions] etc., all Signalling, Telecom and OHE/PSI/Electrification/Lighting materials as per laid down specifications.**

(b) **[Mainline Sleepers and] Rails, except those covered in Clause 2.1(a) above shall be supplied by the Authority free of cost.**

(c) Performance and fulfilment 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 CONTRACTOR

3.1 Obligations of the Contractor

3.1.1 Subject to and on the terms and conditions of this Agreement, the Contractor shall undertake the survey, investigation, design, engineering, procurement, and construction of the Railway Project and observe, fulfil, comply with and perform all its obligations set out in this Agreement or arising hereunder.

3.1.2 The Contractor shall comply with all Applicable Laws and Applicable Permits (including renewals as required) in the performance of its obligations under this Agreement.

3.1.3 Save and except as otherwise provided in this Agreement or Applicable Laws, as the case may be, the Contractor shall, in discharge of all its obligations under this Agreement, conform with and adhere to Good Industry Practice at all times.

3.1.4 The Contractor shall remedy any and all loss or damage to the Railway Project, occurring on or after the Appointed Date and until the date of Provisional Certificate, with respect to the Works completed prior to the issuance of the Provisional Certificate and/or Completion Certificate, with respect to the Works referred to in the Punch List, at its own cost, save and except to the extent that any such loss or damage shall have arisen from any default of the Authority or on account of a Force Majeure Event in which case the provisions of Article 19 shall apply.

3.1.5 The Contractor shall remedy any and all loss or damage to the Railway Project during the Defects Liability Period at its own cost, to the extent that such loss or damage shall have arisen out of the reasons specified in Clause 15.3.

3.1.6 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-E and obtain and keep in force and effect such Applicable Permits in conformity with Applicable Laws;

(b) procure, as required, the appropriate proprietary rights, licences, agreements and permissions for Materials, methods, processes, know-how and systems used or incorporated into the Railway Project;

(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 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) always act in a manner consistent with the provisions of this Agreement and not cause or fail to do any act, deed or thing, whether intentionally or otherwise, which may in any manner be in violation of any of the 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 labour in accordance with Applicable Laws and Good Industry Practice;

(h) keep, on the Site, a copy of this Agreement, publications named in this Agreement, the Drawings, Documents relating to the Project, Change of Scope Orders and other communications sent under this Agreement, and provide access to all these documents at all reasonable times to the Authority Engineer and its authorised personnel;

(i) cooperate with other contractors employed by the Authority and with personnel of any other 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 the existing facilities within the Right of Way, irrespective of whether they are public or in the possession of the Authority or of others.

(k) to provide reasoned comments on any information relating to the contractor's activities under or pursuant to the agreement, which the Authority may publish.

3.1.7 The Contractor shall undertake all necessary superintendence to plan, arrange, direct, manage, inspect and test the Works.

3.2 Obligations relating to sub-contracts and any other agreements

3.2.1 The Contractor shall not sub-contract the Works comprising more than 70% (seventy per cent) of the Contract Price and shall carry out Works for at least 30% (thirty per cent) of the total Contract Price directly under its own supervision and through its own personnel. The Parties expressly agree that for the purposes of computing the value of sub-contracts under this Clause 3.2.1, the Contract Price shall exclude any sub-contract for the procurement of goods and equipment like [rails, sleepers and track fittings, signalling and telecommunication & Power supply equipments]. The Parties agree that all obligations and liabilities under this Agreement for the entire Railway Project shall at all time remain with the Contractor. {The Parties agree that the obligations of the Contractor to carry out Works equal to at least 30% (thirty per cent) of the Contract Price shall be discharged solely by the Lead Member.}[$]

3.2.2 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

[$] May be deleted if the Contractor is not a Consortium/Joint Venture.

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. Provided, however, that in any event the Contractor shall communicate the name and particulars to the Authority for any sub-contract including the relevant experience 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 and shall have no claim whatsoever on this account.

3.2.3 Without prejudice to the provisions of Clause 3.2.2, in the event any sub-contract referred to in Clause 3.2.2 relates to a sub-contractor who has, over the preceding 3 (three) financial years and the current financial year , 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 80% (eighty per cent) of such contract, 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.

3.2.4 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 hereunder.

3.2.5 Notwithstanding anything to the contrary contained in this Concession Agreement, the Concessionaire agrees and acknowledges that it will not assign any work to any contractor/sub- contractor from a country which shares a land border with India unless such contractor/sub-contractor is registered with the competent Authority. Concessionaire will ensure that such Contractor/sub-contractor fulfils all requirements in this regard and is eligible to be considered (evidence of valid registration by the competent authority is enclosed). The Competent Authority for registration will be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT), India.

3.2.6 Contractor shall be liable for the regular payment to the sub-Contractor.

3.2.7 Contractor in each Interim payment certificate (IPC) reflect the amount of payment to be paid to the Sub-Contractor. The invoices raised by Sub-Contractor for his bill shall be submitted along with IPC, duly attested by the Sub-Contractor.

3.2.8 In the subsequent Interim Payment Certificate (IPC), the Contractor shall submit a certificate of Sub-Contractor that they have received the bill amount of previous stage payment statement.

3.2.9 In case of dispute over sum of amount to be paid to the sub-Contractor or non-payment to Sub-Contractor, Authority Engineer may raise the issue to the Contractor. After, issue has been raised, Contractor shall resolve the issue within 10 days. In case issue is not resolved, *Authority Engineer shall* pay *payment due as decided by authority*, to the Sub-Contractor from the forthcoming IPC of Contractor.

3.3 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 and will always be of 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 Force Majeure Event, and shall not in any manner excuse the Contractor from the performance and discharge of its obligations and liabilities under this Agreement.

3.4 Contractor's personnel

3.4.1 The Contractor shall ensure and procure that the personnel engaged by it or by its Sub-contractors for performance of its obligations under this Agreement are at all times appropriately qualified, skilled and experienced in their respective functions including in conformity with Applicable Laws including the Indian Railway General and Subsidiary Rules, [the Indian Electricity Rules], and Good Industry Practice.

3.4.2 The Authority 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 from the Railway Project. Provided, any such direction issued by the Authority Engineer shall specify the reasons for the removal of such person.

3.4.3 The Contractor shall, on receiving a direction from the Authority Engineer under the provisions of Clause 3.4.2, ensure and procure the removal of such person or persons from the Railway Project with immediate effect. The Contractor shall further ensure that such persons have no further connection with the Railway Project.

3.4.4 The Contractor shall be responsible for the Security of the Work Site and for keeping the unauthorized persons off the Site.

3.5 Advertisement on Railway Project

The Contractor shall not use the Railway Project or any part thereof in any manner for branding or advertising purposes including for advertising any commercial product or services or companies.

3.6 Contractor's care of the Works

The Contractor shall bear full risk in and take full responsibility for the care of Works, and of Materials, goods and equipment for incorporation therein, on and from the Appointed Date and until the date of Provisional Certificate, with respect to the Works completed prior to the issuance of the Provisional Certificate and/or Completion Certificate, with respect to the Works referred to in the Punch List, save and except to the extent that any such loss or damage shall have arisen from any default or neglect of the Authority.

3.7 Electricity, water and other services

The Contractor shall be responsible for procuring of all power, water and other services that it may require for the Railway Project.

3.8 Unforeseeable difficulties

Except as otherwise specified 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.

For the purposes of this Clause, unforeseeable difficulties include natural physical conditions including sub-surface and hydrological conditions which the Contractor encounters at the Site during execution of the Works.

[3.9 Training of Authority's personnel

3.9.1 The Contractor shall provide and complete the training to the personnel of the Authority in diagnostic, trouble shooting, repairing, operation and maintenance of the signalling and telecommunication equipment. The number of persons to be trained shall not exceed [6 (six)] and the period of training shall be for a period of [** (**)] weeks. The training shall be completed before the issuance of the Provisional Certificate/ Completion Certificate. Before the issue of any handing-over certificate, the final O& M Manuals, wherever required, shall be submitted by the contractor to the Authority Engineer.

[3.9.2 The Contractor shall provide training to the personnel of the Authority in SCADA. The number of persons to be trained shall not exceed [6 (six)] and the period of training shall be at least [** (**)] weeks. The training shall be completed before the issuance of the Provisional Certificate/ Completion Certificate.][6]

3.10 Safety at work site

The Contractor and its sub-contractors shall follow the safety instructions and take all safety measures for workmen and vehicles plying in the work area in accordance with Applicable Laws, Good Industry Practice and the provisions of this Agreement.

[6]Delete it if not applicable.

ARTICLE 4

OBLIGATIONS OF THE AUTHORITY

4.1 Obligations of the Authority

4.1.1 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.

4.1.2 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.

4.1.3 The Authority shall, upon receiving the Performance Security under Clause 7.1.1, provide to the Contractor:

(a) the Right of Way in accordance with the provisions of Clauses 8.2 and 8.3 on no less than 95% (ninety five per cent)of core land length and 90% (ninety percent) of non-core land length of the total length of the Railway Project before appointed date;

(b) all environmental and forest clearances as required under Clause 4.3[7]before appointed date; and

[(c) approval of the general arrangement drawings (the "**GAD**") from concerned authorities to enable the Contractor to construct road over-bridges, under-bridges and canal crossings on the Railway Project in accordance with the Scope, 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.][8]

4.1.4 In the event that (i) the Authority does not procure fulfilment of any or all of the obligations set forth in Clause 4.1.3 within the period specified in respect thereof, and (ii) the delay has not occurred as a result of breach of this Agreement by the Contractor or due to Force Majeure, the Authority shall pay to the Contractor Damages in a sum calculated in accordance with the provisions of Clause 8.3 of this Agreement and grant Time Extension in accordance with the provisions of Clause 10.4.

[For the avoidance of doubt, the Parties agree that the Damages for delay in approval of GAD by the road authorities for a particular railway over-bridge or a railway under-bridge or a canal crossing shall be deemed to be equivalent to the Damages payable under the provisions of Clause 8.3 for delay in providing Right of Way for a

[7]Clause 4.1.3(b) may be suitably modified in the event that all the environmental clearances for the Project Railway have been received or are not required. It should be clearly stated that all the environmental clearances for the Project Railway have been received; or such environmental clearances for the Project Railway are not required.

[8]Clause (c) may be omitted if the Project does not include a road over-bridge/under-bridge.

length of 1 (one) kilometre for each such railway over-bridge or railway line under-bridge or canal crossings, as the case may be.]

4.1.5 Notwithstanding anything to the contrary contained in this Agreement, the Parties expressly agree that the aggregate Damages payable by the Authority under Clauses 4.1.4,4.4.3, 8.3 and 9.2 shall not exceed 5% (five 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 Railway Project.

4.1.6 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 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 Works are erected or placed on or about the Railway Project by any Government Instrumentality or persons claiming through or under it, except for reasons of Emergency, national security or law and order;

(d) not do or omit to do any act, deed or thing which may in any manner is in violation of any of the 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 3.3, provide reasonable assistance to the Contractor and any expatriate personnel of the Contractor or its Sub-contractors to obtain applicable visas and 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.

4.2 Maintenance and operationof the existing facilities

The Authority shall undertake the maintenance of the facilities existing prior to the Appointed Dateincluding railway lines, bridges, structures, electrical, signaling and communications works within the Right of Way.

4.3 Environmental and Forest Clearances

The Authority represents and warrants that the environmental and forest clearances of Land mentioned in clause 4.1.3 (a)will be obtained before Appointed Date. In the event of any delay, the Contractor shall be entitled to Time Extension for the period of such delay in accordance with the provisions of Clause 10.4 of this Agreement and shall also be entitled to Damages calculated as if the Right of Way for and in respect of such sections of the Railway Project has not been provided in accordance with the provisions of Clause 8.2 and as a consequence thereof, the Contractor shall be entitled to Damages under and in accordance with the provisions of Clause 8.3. For the avoidance of doubt, the present status of environmental and forest clearances is specified in Schedule-A.[9]

4.4 Machinery and equipment

4.4.1 The Authority shall upon receiving a request from the Contractor, provide the machinery and equipment specified in Schedule P on payment of hire charges at the monthly rates specified therein. The Parties agree that the monthly rate for each machine or equipment shall be inclusive of fuel and all other operating charges, which shall be converted into daily rates taking a month comprising 25 (twenty five) working days. The Parties further agree that for each machinery or equipment:

(a) The charges shall be payable for a day even if a machine or equipment is used for less than 8 (eight) hours, so long as it has been placed at the disposal of the Contractor and has not been withdrawn;

(b) the daily rates shall be computed for a shift of 8 (eight) hours taken as one day. By way of illustration, if the machinery or equipment is used for 16 (sixteen) hours on any day, the charges payable shall be equal to twice the daily rate; and

[(c) for any machinery or equipment which can be used only during the period of a Power Block or Traffic Block, no payment shall be due or payable for the day on which such block is not provided to the Contractor.]

4.4.2 The Contractor shall by notice of at least three weeks convey to the Authority the particulars of the machinery and equipment required for each day of the following one month.

4.4.3 In the event that the Authority does not provide any machinery and equipment at the designated time in pursuance of the provisions of Clause 4.4.1, the Contractor shall be entitled to Damages in an amount equal twice the rates specified in Schedule-P. Provided further that the Contractor shall be entitled to Time Extension in accordance with the provisions of Clause 10.4 if the number of days for which the machinery has

[9]Clause 4.3 may be suitably modified in the event that all the environmental/forest clearances for the Project Railway have been received or are not required. It should be clearly stated that all the environmental/forest clearances for the Railway Project has been received; or such environmental/forest clearances for the Railway Project are not required.

not been provided continuously exceeds 7 (seven) and/ or the total number of days of not providing the machinery exceed 15 (fifteen) days in a period of 03 months.[10]

[**4.5 Electricity transmission lines**

The Authority shall procure the Applicable Permits and right of way for the erection, installation, and energisation of the transmission lines required for operating the Railway Project.][11]

4.6 Disconnection for modification of existing signalling and telecommunication works

The Contractor shall on requirement of disconnection of a particular subsystem for modification in the existing signalling and telecommunication system at railway stations, level crossing gates and interlocked sections, inform the Authority Engineer by notice of at least one week of its readiness for commissioning and the Authority Engineer shall obtain the requisite approvals from the Authority for the required disconnections. All such work requiring disconnection of existing signalling systems shall be executed under supervision of Authority Engineer or his representative. The Parties expressly agree that in the event of any default in providing such disconnection, the Authority shall pay to the Contractor Damages at the rate of Rs.1,000 (Rupees one thousand) per day. The Contractor shall ensure that there is no interruption/ disturbance to operational circuits in such cases of modification of signalling and telecom systems.

[4.7 Provision of Power Blocks and Traffic Blocks

4.7.1 The Authority shall provide Power Block or Traffic Block or both to enable the Contractor to undertake the construction of overhead equipment, or such other work as may be determined by the Authority Engineer.

4.7.2 The Contractor shall, in consultation with the Authority Engineer, submit a weekly programme of Blocks, commencing from Monday, with a notice of at least 1 (one) week and the Authority Engineer shall convey the approved weekly programme to the Contractor no less than 3 (three) days prior to the start of such week.

4.7.3 The minimum period for which a Power Block or Traffic Block shall be provided to the Contractor shall not be less than two hours, period being counted from the time the track is placed at the disposal of the Contractor and until it is cleared by the Contractor. Provided, however, that a Power Block or Traffic Block, as the case may be, of shorter duration may be provided with mutual consent of the Parties.

4.7.4 The aggregate period of Power Block and Traffic Block to be provided to the Contractor during the Construction Period is specified in Schedule-O. The Contractor shall organise its work so as to complete all Construction Works within such aggregate period. However, this aggregate period may be increased by the Authority Engineer on Contractor's request, if the same is considered justified and reasonable under the prevailing circumstances.

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[10] Delete if not applicable.

[11] Delete if not applicable.

4.7.5 In the event of any change in the schedule of Power Block or Traffic Block or both, as the case may be, the Authority shall inform the Contractor by a notice of not less than 24 (twenty four) hours. Provided, however, that no such notice shall be required in case of a breakdown, accident, law and order disturbance, natural calamity or any other unusual occurrence or Emergency.

4.7.6 In the event a Power Block or Traffic Block, as the case may be, is not provided for any day in accordance with the confirmed programme, the Contractor shall be compensated by providing an additional Power Block or Traffic Block of equal time during the same week or the following week. The Parties expressly agree that in the event of any default in providing such additional blocks for compensating the Contractor, the Authority shall pay to the Contractor Damages at the rate of Rs.1,000 (Rupees one thousand) per day for each hour which has not been provided as required hereunder and until such hour is provided during any of the 6 (six) following weeks.

4.7.7 The Contractor shall be entitled to undertake the Construction Works within the aggregate period specified in Schedule-O. Provided, however, that in the event the aggregate period utilised by the Contractor exceeds the period specified in Schedule-O and the extra time granted thereto under clause 4.7.4 if any, the Contractor shall pay to the Authority hourly charges at the rate specified therein.]

ARTICLE 5

REPRESENTATIONS AND WARRANTIES

5.1 Representations and warranties of the Contractor

The Contractor represents and warrants to the Authority that:

(a) it is duly organised 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 other actions under Applicable Laws to authorise 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 obligations 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 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, result in the breach of, 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) all information provided by the {selected bidder/ members of the Consortium/Joint Venture} in response to the RFP or otherwise, is to the best of its knowledge and belief, true and accurate in all material respects; and

(m) 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.

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 Applicable Laws to authorise 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 shall have procured, as on the Appointed Date, Right of Way and environment clearances such that the Contractor can commence construction forthwith on 95% (ninety five per cent) of the core land length and 90% of non-core land length of the Railway Project.

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

6.1.1 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 (RFP), Scope of the Project, Specifications and Standards, 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 4.1.2 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.

6.1.2 The Contractor acknowledges and hereby accepts to have satisfied itself as to the correctness and sufficiency of the Contract Price.

6.1.3 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 6.1.1 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.

6.1.4 The Parties agree that any mistake or error in or relating to any of the matters set forth in Clause 6.1.1 above shall not vitiate this Agreement, or render it voidable.

6.1.5 In the event that either Party becomes aware of any mistake or error relating to any of the matters set forth in Clause 6.1.1 above, that Party shall immediately notify the other Party, specifying the mistake or error.

6.1.6 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

ARTICLE 7

PERFORMANCE SECURITY

7.1 Performance Security[12]

7.1.1 Contractor shall, for the performance of its obligations hereunder, provide to the Authority, within 30(Thirty) days of issue of LOA, Performance security in the form of [Insurance Surety Bond*/ account payee demand draft/ fixed deposit receipt from a commercial bank/ online payment in an acceptable form/ an irrevocable and unconditional Bank Guarantee (the "**Performance Security**")], for an amount equal to 5% (Five percent) of the Contract Price from a Bank in the form set forth in Annex-I/IA of Schedule-F

The Performance Security shall be valid until 60 (sixty) days of the expiry of the Defects Liability Period specified in Clause 15.1.1. Until such time the Performance Security is provided by the Contractor pursuant hereto and the same comes into effect, the 'Bid Security' shall remain in force and effect, and upon such provision of the Performance Security, the Authority shall release the Bid Security to the Contractor. For the avoidance of doubt, the Parties expressly agree that the Contractor shall provide, no later than 30 (thirty) days prior to the expiry of the Performance Security for the Defects Liability Period specified in Clause 15.1.1, a Performance Security in respect of the extended Defects Liability Period, as specified in Clause 15.1.2, for an amount equal to 5%Five percent of the estimated cost of the Structures, Important Bridges, if any, comprising a new technology not currently in use in the Railways and the interlocking and telecom switching equipment as specified in Schedule B.

***Note (In case PG in for of Insurance Surety Bond):**
In case of extension of Date of Completion, selected bidder needs to submit extended Insurance Surety Bond/Fresh Insurance Surety Bond/fresh Performance Security, in any form as given above, before expiry of existing Insurance Surety Bond.

7.1.2 Notwithstanding anything to the contrary contained in this Agreement, the Parties agree that in the event of failure of the Contractor to provide the Performance Security in accordance with the provisions of Clause 7.1.1 and within the time specified therein or such extended period as may be provided by the Authority, in accordance with the provisions of Clause 7.1.3, the Authority shall encash the Bid Security and appropriate the proceeds thereof as part-Damages, and thereupon all 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 with the concurrence of the Contractor, and this Agreement shall be deemed to have been terminated by mutual agreement of the Parties along with further levy of the Liquidated Damages equivalent to the stipulated 'Performance Security', which shall be recoverable from contractor's pending/future dues with IR in any of the ongoing/future contracts.

[12]This is different from Rentention Money

7.1.3 In the event the Contractor fails to provide the Performance Security within 30 (Thirty) days of the issue of LOA as provided in Clause 7.1.1 above, the contractor may seek extension of time for a period not exceeding a further 30(thirty) days on payment of damages for such extended period equivalent to a sum calculated at the rate of 0.01% (zero point zero one percent)of the Contract Price for each day until the Performance Security is provided.(i.e. from 31stday to 60th day).

7.2 Extension of 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

7.3.1 Upon occurrence of a Contractor Default, the Authority shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to encash and appropriate from the Performance Security the amounts due to it as Damages for the Contractor Default.

7.3.2 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 21. Upon such replenishment or furnishing of a fresh Performance Security, as the case may be, the Contractor shall be entitled to an additional Cure Period of 30 (thirty) days for remedying the Contractor 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 21.

7.4 Release of Performance Security

The Authority shall release the Performance Security within 60 (sixty) days of the expiry of the Defects Liability Period or the extended Defects Liability Period, as the case may be, 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 or the extended Defects Liability Period, as the case may be, have been rectified.

7.5 Retention Money[13]

7.5.1 From every payment for Works due to the Contractor in accordance with the provisions of Clause 17.5, the Authority shall deduct 6% (six percent) 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

[13]This is different from Performance Security

maximum amount of Retention Money shall not exceed 5% (five per cent) of the Contract Price.

7.5.2 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.

7.5.3 The Contractor may, upon furnishing an irrevocable and unconditional bank guarantee substantially in the form provided at Annex-II of Schedule-For FDR/Insurance surety bonds, require the Authority to refund the Retention Money deducted by the Authority under the provisions of Clause 7.5.1. Provided that the refund hereunder shall be made in tranches of not less than 0.5% (zero point five percent) of the Contract Price. Further, the Retention money may be deposited as Bank Guarantee, issued by Scheduled commercial Bank or FDR/Insurance surety bonds after signing of Contract Agreement, but before payment of first payment bill. Provided further that validity of Bank Guarantee shall be extended from time to time depending upon extension of Contract granted.

7.5.4 Within 15 (fifteen) days of the date of issue of the Completion Certificate, the Authority shall discharge the bank guarantees, if any, furnished by the Contractor under the provisions of Clause 7.5.3 and refund the balance of Retention Money remaining with the Authority after adjusting the amounts appropriated under the provisions of Clause 7.5.2 and the amounts refunded under the provisions of Clause 7.5.3.

7.5.5 The Parties agree that in the event of Termination of this Agreement, the Retention Money and the bank guarantees 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 21.6.

ARTICLE 8

RIGHT OF WAY

8.1 The Site

The site of the Railway Project (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 plan, Longitudinal section, Yard Plans/ESP and electrification sectioning diagram] finalised by the Authority and attached with this document, free from all encroachments and encumbrances, and free access thereto for the execution of this Agreement;

[This Right of Way will not include completely free access to locations where working may affect safety of train traffic (i.e. relay room, locations boxes etc). In such cases, right of work will be arranged by the Authority Engineer on written request made by contractor at least 7 days in advance, if such request is reasonable.]

(b) obtaining environmental clearance and forest clearance for the Railway Project.

8.2 Handing over of the Project Site

8.2.1 The Authority Representative and the Contractor shall, within 15 (fifteen) days of providing the Performance Security by the Contractor in accordance with the provisions of Clause 7.1, jointly inspect the Site and prepare a joint memorandum containing an inventory of the Site including the vacant and unencumbered land, buildings, structures, road/ railway works, trees and any other immovable property on or attached to the Site. Subject to the provisions of Clause 8.2.3, such 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. Signing of the memorandum, in 2 (two) counterparts (each of which shall constitute an original), by the authorised representatives of the Parties shall be deemed to constitute a valid evidence of handing over of 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.

For the avoidance of doubt, the Parties agree that subject to the provisions of Clauses 8.2.2 and 8.2.3, whenever the Authority is ready to provide Right of Way for any part or parts of the Site included in the **"Appendix",** it shall by notice inform the Contractor, of the proposed date and time when the Authority Representative and the Contractor shall inspect the specified parts of the Site, and prepare a memorandum which shall be deemed to constitute a valid evidence of handing over of such Right of Way to the Contractor in accordance with the provisions of this Clause 8.2.1.

8.2.2 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 8.2.1. For the avoidance of doubt,

the Parties expressly agree that the Appendix shall in no event contain Sections of the Railway Project the cumulative length of which exceeds 5% (Five per cent) of the core land length and 10%(Ten percent) of the non-core land length of the Railway Project.

8.2.3 The Authority shall provide the Right of Way to the Contractor, in respect of the land included in the Appendix, by the date specified in Schedule-A for each part of the Site referred to therein, but in no case later than 180 (one hundred and eighty) days of the Appointed Date, 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.

8.3 Damages for delay in handing over the Site

8.3.1 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 grant a suitable extension to time and no damages will be paid to the contractor.

In the event that any Damages are due and payable to the Contractor under the provisions of this Clause 8.3.1 for delay in providing the Right of Way, the Contractor shall, subject to the provisions of Clause 10.4, be entitled to Time Extension equal to the period for which the Damages have become due and payable under this Clause 8.3.1, 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 10.4 shall be restricted only to failure of the Authority to provide the Right of Way for and in respect of the width of the Site required for Works in accordance with the Good Industry Practice.

8.3.2 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 is granted within 180 (one hundred and eighty) days of 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 8.3.1.

8.3.3 Notwithstanding anything to the contrary contained in this Agreement, the Authority may at any time withdraw any part of the Right of Way and the Works forming part of this Agreement, subject to such Works not exceeding an aggregate value, such value to be determined in accordance with Schedule-G, equal to 5% (five per cent) of the Contract Price.

Provided that if Right of Way has not been provided within 240 (two hundred and forty) days of the Appointed Date, for commencing construction on any part of the Site included in the Appendix, the affected Works shall be deemed to be withdrawn under the provisions of this Clause 8.3.3 unless the Parties agree to the contrary, and

such Works shall not be computed for the purposes of the aforesaid ceiling of 5% (five per cent) of the Contract Price hereunder. For the avoidance of doubt, the Parties agree that such deemed withdrawal of Works hereunder shall be without prejudice to the Contractor's entitlement to Damages under Clauses 4.1.4, 8.3 and 9.2.

8.3.4 In the event of withdrawal of Works under Clause 8.3.3, including deemed withdrawal of Works, the Contract Price shall be reduced by an amount equal to 95% (ninety five 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, including their deemed withdrawal, save and except for Damages as provided under Clause 4.3.

Provided that if any Works are withdrawn after commencement of the Construction of such Works, the Authority shall pay to the Contractor 100% (one hundred) of the fair value of the work done, as assessed by the Authority Engineer:

8.4 Site to be free from Eencumbrances

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 on account 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 8.2.1, and until the issue of the Provisional Certificate, the Contractor shall maintain a round-the-clock vigil over the Site and shall ensure and procure that no encroachment thereon takes place. 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 interest 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 Railway Project and the performance of its obligations under this Agreement.

8.7 Access to the Authority and the Authority Engineer

8.7.1 The Right of Way given to the Contractor hereunder shall always be subject to the right of access of the Authority and the Authority Engineer and their employees and agents for inspection, viewing and exercise of their rights and performance of their obligations under this Agreement.

8.7.2 The Contractor shall ensure, subject to all relevant safety procedures, that the Authority has unrestricted access to the Site during any Emergency.

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 Authority or 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, the Contractor shall 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.

9.1.1 The works of shifting of utility (ies) owned by Railways and already communicated to Contractor as part of Tender document shall be part of schedule-G. List of utilities (Railway owned or other) is being made available to the contractor as part of Tender document. However, the contractor shall have to conduct the inspection/investigation of the utilities before execution of the work independently.

9.2 Shifting of obstructing utilities

9.2.1 The Contractor shall, in accordance with Applicable Laws and with the proactive support & assistance of the Authority, cause shifting of any utility (including electric lines, water pipes and telephone cables) to an appropriate location or alignment, if such utility or obstruction adversely affects/ infringes the execution of Works in accordance with this Agreement. The actual cost of shifting/relocation of such utilities, as approved and communicated/demanded by the entity owning such utility, shall be paid by the Authority directly to the entity. In the event of any delay in such shifting by the entity owning the utility beyond a period of 180 (one hundred and eighty) days from the date of notice by the Contractor to the entity owning the utility and to the Authority, the Contractor shall be entitled to Damages in a sum calculated in accordance with the formula specified in Clause 8.3.1 for the period of delay, and to Time Extension in accordance with Clause 10.4 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.

9.2.2 For the existing utilities owned by Railways, where the shifting thereof can take place only after certain works for enabling its shifting have been completed by the Contractor, the Authority shall, undertake and complete its shifting within 180 (one hundred and eighty) days after the Contractor has notified the Authority of the completion of the enabling works. In the event of delay in shifting the utility, beyond the aforesaid period of 180 (one hundred and eighty) days, the Contractor shall be entitled to Damages for the period of delay in accordance with the provisions of this Clause 9.2.1.

9.2.3 The utilities which are not to be diverted, proper supporting shall be done to prevent any damage. No payment shall however be made for supporting and protecting the utilities during execution of the work. All temporary diversion of any utilities done to facilitate the construction activity shall be the part of the schedule G.

9.3 New utilities

9.3.1 The Contractor shall allow, subject to such conditions as the Authority may specify, access to, and use of the Site for laying telephone lines, water pipes, electric 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 Railway Project in accordance with this Agreement and any damage caused by such use shall be restored forthwith at the cost of the Authority.

9.3.2 In the event the 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 in accordance with Clause 10.4 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.

9.4 Felling of trees

The Authority shall obtain the Applicable Permits for felling of trees to be identified by the Authority for this purpose if and only if such trees cause a Material Adverse Effect on the construction of the Railway Project. The cost of such felling and of the compensatory plantation of trees, if any, shall be borne by the Authority. 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 part 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; and for any period of delay in providing the Applicable Permits, the Contractor shall be entitled to Damages and Time Extension as provided under Clause 9.2.1.

ARTICLE 10

DESIGN AND CONSTRUCTION OF THE RAILWAY PROJECT

10.1 Obligations prior to commencement of Works

10.1.1 Within 20 (twenty) days of the Appointed Date, the Contractor shall:

(a) appoint its representative, duly authorised 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, Applicable Laws and Applicable Permits; and

(d) make its own arrangements for quarrying and procurement of materials needed for the Railway Project under and in accordance with Applicable Laws and Applicable Permits.

10.1.2 The Authority shall, within 15 (fifteen) days of the date of this Agreement, appoint an engineer (the "**Authority Engineer**") 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 Engineer forthwith.

10.1.3 Within 30 (thirty) days of the Appointed Date, the Contractor shall submit to the Authority and the Authority Engineer a programme/CPM Charts & Bar Charts (the "**a Resource loaded Programme**") for construction of Works, developed using networking techniques and giving the following details:

Part I Contractor's organisation for the Project, the project execution plan indicating arrangements for design and construction i.e. engagement of design consultants, project phasing and sub-contracting etc., environmental management plan, Quality Assurance Plan including design quality plan, traffic management and safety plan covering safety of users and workers during construction, Contractor's key personnel, and equipment.

In case of non- submission of documents beyond 30 days from appointed dat e the damages shall be imposed as under –

a) QAP which includes design quality plan, MTP, ITP etc. @ Rs. 25,000/- per day
b) Environmental management plan @ Rs. 10,000/- per day
c) Method Statement @ Rs. 10000/- per method statement per day.

Part II Programme for completion of all stages of construction given in Schedule-G and Project Milestones of the Works as specified in Project Completion Schedule set forth in Schedule-I. The Programme shall include:

(a) the order in which the Contractor intends to carry out the Works,

including the anticipated timing of design and stages of Works;

(b) the periods for reviews under Clause 10.2; and

(c) the sequence and timing of inspections and tests specified in this Agreement.

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

Part III Monthly cash flow forecast for the Project

Provided, however, that the Authority may, within a period of 21 (twenty-one)days of receipt of the Programme, convey its comments to the Contractor stating the modifications, if any, required for compliance with the provisions of this Agreement, and the Contractor shall carry out such modifications, to the extent required for conforming with the provisions of this Agreement.

PartIV Monthly account of resources (Men and Machinery) proposed to be deployed to complete the milestone/contract in specified time. Failure to deploy the resources will make contractor liable for penalty as decided by authority. The penalties so recovered can be refunded if the contractor make good the resources and achieve next milestone.

The Contractor shall submit a revised resource loaded programme whenever the previous programme is inconsistent with the actual progress or with the Contractor's obligation.

10.1.4 The Contractor shall plan the project work by keeping Schedule-G into consideration in order to maximise the cash flow and progress. However the Authority Engineer may modify/break up any of the stage payment schedule(payment milestones) during execution if the same is considered essential to speed up the progress or if the contractor is not able to achieve a particular payment milestone due to the reasons/delays attributable to the Authority or due to the factors beyond the control of Contractor or to any unforeseen circumstances.

10.1.5 Procurement of items should be planned by the Contractor in consultation with the Authority Engineer. Procurement plan should be prepared in such a manner that those materials which have limited shelf life may be procured in a staggered manner so that materials are utilised/consumed well before its expiry. If the material/product does not remain of required specifications at the time of its actual use, the same will be replaced by the Contractor with materials confirming to Specifications at his own cost.

10.2 Design and Drawings

10.2.1 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 or unforeseen issues, the alternative design criteria for such section shall be provided for review/approval of the Authority Engineer.

10.2.1AIn case Contractor is not having in house design team then - The Contractor shall appoint a "Design Consultant" at its cost after proposing to the Authority a panel of 3 (three) names of qualified, reputed and experienced firms and Authority will select one Design Consultant from the above panel, provided, however, that if none of the name proposed in the panel is acceptable to the Authority and the reasons for the same are furnished to the Contractor, the Contactor shall propose to the Authority a revised panel of 3 (three) more names for obtaining the consent of the Authority. The Contractor shall also obtain the consent of the Authority for two key personnel of the Design Consultant who shall have adequate experience and qualifications with respect to the main components of the Railway Project. The Authority shall, within 30 (thirty) days of receiving a panel from the Contractor, either 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 Design Consultant of its own choice. For the avoidance of doubt, the Parties agree that no firm or person having any conflict of interest shall be engaged for this purpose. The Parties further agree that any assignments completed at least three years prior to the appointment hereunder shall not be reckoned for the purposes of conflict of interest.

10.2.2 The Contractor shall appoint a proof checking consultant at its cost (the "**Proof Consultant**"). Contractor shall submit the panel of 3 names within 30 days of Appointed date to the Authority Engineer. After proposing to the Authority a panel of 3 (three) names of qualified, reputed and experienced firms, the Authority will select one Proof Consultant from the above panel, provided, however, that if none of the name proposed in the panel is acceptable to the Authority and the reasons for the same are furnished to the Contractor, the Contactor shall propose to the Authority a revised panel of 3 (three)more names for obtaining the consent of the Authority. The Contractor shall also obtain the consent of the Authority for two key personnel of the Proof Consultant who shall have adequate experience and qualifications with respect to the main components of the Railway Project. The Authority shall, within 30(thirty) days of receiving a panel from the Contractor, either 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 of its own choice. For the avoidance of doubt, the Parties agree that no firm or person having any conflict of interest shall be engaged for this purpose. The Parties further agree that any assignments completed at least three years prior to the appointment hereunder shall not be reckoned for the purposes of conflict of interest.

10.2.3 The Proof Consultant shall:

(a) evolve a systems approach with the Design Director so as to minimise the time required for approval of final designs and construction drawings; and

(b) examine the designs expeditiously and wherever necessary raise observations/ seek clarifications etc. as deemed appropriate and refer back the drawings within 15 days for rectifications/clarifications, and finally proof check and endorse/counter-sign the detailed calculations, drawings and designs, which have been approved by the Design Director.

10.2.4 In respect of the route control chart, the following shall apply:

(a) route control chart

(i) The Contractor shall prepare and submit to the Authority Engineer all route control charts conforming to the ESP/SIPs, within a period of 3 (three) months from the Appointed Date;

(ii) The Authority Engineer shall review the route control chart within two weeks and submit it with its comments to the Authority for its approval; and

(iii) The Authority shall communicate the route control chart as approved by it within a period not exceeding 2(two) months from the date of submission of the route control chart by the Contractor. Such period of two months shall exclude any time that is taken by the Contractor in providing clarifications or modifications in response to any communication from the Authority.

10.2.5 In the event of delay by the Contractor in submitting the signalling interlocking plan or route control chart, as the case may be, within the period specified in Clause 10.2.4 for any reason other than Force Majeure or breach of this agreement by the Authority, the Contractor shall pay Damages to the Authority in a sum equal to 0.01% (zero point zero one percent) of the Contract Price for each day of delay.

10.2.6 In the event of delay by the Authority in providing to the Contractor the approved signalling interlocking plan or route control chart as the case may be, within the period specified in Clause 10.2.4 for any reason other than Force Majeure or breach of this Agreement by the Contractor, the Authority shall pay Damages to the Contractor in a sum equal to 0.01% (zero point zero one percent) of the Contract Price for each day of delay, and shall also grant Time Extension in accordance with the provisions of Clause 10.4.

10.2.7 In regard to Contractor's obligations with respect to the design and Drawings of the Railway Project as set forth in Schedule-H, 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, 3 (three) copies each of the design and necessary Drawings, duly approved/signed by the Design Director and certified/signed by the Proof Consultant, to the Authority Engineer for review. Provided, however, that in respect of Important Bridges, Major Bridges, Structures, railway stations and yards, the Authority Engineer may require additional drawings for its review in accordance with Good Industry Practice;

(b) by submitting the Drawings for review to the Authority Engineer, the Contractor shall be deemed to have represented that it has determined and verified that the design and Drawings are in conformity with stipulated Specifications and Standards, the Applicable Laws, statutory stipulations and Good Industry Practice;

(c) within 21 (twenty one) days of the receipt of the Drawings, the Authority Engineer shall review the same and convey its observations to the Contractor with particular reference to their conformity or otherwise with the Scope of the Project and the Specifications and Standards. Beyond the said period of 21 (twenty one) days, the Contractor shall not be obliged to await the observations of the Authority Engineer on the Drawings submitted pursuant

hereto and may begin or continue Works at its own discretion and risk; Provided, however, that in case of Important Bridges, Major Bridges, Structures, interlocking and telecom switching equipment and any other specified item the aforesaid period of 21 (twenty one) days may be extended as per the time limit as indicated in Annexure-II of Schedule-D;

(d) if the aforesaid observations of the Authority 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 Engineer for review. The Authority 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 Engineer for review as aforesaid, the Authority Engineer may cause the payment for the affected works to be withheld under and in accordance with the provisions of Clause 17.5.4. If the Contractor disputes any decision, direction or determination of the Authority Engineer hereunder, the Dispute shall be resolved in accordance with the Dispute Resolution Procedure;

(e) no review and/or observation of the Authority Engineer and/or its failure to review 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 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 shall, along with the affected Works, be corrected at the Contractor's cost, notwithstanding any review under this Article 10;

(f) the Contractor shall be responsible for delays in submitting the Drawings, as set forth in Schedule-H, caused by reason of delays in surveys and field investigations, and shall not be entitled to seek any relief in respect thereof 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 as set out in this Clause.

10.2.8 Any cost or delay in construction arising from the review by the Authority Engineer shall be borne by the Contractor.

10.2.9 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 observations of the Authority Engineer thereon as communicated pursuant to the provisions of Clause 10.2.7. Such Drawings shall not be amended or altered without prior written notice to the Authority 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.

10.2.10 Within 90 (ninety) days of the Project Completion Date, the Contractor shall furnish to the Authority and the Authority Engineer a complete set of as-built Drawings, in 2 (two) hard copies and in its editable digital format or in such other medium or manner as may be acceptable to the Authority, including an as-built survey illustrating the layout of the Railway Project 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.

10.2.11 The Contractor shall also appoint a safety consultant (the "**Safety Consultant**")at its own cost, contractor shall submit the panel within 30 days of Appointed date to the Authority Engineer, after proposing to the Authority a panel of 3 (three) names of qualified and experienced consultants having minimum 10 years' experience in ensuring safety at work site from whom the Authority may choose 1 (one) 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 3 (three) names for obtaining the consent of the Authority. The Contractor shall also obtain the consent of the Authority for additional two key personnel of the Safety Consultant who shall have at least 5 years' experience in ensuring safety at work site. 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. The Safety Consultant shall:

(a) evolve a system approach for undertaking a safety audit of the Railway Project during construction phase ; and

(b) proof check the detailed safety plan covering all aspects of including safety of Users, workers and equipment.

10.3 Construction of the Railway Project

10.3.1 The Contractor shall construct the Railway Project 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. For works involving existing yards, the non-interlocking programme for each yard shall be drawn by the Authority Engineer and provided to the Contractor. The Contractor and the Authority Engineer, within a period of 30 days, will discuss the same and issue a jointly agreed NI programme. The execution of work during the non-interlocking period will be the responsibility of the Contractor. The work during non-interlocking period in yards will be executed directly under the supervision of Railways, however, the timely completion of NI working will be the responsibility of the Contractor. The [900th (nine hundredth) 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, in which case the Scheduled Completion Date will be the extended date as per the time extension granted.

10.3.2 The Contractor shall construct the Railway Project in accordance with the Project Completion Schedule set forth in Schedule-I. 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-I, unless such failure has occurred due to Force Majeure or for reasons attributable to the Authority, it shall pay Damages to the Authority in a sum calculated at the rate of 0.05% (zero point zero five per cent)of the Contract Price for delay of each day reckoned from the date specified in Schedule - I and until such Project Milestone is achieved or the Works are 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-I shall be deemed to be modified accordingly and the provisions of this Agreement shall apply as if Schedule-I has been amended as above; provided further that in the event the Works are completed within or before the Scheduled Completion Date including any Time Extension, the Damages paid under this Clause 10.3.2 shall be refunded by the Authority to the Contractor, but without any interest thereon. For the avoidance of doubt, it is agreed that recovery of Damages under this Clause 10.3.2 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 10.4.2.

However, Authority may consider the request of contractor to defer the recovery of these damages if the same is considered essential to maintain the progress of work. The contractor shall submit a resource loaded plan to make good the delay and achieve next Milestone.

10.3.3 The Authority shall notify the Contractor of its decision to impose Damages in pursuance of the provisions of this Clause 10.3. Provided, however, that no deduction on account of Damages shall be effected by the Authority without 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 10.3.2 shall not exceed 10% (ten percent) of the Contract Price.

10.3.4 Certain works, which are executed in the vicinity of running track, may require prior sanction of Commissioner of Railway Safety (CRS) before execution of such works are taken up by the Contractor. Authority Engineer will advise such works to the Contractor. The Contractor shall be responsible to prepare and submit applications to Authority Engineer for obtaining sanction of CRS at least 60 (sixty) days in advance of commencing a work that requires prior sanction of CRS.

10.4 Extension of time for completion

10.4.1 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, [approval of GAD by road / canal authorities,] environmental/ forest clearances, or [signalling interlocking plan] and route control chart in accordance with the provisions of this Agreement;

(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.

10.4.2 The Contractor shall, no later than 30 (thirty) business days from the occurrence of an event or circumstance specified in Clause 10.4.1, inform the Authority 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 thereby.

10.4.3 In the event of the failure of the Contractor to issue to the Authority Engineer a notice in accordance with the provisions of Clause 10.4.2 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 10.4.3, the Authority shall be discharged from all liability in connection with the claim.

10.4.4 The Authority Engineer shall, on receipt of a claim in accordance with the provisions of Clause 10.4.2, examine the claim expeditiously within the time frame specified herein. In the event the Authority Engineer requires any clarifications to examine the claim, the Authority Engineer shall seek the same within 15 (fifteen) days from the date of receiving the claim. The Contractor shall, on the receipt of the communication of the Authority Engineer requesting for clarification, furnish the same to the Authority Engineer within 10 (ten) days thereof. The Authority 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. For the avoidance of doubt, the Parties agree that the Authority Engineer shall, in accordance with the provisions of this Agreement, notify the Contractor of the aforesaid Time Extension no later than 30 (thirty) days from the date of receipt of the Contractor's claim for Time Extension or the date of receipt of the clarification from the Contractor, as the case may be.

Provided that when determining each extension of time under this Clause 10.4, the Authority Engineer shall review previous determinations and may increase, but shall not decrease, the total Time Extension.

10.4.5 If the event or circumstance giving rise to the notice has a continuing effect:

(a) the 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 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 Engineer shall examine and determine the same in accordance with the provisions of Clause 10.4.4 within a period of 30 (thirty) days of the receipt thereof.

10.5 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 10.3.2 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 21.1.

10.6 Equipment specific Maintenance Manual

No later than 90 (ninety) days prior to the Project Completion Date, the Contractor shall, in consultation with the Authority Engineer, evolve an equipment specific maintenance manual for equipment based on a new technology not currently in use in the Railways (the "**Maintenance Manual**") for the regular operation and maintenance of such equipment in conformity with safety requirements, Good Industry Practice and manufacturer's manuals and instructions and shall provide 10 (ten) hard copies and 2 (two) compact discs thereof to the Authority Engineer.

ARTICLE 11

QUALITY ASSURANCE, MONITORING AND SUPERVISION

11.1 Quality of Materials and workmanship

11.1.1 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.

11.1.2 The Contractor warrants that all Materials shall be new, unused, not reconditioned and in conformity with Specification and Standards, Applicable Laws and Good Industry Practice, and that the Contractor shall not use any materials which are generally recognised as being deleterious under Good Industry Practice.

11.2 Quality control system

11.2.1 The Contractor shall establish a Quality Control Mechanism, Quality Assurance Plan (the "**Quality Assurance Plan**" or "**QAP**"), Material Testing Plan (the "**Material Testing Plan**" or "**MTP**") and Method Statements for execution of works (the "**Method Statements** " or "**MS**") in consultation of Authority Engineer.

11.2.2 The Contractor shall, within 30 (thirty) days of the Appointed Date, submit to the Authority Engineer its Quality Control Mechanism, QAP, MTP and MS which shall include the following:

(a) organisation, duties and responsibilities, procedures, inspections and documentation;

(b) quality control mechanism including sampling and testing of Materials, tests required during the execution of works and frequencies by Contractor and Authority Engineer, standards, acceptance criteria, testing facilities, reporting, recording and interpretation of test results, approvals, check list for site activities, and proforma for testing and calibration in accordance with the Specifications and Standards and Good Industry Practice; and

(c) internal quality audit system. The Contractor shall carry out internal audits of the Quality management System regulary, and at least once every 6 months. The Contractor shall submit to the Engineer a report listing the results of each internal audit within 7 days of completion. Each report shall include, where appropriate, the proposed measures to improve and/or rectify the Quality Management System and/or its implementation.

The Authority Engineer shall convey its comments 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.

11.2.3 The Contractor shall procure all documents, apparatus and instruments, fuel, consumables, water, electricity, labour, Materials, samples, and qualified personnel

as are necessary for examining and testing the Project Assets, Materials and workmanship in accordance with the Quality Assurance Plan.

11.2.4 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 any construction activity, submit to the Authority Engineer for review the Method Statement proposed to be adopted for executing the Work, giving details of inspection checklist, quality parameters, equipment to be deployed, traffic management and measures for ensuring safety. The Authority Engineer shall complete the review and convey its comments, if any, to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed method statement from the Contractor. The Contractor shall revise the method statements by incorporating these comments or else will advise the Authority Engineer reasons for not/partially including the same.

11.4 Inspection and technical audit by the Authority

The Authority or any representative authorised by the Authority in this behalf may inspect and review the progress and quality of the construction of Works and issue appropriate directions to the Authority 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

At any time during construction, the Authority may appoint an external technical auditor to conduct an audit of the quality of the Works. The findings of the audit, to the extent accepted by the Authority, shall be notified to the Contractor and the Authority Engineer for taking remedial action in accordance with this Agreement. 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 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 Engineer a monthly report on the progress of Works and shall promptly give such other relevant information as may be required by the Authority Engineer along with all resources deployed and all problems faced during work.

11.8 Inspection

11.8.1 The Authority Engineer and its authorised representative shall at all 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.

11.8.2 The Contractor shall give the Authority Engineer and its authorised agents access, facilities and safety equipment for carrying out their obligations under this Agreement.

11.8.3 The Authority 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 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 Engineer for review:

(a) manufacturer's test reports and standard samples of manufactured Materials; and

(b) samples of such other Materials as the Authority Engineer may require.

11.10 Tests

11.10.1 For determining that the Works conform to the Specifications and Standards, the Authority 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 Contractor shall submit the schedule for performing such tests to the Authority Engineer well in advance and not less than 7 days prior to conducting such tests. The Contractor shall, with due diligence, carry out all the tests in accordance with the Agreement and furnish the results thereof to the Authority Engineer. Of the total tests for each category or type to be undertaken by the Contractor under the provisions of this Agreement and Good Industry Practice, the Authority Engineer or his authorised representative may witness or participate in such tests conducted or cause to be conducted by the Contractor. Documentation of test records to be maintained by Contractor and Authority Engineer or his authorised representative shall scrutinize 100% Testing records of all tests conducted as per existing guidelines of Indian Railways and Indian Road Congress. A copy of such tests records shall be provided to the Authority Engineer.

11.10.2 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 Engineer in this behalf. The Authority 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 the 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 Engineer is entitled to examine, inspect, measure 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 Engineer whenever any such work is ready and before it is covered up. The Authority Engineer shall then either carry out the examination, inspection or testing without unreasonable delay, or promptly give notice to the Contractor that the Authority 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 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 Engineer within a period of 3 (three) business days from the date on which the Contractor's notice hereunder is delivered to the Authority Engineer, the Contractor shall be entitled to assume that the Authority Engineer would not undertake the said inspection.

11.12 Rejection

11.12.1 If, as a result of an examination, inspection, measurement or testing, any Plant, Material, design or workmanship is found to be defective or otherwise not in accordance with the provisions of this Agreement, the Authority Engineer may reject such Plant, Material, 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.

11.12.2If the Authority Engineer requires the Plant, Material, design or workmanship to be retested, the tests shall be repeated on the same terms and conditions, as applicable in each case. If the rejection and retesting cause the Authority to incur any additional costs, such costs 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.

11.12.3 The Contractor shall not be entitled to any extension of time on account of rectifying any Defect or retesting as specified in this Clause 11.12.

11.12.4 No examination, inspection, measurement or testing of any Plant, Material, design or workmanship by the Authority Engineer or its failure to convey its observations or to examine, inspect, measure or test shall relieve the Contractor of its obligations and liabilities under this Agreement in any manner nor shall the Authority be liable for the same in any manner.

11.13 Remedial work

11.13.1 Notwithstanding any previous test or certification, the Authority 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 Railway Project, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work which is required on account of a Force Majeure Event, the provisions of Clause 19.6 shall apply.

11.13.2 If the Contractor fails to comply with the instructions issued by the Authority Engineer under Clause 11.13.1, within the time specified in the Authority Engineer's notice or as mutually agreed, the Authority 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 10.3.2, in the event the Contractor does not achieve any of the Project Milestones within the time period stipulated in Schedule - I or the Authority Engineer shall have reasonably determined that the rate of progress of Works is such that Completion of the Railway Project is not likely to be achieved by the end of the Scheduled Completion Date, it may notify the same to the Contractor, and the Contractor shall, within 15 (fifteen) days of such notice, by a communication inform the Authority 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 to the Authority Engineer a copy of all its quality control records and documents before the Completion Certificate is issued pursuant to Clause 12.2.

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 digital video disc or any substitute thereof, 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

11.17.1 Upon recommendation of the Authority Engineer to this effect, or on its own volition in cases of emergency or urgency, 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 Engineer or the Authority, as the case may be, such work threatens the safety of the Users and or other persons on or about the Railway Project.

11.17.2 The Contractor shall, pursuant to the notice under Clause 11.17.1, 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, other persons and vehicles on or about the Railway Project including pedestrians. The Contractor may by notice require the Authority 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 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.

11.17.3 Subject to the provisions of Clause 19.6, 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.

11.17.4 If suspension of Works is for reasons not attributable to the Contractor, the Authority Engineer shall determine any Time Extension to which the Contractor is reasonably entitled.

ARTICLE 12

COMPLETION CERTIFICATE

12.1 Tests on completion

12.1.1 No later than 30 (thirty) days prior to the likely completion of the Railway Project or a part thereof, the Contractor shall prepare and submit to the Authority Engineer the documents required for seeking approval of the Commissioner of Railway Safety in accordance with the provisions of the Railways Opening for Public Carriage of Passenger Rules, the Indian Railway Permanent Way Manual, the Indian Railways Manual of A.C. Traction, Indian Railways Signal Engineering Manual, Indian Railways Telecom Manual as the case may be, and notify the Authority Engineer of its intent to subject the Railway Project to Tests. After ensuring and procuring that the documents required to be submitted to the Commissioner for Railway Safety meet the requirements of Applicable Laws, the Authority Engineer shall, in consultation with the Contractor, determine the date and time of each of the Tests, and inform the Authority who may designate its representative to witness the Tests. The Contractor shall provide such assistance as the Authority Engineer may reasonably require for conducting the Tests. For avoidance of doubts, the parties agree that in the event of the Contractor and the Authority 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 Engineer. Authority will carry out tests on completion within 30 days of receiving request from contractor. And if Authority Engineer fails to carry out test within 30 days, the Authority will pay damage to Contractor @ 0.02% of the payment pending for want of test per day.

12.1.2 All Tests shall be conducted in accordance with Schedule-J at the cost and expense of the Contractor; provided, however, that the trial running on railway track shall be undertaken at the cost and expense of the Authority. The Authority Engineer shall observe, monitor and review the results of the Tests to determine compliance of the Railway Project with Specifications and Standards and if it is reasonably anticipated or determined by the Authority Engineer during the course of any Test that the performance of the Railway Project 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 any Defect or deficiency. Upon completion of each Test, the Authority Engineer shall provide to the Contractor and the Authority copies of all Test data including detailed Test results. For the avoidance of doubt, the Parties expressly agree that the Authority 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 Railway Project thereof with the Specifications and Standards.

12.2 Provisional Certificate

12.2.1 Upon completion of Tests, the Authority Engineer shall satisfy itself that the Tests have been successful and the Railway Project is fit for opening to traffic. A list of outstanding items signed jointly by the Authority Engineer and the Contractor (called the "**Punch List**") shall be prepared in two parts. The part-1 showing the critical/safety items and the part-2 showing non-critical/non-safety items. The Authority Engineer may issue a Provisional Certificate to the Contractor and the Authority in the form set forth in Schedule-K (the "**Provisional Certificate**"), provided the items figuring in the Punch List of critical/safety items (part-1) have

been fully completed/attended to. The items figuring in the Punch List(part-2) of non-critical/non-safety should be completed by contractor in a time frame as stipulated in Clause12.3.

12.2.2 Upon issuance of the "Provisional Certificate", the Authority Engineer shall forward to the Authority (i) copies of all Test data including Test results, and (ii) the documents submitted by the Contractor for seeking approval of the Commissioner of Railway Safety in accordance with the provisions of the Railways Opening for Public Carriage of Passenger Rules, the Indian Railway Permanent Way Manual/ or the Indian Railways Manual of A.C. Traction, Indian Railways Signal Engineering Manual, Indian Railways Telecom Manual as the case may be, for obtaining authorisation from the Commissioner for Railway Safety.

12.2.3 The Contractor shall assist the Authority during inspection and tests to be conducted by the Commissioner of Railway Safety for determining compliance of the Railway Project with Applicable Laws and the provisions of this Agreement.

12.2.4 The Defects Liability Period for the Railway Project shall commence from the date of issue of the Provisional Certificates.

12.2.5 The Parties hereto expressly agree that the Authority Engineer may also issue a "part Provisional Certificate" for part of the Railway Project ready for commissioning/opening subject to the provisions of Clauses 12.1 and 12.2 applying mutatis mutandis. The issuance of the part-provisional certificate will however not absolve the contractor in any manner of its obligations to complete the remaining part of Railway Project.

12.2.6 The risk of loss or damage to any Materials, Plant or Works in the Railway Project or part thereof, as the case may be, and the care and custody thereof shall pass from the Contractor to the Authority upon issuance of Provisional Certificate for the Railway Project or part thereof.

12.3 Completion of Part-2 Punch List items

All items figuring in the Punch List shall be completed by the Contractor within 90 (ninety) days of the date of issuance of the Provisional Certificate and for any delay thereafter, other than for reasons solely attributable to the Authority or due to Force Majeure, the Authority shall be entitled to recover Damages from the Contractor to be calculated and paid for each day of delay until all items are completed, at the lower of (a) 0.005% (zero point zero zero five per cent) of the contract price and (b) 0.2% (zero point two percent) of the cost of completing such items as estimated by the Authority Engineer. Subject to payment of such Damages, the Contractor shall be entitled to a further period not exceeding 120 (one hundred and twenty) days for completion of the Punch List items. For the avoidance of doubt, it is agreed that if completion of any item in the Punch List is delayed for reasons attributable to the Authority or due to Force Majeure, the completion date thereof shall be determined by the Authority Engineer in accordance with Good Industry Practice, and such completion date shall be deemed to be the date of issue of the Provisional Certificate for the purposes of Damages, if any, payable for such item under this Clause 12.3.

12.4 Completion Certificate

12.4.1 Upon completion of all items in the Punch List (part-1 as well as part-2) and issuance of authorisation by the Commissioner of Railway Safety and compliance of all CRS observations pertaining to Contractor if any, the Authority Engineer shall issue forthwith to the Contractor and the Authority; a completion certificate substantially in the form set forth in Schedule-K (the "**Completion Certificate**") separately in respect of each Provisional Certificate issued. For Avoidance of doubt, Completion Certificate may also be issued for part-commissioning of Project.

12.4.2 Upon receiving the Completion Certificate, the Contractor shall remove its equipment, materials, debris and temporary works from the Site, which are not required any more for the Project, within a period of 15 (fifteen) 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.

12.5 Rescheduling of Tests

If the Authority Engineer certifies to the Authority and the Contractor that it is unable to issue the Completion Certificate or Provisional 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.

12.6 Delayed authorisation

In the event of delay in issuance of authorisation by the Commissioner of Railway Safety beyond a period of 60 (sixty) days from the date of completion of all safety/critical items of punch list, the Contractor shall be entitled to interest for the period of delay at a rate equal to 3% (three percent) above the Bankrate on the payment due for integrated testing and commissioning as specified in Schedule-G.

ARTICLE 13

CHANGE OF SCOPE

13.1 Change of Scope

13.1.1 The Authority may, notwithstanding anything to the contrary contained in this Agreement, require the Contractor to make modifications or alterations to the Works ("**Change of Scope**") before the issue of the Completion Certificate either by giving an instruction or by requesting the Contractor to submit a proposal for 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.

13.1.2 Change of Scope shall mean:

(a) change in specifications of any item of Works;

(b) omission of any work from the Scope of the Project except under Clause 8.3.3; 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 entity; 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. However, any unsanctioned work which is independent work per se shall not be considered as Change of Scope;

(d) Variation in the quantities of certain items (positive or negative) necessitated due to any change(s) in the L-Section/Alignment/ESPs of the Project with respect to those attached with this document, except on account of existing ground conditions/ground levels mentioned in L-Section/Alignment/ESPs. For avoidance of doubt, it is clarified that the existing ground conditions/ground levels are to be validated by bidders before bid and hence no change on this account is payable.

13.1.3 If the Contractor determines at any time that a Change of Scope will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Authority of executing, maintaining or operating the Railway Project, (iii) improve the efficiency or value to the Authority of the completed Railway Project, or (iv) otherwise be of benefit to the Authority, it shall prepare a proposal with relevant details at its own cost. The Contractor shall submit such proposal, supported with the relevant details including the amount of reduction in the Contract Price, if any, to the Authority to consider such Change of Scope. The Authority shall, within 15 (fifteen) days of receipt of such proposal, either accept such Change of Scope with modifications, if any, and initiate proceedings therefor in accordance with this Article 13 or reject the proposal and inform the Contractor of its decision. In case Change of Scope is proposed by Authority Engineer to the contractor, the contractor shall, within 15 (fifteen) days of receipt of such proposal, either accept such Change of Scope with modifications, if any, and initiate proceedings therefore in accordance with this Article 13 or reject the proposal and inform the authority of its decision.

For the avoidance of doubt, the Parties agree that the Contractor shall not undertake any Change of Scope without a Change of Scope Order being issued by the Authority, save and except any Works necessary for meeting any Emergency.

13.2 Procedure for Change of Scope

13.2.1 In the event of the Authority determining that a Change of Scope is necessary, it may direct the Authority Engineer to issue to the Contractor a notice specifying in reasonable detail the works and services contemplated thereunder (the "**Change of Scope Notice**").

13.2.2 Upon receipt of a Change of Scope Notice from Authority Engineer, the Contractor shall, with due diligence, provide to the Authority Engineer such information as is necessary, together with preliminary documentation in support of:

(a) the impact of the Change of Scope 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) breakup of the quantities, unit rates and cost for different items of work;

(ii) proposed design for the Change of Scope[, if required]; and

(iii) proposed modifications, if any, to the Project Completion Schedule of the Railway Project.

For the avoidance of doubt, the Parties expressly agree that, subject to the provisions of Clause 13.4.2, the Contract Price shall be increased or decreased, as the case may be, on account of Change of Scope.

13.2.3 The Contractor's quotation of rates/costs for the Change of Scope shall be determined on the following principles:

(A) The rate for various items to be executed through change of scope order shall be estimated on the basis of analysis of rates (AOR) of [Zonal Railway, CORE, whichever is applicable] for item other than building works and as per CPWD's AOR for building works and by applying the prevailing market rates of various input construction materials, labour, machinery and T & P.

For working out rate of item in change of scope, the following shall be considered –

(a) Input of man days, quantities of materials etc.

(b) The market rates of various materials, labour, machinery shall be as follows:

i. For materials market rate shall be based on invoices submitted by contractor or Purchase order placed by contractors for the supply of materials

ii. Rates for unskilled, semi-skilled and skilled workers as per the records maintained by the Contractor in accordance with the Laws subject to maximum of those payable as per minimum wages act.

(c) Contractor's overheads and profit at the rate of 15 (Fifteen) percent of the cost arrived by above AOR.

(d) Applicable Taxes.

(B) In case AOR of any items is not available in [Zonal Railway's or CORE's AOR] then such rates shall be determined as per prevailing market rates in accordance with Good Industry Practice by the Authority Engineer.

13.2.4 Upon reaching an agreement, the Authority shall issue an order (the "**Change of Scope Order**") requiring the Contractor to proceed with the performance thereof. 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 24; or

(b) proceed in accordance with Clause 13.5.

13.2.5 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

13.4.1 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.

13.4.2 Unless the Parties mutually agree to the contrary, the total value of all Change of Scope Orders shall not exceed 25% (twenty five per cent) of the Contract Price.

13.4.3 Notwithstanding anything to the contrary in this Article 13, no change arising from any default of the Contractor in the performance of its obligations under this Agreement shall 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

13.5.1 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 on the basis of open competitive bidding from amongst bidders who are pre-qualified for undertaking the additional work; provided that the Contractor shall have

the option of matching the first ranked bid in terms of the selection criteria, subject to payment of 2% (two per cent) of the bid amount to the Authority[$], and thereupon securing the award of such works or services. For the avoidance of doubt, it is agreed that the Contractor shall be entitled to exercise such option only if it has participated in the bidding process and its bid does not exceed the first ranked bid by more than 10% (ten percent) thereof. It is also agreed that the Contractor shall provide assistance and cooperation to the person who undertakes the works or services hereunder, but shall not be responsible for rectification of any Defects and/or maintenance of works carried out by other agencies.

13.5.2 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 it should not cause any disruption to the Project and also minimise adverse effect to main contractor. 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.

[$] The Authority shall transfer 75% (seventy five percent) of the amount so received to the first ranked bidder whose bid shall have been matched by the Contractor.

ARTICLE 14

TRAFFIC REGULATION

14.1 Traffic regulation by the Contractor

14.1.1 The Contractor shall take all the required measures and make arrangements for the safety of any persons and vehicles on or about the Site during the construction of the Railway Project or a Section thereof in accordance with Good Industry Practice, and Applicable Laws. 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 using any public roads or access along or across the Section under construction.

14.1.2 All works shall be carried out in a manner creating least interference to traffic passing along or across the Railway Project or a Section thereof. The Contractor shall ensure that proper passage is provided for the traffic. Where it is not possible or safe to allow traffic on the existing road or passage, a temporary diversion of proper specifications shall be constructed by the Contractor at its own cost. The Contractor shall take prior approval of the Authority Engineer for any proposed arrangement for traffic regulation during Construction, which approval shall not be unreasonably withheld.

14.1.3 In the event any construction work is required to be executed in close proximity of an existing operating system of Railways, the Contractor shall make arrangements for the safety of such system in accordance with the provisions of the 'Compendium of Instructions on Safety at work Sites' issued by the Authority and Good Industry Practice.

ARTICLE 15

DEFECTS LIABILITY

15.1 Defects Liability Period

15.1.1 The Contractor shall be responsible for all the Defects and deficiencies, except usual wear and tear in the Railway Project or any part thereof, till the expiry of a period of 2 (two) years commencing from the date of Provisional Certificate or expiry of a period 18 (eighteen) months from the date of Completion Certificate, whichever is later(the "**Defects Liability Period**").

[15.1.2 Without prejudice to the provisions of Clause 15.1.1, the Defects Liability Period for and in respect of any Structure or Important Bridge specified in Schedule B, or interlocking and telecom switching equipment comprising a new technology shall be deemed to be extended by a further period of 2 (two) year after the expiry of the Defects Liability Period specified in Clause 15.1.1.]Defect Liability Period shall also cover the extensions covered under clause 15.6]

[15.1.3 Without prejudice to the provisions of Clause 15.1.1, the Contractor shall be responsible for making arrangement for signing of agreement for AMC of SCADA as per clause 3.9 of Annexure - I (Schedule-B) between OEM/Approved SCADA vendor and concerned Railway/Division 6 months prior to defects liability period as defined in 15.1.1. In the event that the Contractor fails to make above Arrangement, the Authority shall be entitled to remedy the defects and deficiency of the Contractor in Accordance with the clause 15.4 or may extend the Defects Liability Period in accordance with clause 15.6.1].

[15.1.4 Without prejudice to the provisions of Clause 15.1.1, the Contractor shall be responsible for making arrangement for signing of agreement for AMC of EI system /Axle Counters/ Automatic Train protection system between OEM/Approved vendor and concerned Railway/Division 6 months prior to defects liability period as defined in 15.1.1. for duration of Defect liability period including extended defect liability period. In the event that the Contractor fails to make above Arrangement, the Authority shall be entitled to remedy the defects and deficiency of the Contractor in Accordance with the clause 15.4 or may extend the Defects Liability Period in accordance with clause 15.6.1].

15.2 Remedy and rectification of Defects and deficiencies

15.2.1 Without prejudice to the provisions of Clause 15.2.2, the Contractor shall repair or rectify all Defects and deficiencies observed by the Authority Engineer during the Defects Liability Period within a period of 15 (fifteen) days from the date of notice issued by the Authority Engineer, or within such reasonable period as may be determined by the Authority Engineer at the request of the Contractor, in accordance with Good Industry Practice. For the purpose of this clause, the time period of 15 days shall be applicable only to those Defects and Deficiencies which are not affecting train operations of safety. For any defect noticed affecting train operation of train safety, the Contractor shall arrange to rectify it within such reasonable period as may be determined by the Authority Engineer. If the Contractor is not able to rectify any fault as decided by the Authority Engineer, the Authority will be at full liberty to make its own efforts to get such defects rectified at Contractor's cost.

15.2.2 During a period of 2 (two) months from the date of issuance of Completion Certificate, the Contractor shall retain sufficient staff and spares at Project for procuring prompt replacement, installation or re-installation of any defective parts of (a) the SCADA system; (b) traction sub-stations and switching posts and (c) EI system /Axle Counters/ Automatic Train protection system. The spares for the purpose of this clause, shall be separate from any spares supplied within the scope of the Project.

15.3 Cost of remedying Defects

For the avoidance of doubt, any repair or rectification undertaken in accordance with the provisions of Clause 15.2, including any additional tests, 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) Works, Plant, Materials or workmanship not being in accordance with this Agreement and the Specifications and Standards;

(c) improper maintenance during construction of the Railway Project by the Contractor; or

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

15.4 Contractor's failure to rectify Defects

In the event that the Contractor fails to repair or rectify such Defect or deficiency within the period specified in Clause 15.2, the Authority shall be entitled to get the same repaired, rectified or remedied at the Contractor's cost so as to make the Railway Project 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 Engineer. The cost so determined, and an amount equal to 20% (twenty percent) of such 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.

15.5 Contractor to search cause

15.5.1 The Authority Engineer may instruct the Contractor to examine the cause of any Defect in the Works or part thereof before the expiry of the Defects Liability Period.

15.5.2 In the event any Defect identified under Clause 15.5.1 is attributable to the Contractor, the Contractor shall rectify such Defect within the period specified by the Authority Engineer, and shall bear the cost of the examination and rectification of such Defect.

15.5.3 In the event such Defect is not attributable to the Contractor, the Authority Engineer shall, after due consultation with the Authority and the Contractor, determine the costs incurred by the Contractor on such examination and notify the same to the Contractor, with a copy to the Authority, and the Contractor shall be entitled to payment of such costs by the Authority.

15.6. Extension of Defects Liability Period

15.6.1 The Defects Liability Period shall be deemed to be extended till the identified Defects under Clause 15.2 have been remedied.

15.6.2 Any Materials or Works with Defects identified under Clause 15.2 and replaced or repaired during the Defects Liability Period or the extended Defects Liability Period, as the case may be, would be further warranted for a period of twelve (12) months from the date of completion of such repair or replacement.

15.6.3 The Contractor shall upon termination or expiry of this Agreement or upon expiry of the Defects Liability Period, assign any outstanding benefit in respect of any subcontract or any warranty, to the Authority or to such other person as the Authority may direct.

ARTICLE 16

AUTHORITY ENGINEER

16.1 Appointment of the Authority Engineer

16.1.1 The Authority shall appoint a railway engineer /Project Management Services (PMS) Agency, to be the engineer under this Agreement (the "**Authority Engineer**").

16.1.2 The appointment of the Authority Engineer shall be made no later than 30 (Thirty) days from the date of this Agreement. The Authority shall notify the appointment or replacement of the Authority Engineer to the Contractor.

16.1.3 The staff of the Authority Engineer shall include suitably qualified engineers and other professionals who are competent to assist the Authority Engineer to carry out its duties.

16.2 Duties and functions of the Authority Engineer

16.2.1 The Authority Engineer shall perform its duties and discharge its functions in accordance with the provisions of this Agreement, and substantially in accordance with the duties and responsibilities set forth in Annex 1 of Schedule L, 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) providing Power Block or Traffic Block or necessary disconnections to the Contractor;

(e) approval of signalling & interlocking plan and route control chart; and alterations in ESP if essentially required;

(f) approval of disconnections for modification of signalling and telecom works, or

(g) any other matter which is not specified in (a) to (f)above and which creates an obligation or liability on either Party for a sum exceeding Rs.5,000,000 (Rupees fifty lakh).

16.2.2 No decision or communication of the Authority 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 16.2.1.

16.2.3 The Authority Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions assigned to him for the project. Such reports shall be submitted by the Authority Engineer within 10 (ten) days of the beginning of every month.

16.2.4 A true copy of all communications sent by the Authority to the Authority Engineer and by the Authority Engineer to the Authority shall be sent forthwith by the Authority Engineer to the Contractor.

16.2.5 A true copy of all communications sent by the Authority Engineer to the Contractor and by the Contractor to the Authority Engineer shall be sent forthwith by the Authority Engineer to the Authority.

16.3 Authorised signatories

The Authority Engineerwill designate and notify to the Contractor up to 2 (two) persons under him to sign for and on behalf of the Authority Engineer, and any communication or document required to be signed by the Authority Engineer shall be valid and effective only if signed by any of the designated persons; provided that the Authority Engineer may, by notice in writing, substitute any of the designated persons by any of its employees.

16.4 Instructions of the Authority Engineer

16.4.1 The Authority Engineer may issue to the Contractor instructions for remedying any Defect. The Contractor shall take such instructions from the Authority Engineer only.

16.4.2 The instructions issued by the Authority Engineer shall be in writing. However, if the Authority Engineer issues any oral instructions to the Contractor, it shall confirm in writing the oral instructions within 2 (two) working days of issuing them.

16.4.3 In case the Contractor does not receive the confirmation of the oral instructions within the time specified in Clause 16.4.2, the Contractor shall seek the written confirmation of the oral instructions from the Authority Engineer and shall obtain acknowledgement from the Authority Engineer of the communication seeking written confirmation. In case of failure of the Authority Engineer 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 instruction.

16.5 Determination by the Authority Engineer

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

16.5.2 Each Party shall give effect to each agreement or determination made by the Authority 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 Engineer, the Dispute shall be resolved in accordance with the Dispute Resolution Procedure as per article 24.

16.6 Remuneration of the Authority Engineer

The remuneration, cost and expenses of the Authority Engineer shall be borne by the Authority.

16.7 Replacement of the Authority Engineer

16.7.1 The Authority may, in its discretion, replace the Authority Engineer at any time, but only upon appointment of another Authority Engineer in accordance with Clause 16.1.

16.7.2 If the Contractor has reasons to believe that the Authority 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 replacement of the Authority Engineer. Upon receipt of such representation, the Authority shall hold a tripartite meeting with the Contractor and Authority Engineer and make best efforts for an amicable resolution of the Dispute. After due consideration, The Authority will decide about the replacement of Authority Engineer or otherwise. However , if Contractor is not satisfied with decision of Authority, the Dispute shall be resolved in accordance with Depute Resolution Procedure as per article 24.In the event that the Authority Engineer is to be replaced, the Authority shall appoint forthwith another Authority Engineer in accordance with Clause 16.1.

16.8 Interim Arrangement

In the event that the Authority has not appointed an Authority Engineer, or the Authority Engineer so appointed has relinquished its functions, the Authority may, in the interim, designate and authorise any person to discharge the functions of the Authority Engineer in accordance with the provisions of this Agreement, save and except that such person shall not exercise any functions relating to review, comment, approval or inspection as specified in this Agreement for and in respect of the Authority Engineer, and such functions shall be discharged as and when an Authority Engineer is appointed in accordance with the provisions of this Agreement. Provided, however, that nothing contained in this Clause 16.8 shall in any manner restrict the rights of the Authority to enforce compliance of the provisions of this Agreement.

Part IV

Financial Covenants

ARTICLE 17

PAYMENTS

17.1 Contract Price

17.1.1 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 Rs. ***** (Rs. ****)(the "**Contract Price**"), which shall be subject to adjustments in accordance with the provisions of this Agreement. 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.

17.1.2 The Contract Price includes all duties, taxes, royalty, and fees that may be levied in accordance with the laws and regulations in force as on the Base Month on the Contractor's equipment, Plant, Materials and supplies acquired for the purpose of this Agreement and on the on the Works undertaken 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.

17.1.3 The Contract Price shall not be adjusted for any change in duties, taxes etc. specified in Clause 17.1.2 above, save and except as specified in Clauses 17.8 and 17.13.

17.1.4 The Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs, unless otherwise provided for in this Agreement.

17.1.5 Unless otherwise specified 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 thereof and for the rectification of any Defects in the Railway Project.

17.1.6 All payments under this Agreement shall be made in Indian Rupees.

17.2 Advance Payment

17.2.1 Upon receiving request from Contractor, the Authority shall make an advance payment (the "**Advance Payment**"), up to 10% (ten percent)[14] of the Contract Price, for mobilisation expenses and for acquisition of equipment, which shall carry simple interest at the rate of Bank Rate plus 4% per annum and shall be made in two instalments of up to maximum 5% (five per cent) of the contract price each.

17.2.2 The Contractor may apply to the Authority for the first instalment 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 instalment, substantially in the form provided at Annex-III of Schedule-F, to remain effective till the complete and full repayment thereof.

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[14]For large value (Contract price not less than 500 cr.) or complex projects, the Advance Payment may be increased from 10% (ten per cent) to upto 15% (fifteen per cent) of the Contract Price.

17.2.3 At any time, after 60 (sixty) days from the Appointed Date, the Contractor may apply to the Authority for the second instalment 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 instalment, substantially in the form provided at Annex-III of Schedule-F, to remain effective till the complete and full repayment thereof along with proof of utilization of 1st instalment.

17.2.4 The instalments of Advance Payment shall generally 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 17.2.

17.2.5 The Advance Payment shall be recovered through proportionate deductions to be made in the Interim Payments Certificates issued in accordance with the provisions of Clause 17.5.2. Deductions of Advance Payment shall commence from the Interim Payment Certificate in which the cumulative interim payments certified shall have reached 50% (fifty percent) of the Contract Price. The total amount recovered in each Interim Payment Certificate shall be equal to 30% (thirty per cent) of the amount of interim payment due and payable under such Interim Payment Certificate, and interest on the amount being recovered to be calculated from the date of disbursement of the Advance Payment to the date of recovery until the entire Advance Payment together with interest is recovered. For the avoidance of doubt, the Parties agree that in the event the total payment specified in any Interim Payment Certificate exceeds the limit of 50% (fifty per cent) of the Contract Price, the proportionate of recovery hereunder shall be restricted to the amount exceeding 50% (fifty per cent) of the Contract Price. By way of illustration, the Parties agree that if the first recovery of say, Rupees 'x' is made after 20 (twenty) months from the date of 1st (first) instalment of the Advance Payment, the interest will be recovered on Rupees 'x' for a period of 20 (twenty) months; and when the next recovery is made in the following month for say, Rupees 'y', interest on Rupees 'y' will be computed for a period of 21 (twenty one) months. The Parties further agree that no payments in excess of 90% (ninety per cent) of the Contract Price shall be released until the Advance Payment, including interest thereon, has been fully recovered.

17.2.6 If the Advance Payment has not been fully repaid prior to Termination under Clause 19.7 or Article 21, as the case may be, the whole of the balance then outstanding shall immediately become due and payable by the Contractor to the Authority. In the event of Termination due to Contractor's Default, the Advance Payment shall be deemed to carry interest at an annual rate of 4% (four per cent) above the Bank Rate from the date of Advance Payment to the date of recovery by encashment of bank guarantee for the Advance Payment. For the avoidance of doubt, the aforesaid interest shall be payable on each instalment of the Advance Payment, regardless of whether the instalment or any part thereof has been repaid to the Authority prior to Termination.

17.2.7 For large value (Contract price not less than 500 cr.)and complex projects, the Authority shall make Advance Payment up to 15% (fifteen per cent) of the Contract Price. The payment shall be made in two installments of up to maximum 7.5% (seven and half per cent) of the contract price each on fulfilment of conditions stipulated in clause 17.2.2 and 17.2.3.

17.3 Procedure for estimating the payment for the Works

17.3.1 The Authority shall make interim payments to the Contractor, as certified by the Authority Engineer on completion of a Stage, fora length, number or area as specified, and valued in accordance with the proportion of the Contract Price assigned to each item and its stage and payment procedure in Schedule-G.

17.3.2 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 17.3.1, supported with necessary particulars and documents in accordance with this Agreement.

17.3.3 Any reduction in the Contract Price arising out of Change of Scope or the Works withdrawn under Clause 8.3, as the case may be, 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 the avoidance of doubt and by way of illustration, the Parties agree that if the amount assigned to [Important Bridges and/or Major Bridges] is reduced from Rs.100 crore to Rs. 80 crore owing to Change of Scope or withdrawal of Works, as the case may be, the reduction in payment shall be restricted to the relevant payments for [Important Bridges and/or Major Bridges] and the payment due in respect of all other stage payments under the item [Important Bridges and/or 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.

17.4 Stage Payment Statement for Works

The Contractor shall submit a statement (the "**Stage Payment Statement**"), in 3 copies, by the 7th (seventh) day of a month to the Authority Engineer in the form set forth in Schedule-M, showing the amount calculated in accordance with Clause 17.3 to which the Contractor considers itself entitled for the completed stage(s) of 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. In the event that there is no claim for a month in accordance with the provisions of this Clause 17.4, the Contractor shall submit a nil claim to the Authority Engineer.

17.5 Stage Payment for Works

17.5.1 Within 04 (four) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 17.4, the Authority Engineer shall broadly determine the amount due to the Contractor and recommend the release of 80 (eighty) percent of the amount so determined as part payment against the Stage Payment Statement, pending issue of the Interim Payment Certificate (IPC) by the Authority Engineer. Within 03 (three) days of the receipt of recommendation of the Authority Engineer as above, the Authority shall make electronic payment directly to the Contractor's bank account.

17.5.2 Within 20 (twenty) days of the receipt of the Stage Payment Statement referred to in Clause 17.4, the Authority 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.

17.5.3 In cases where there is a difference of opinion as to the value of any stage, the opinion of the Authority Engineer 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.

17.5.4 The Authority 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 in respect of which the Authority Engineer had notified the Contractor; and

(b) the estimated cost of rectification of any Works which have not been constructed in accordance with this Agreement.

17.5.5 Payment by the Authority shall not be deemed to indicate the Authority acceptance, approval, consent or satisfaction with the work done.

17.5.6 In the event the amounts released by the Authority under Clause 17.5.1 exceed the amount finally determined by the Authority Engineer pursuant to Clauses 17.5.2 to 17.5.4, the difference thereof shall be accounted for in the next IPC.

17.6 Payment of Damages

17.6.1 The Contractor as well as the Authority may claim Damages due and payable to it in accordance with the provisions of this Agreement.

17.6.2 The Authority Engineer shall verify and check the claim and issue the IPC within 20 (twenty) days of the receipt of the claim under Clause 17.6.1, after making adjustments in accordance with the provisions of this Agreement. The Authority shall pay to the Contractor the amount due under such IPC within a period of 30 (thirty) days from the date of the submission of the claim under this Clause 17.6. 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 17.7 shall apply *mutatis mutandis* thereto.

17.7 Time of payment and interest

17.7.1 The Authority shall pay to the Contractor any amount due under any payment certificate issued by the Authority Engineer in accordance with the provisions of this Article 17, 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 Engineer for certification in accordance with the provisions of Clause 17.4 for an IPC; provided, however, that in the event the IPC is not issued by the Authority 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 adjusted in the next payment certificate; and

(b) payment shall be made no later than30 (thirty) days from the date of submission of the Final Payment Certificate for Works along with the discharge submitted to the Authority Engineer for certification in accordance with the provisions of Clause 17.12.

17.7.2 In the event of failure of the Authority to make payment to the Contractor within the time period specified in this Clause 17.7, the Authority shall be liable to pay to the Contractor interest at a rate equal to the Bank Rate plus 3%, calculated at quarterly rests, on all sums remaining unpaid from the date by which the same should have been paid, calculated in accordance with the provisions of Clause 17.7.1 (a) and (b) and till the date of actual payment.

17.8 Price adjustment for Works

17.8.1 The amounts payable to the Contractor for Works shall be adjusted in accordance with the provisions of this Clause 17.8.

17.8.2 Subject to the provisions of Clause 17.8.3, the amounts payable to the Contractor for Works shall be adjusted in the IPC issued by the Authority 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 specified in Clause 17.8.4.

17.8.3 To the extent that any compensation or reimbursement for 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.

17.8.4 The Contract Price shall be adjusted for increase or decrease in rates and prices of labour, Materials, fuel and lubricants, equipment, Machinery, Plant and other Materials or inputs in accordance with the principles, procedures and formulae specified below:[15]

(a) Price adjustment shall be applied on completion of the specified stage of the respective item of work in accordance with Schedule-G. The 1st Quarter will start from Bid Due date month;

(b) Adjustment for each item of work/stage shall be made separately;

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[15]The following changes may be made for project specific cases:

(a) For project which includes both (i) civil and track works, and (ii) signalling and telecommunication works, retain paragraphs (c), (d), (e), (f), (g) and (h); and delete paragraphs (i), (j) and (k) relating to electrification works.

(b) For project for signalling and telecommunication works only, delete paragraphs (c), (d), (e) relating to civil works and track works, renumber paragraphs (f), (g) and (h) as (c), (d) and (e) respectively; and change reference to sub-paragraph (h) to sub-paragraph (e) in the renumbered paragraphs; and delete paragraphs (i), (j) and (k) relating to electrification works.

(c) For electrification works only, delete paragraphs (c), (d), (e) relating to civil works and track work, delete paragraphs (f), (g) and (h) relating to signalling and telecom works; renumber paragraphs (i), (j) and (k) relating to electrification works as (c), (d) and (e) respectively; and also change reference to sub-paragraph (k) to sub-paragraph (e) in the renumbered paragraphs.

(c) The following expressions and meanings are assigned to the value of the work done for civil and track work:

EW = Value of work done for the completion of a stage under the item earthwork;

BRIMP = Value of work done for the completion of a stage under the item Important Bridges;

BR = Value of work done for the completion of a stage under the items Major Bridges, Minor Bridges, RCC box/pipe culverts, Flyovers, RUB, and ROB in accordance with Schedule-G;

TRK = Value of work done for the completion of a stage under the item Track Works;

TUNL = Value of work done for the completion of a stage under the items Tunnel;

OEW = Value of work done for the completion of a stage under the item Other Engineering Works;

INVCIV = Value of work done for under the item inventory;

INTGTESTCIV = Value of work done for the item integrated testing and commissioning of the Railway Project.

(d) Price adjustment for change in costs of civil and track work shall be paid in accordance with the following formula:

(i) VEW= 0.85 EW x [PLB x (LBi – LBo)/LBo + PC x (Ci – Co)/Co + PF x (Fi –Fo)/Fo + PMACH x (MACHi – MACHo)/MACHo + POTH x (OTHi - OTHo)/OTHo];

(ii) VBRIMP = 0.85 BRIMP x [PLB x (LBi – LBo)/LBo + PC x (Ci – Co)/Co + PS x (Si – So)/So + PF x (Fi –Fo)/Fo + PMACH x (MACHi – MACHo)/MACHo + POTH x (OTHi - OTHo)/OTHo];

(iii) VBR = 0.85 BR x [PLB x (LBi – LBo)/LBo + PC x (Ci – Co)/Co + PS x (Si – So)/So + PF x (Fi – Fo)/Fo + PMACH x (MACHi – MACHo)/MACHo + POTH x (OTHi - OTHo)/OTHo];

(iv) VTRK = 0.85 TRK x [PLB x (LBi – LBo)/LBo + PC x (Ci – Co)/Co + PS x(Si – So)/So + PF x (Fi –Fo)/Fo + PMACH x (MACHi – MACHo)/MACHo + POTH x (OTHi – OTHo)/OTHo + PR x (Ri - Ro)/Ro];

(v) VTUNL = 0.85 TUNL x [PLB x (LBi – LBo)/LBo + PC x (Ci – Co)/Co + PS x (Si – So)/So + PF x (Fi – Fo)/Fo + PMACH x (MACHi – MACHo)/MACHo + POTH x (OTHi - OTHo)/OTHo + PXLP x (XLPi – XLPo)/XLPo];

(vi) VOEW = 0.85 OEW x [PLB x (LBi – LBo)/LBo + PC x (Ci – Co)/Co + PS x(Si – So)/So + PF x (Fi – Fo)/Fo + PMACH x ((MACHi – MACHo)/MACHo + POTH x (OTHi - OTHo)/OTHo];

(vii) VINVCIV = 0.85 INVCIV x [PR x (Ri – Ro)/Ro + POTH x (OTHi - OTHo)/OTHo]; and

(viii) VINTGTESTCIV = 0.85 INTGTESTCIV x [PLB x (LBi – LBo)/LBo = POTH x (OTHi - OTHo)/OTHo];

Where

VEW = Increase or decrease in the cost of earthwork during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (e);

VBRIMP = Increase or decrease in the cost of Important Bridges during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (e);

VBR = Increase or decrease in the cost of Major Bridges, Minor Bridges, Flyovers, RCC box/pipe culverts ROB/RUB) during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (e);

VTRK = Increase or decrease in the cost of track works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (e);

VTUNL = Increase or decrease in the cost of tunnels during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (e);

VOEW = Increase or decrease in the cost of Other Engineering Works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (e);

VINVCIV = Increase or decrease in the cost of inventory during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (e);

VINTGTESTCIV = Increase or decrease in the cost of integrated testing and commissioning during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (e);

PC, PF, PLB, PMACH, POTH, PR, PS and PXLP are the percentages of cement, fuel and lubricants, labour, Plant Machinery and tools, other materials, rails, steel/ components (including strands and steel cables), and explosives respectively for the relevant item as specified in sub-paragraph (e);

Co = The wholesale price index as published by the Ministry of Commerce and Industry, Government of India (hereinafter called "**WPI**") for sub-group Cement, Lime & Plaster for the month of the Base Month;

Ci = The WPI for sub-group Cement, Lime & Plaster for the average price index of the 3 months of the quarter under consideration;

Fo = The wholesale price index as published by the Ministry of Commerce and Industry, Government of India (hereinafter called "**WPI**") for group Fuel & Power for the month of the Base Month

Fi = The WPI for group Fuel & Power for the average price index of the 3 months of the quarter under consideration

LBo = The consumer price index for industrial workers – All India, published by Labour Bureau, Ministry of Labour, Government of India, (hereinafter called "**CPI**") for the month of the Base Month;

LBi = The CPI for industrial workers – All India for the average price index of the 3 months of the quarter under consideration;

MACHo = The wholesale price index as published by the Ministry of Commerce and Industry, Government of India (hereinafter called "**WPI**") for category- k "Manufacturing of Machinery for Mining, quarrying and construction' under (R) Manufacturing of Machinery and Equipment for the month of the Base Month;

MACHi = The WPI for category- k "Manufacturing of Machinery for Mining, quarrying and construction' under (R) Manufacturing of Machinery and Equipment for the average price index of the 3 months of the quarter under consideration;

OTHo = The wholesale price index as published by the Ministry of Commerce and Industry, Government of India (hereinafter called "**WPI**") for all commodities for the month of the Base Month;

OTHi = The WPI for all commodities for the average price index of the 3 months of the quarter under consideration;

Ro = The Price for Rails (60kg) published by the Bhilai Plant of the Steel Authority of India for the month of the Base Month;

Ri = The Price for Rails (60kg) published by the Bhilai Plant of the Steel Authority of India for the month which is three months prior to the month to which the IPC relates;

So = The rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in clause17.8.4(A) as published for the month of the Base Month;

Si = The average rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in clause17.8.4-A as published for the 3 months of the quarter under consideration;

XLPo = The wholesale price index as published by the Ministry of Commerce and Industry, Government of India (hereinafter called "**WPI**") for explosives for the month of the Base Month; and

XLPi = The WPI for explosives for the average price index of the 3 months of the quarter under consideration.

(e) The following percentages shall govern the price adjustment of the Contract Price:

Component	**Earthwork**	**Important Bridges**	**Major Bridges/ flyovers/ Minor Bridges, CC box/pipe culverts, ROB/RUB**	**Track works**	**Tunnels**	**Other engineering works**	**Inventory**	**Integrated testing and commissioning**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	
Cement (PC)	***%	***%	***%	***%	***%	***%	-	-
Explosives (PXLP)	-	-	-	-	***%	-	-	-
Fuel and lubricants (PF)	***%	***%	***%	***%	***%	***%	-	-
Labour (PLB)	***%	***%	***%	***%	***%	***%	-	***%
Machinery and Plants (PMACH)	***%	***%	***%	***%	***%	***%	-	
Other Materials (POTH)	***%	***%	***%	***%	***%	***%	***%	***%
Rail (PR)	-	-	-	***%	-	-	***%	-
Steel (PS)	-	***%	***%	***%	***%	***%	-	-
Total	100%	100%	100%	100%	100%	100%	100%	100%

(f) The following expressions and meanings are assigned to the value of the work done for signalling and telecommunication works:

SIGWK = Value of signalling works for a stage payment of the item signalling works;

INVSIG = Value of inventory for signalling works for a stage payment of the item inventory for signalling works;

INTGTESTSIG = Value of integrated testing and commission for signalling works of the Railway Project;

COMWK= Value of telecommunication works for a stage payment of the item telecommunication works;

INVCOM = Value of inventory for telecommunication works for a stage payment of the item inventory for telecommunication works; and

INTGTESTCOM = Value of integrated testing and commission for telecommunication works of the Railway Project.

(g) Price adjustment for changes in cost of signalling works and telecommunication works shall be paid in accordance with the following formula:

(i) VSIGWK = 0.85 SIGWK x [PELEX x (ELEXi – ELEXo)/ ELEXo + POFC x (OFCi – OFCo)/OFCo + PLB x (LBi – LBo)/LBo + POTH x (OTHi - OTHo)/OTHo + S30C x ($P30C_i$ – $P30C_o$)/ $P30C_o$ + S24C x ($P24C_i$ – $P24C_o$)/ $P24C_o$ + S19C x ($P19C_i$ – $P19C_o$)/ $P19C_o$ + S12C x ($P12C_i$ – $P12C_o$)/ $P120C_o$ + S9C x ($P9C_i$ – $P9C_o$)/ $P9C_o$ + S6C x ($P6C_i$ – $P6C_o$)/ $P6C_o$ + S4C x ($P4C_i$ – $P4C_o$)/ $P4C_o$ + S2C x ($P2C_i$ – $P2C_o$)/ $P2C_o$ + S12C2.5 x ($P12C2.5_i$ – $P12C2.5_o$)/ $P12C2.5_o$ + S2C2.5 x ($P2C2.5_i$ – $P2C2.5_o$)/ $P2C2.5_o$ + S2C25 x ($P2C25_i$ – $P2C25_o$)/ $P2C25_o$ + QC x (PQC_i – PQC_o)/ PQC_o ;

(ii) VINVSIG = 0.85 SIGWK x [PELEX x (ELEXi – ELEXo)/ ELEXo + POTH x (OTHi - OTHo)/OTHo];

(iii) VINTGTESTSIG = 0.85 INTGTESTSIG x [PLB x (LBi – LBo)/LBo + POTH x (OTHi - OTHo)/OTHo];

(iv) VCOMWK = 0.85 COMWK x [PELEX x (ELEXi – ELEXo)/ ELEXo + POFC x (OFCi – OFCo)/OFCo + PLB x (LBi – LBo)/LBo + POTH x (OTHi - OTHo)/OTHo + S30C x ($P30C_i$ – $P30C_o$)/ $P30C_o$ + S24C x ($P24C_i$ – $P24C_o$)/ $P24C_o$ + S19C x ($P19C_i$ – $P19C_o$)/ $P19C_o$ + S12C x ($P12C_i$ – $P12C_o$)/ $P120C_o$ + S9C x ($P9C_i$ – $P9C_o$)/ $P9C_o$ + S6C x ($P6C_i$ – $P6C_o$)/ $P6C_o$ + S4C x ($P4C_i$ – $P4C_o$)/ $P4C_o$ + S2C x ($P2C_i$ – $P2C_o$)/ $P2C_o$ + S12C2.5 x ($P12C2.5_i$ – $P12C2.5_o$)/ $P12C2.5_o$ + S2C2.5 x ($P2C2.5_i$ – $P2C2.5_o$)/ $P2C2.5_o$ + S2C25 x ($P2C25_i$ –

$P2C25_o$)/ $P2C25_o$ + QC x (PQC_i – PQC_o)/ PQC_o+ PCEQP x (CEQPi – CEQPo)/CEQPo];

(v) VINVCOM = 0.85 SIGWK x [PELEX x (ELEXi – ELEXo)/ ELEXo + PCEQP x (CEQPi – CEQPo)/CEQPo + POTH x (OTHi - OTHo)/OTHo]; and

(vi) VINTGTESTCOM = 0.85 INTGTESTCOM x [PLB x (LBi – LBo)/LBo + POTH x (OTHi - OTHo)/OTHo].

Where

VSIGWK = Increase or decrease in the cost of signalling works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VINVSIG = Increase or decrease in the cost of inventory for signalling during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VINTGTESTSIG = Increase or decrease in the cost of integrated testing and commissioning of signalling works of the Railway Project during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VCOMWK = Increase or decrease in the cost of communication works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VINVCOM = Increase or decrease in the cost of inventory for telecommunications works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VINTGTESTCOM = Increase or decrease in the cost of integrated testing and commissioning of telecommunication works of the Railway Project during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

PCEQP, PELEX, PIC, PLB, POFC, and POTH are the percentages of communication equipment, electronics, PVC insulated cables, labour, optical fibre cables, and other materials respectively;

CEQPo = The wholesale price index as published by the Ministry of Commerce and Industry, Government of India (hereinafter called "**WPI**") for communication equipment for the month of the Base Month ;

CEQPi = The WPI for communication equipment for the average price index of the 3 months of the quarter under consideration;

ELEXo = The WPI for electronics for the month of the Base Month;

ELEXi = The WPI for electronics for the average price index of the 3 months of the quarter under consideration;

$P30C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 30C x 1.5 sq mm signalling cable

$P30C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S30C = Percentage of size 30C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P24C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 24C x 1.5 sq mm signalling cable

$P24C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S24C = Percentage of size 24C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P19C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 19C x 1.5 sq mm signalling cable

$P19C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S19C = Percentage of size 19C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P12C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 12C x 1.5 sq mm signalling cable

$P12C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S12C = Percentage of size 12C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P9C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 9C x 1.5 sq mm signalling cable

$P9C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S9C = Percentage of size 9C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P6C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 6C x 1.5 sq mm signalling cable

$P6C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S6C = Percentage of size 6C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P4C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 4C x 1.5 sq mm signalling cable

$P4C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S4C = Percentage of size 4C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P2C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 2C x 1.5 sq mm signalling cable

$P2C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S2C = Percentage of size 2C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P12C2.5_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 12C x 2.5 sq mm signalling cable

$P12C2.5_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S12C2.5 = Percentage of size 12C x 2.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P2C2.5_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 2C x 2.5 sq mm signalling cable

$P2C2.5_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S2C2.5 = Percentage of size 2C x 2.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P2C25_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 2C x 25 sq mm signalling cable

$P2C25_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S2C25 = Percentage of size 2C x 25 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

PQC_i = Price payable per Km as adjusted in accordance with price variation Clause for size 0.9mm dia, 6 Quad cable.

PQC_o = Price per Km of cable as per purchase order/ Contract agreement.

QC = Percentage of size 0.9mm dia, 6 Quad cable shall govern the price.

LBo = The consumer price index for industrial workers – All India, published by Labour Bureau, Ministry of Labour, Government of India, (hereinafter called "**CPI**") for the month of the Base Month;

LBi = The CPI for industrial workers – All India for the average price index of the 3 months of the quarter under consideration;

OFCo = The WPI for fibre cables for the month of the Base Month;

OFCi = The WPI for fibre cables for the average price index of the 3 months of the quarter under consideration;

OTHo = The WPI for all commodities for the month of the Base Month; and

OTHi = The WPI for all commodities for the average price index of the 3 months of the quarter under consideration.

(h) The following percentages shall govern the price adjustment of the Contract Price for signalling and telecommunication works:

Component	Signalling			Telecommunication		
	Signalling Works	**Signalling inventory**	**Integrated testing and Commissioning**	**Telecommunication Works**	**Telecomm inventory**	**Integrated testing and Commissioning**
Electronics (PELEX)	***%	***%	–	***%	***%	–
Communication Equipment (PCEQP)	–	–	–	***%	***%	–
Optical Fibre Cable (POFC)	***%	–	–	***%	–	–
30C x 1.5 sq mm signalling cable(S30C)	***%	–	–	***%	–	–
24C x 1.5 sq mm signalling cable (S24C)	***%	–	–	***%	–	–
19Cx 1.5 sq mm signalling cable (S19C)	***%	–	–	***%	–	–
12C x 1.5 sq mm signalling cable (S12C)	***%	–	–	***%	–	–
9C x 1.5 sq mm signalling cable (S9C)	***%	–	–	***%	–	–
6C x 1.5 sq mm signalling cable (S6C)	***%	–	–	***%	–	–
4C x 1.5 sq mm signalling cable (S4C)	***%	–	–	***%	–	–
2C x 1.5 sq mm signalling cable (S2C)	***%	–	–	***%	–	–
12C x 2.5 sq mm signalling cable (S12C2.5)	***%	–	–	***%	–	–
2C x 2.5 sq mm signalling cable (S2C2.5)	***%	–	–	***%	–	–
2C x 25 sq mm signalling cable	***%	–	–	***%	–	–

(S2C25)						
0.9 mm dia, 6Quad cable (QC)	***%	_	_	***%	_	_
Labour (PLB)	***%	_	***%	***%	***%	***%
Other materials	***%	***%	***%	***%	***%	***%
Total	100%	100%	100%	100%	100%	100%

(a) PRICE VARIATION FORMULA FOR SIGNALING & TELECOM CABLE

The price payable for signalling cables is variable as per Price Variation Formula given below:

For Signalling Copper Cables:

P_i= Po+CuF (Cu-Cuo) + CCFcu(CC-CCo) + FeF (Fe-Feo)

For Telecom Copper Cables For Jelly Filled, 0.9 mm dia, 6 quad cable

P_i= Po+CuF (Cu-Cuo) + AlFcu(Al-Alo) + CCFcu (CC-Cco) + FeF (Fe-Feo)

For Aluminium Power Cables:

P_i= Po+AlF (Al-Alo) + CCFAl(CC-CCo) + FeF (Fe-Feo)

Where,

P_i= Price payable per KM as adjusted in accordance with Price variation clause.

Po= Price per KM of cable as per Purchase order.

CuF= Variation factor for Copper

Cuo= Price of copper Rod in Rs. Per MT

CCFCu= Variation factor for PVC Compound for Copper Signalling & Telecom cable

CCo= Price of PVC Compound in Rs. Per MT

AlF= Variation factor for Aluminium

Alo= Price of EC grade LME Aluminium rods (Properzi rods) in Rs. Per MT.

CCFAl = Variation factor for PVC Compound for Aluminium power cable

FeF= Variation factor for Steel

Feo= Price of Steel for Armour (Flat strip 4 mm. x 0.8mm/ Round 1.4mm dia) in Rs. Per MT

(Prices per MT for Cuo, CCo, Feo, Alo as applicable on the 1st working day of the month, one month prior to the deadline for submission of bids. The above prices and indices are as published by IEEMA vide circular reference no. IEEMA (PVC) /CABLE --/--/-- one month prior to the deadline for submission of bids.)

Cu= Price of Copper Rod in Rs. Per MT.
CC= Price of PVC Compound in Rs. Per MT.
Fe= Price of Steel for Armouring (Flat strip 4mm x 0.8 mm/ Round 1.4mm dia) in Rs. Per MT.
Al = Price of EC grade LME Aluminium rods (Properzi rods) in Rs. Per MT.
(Prices per MT for Cu, CC, Fe, Al as prevailing on 1st working day of the calendar month covering the date One month prior to the date of inspection call letter will be applicable for the calculation of updated price. The above prices and indices are as published by IEEMA vide circular reference no. IEEMA (PVC) /CABLE --/--/-- one month prior to the date of inspection.)
The value of variation factors for copper, steel and PVC Compound are different for different sizes of signalling cables. Accordingly, the PVC formula for some of the types of signalling cable is as given under:-
Underground Railway Signalling Cable unscreened and armoured copper conductor

(i) Size 30 C x 1.5 sq.mm.
$P30C_i$=P30Co+0.391(Cu-Cuo)+0.557(CC-CCo)+0.425(Fe-Feo)

For armouring, price of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

(ii) Size 24C x 1.5 sq.mm
$P24C_i$= P24Co+0.313(Cu-Cuo)+ 0.481 (CC-CCo)+0.398(Fe-Feo)

For armouring, value of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

(iii) Size 19C x 1.5 sq.mm
$P19C_i$= P19Co+0.248(Cu-Cuo) + 0.395(CC-CCo)+0.343(Fe-Feo)

For armouring, value of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

(iv) Size 12C x 1.5 sq.mm
$P12C_i$=P12Co+0.157(Cu-Cuo) + 0.277(CC-CCu)+0.289(Fe-Feo)

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

(v) Size 9C x 1.5 sq.mm
$P9C_i$= P9Co+0.117(Cu-Cuo)+0.241(CC-CCu)+0.383(Fe-Feo)

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

(vi) Size 6Cx 1.5 sq.mm
$P6C_i$= P6Co+0.078(Cu-Cuo)+0.199(CC-CCu)+0.329(Fe-Feo)

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

(vii) Size 4Cx1.5 sq.mm
$P4C_i$=P4Co+0.052(Cu-Cuo)+0.152(CC-CCo)+0.277(Fe-Feo)

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

(viii) Size 2C x 4 sq.mm(multistrand)

$P2C_i$= P2Co+0.073(Cu-Cuo)+0.156(CC-CCo)+0.3(Fe-Feo)

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

(ix) Size 12C x 2.5 sq.mm

$P12C2.5_i$= P12C2.5o+0.282 (Cu-Cuo)+0.371 (CC-CCo)+0.342 (Fe-Feo)

For armouring, value of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

(x) Size 2C x 2.5 sq.mm

$P2C2.5_i$= P2C2.5o+0.047 (Cu-Cuo)+0.139 (CC-CCo)+0.277 (Fe-Feo)

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

(xi) Size 2C x 25 sq.mm PVC insulated, armoured, Aluminium power cable

$P2C25_i$= P2C25o+0.146 (Al-Alo)+0.303 (CC-CCo)+0.306 (Fe-Feo)

For armouring, value of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

(xii) For Jelly filled, 0.9mm dia, 6 quad cable

PQC_i = PQCo + 0.135 (Al-Alo) + 0.139 (Cu-Cuo) + 0.515 (CC-Cco) + 0.693 (Fe-Feo).

For PVC Compound Grade CW-22, is to be taken into consideration.

(i) The following expressions and meanings are assigned to the value of the work done forelectrification works:

OHE = Value of work done for the completion of a stage under the item Overhead Equipment Work;

SP = Value of work done for the completion of a stage under the item Switching Posts;

TRANSBOO = Value of work done for the completion of a stage under the item Booster Transformer;

TRANSAUX = Value of work done for the completion of a stage under the item Auxiliary Transformer;

TSS = Value of work done for the completion of a stage under the item Traction Sub Station;

TLOH = Value of work done for the completion of a stage under the item High Voltage Transmission Line Overhead including monopole;

TLUG = Value of work done for the completion of a stage under the item Underground High Tension Cable Transmission Line;

BAY = Value of work done for the completion of a stage under the item Bay Augmentation work at Grid Sub-Station/Terminal arrangement at TSS;

SCADA = Value of work done for the completion of a stage under the item SCADA;

ELEGWK = Value of work done for the completion of a stage under the item various electrical general services works;

MODHTPWRLINE = Value of work done for the completion of a stage under the item modification of HT power lines and crossings (raising of height);

MODHTLTOUG = Value of work done for the completion of a stage under the item modification of HT power lines and crossings to underground (replacement by underground cabling);

MODLTLTOUG = Value of work done for the completion of a stage under the item modification of LT power lines and crossings to underground (replacement by underground cabling);

EXTNLTPWRSPLY = Value of work done for the completion of a stage under the item extension/augmentation of power supply for CLS work;

EXTNPWRSUPLY = Value of work done for the completion of a stage under the item extension/augmentation of general power supply;

MODELETRICAL = Value of work done for the completion of a stage under the item modification to existing electrical works;

INVELECTRICAL = Value of work done for the completion of a stage under the item inventory electrical;

SIGMOD = Value of work done for the completion of a stage under the item Signalling System Modification;

INVSIG = Value of work done for the completion of a stage under the item signalling inventory;

TESTSIG = Value of work done for the completion of a stage under the item integrated testing and commissioning;

COMMOD = Value of work done for the completion of a stage under the item Telecommunications modifications;

INVCOM = Value of work done for the completion of a stage under the item telecommunication inventory;

TESTCOM = Value of work done for the completion of a stage under the item integrated testing and commissioning; and

CIVENG = Value of work done for the completion of a stage under the item Civil Engineering works.

(j) Price adjustment for changes in cost for electrification works shall be paid in accordance with the following formula:

(i) VOHE = 0.85 OHE x [PLB x (LBi – LBo)/LBo + PC x (Ci – Co)/Co + PSST x (SSTi – SSTo)/SSTo + PCU x (CUi – CUo)/CUo + PINS x (INSi – INSo)/ INSo];

(ii) VSP = 0.85 SP x [PLB x (LBi – LBo)/LBo + PC x (Ci – Co)/ Co + PSWGR x (SWGRi – SWGRo)/SWGRo];

(iii) VTRANSBOO = 0.85 TRANSBOO x [PLB x (LBi – LBo)/LBo + PSST x (SSTi – SSTo)/SSTo + PTR x (TRi – TRo)/TRo];

(iv) VTRANSAUX = 0.85 TRANSAUX x [PLB x (LBi – LBo)/LBo + PSST x (SSTi – SSTo)/SSTo + PTR x (TRi – TRo)/TRo];

(v) VTSS = 0.85 TSS x [PLB x (LBi – LBo)/LBo + PTR (TRi – TRo)/TRo + PC x (Ci – Co)/ Co + PSST x (SSTi – SSTo)/SSTo + PSWGR x (SWGRi – SWGRo)/SWGRo];

(vi) VTLOH = 0.85 TLOH x [PLB x (LBi – LBo)/LBo + PSST x (SSTi – SSTo)/SSTo + PCOND x (CONDi – CONDo)/CONDo + PC x (Ci – Co)/ Co + PINS x (INSi – INSo)/ INSo + POTH x (OTHi – OTHo)OTHo];

(vii) VTLUG = 0.85 TLUG x [PLB x (LBi – LBo)/LBo + PPC x (PCi – PCo)/PCo];

(viii) VBAY = 0.85 BAY x [PLB x (LBi – LBo)/LBo + PSST x (SSTi – SSTo)/SSTo + PC x (Ci – Co)/ Co + PCU x (CUi – CUo)/CUo];

(ix) VSCADA = 0.85 SCADA x [PLB x (LBi – LBo)/LBo + PELEX x (ELEXi – ELEXo)/ELEXo];

(x) VELEGWK = 0.85 ELEGW x [PLB x (LBi – LBo)/LBo + POTH x (OTHi – OTHo)OTHo];

(xi) VMODHTPWRLINE = 0.85 MODHTPWRLINE x [PLB x (LBi – LBo)/LBo +PSST x (SSTi – SSTo)/SSTo + POTH x (OTHi – OTHo)/OTHo];

(xii) VMODHTLTOUG = x0.85 MODHTLTOUG x [PLB x (LBi – LBo)/LBo + PPC x (PCi – PCo)/PCo + POTH x (OTHi – OTHo)/OTHo];

(xiii) VMODLTLTOUG = 0.85 MODLTLTOUG x [PLB x (LBi – LBo)/LBo + PPC x (PCi – PCo)/PCo + POTH x (OTHi – OTHo)/OTHo];

(xiv) VEXTNLTPWRSPLY = 0.85 EXTNLTPWRSPLY x [PLB x (LBi – LBo)/LBo + POTH x (OTHi – OTHo)/OTHo];

(xv) VEXTNPWRSUPLY = 0.85 EXTNPWRSUPLY x [PLB x (LBi – LBo)/LBo + POTH x (OTHi – OTHo)OTHo];

(xvi) VMODELETRICAL = 0.85 MODELETRICAL x [PLB x (LBi – LBo)/LBo + POTH x (OTHi – OTHo)/OTHo];

(xvii) INVELECTRICAL = 0.85 INVELECTRICAL x [POTH x (OTHi – OTHo)/OTHo];

(xviii) VSIGMOD = 0.85 SIGMOD x [PLB x (LBi – LBo)/LBo + PELEX x (ELEXi – ELEXo)/ELEXo + PPC x (PCi – PCo)/PCo +POTH x (OTHi – OTHo)/OTHo];

(xix) VINVSIG = 0.85 INVSIG x [POTH x (OTHi – OTHo)/OTHo];

(xx) VTESTSIG = 0.85 TESTSIG x [PLB x (LBi – LBo)/LBo + POTH x (OTHi – OTHo)/OTHo];

(xxi) VCOMMOD = 0.85 COMMOD x [PLB x (LBi – LBo)/LBo + PELEX x (ELEXi – ELEXo)/ELEXo + POFC x (OFCi – OFCo)/OFCo];

(xxii) VINVCOM = 0.85 INVCOM x [POTH x (OTHi – OTHo)/OTHo];

(xxiii) VTESTCOM = 0.85 TESTCOM x [PLB x (LBi – LBo)/LBo + POTH x (OTHi – OTHo)/OTHo]; and

(xxiv) VCIVENG = 0.85 x VCIVENG x [PLB x (LBi – LBo)/LBo + PS x (Si – So)/So + PC x (Ci – Co)/ Co + POTH x (OTHi – OTHo)/ OTHo].

Where

VOHE = Increase or decrease in the cost of Over Head Equipment and other related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VSP = Increase or decrease in the cost of Switch Post and other related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VTRANSBOO = Increase or decrease in the cost of booster transformer and other related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VTRANSAUX = Increase or decrease in the cost of auxiliary transformer and other related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VTSS = Increase or decrease in the cost of Traction Sub-Station and other related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VTLOH = Increase or decrease in the cost of overhead transmission line and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VTLUG = Increase or decrease in the cost of underground high voltage transmission line and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VBAY = Increase or decrease in the cost of bay augmentation work at grid sub-station/ terminal arrangement at TSS and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VSCADA = Increase or decrease in the cost of SCADA and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VELEGWK = Increase or decrease in the cost of various electrical general services works and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VMODHTPWRLINE = Increase or decrease in the cost of modification of HT power lines and crossings (raising of height) and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VMODHTLTOUG = Increase or decrease in the cost of modification of HT power lines and crossings to underground (replacement by underground cabling) and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VMODLTLTOUG = Increase or decrease in the cost of modification of LT power lines and crossings to underground (replacement by underground cabling) and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VEXTNLTPWRSPLY = Increase or decrease in the cost of extension/augmentation of power supply for CLS work and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VEXTNPWRSUPLY = Increase or decrease in the cost of extension/augmentation of general power supply and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VMODELETRICAL = Increase or decrease in the cost of modification to existing electrical works and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VINVELECTRICAL = Increase or decrease in the cost of inventory electrical during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VSIGMOD = Increase or decrease in the cost of signalling system modification and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VINVSIG = Increase or decrease in the cost of signalling inventory during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VTESTSIG = Increase or decrease in the cost of SCADE and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VCOMMOD = Increase or decrease in the cost of communication and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VINVCOM = Increase or decrease in the cost of telecommunication inventory during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VTESTCOM = Increase or decrease in the cost of integrated testing and commissioning and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

VCIVENG = Increase or decrease in the cost of civil engineering and related works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (k);

PC, PCOND, PCU, PELEX, PINS, PLB, POFC, PSWGR, , PPC, and PSST are the percentages of cement, conductor, copper wire, electronic items, insulators, labour, fibre optic cables, electrical switch gears, PVC insulated cable and structural steel respectively for the relevant item as specified in sub-paragraph (k);

Co = The wholesale price index as published by the Ministry of Commerce & Industry, Government of India (hereinafter called "**WPI**") for cement, lime, plaster for the month of the Base Month;

Ci = The WPI for cement, lime, plaster for the average price index of the 3 months of the quarter under consideration;

CONDo = **Aluminium LME SELLER Settlement Price including Premium for AL Ingots and Customs duty published by IEEMA** for the month of the Base Month;

CONDi = **Aluminium LME SELLER Settlement Price including Premium for AL Ingots and Customs duty published by IEEMA** for the average price index of the 3 months of the quarter under consideration;

CUo = **Copper: (Cu) Price of copper wire rod published by IEEMA** for the month of the Base Month;

CUi= **Copper: (Cu) Price of copper wire rod published by IEEMA** for the average price index of the 3 months of the quarter under consideration;

ELEXo = **The WPI for Manufacture OF Electronic Components** for the month of the Base Month;

ELEXi = **The WPI for Manufacture OF Electronic Components** for the average price index of the 3 months of the quarter under consideration;

INSo = The WPI for insulators for the month of the Base Month;

INSi = The WPI for insulators for the average price index of the 3 months of the quarter under consideration;

LBo = The consumer price index for industrial workers – All India, published by Labour Bureau, Ministry of Labour, Government of India, (hereinafter called "**CPI**") for the month of the Base Month;

LBi = The CPI for industrial workers – All India for the average price index of the 3 months of the quarter under consideration

OFCo = The WPI for optical fibre cables for the month of the Base Month;

OFCi = The WPI for optical fibre cables for the average price index of the 3 months of the quarter under consideration;

OTHo = The WPI for all commodities for the month of the Base Month;

OTHi = The WPI for all commodities for the average price index of the 3 months of the quarter under consideration;

PCo = The WPI for PVC insulated cable for the month of the Base Month;

PCi = The WPI for PVC insulated cable for the average price index of the 3 months of the quarter under consideration;

So = The WPI for steel (rods) for the month of the Base Month;

Si = The WPI for steel (rods) for the average price index of the 3 months of the quarter under consideration;

SSTo = **Price for BLOOMS-Retail (SBLR) 150mmx150mm published by IEEMA** for the month of the Base Month;

SSTi = **Price for BLOOMS-Retail (SBLR) 150mmx150mm published by IEEMA** for the average price index of the 3 months of the quarter under consideration;

SWGRo = **The WPI for MANUFACTURE OF ELECTRICAL EQUIPMENT** for the month of the Base Month;

SWGRi = **The WPI for MANUFACTURE OF ELECTRICAL EQUIPMENT** for the average price index of the 3 months of the quarter under consideration;

TRo = The WPI for transformers for the month of the Base Month; and

TRi = The WPI for transformers for the average price index of the 3 months of the quarter under consideration.

$P30C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 30C x 1.5 sq mm signalling cable

$P30C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S30C = Percentage of size 30C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P24C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 24C x 1.5 sq mm signalling cable

$P24C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S24C = Percentage of size 24C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P19C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 19C x 1.5 sq mm signalling cable

$P19C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S19C = Percentage of size 19C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P12C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 12C x 1.5 sq mm signalling cable

$P12C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S12C = Percentage of size 12C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P9C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 9C x 1.5 sq mm signalling cable

$P9C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S9C = Percentage of size 9C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P6C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 6C x 1.5 sq mm signalling cable

$P6C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S6C = Percentage of size 6C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P4C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 4C x 1.5 sq mm signalling cable

$P4C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S4C = Percentage of size 4C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P2C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 2C x 1.5 sq mm signalling cable

$P2C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S2C = Percentage of size 2C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P12C2.5_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 12C x 2.5 sq mm signalling cable

$P12C2.5_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S12C2.5 = Percentage of size 12C x 2.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P2C2.5_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 2C x 2.5 sq mm signalling cable

$P2C2.5_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S2C2.5 = Percentage of size 2C x 2.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P2C25_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 2C x 25 sq mm signalling cable

$P2C25_o$ = Price per Km of cable as per purchase order/ Contract agreement.

S2C25 = Percentage of size 2C x 25 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

PQC_i = Price payable per Km as adjusted in accordance with price variation Clause for size 0.9mm dia, 6 Quad cable.

PQC_o = Price per Km of cable as per purchase order/ Contract agreement.

QC = Percentage of size 0.9mm dia, 6 Quad cable shall govern the price

(k) The following percentages shall govern the price adjustment of the Contract Price for electrification works:

(i) For OHE, TSS, SP, Booster Transformer stations, Auxiliary transformer stations:

Component	**Over Head Equipment except other work**		**Switch Posts except commissioning and charging,**	**Booster Transformer Station**	**Tracking sub stations except Commissioning and charging**		**Auxiliary transformer stations**	**OHE other works, commissioning and charging of TSS, SP, Booster Transformer stations, auxiliary transformer stations**
	Foundation, mast erection, bracket, erection, insulators	**Stringing of catenary and contact wire**			**Transformers**	**All works except trans-formers**		
Labour (PLB)	***%	***%	***%	***%	***%	***%	***%	100%
Cement (PC)	***%	-	***%	-	-	***%	-	-
Structural steel (PSST)	***%	-	-	***%	-	***%	***%	-
Insulators (PINS)	***%	-	-	-	-	-	-	-
Copper wire (PCU)	-	***%	-	-	-	-	-	-
Transformer (PTR)	_	-	-	***%	***%		***%	-
Electrical Switch Gear (PSWGR)	-	-	***%	-	-	***%	-	-
Total	100%	100%	100%	100%	100%	100%	100%	100%

(ii) For transmission lines overhead, underground high tension cable transmission line, bay augmentation work at Grid Sub-station etc., various electrical general services works and modification of HT power lines and crossings (raising of height):

Component	**Transmission lines overhead including monopole except commissioning**	**Underground high tension cable transmission line except commissioning**	**Bay augmentation work at grid sub-station/ terminal arrangement at TSS**	**Various electrical general services works**	**Modification of HT power lines and crossings (raising of height)**	**Commissioning of transmission lines overhead, underground high tension cable transmission line, bay augmentation work.**
Labour (PLB)	***%	***%	***%	***%	***%	100%
Structural steel	***%	-	***%	-	***%	-
Cement (PC)	***%	-	***%	-	-	-
Conductor (PCOND)	***%	-	-			
PVC Insulated Cable (PIC)	-	***%	-	-	-	-
Copper wire (PCU)	-	-	***%	-	-	-
Insulators (PINS)	***%	-	-	-	-	-
Other items (POTH)	***%	-	-	***%	***%	-
Total	100%	100%	100%	100%	100%	100%

(iii) For SCADA, modification of HT power lines and crossings to underground (replacement by underground cabling), modification of LT power lines and crossings to underground (replacement by underground cabling except commissioning, Extension/augmentation of power supply for CLS work, extension/augmentation of general power supply, modification to existing electrical works:

Component	**SCADA except com-missioning for the Division**	**Modification of HT power lines and crossings to underground (replacement by underground cabling) except commissioning**	**Modification of LT power lines and crossings to underground (replacement by underground cabling except commissioning**	**Extension/ augmentation of power supply for CLS work except commissioning**	**Extension/ augmentation of general power supply**	**Modification to existing electrical works**	**Commissioning of SCADA, Modification of HT power lines, Modification of LT power lines, and Extension/ augmentation of power supply for CLS work**
Labour (PLB)	***%	***%	***%	***%	***%	***%	100%
Electronics (PELEX)	**%	-	-	-	-	-	-
PVC Insulated Cable (PIC)	-	***%	***%	*	*	*	-
Fibre Cable (POFC)	-	-	-	-	-	-	-
All other commodities (POTH)	***%	***%	***%	***%	***%	***%	-
Total	100%	100%	100%	100%	100%	100%	100%

(iv) For modification of signalling works, modification of telecommunications works, inventory for electrification. Signalling and telecommunication works; and integrated testing and commissioning of the electrification, signalling and telecommunication works:

Component	**Modification of signalling works**	**Modification of telecommunications works**	**Inventory for electrification. signalling and telecommunication works**	**Integrated testing and commissioning of electrification. signalling and telecommunication works**
Labour (PLB)	***%	***%	-	***%
Electronics (PELEX)	***%	***%	-	-
30C x 1.5 sq mm signalling cable(S30C)	***%	***%	-	-
24C x 1.5 sq mm signalling cable (S24C)	***%	***%	-	-
19Cx 1.5 sq mm signalling cable (S19C)	***%	***%	-	-
12C x 1.5 sq mm signalling cable (S12C)	***%	***%	-	-
9C x 1.5 sq mm signalling cable (S9C)	***%	***%	-	-
6C x 1.5 sq mm signalling cable (S6C)	***%	***%	-	-
4C x 1.5 sq mm signalling cable (S4C)	***%	***%	-	-
2C x 1.5 sq mm signalling cable (S2C)	***%	***%	-	-
12C x 2.5	***%	***%	-	-

sq mm signalling cable (S12C2.5)				
2C x 2.5 sq mm signalling cable (S2C2.5)	***%	***%	-	-
2C x 25 sq mm signalling cable (S2C25)	***%	***%	-	-
0.9 mm dia, 6Quad cable (QC)	***%	***%	-	-
Fibre Cable (POFC)	-	***%	-	-
All other commodities (POTH)	***%	***%	***%	***%
Total	100%	100%	100%	100%

(v)For Civil Engineering Works:

Component	**Civil Engineering Works**
Labour (PLB)	***%
Steel (PS)	***%
Cement (PC)	***%
All other commodities (POTH)	***%
Total	100%

17.8.4 (A)

(1) Relevant categories of steel for the purpose of operating Price Variation formula as mentioned in this Clause shall be as under:

SL	Classification	Rates to be used for calculating S_Q or S_B
1.	Reinforcement bars and other rounds	Average of per tonne rates of 10mm dia TMT & 25mm dia TMT; confirming IS1786; Fe 500
2.	All types and sizes of angles, channels and joists	Average of per tonne rates of 'Angle 75x75x6mm, Mild Steel Plate 10mm thickness and Channel 150x75mm; confirming IS2062, E250 Gr "A"
3.	All types and sizes of plates	Average of per tonne rates of 'MS Plates 10mm thickness and 25mm thickness; confirming IS2062, E250 Gr "A"
4.	Any other section of steel not covered in the above categories	Average of price for the 3 categories covered under SL 1, 2 & 3 in this table.

(2). Relevant city for referring "JPC (Joint Plant Committee)"rates of steel items (SQ /SB) in different Zonal Railways shall be as under :

SL	City	Railway
1.	Delhi	Northern , North Central, North Eastern, North Western
2.	Kolkata	Eastern, East Central, East Coast, Northeast Frontier, South Eastern, Southeast Central
3.	Mumbai	Central, Western, West Central
4.	Chennai	Southern, South Central & South Western

All these rates shall be as per rates provided by JPC.

17.8.5 In case an IPC relates to a month which is within 3 (three) months from the Base Month, no price adjustment shall be applicable.

17.9 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 therefor 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 only until the date of the respective Project Milestone or the Scheduled Completion Date, as the case may be.

17.10 Final Payment Statement

17.10.1 Within 60 (sixty) days of receiving the Completion Certificate under Clause 12.4, the Contractor shall submit to the Authority Engineer six copies of a final payment statement (the "**Final Payment Statement**"), with supporting documents, in the form prescribed by the Authority Engineer:

(a) the summary of Contractor's Stage Payment Statements for Works as submitted in accordance with Clause 17.4;

(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 Engineer disagrees with or cannot verify any part of the Final Payment Statement, the Contractor shall submit such further information as the Authority Engineer may reasonably require. The Authority 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 24; or

(ii) a Final Payment Certificate in accordance with Clause 17.15, if there are no disputed items.

17.10.2 If the Authority Engineer does not prescribe the form referred to in Clause 17.10.1 within 7 (Seven) days of the date of issue of the Completion Certificate, the Contractor shall submit the statement in such form as it deems fit.

17.11 Discharge

Upon submission of the Final Payment Statement under Clause 17.10, the Contractor shall give to the Authority, with a copy to the Authority 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 17.12.

17.12 Final Payment Certificate

17.12.1 Within 30 (thirty) days after receipt of the Final Payment Statement under Clause 17.10, and the written discharge under Clause 17.11, and there being no disputed items of claim, the Authority 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 Engineer, is finally due under this Agreement or otherwise. For the avoidance of doubt, before issuing the Final Payment Certificate, the

Authority Engineer shall ascertain from the Authority all amounts previously paid by the Authority, all sums due to the Authority, and the balance, if any, due from the Authority to the Contractor or from the Contractor to the Authority, as the case may be.

17.12.2 The Authority shall, in accordance with the provisions of Clause 17.7, pay to the Contractor the amount which is specified as being finally due in the Final Payment Certificate.

17.13 Change in law

17.13.1 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 costs, notify the Authority with a copy to the Authority Engineer of such additional costs due to Change in Law.

17.13.2 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 costs, notify the other Party with a copy to the Authority Engineer of such reduction in costs due to Change in Law.

17.13.3 The Authority Engineer shall, within15 (fifteen) days from the date of receipt of notice from the Contractor or the Authority, as the case may be, determine any addition or reduction to the Contract Price, as the case may be, due to the Change in Law.

17.14 Correction of Interim Payment Certificates

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

17.15 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.

17.16 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 doubt, the Parties agree that for the purpose of determining the bonus payable hereunder, the Contract Price shall always be deemed to be the amount specified in Clause 17.1.1, and shall exclude any revision thereof for any reason.

ARTICLE 18

INSURANCE

18.1 Insurance for Works

18.1.1 The Contractor shall effect and maintain at its own cost the insurances specified in Schedule-N and as per the requirements of Applicable Laws.

18.1.2 Subject to the provisions of Clause 19.6, the Contractor shall, in accordance with the provisions of this Agreement, be liable to bear the cost of any loss or damage that does not fall within the scope of this Article 18 or cannot be recovered from the insurers.

18.1.3 Subject to the exceptions specified in Clause 18.1.4 below, the Contractor shall 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;

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.

18.1.4 Notwithstanding anything stated above in Clause 18.1.3, 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 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

(c) 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 proportionate to the liability of the Authority, its servants or agents or other contractors not associated with the Contractor in such injury or damage.

18.1.5 Without prejudice to the obligations of the parties as specified under Clauses 18.1.3 and 18.1.4, the Contractor shall maintain or effect such third party insurances as may be required under Applicable Laws.

18.1.6 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 cover 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.

18.2 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 18. 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.

18.3 Evidence of Insurance Cover

18.3.1 All insurances obtained by the Contractor in accordance with this Article 18shall be maintained with insurers on terms consistent with Good Industry Practice. Within 10(ten) days of obtaining any insurance cover, the Contractor shall furnish to the Authority notarised 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.

18.3.2 The Contractor shall procure and ensure the adequacy of the insurances at all times in accordance with the provisions of this Agreement.

18.4 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. If either the Contractor or the Authority fails to comply with any condition of the insurances effected under the contract, the Party so failing to comply shall indemnify the other Party against all direct losses and claims (including legal fees and expenses) arising from such failure.

18.5 Waiver of subrogation

All insurance policies in respect of the insurance obtained by the Contractor pursuant to this Article 18shall include a waiver of any and all rights of subrogation or recovery of the insurers thereunder 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.

18.6 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.

18.7 Cross liabilities

Any such insurance maintained or effected in pursuance of this Article 18 shall include a cross liability clause such that the insurance shall apply to the Contractor and to the Authority as separately insured.

18.8 Accident or injury to workmen

Notwithstanding anything contained 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 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 defaults for which the Authority shall be liable.

18.9 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 Railway Project from and against any liability incurred in pursuance of this Article 18 Provided that for the purposes of this Clause 18.9, the Contractor's personnel/any person employed by the Contractor shall include the Sub-contractor and its personnel. Provided further that in respect of any persons employed by any Sub-contractor, the Contractor's obligations to insure as aforesaid under this Clause 18.9 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.

18.10 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 Railway Project 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.

18.11 Compliance with policy conditions

The Contractor expressly acknowledges and undertakes to fully indemnify the Authority from and against all losses and claims arising from the Contractor's failure to comply with conditions imposed by the insurance policies effected in accordance with this Agreement.

Part V

Force Majeure and Termination

ARTICLE 19

FORCE MAJEURE

19.1 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 19.2, 19.3 and 19.4 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 (a) is beyond the reasonable control of the Affected Party, and (b) the Affected Party could not have prevented or overcome by exercise of due diligence and following Good Industry Practice, and (c) has Material Adverse Effect on the Affected Party.

19.2 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 ionising 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 Railway Project 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 19.3;

(c) any failure or delay of a Sub-contractor but only to the extent caused by another Non-Political Event;

(d) any judgement 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; or (v) breach of its obligations by the Contractor under its sub-contracts;

(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.

19.3 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 Railway Project by the Contractor for an aggregate period exceeding 10 (ten) days in an Accounting Year;

(d) failure of the Authority to permit the Contractor to continue with its Construction Works, with or without modifications, in the event of stoppage of such work after discovery of any geological or archaeological finds;

(e) any failure or delay of a Sub-contractor to the extent caused by any Indirect Political Event;

(f) any Indirect Political Event that causes a Non-Political Event; or

(g) any event or circumstances of a nature analogous to any of the foregoing.

19.4 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 17.13;

(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 unauthorised or without jurisdiction revocation of, or refusal to renew or grant without valid cause, any clearance, licence, permit, authorisation, 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, licence, authorisation, 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.

19.5 Duty to report Force Majeure Event

19.5.1 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 19with 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.

19.5.2 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.

19.5.3 For so long as the Affected Party continues to claim to be 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 19.5.1, and such other information as the other Party may reasonably request the Affected Party to provide.

19.6 Effect of Force Majeure Event on the Agreement

19.6.1 Upon the occurrence of any Force Majeure

(a) prior to the Appointed Date, both Parties shall bear their respective Force Majeure costs.

(b) 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:

(i) 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;

(ii) 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

(iii) upon occurrence of a Political Event, all Force Majeure costs attributable to such Political Event shall be reimbursed by the Authority to the Contractor.

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.

19.6.2 Save and except as expressly provided in this Article 19, 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.

19.6.3 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, as may be determined by the Authority Engineer.

19.6.4 Force Majeure costs for any event which results in any offsetting compensation being payable to the Contractor by or on behalf of its sub-contractors shall be reduced by such amounts that are payable to the Contractor by its Sub-contractors.

19.7 Termination Notice for Force Majeure Event

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 19, 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.

19.8 Termination Payment for Force Majeure Event

19.8.1 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 21.5.

19.8.2 If Termination is on account of an Indirect Political Event, the Termination Payment shall include:

(a) any sums due and payable under Clause 21.5; and

(b) the reasonable cost, as determined by the Authority Engineer, of the Plant and Materials procured by the Contractor and transferred to the Authority for use in Construction, only if such Plant and Materials are in conformity with the Specifications and Standards;

19.8.3 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 21.6.2 as if it were an Authority Default.

19.9 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.

19.10 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 20

SUSPENSION OF CONTRACTOR'S RIGHTS

20.1 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 (a) suspend carrying out of the Works or any part thereof, and (b) carry out such Works 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.

20.2 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 in the Contractor 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 licences and sub-licences respectively, the Authority or any other person authorised by it under Clause 20.1 to use during Suspension, all Intellectual Property belonging to or licenced to the Contractor with respect to the Railway Project and its design, engineering, construction and maintenance, and which is used or created by the Contractor in performing its obligations under the Agreement.

20.3 Revocation of Suspension

20.3.1 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.

20.3.2 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.

20.4 Termination

20.4.1 At any time during the period of Suspension under this Article 20, 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 21 as if it is a Contractor Default under Clause 21.1.

20.4.2 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 21

TERMINATION

21.1 Termination for Contractor Default

21.1.1 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 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) subsequent to 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-I, 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 of the Railway Project 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 for 30 (thirty) days without reflecting the same in the current programme and such stoppage has not been authorised by the Authority Engineer;

(f) the Project Completion Date does not occur within the period specified in Schedule-I for the Scheduled Completion Date, or any extension thereof;

(g) failure to complete the Punch List items within the periods stipulated therefor in Clause 12.3;

(h) 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 Engineer;

(i) the Contractor subcontracts the Works or any part thereof in violation of this Agreement or assigns any part of the Works without the prior approval of the Authority;

(j) the Contractor creates any Encumbrance in breach of this Agreement;

(k) an execution levied on any of the assets of the Contractor has caused a Material Adverse Effect ;

(l) 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;

(m) 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;

(n) a resolution for winding up of the Contractor is passed, or any petition for winding up of the Contractor is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 (ninety) days of the date thereof or the Contractor is ordered to be wound up by a 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;

(o) any representation or warranty of the Contractor herein contained which is, as of the date hereof, found to be materially false or the Contractor is at any time hereafter found to be in breach thereof;

(p) 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;

(q) the Contractor has failed to fulfil any obligation, for which failure Termination has been specified in this Agreement;

(r) the Contractor has failed to make any payment to the Authority within the period specified in this Agreement; or

(s) 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.

21.1.2 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.

21.1.3 After termination of this Agreement for Contractor Default, the Authority may complete the Works and/or procure its completion through any other entity. The Authority and such entity may, for this purpose, use any Materials, Plant and equipment, Contractor's documents and other design documents made by or on behalf of the Contractor.

21.2 Termination for Authority Default

21.2.1 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 and forest clearances required for construction of the Railway Project;

(d) 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; or

(e) the Authority Engineer fails to issue the relevant Interim Payment Certificate within 60 (sixty) days after receiving a statement and supporting documents.

21.2.2 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.

21.3 Right of Authority to Determine the Contract

Notwithstanding anything hereinabove, the Authority shall be entitled to determine and terminate the contract at any time should, in the Authority's opinion, the cessation of work becomes necessary owing to paucity of funds

or from any other cause whatever, in which case it shall be treated as Authority Default and Termination Payment shall be made as per clause 21.6 below. Notice in writing from the Authority of such determination and the reasons therefor shall be conclusive evidence thereof. The termination shall take effect 30 (thirty) days from the date of notice hereunder.

21.4 Requirements after Termination

Upon Termination of this Agreement in accordance with the provisionsof this Article 21, the Contractor shall comply with and conform to the following:

(a) deliver to the Authority all Plant and Materials which shall have become the property of the Authority under this Article 21;

(b) deliver all relevant records, reports, Intellectual Property and other licences pertaining to the Works, other design documents and in case of Termination occurring after the Provisional Certificate has been issued, the "**as built**"Drawings for the Works;

(c) transfer and/or deliver all Applicable Permits to the Authority to the extent permissible under Applicable Laws; and

(d) vacate the Site within 15 (fifteen) days.

21.5 Valuation of Unpaid Works

21.5.1 Within a period of 45 (forty-five) days after Termination under Clause 21.1, 21.2 or 21.3, as the case may be, has taken effect, the Authority Engineer shall proceed in accordance with Clause 16.5 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; and

(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 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.

21.5.2 The Valuation of Unpaid Works shall be communicated to the Authority, with a copy to the Contractor, within a period of 45 (forty five) days from the date of Termination.

21.6 Termination Payment

21.6.1 Upon Termination on account of Contractor Default under Clause 21.1, the Authority shall:

(a) encash and appropriate the Performance Security and Retention Money and in the event the Contractor has failed to replenish or extend the Performance Security, claim the amount stipulated in Clause 7.1.1, as agreed pre-determined compensation to the Authority for any losses, delays andcost of completing the Works, if any;

(b) encash and appropriate the bank guarantee, if any, to the extent 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, and all taxes due to be deducted at source.

21.6.2 Upon Termination on account of an Authority Default under Clause 21.2 or under Clause 21.3, the Authority shall:

(a) return the Performance Security and Retention Money forthwith;

(b) encash and appropriate the bank guarantee, if any, to the extent of the outstanding Advance Payment, including interest thereon; and

(c) pay to the Contractor, by way of Termination Payment, an amount equal to:

(i) Valuation of Unpaid Works;

(ii) the reasonable cost, as determined by the Authority Engineer, of the Plant and Materials procured by the Contractor and transferred to the Authority for its use, only if such Plant and Materials are in conformity with the Specifications and Standards;

(iii) the reasonable cost of temporary works, as determined by the Authority Engineer; 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.

21.6.3 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, after the Valuation of Unpaid Works has been communicated by the Authority Engineer, and in the event of any delay, the Authority shall pay interest at the Bank Rate plus 3% (three percent), calculated at quarterly rests, 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.

21.6.4 The Contractor expressly agrees that Termination Payment under this Article 21shall 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.

21.7 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 Railway Project shall, as between the Contractor and the Authority, vest in the Authority in whole, free from any and all Encumbrances; provided that the foregoing shall be without prejudice to Clause 21.6;

(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 except for taking possession of materials, stores, implements, construction plants and equipment of the Contractor, which have not been vested in the Authority in accordance with the provisions of this Agreement.

21.8 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.

Part VI

Other Provisions

ARTICLE 22

ASSIGNMENT AND CHARGES

22.1 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.

22.2 Hypothecation of Materials or Plant

Notwithstanding the provisions of Clause 22.1, 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. For the avoidance of doubt, all Materials and Plants shall, upon their incorporation into Works, be free from any and all Encumbrances without the Authority being required to make any payment to any person on account of any costs, compensation, expenses and charges for such Materials, Plants and Works.

ARTICLE 23

LIABILITY AND INDEMNITY

23.1 General indemnity

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.

23.2 Indemnity by the Contractor

23.2.1 Without limiting the generality of Clause 23.1, 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 as a result 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.

23.2.2 Without limiting the generality of the provisions of this Article 23, 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 Railway Project, 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 licence, at no cost to the Authority, authorising continued use of the infringing work. If the Contractor is unable to secure such licence 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.

23.3 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 Agreement (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. In the event that 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.

23.4 Defence of claims

23.4.1 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 Agreement, the Indemnifying Party shall be entitled, at its option, to assume and control the defence 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.

23.4.2 If the Indemnifying Party has exercised its rights under Clause 23.3, 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).

23.4.3 If the Indemnifying Party exercises its rights under Clause 23.3, 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 authorised 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 defence 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 defence 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 defences 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 23.4.3 shall be applicable, the counsel for the Indemnified Party shall have the right to direct the defence 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.

23.5 No consequential claims

Notwithstanding anything to the contrary contained in this Article 23, the indemnities herein provided shall not include any claim or recovery in respect of any cost, expense, loss or damage of an indirect, incidental or consequential nature, including loss of profit, except as expressly provided in this Agreement.

23.6 Survival on Termination

The provisions of this Article 23shall survive Termination.

ARTICLE 24

DISPUTE RESOLUTION

24.1 Conciliation of Disputes

24.1.1 All disputes and differences of any kind whatsoever arising out of or in connection with the contract, whether during the progress of the work or after its completion and whether before or after the determination of the contract, shall be referred by the Contractor to the "Authority" through "Notice of Dispute" provided that no such notice shall be served later than 30 days after the date of issue of Completion Certificate by the Authority Engineer. Authority shall, within 30 days after receipt of the Contractor's "Notice of Dispute", notify the name of conciliator(s) to the Contractor. In case Authority fails to fix Conciliator within 30 days, Contractor shall be free to approach Dispute Adjudication Board (DAB) for adjudication of Dispute.

24.1.2 The Conciliator(s) shall assist the parties to reach an amicable settlement in an independent and impartial manner within the terms of contract. If the parties reach agreement on a settlement of the dispute, they shall draw up and sign a written settlement agreement duly signed by Authority Engineer, Contractor and conciliator(s). When the settlement agreement is signed, it shall be final and binding on the parties. The conciliators shall be paid fee as fixed by Ministry of Railways time to time, which shall be shared equally by the parties.

24.1.3 The parties shall not initiate, during the conciliation proceedings, any reference to DAB or arbitral or judicial proceedings in respect of a dispute that is the subject matter of the conciliation proceedings.

24.1.4 The conciliation shall be carried out as per 'The Arbitration and Conciliation Act, 1996' and the proceedings may be terminated as per Section 76 of the above Act.

24.2 Dispute Adjudication Board (DAB)

24.2.1 A dispute/s if not settled through conciliation, shall be referred to DAB. The DAB shall consist of a panel of three Retired Railway Officers not below senior administrative grade (SAG). The DAB shall be formed within 90 days of signing of Contract Agreement. For this purpose, the Authority will maintain a panel of DAB members. The complete panel, which shall not be less than five members, shall be sent by Authority to the Contractor to nominate one member of the DAB from the panel as Contractor's nominee within two weeks of receipt of the panel. On receipt of Contractor's nominee, the Authority shall nominate one member from the same panel as Authority's nominee for the DAB. Both above nominees shall jointly select presiding member of the DAB from the same panel.

24.2.2 The appointment of DAB shall be effectuated by way of a tri-partite agreement among the Authority, Contractor and the respective DAB members. The terms of the remuneration of each member shall be as fixed by

Ministry of Railways from time to time. Each party shall be responsible for paying one-half of this remuneration.

24.2.3 If one or more of the members appointed refuses to act as DAB member, or is unable or unwilling to perform his functions as DAB member for any reason whatsoever or dies or in the opinion of the Authority fails to act without undue delay, the parties shall terminate the mandate of such DAB member and thereupon new DAB member shall be appointed in the same manner, as the outgoing DAB member had been appointed.

24.2.4 The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Authority or the Contractor acting alone. Unless otherwise agreed by both the Parties, the appointment of the DAB (including each member) shall expire upon expiry of this Contract Agreement.

24.2.5 Before start of DAB proceedings, each DAB member shall give the following certificate to the Authority and the Contractor:

"I have no any past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind. Further, I have no any past or present relationship with or interest in any of the parties whether financial, business, professional or other kind, which is likely to give rise to justifiable doubts as to my independence or impartiality."

24.2.6 DAB proceedings shall be conducted as decided by the DAB. The DAB shall give its decision within 90 days of a Dispute referred to it by any of the Parties, duly recording the reasons before arriving at the decision. The DAB shall decide the issue within terms and conditions of the contract. This time limit shall be extendable subject to the Parties mutual agreement.

24.2.7 The DAB decision shall not be binding on both the Parties. In case any party is not satisfied by the decision of DAB, then the aggrieved party may approach Standing Arbitral Tribunal for arbitration proceedings. However, even if the aggrieved party had proceeded for Arbitration as per provisions of this agreement, 75% of award amount, pending adjudication by Standing Arbitral Tribunal/Court of Law, shall be made by party to other party. In case payment is to be made by Authority to Contractor, the terms & conditions as incorporated in the Ministry of Railways letter No. 2016/CE(I)/CT/ARB/3(NITI Aayog)/Pt. dated 08th Mar,2017 as amended time to time shall be followed. However, in case Contractor has to pay to the Authority, then 75% of the award amount shall be deducted by the Authority from the running bills or other dues of the Contractor, pending adjudication by Standing Arbitral Tribunal/Court of Law.

24.2.8 No dispute shall be referred to Standing Arbitral Tribunal unless the same has been referred to DAB for adjudication. However, in case DAB is not formed due to any reason, the disputes can be directly referred to Standing Arbitral Tribunal to adjudicate the dispute.

24.2.9 In the specific cases of any misconduct by any of the members of the DAB, the parties shall have the right to specifically bring it to the notice of the DAB such conduct, through a statement filed with necessary documents in proof of such misconduct and the DAB, after taking NOTICE of such conduct initiate the replacement of the member concerned, in the same manner the member to be replaced was appointed.

24.2.10 Once the decision is given by DAB, DAB cannot review the decision at its own or on the request of one party, unless both parties agree for review of decision by DAB.

24.2.11 In case DAB decision is not challenged by either party within 180 days of receipt of decision of DAB, the decision shall be considered as final and parties would be barred for referring the same to Standing Arbitral Tribunal for adjudication.

24.2.12 The obligation of the Authority and the Contactor shall not be altered by reasons of issue being or under reference to DAB.

24.2.13 The DAB shall conduct the proceedings at [Delhi] or any other convenient venue which shall be decided by DAB in consultations with parties.

24.2.14 It is a term of this contract that the Parties shall not approach any Court of Law for settlement of such disputes or differences unless an attempt has first been made by the parties to settle such disputes or differences through DAB and Standing Arbitral Tribunal.

24.3 Standing Arbitral Tribunal

24.3.1 The arbitration proceedings shall be conducted as per 'The Arbitration and Conciliation Act, 1996'. The Arbitral Tribunal shall consist of a panel of three Retired Railway Officers not below senior administrative grade (SAG). The Standing Arbitral Tribunal shall be formed within 90 days of signing of Contract document. For this purpose, the Authority shall maintain a panel of arbitrators. The complete panel, which shall not be less than five members, shall be sent by Authority to the Contractor to nominate one arbitrator from the panel as Contractor's nominee within two weeks of receipt of the panel. On receipt of Contractor's nominee, the Authority shall appoint above contractor's nominee as well as another from the same panel as Authority's nominee as arbitrators. Both above arbitrators shall jointly select presiding arbitrator from the same panel.

24.3.2 If the Contractor fails to select the contractor's nominee from the panel within two weeks of the receipt of the said panel, the Authority shall, after giving one more opportunity to contractor to nominate one as contractor's nominee within next two weeks, appoint two arbitrators from the same panel. Both above arbitrators shall jointly select presiding arbitrator from the same panel.

24.3.3 If one or more of the Arbitrators appointed refuses to act as Arbitrator, withdraws from his office as Arbitrator, or vacates his office or is unable or unwilling to perform his functions as Arbitrator for any reason whatsoever or dies or in the opinion of the Authority fails to act without undue delay, the parties shall terminate the mandate of such arbitrator and thereupon new arbitrator shall be appointed in the same manner, as the outgoing arbitrator had been appointed.

24.3.4 Before start of arbitration proceedings, each appointed arbitrator shall give the following certificate to the Authority and the Contractor:

"I have no any past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind. Further,

I have no any past or present relationship with or interest in any of the parties whether financial, business, professional or other kind, which is likely to give rise to justifiable doubts as to my independence or impartiality in terms of The Arbitration and Conciliation Act, 1996."

24.3.5 In the specific cases of any misconduct by any of the members of the TRIBUNAL, the parties shall have the right to specifically bring it to the notice of the TRIBUNAL such conduct, through a statement filed with necessary documents in proof of such misconduct and the TRIBUNAL, after taking NOTICE of such conduct initiate the replacement of the member concerned, in the same manner the member to be replaced was appointed.

24.3.6 Each party has to prepare and furnish to Standing Arbitral Tribunal and other party, once in a every six months, an account giving full and detailed particulars of all claims, which even after decision of DAB are unsettled, to which the parties may consider themselves entitled to during the last preceding six months. If any dispute has arisen as regards execution of the works under the contract, while submitting the said half yearly claims, the parties shall give full particulars of such dispute in the said submission. After signing Contract agreement, within 6 months, the parties shall submit all the claims from date of award of contract in first submission of claims.

24.3.7 The said communication will be the reference of the dispute to the ARBITRAL TRIBUNAL appointed under the present agreement.

24.3.8 The parties shall submit all the relevant documents in support of their claims and the reasons for raising the dispute to the TRIBUNAL.

24.3.9 The said claims of the parties so referred to ARBITRAL TRIBUNAL so far it relates to the disputed claims, shall be treated as Statement of Claims of the parties and the ARBITRAL TRIBUNAL shall call upon the other party to submit its reply. The ARBITRAL TRIBUNAL after giving an opportunity of being heard to both the parties, decide the dispute within a period of Four months from the date of communication of the dispute under clause 24.3.6 above. The Arbitral Tribunal will pass a reasoned award in writing, while deciding the Dispute. Once the award is declared, the Arbitral Tribunal cannot review the same except what is permissible in terms of provisions contained in Arbitration and Conciliation Act. The parties shall be entitled to the remedies under the Arbitration and Conciliation Act 1996 or any amendment thereof.

24.3.10 The parties agree that all the claims of any nature whatsoever, which the parties may have in respect of the work of the preceding six months, should be made in the said Statements of half yearly claims. If the parties do not raise the claim, if any, arising from the work done in the preceding six months in the statement of half yearly claim, to Standing Arbitral Tribunal, the parties shall be deemed to have waived and given up the claims. The ARBITRAL TRIBUNAL shall not entertain such disputes, which have not been raised in the statement of half yearly Claim before the Standing Arbitral Tribunal and such claims will stand excluded from the scope of arbitration and beyond the terms of reference to the ARBITRAL TRIBUNAL.

24.3.11 The parties agree that where the Arbitral award is for payment of money, no interest shall be payable on the whole or any part of the money for any period till the date on which the award is made.

24.3.12 The obligation of the Authority and the Contactor shall not be altered by reasons of arbitration being conducted during the progress of work. Neither party shall be suspended the work on account of arbitration and payments to the contractor shall continue to be made in terms of the contract and /or as awarded (except when Award is challenged in the Court in which case the payments would be as per the court's orders)

24.3.13 The ARBITRAL TRIBUNAL shall remain in force during the entire period the PRINCIPAL CONTRACT is in force and until the closure of the PRINCIPAL CONTRACT with the final no claim certificate, which will be filed with ARBITRAL TRIBUNAL.

24.3.14 The Arbitral Tribunal shall conduct the Arbitration proceedings at [Delhi] or any other convenient venue which shall be decided by Tribunal in consultation with both parties.

24.3.15 The cost of arbitration shall be borne equally by the respective parties. The cost shall inter-alia include fee of the arbitrators as per the rates fixed by the Indian Railways from time to time.

24.3.16 It is a term of this contract that the Contractor shall not approach any Court of Law for settlement of such disputes or differences unless an attempt has first been made by the parties to settle such disputes or differences through conciliation, DAB and Standing Arbitral Tribunal.

24.3.17 Even in case arbitration award is challenged by a party in the Court of Law, 75% of award amount, pending adjudication by Court of Law, shall be made by party to other party. In case payment is to be made by Authority to Contractor, the terms & conditions as incorporated in the Ministry of Railways letter No. 2016/CE(I)/CT/ARB/3(NITI Aayog)/Pt. dated 08th Mar,2017 as amended time to time shall be followed. However, in case Contractor has to pay to the Authority, then 75% of the award amount shall be deducted by the Authority from the running bills or other dues of the Contractor, pending adjudication by Court of Law.

24.3.18 The contract shall be governed by the law for the time being in force in the Republic of India. In case of any disputes/differences resulting in court cases between Contractor & Authority, the jurisdiction shall be of Courts at [Delhi] only.

ARTICLE 25

MISCELLANEOUS

25.1 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.

25.2 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 judgement 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 judgement that may be made or given in connection therewith).

25.3 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 Bank Rate plus 3% (three percent), save and except as otherwise specified in this Agreement. All interest payment under this Agreement shall, save and except as otherwise specified, be calculated at quarterly rests, and recovery thereof shall be without prejudice to the rights of the Parties under this Agreement including Termination thereof.

25.4 Waiver

25.4.1 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 authorised representative of the Party; and

(c) shall not affect the validity or enforceability of this Agreement in any manner.

25.4.2 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 thereunder 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.

25.5 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 Engineer of any Document or Drawing submitted by the Contractor nor any observation or inspection of the construction of the Railway Project 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, 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.

25.6 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.

25.7 Survival

25.7.1 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.

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

25.8 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 Proposal and bid submissions, as the case may be, shall be deemed to form part of this Agreement and treated as such.

25.9 Severability

If for any reason whatsoever, 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.

25.10 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.

25.11 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.

25.12 Successors and assigns

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

25.13 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 [Head 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.

25.14 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.

25.15 Counterparts

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

25.16 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 consent of the Authority.

25.17 Copyright and Intellectual Property rights

25.17.1 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 licence to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This licence 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:

25.17.2 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 25.17.

25.17.3 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.

25.18 Limitation of Liability

25.18.1 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.

25.18.2 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 21 and 23, 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.

ARTICLE 26

DEFINITIONS

26.1 Definitions

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 as set forth in Clause 17.2.1;

"**Affected Party**" shall have the meaning as set forth in Clause 19.1;

"**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 made in accordance with the provisions contained in this Agreement;

"**Applicable Laws**" means all laws, brought into force and effect by GOI or the State Government(s) including rules, regulations and notifications made thereunder, and judgements, 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, licences, permits, authorisations, no objection certificates, consents, approvals and exemptions required to be obtained or maintained under Applicable Laws in connection with the construction of the Railway Project during the subsistence of this Agreement;

"**Appointed Date**" means that date which is later of:

(a) the 15th day from the date of signing of this Agreement,

(b) the 30th day from the date on which the Contractor has delivered the Performance Security in accordance with the provisions of Article 7;

(c) the date on which the Authority has provided the Right of Way and environmental and forest clearances of at least 95% (ninety five per cent) of the core land length and 90% (ninety percent) of the non-core land length of the Railway Project in conformity with the provisions of Clause 4.3 and

8.2;

"Arbitration Act" means the Arbitration and Conciliation Act, 1996 and shall include modifications to or any re-enactment thereof, as in force from time to time;

"**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 as set forth in Clause 21.2;

"**Authority Engineer**" shall have the meaning as set forth in Clause 16.1;

"**Authority Representative**" means such person or persons as may be authorised 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 fulfil any obligations of the Authority under this Agreement;

"**Bank**" means a Nationalised bank incorporated in India when a Bank Guarantee for Advance Payment (Clause 17.2) is to be submitted and a Scheduled Commercial Bank incorporated in India for all other purposes, or any other bank acceptable to the Authority;

"**Bank Rate**" means the rate of interest specified by the Reserve Bank of India from time to time in pursuance of section 49 of the Reserve Bank of India Act, 1934 or any replacement of such Bank Rate for the time being in effect;

"**Base Month**" means the month just prior to Bid Due Date month. The Quarter for applicability of price adjustment shall be commence from next month after Base Month;

"**Bid**" means the documents in their entirety comprised in the bid submitted by the selected bidder/Consortium 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 Month:

(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 entered into effect until the Base Month;

(d) a change in the interpretation or application of any Indian law by a judgement 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 Month; or

(e) any change in the rates of any of the Taxes or royalties that have a direct effect on the Project;

"**Change of Scope**" shall have the meaning as set forth in Article 13;

"**Change of Scope Notice**" shall have the meaning asset forth in Clause 13.2.1;

"**Change of Scope Order**" shall have the meaning asset forth in Clause 13.2.4;

"**Completion Certificate**" shall have the meaning as set forth in Clause 12.4;

{"**Consortium/Joint Venture**" means the Consortium/Joint Venture of entities which have formed a consortium/joint venture for implementation of this Project;}[$]

"**Construction**" shall have the meaning as set forth in Clause 1.2.1 (f);

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

"**Contract Price**" means the amount as specified in Clause 17.1.1;

"**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 as set forth in Clause 21.1;

"**Core Land**" means the part of Land essentially needed to open & operationalize the mainline for traffic including the Land required for laying the mainline tracks and its Signalling/ Telecom/ Overhead Electrification/ Power Supply Installations, Operational Buildings(station building, huts, gumties etc), as shown in item No. 3(a) of Annexure-I of Schedule-A;

"**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 by the Contractor requires any reasonable action by the Contractor that must be approved by the Authority or the Authority Engineer hereunder, the applicable Cure Period shall be extended by the period taken by the Authority or the Authority Engineer to accord their approval;

[$] This definition may be omitted if the Contractor is not a Consortium/Joint Venture.

"**Damages**" shall have the meaning as set forth in paragraph (w) of Clause 1.2.1;

"**Defect**" means any defect or deficiency in Construction of the Works or any part thereof, which does not conform with the Specifications and Standards;

"**Defects Liability Period**" shall have the meaning as set forth in Clause 15.1;

"**Dispute**" shall have the meaning as set forth in Clause 24.1.1;

"**Dispute Resolution Procedure**" means the procedure for resolution of Disputes as set forth in Article 24;

"**Drawings**" means all of the drawings, calculations and documents pertaining to the Railway Project as set forth in Schedule-H, and shall include 'as built' drawings of the Railway Project;

"**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 Railway Project, including Users thereof, or which poses an immediate threat of material damage to the Works or any of the Project Assets;

"**Encumbrances**" means, in relation to the Railway Project, 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 payees or beneficiaries or any similar arrangement under any insurance policy pertaining to the Railway Project, 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 as set forth in Clause 17.12.1;

"**Final Payment Statement**" shall have the meaning as set forth in Clause 17.10.1;

"**Force Majeure**" **or** "**Force Majeure Event**" shall have the meaning ascribed to it in Clause 19.1;

["**GAD**" **or** "**General Arrangement Drawings**" shall have the meaning as set forth in Clause 4.1.3 (c);]

"**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 Railway Project or the performance of all or any of the services or obligations of the Contractor under or pursuant to this Agreement;

"IEEMA" means Indian Electrical and Electronics Manufacturers Association

"**Important Bridge**" means a bridge having a linear waterway of 300 metres or a total water way of 1000 sqm or more;

"**Indemnified Party**" means the Party entitled to the benefit of an indemnity pursuant to Article 23 ;

"**Indemnifying party**" means the Party obligated to indemnify the other Party pursuant to Article 23;

"**Indirect Political Event**" shall have the meaning as set forth in Clause 19.3;

"**Insurance Cover**" means the aggregate of the maximum sums insured under the insurances taken out by the Contractor pursuant to Article18, and includes all insurances required to be taken out by the Contractor under Clauses 18.1 and 18.9 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 Engineer for payment to the Contractor in respect of Contractor's claims for payment raised in accordance with the provisions of this Agreement;

{"**Lead Member**" shall, in the case of a Consortium/Joint Venture, mean the member of such Consortium/Joint Venture who shall have the authority to bind the contractor and each member of the Consortium/Joint Venture; and shall be deemed to be the Contractor for the purposes of this Agreement;}[$]

[$] This definition may be omitted if the Contractor is not a Consortium/Joint Venture.

"**LOA**" **or** "**Letter of Acceptance**" means the letter of acceptance referred to in Recital (D);

"**Maintenance Manual**" shall have the meaning ascribed to it in Clause 10.6;

"**Major Bridge**" means a bridge having a linear waterway of 18 metres or more or which has a clear opening of 12 metres or more in spans;

"**Manuals**" shall mean the manuals specified in Schedule-D;

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

"**Materials**" are all the supplies used by the Contractor for incorporation in the Works or for the maintenance of the Railway Project;

"**Minor Bridge**" means a bridge having a linear waterway of less than 18 metres or which has a clear opening of less than 12 metres or in spans;

"Non-Core Land" means the Land required for the project line other than the Core-Land, as shown in item No. 3(b) of Annexure-I of Schedule-A;

"**Non-Political Event**" shall have the meaning as set forth in Clause 19.2;

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

"**Performance Security**" shall have the meaning as set forth in Clause 7.1;

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

"**Political Event**" shall have the meaning as set forth in Clause 19.4;

"**Power Block**" means the length of the railway line between two railway stations, on which the overhead equipment (OHE) is de-energised and earthed to enable the Contractor to execute construction or maintenance works;

"**Programme**" shall have the meaning as set forth in Clause 10.1.3;

"**Project**" means the construction and maintenance of the Railway Project 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, kilometre-stones, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices]; and (b) Project Facilities situated on the Site;

"**Project Completion Date**" means the date on which the last Completion Certificate is issued;

"**Project Completion Schedule**" means the progressive Project Milestones set forth in Schedule-I for completion of the Railway Project on or before the Scheduled Completion Date;

"**Project Facilities**" means all the amenities and facilities to be constructed on the Site, as described in Schedule-C;

"**Project Milestone**" means the project milestone set forth in Schedule-I and includes the Scheduled Completion Date;

"**Proof Consultant**" shall have the meaning as set forth in Clause 10.2.2;

"**Provisional Certificate**" shall have the meaning as set forth in Clause 12.2;

"**Punch List**" shall have the meaning as set forth in Clause 12.2.1;

"**Quality Assurance Plan**" or "**QAP**" shall have the meaning as set forth in Clause 11.2.1**;**

"**Railway Project**" means the Works specified in this Agreement onthe railway line from *** to *** having a length of *** kms in *** Zone;

"**Re.**", "**Rs.**" Or "**Rupees**" or "**Indian Rupees**" means the lawful currency of the Republic of India;

"**Request for Proposals**" or "**RFP**" shall have the meaning as set forth in Recital 'C';
"**Retention Money**" shall have the meaning set forth in Clause 7.5.1;

"**Right of Way**" means the constructive possession of the Site free from encroachments and encumbrances, together with all way leaves, easements, unrestricted access and other rights of way, howsoever described, necessary for construction of the Railway Project in accordance with this Agreement;

"RINL" means Rashtriya Ispat Nigam Limited

"**Safety Consultant**" shall have the meaning as set forth in clause 10.2.11

"**Scheduled Completion Date**" shall be the date as set forth in Clause 10.3.1;

"**Scope of the Project**" shall have the meaning as set forth in Clause 2.1;

"**Section**" means the portion of the railway line between two block stations;

"**Site**" shall have the meaning as 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 Railway Project, as set forth in Schedule-D, and any modifications thereof, or additions thereto, as included in the design and engineering for the Railway Project submitted by the Contractor to, and expressly approved by, the Authority;

"**Stage Payment Statement"** shall have the meaning as set forth in Clause 17.4;

"**Structures**" means an elevated railway line or a flyover, as the case may be;

"**Sub-contractor**" means any person or persons to whom a part of the Works 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 as set forth in Article 20;

"**Taxes**" means any Indian taxes including 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 Railway Project 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 21;

"**Terms of Reference**" **or** "**TOR**" shall have the meaning as set forth in Clause 16.2.1;

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

"**Time Extension**" shall have the meaning as set forth in Clause 10.4.1;

"**Traffic Block**" means the length of railway line between two railway stations, on which traffic is blockedwith or without OHE being de-energised to enable construction or maintenance works to be undertaken.

"**User**" means a person who travels or intends to travel on the Railway Project or any part thereof on any train or vehicle;

"**Valuation of Unpaid works**" shall have the meaning as set forth in Clause 21.5.1;

"**Works**" means all works including survey and investigation, design, engineering, procurement, construction, Plant, Materials, temporary works and other things necessary to complete the Railway Project 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.

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DAY, MONTH AND YEAR FIRST ABOVE WRITTEN.

SIGNED, SEALED AND	SIGNED, SEALED AND
DELIVERED	DELIVERED
For and on behalf of	For and on behalf of
[...***, *** Railway] by:	THE CONTRACTOR by:
(Signature)	(Signature)
(Name)	(Name)
(Designation)	(Designation)

In the presence of:

1.

2.

{COUNTERSIGNED and accepted by:

Name and particulars of other members of the Consortium/Joint Venture}

Schedules

SCHEDULE - A

(See Clauses 2.1 and 8.1)

SITE OF THE PROJECT

1 The Site

1.1 Site of the Railway Project shall include the land, buildings, structures and track works as described in Annex-I of this Schedule-A.

1.2 The dates of handing over Right of Way to the Contractor are specified in Annex-II of this Schedule-A.

1.3 An inventory of the Site including the land, buildings, structures, track works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority's Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2.1 of this Agreement.

1.4 The alignment plans of the Railway Project are specified in Annex-III.

1.5 The status of the environment clearances and forest clearances obtained or awaited is given in Annex IV.

Annex - I
(Schedule-A)

Site[16]

[Note: Through suitable drawings and description in words, the land, buildings, structures and track works comprising the Site shall be specified briefly but precisely in this Annex-I.]

[For new railway line]

1. Site

The Site of the Railway Project comprises the section commencing from km *** to km *** i.e. the *** - *** section in the State of *** in the **** Railway zone. The land and other structures comprising the Site are described below:

2. Route Length

The route length of the Railway Project comprises the section as described below:

S. No	Name of location From	Name of location To	Start Chainage (km)	End Chainage (km)	Length (km)	Remarks

3. a. Core Land

The Site of the Railway Project comprises the land described below:

S. No	Name of location From	Name of location To	Start chainage (km)	End chainage (km)	Land width (m)	Remarks

b. Non-Core Land

The Site of the Railway Project comprises the land described below:

S. No	Name of location From	Name of location To	Start chainage (km)	End chainage (km)	Land width (m)	Remarks

[16]The contents of this Annexure-I may be suitably modified to reflect project specific requirements.

4. Details of existing structures and facilities on adjoining railway track (For doubling or 3rd line projects or electrification)

4.1 Permanent Way

Details of the Permanent Way on the Right of Way are:

S. No.	No. of railway line	km from	km to	Route km	Minimum and Maximum Implantation (if electrified)	Remarks
	Double line					
	Single Line					

4.2 Important Bridges

The Site includes the following Important Bridges:

S. No.	Bridge No. and location (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-structure	Superstructure		

4.3 Major Bridges

The Site includes the following Major Bridges:

S. No.	Bridge No. and location (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-structure	Superstructure		

4.4 Minor Bridges/culverts

The Site includes the following Minor Bridges and culverts:

S. No.	Bridge No. and location (km)	Type of Structure			No. of Spans with span length (m)	Width of the bridge (m)
		Foundation	Sub-structure	Superstructure		

4.5 Tunnels

S. No.	Block Section	km from	km to	Remarks

4.6 Railway Flyovers

The Site includes the following Railway Fly Over:

S. No.	Block Section	Bridge No and location (Km)	Type of Structure			Span (Nos. × length)	Width (m)
			Found^{n}	Sub-structure	Super-structure		

4.7 Road under-bridges (RUB)/ road over-bridges (ROB)

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

S. No.	Block Section	Bridge No. and location (km)	Type of Structure		Span (Nos. × length)	Width (m)/ height (m)	ROB/ RUB
			Found^{n}	Super-structure			

4.8 Railway level crossings

The Site includes the following railway level crossings:

S. No.	Block Section	Chainage	LC No	TVUs	L C Classi-fication	Remarks

4.9 Railway stations on Railway Project

The Site includes the following railway stations

S. No.	Station	C.L. km	Nos. of Lines	Station Building Area	Nos. of P.F. & Length	Remarks(Whether Jn. Station)

4.10Railway yards

The Site includes the following railway yards:

Sr. No.	Name of Yard	Number of Lines	Remarks

4.11 Foot over bridges on Railway Project

The Site includes the following foot over bridges:

S. No.	Station Block Section	Chainage	Span/Nos. of Track	Remarks

4.12 Transmission lines crossing the Right of Way

The Site includes the following transmission lines crossing the Right of Way:

S.No.	Block Section	Chainage	HT/LT (Specify KV)	OH/UG	Height above RL/Depth below RL

4.13 Underground power line crossing the Right of Way

The Site includes the following Underground Power Line Crossings

Sr. No.	Location	System Voltage	Distance of Structure from centre of Track	Remarks

4.14 Signalling infrastructure

The Site includes the following signalling infrastructure:

S.No.	Station	Standard of Interlocking	Existing Signalling System (RRI/TBM Rly etc.)	Type of Signals (Single distant/ double distant/ colour light etc.	Remarks

4.15 Telecommunication infrastructure

The Site includes the following telecommunication infrastructure:

S.No.	Station	Control Phone	DOT	Any other Communication	Availability of OFC

4.16 [Any Other Structures]

[Provide details of other structures Feeding Post, Sub Station, SP, SSP, Relay Huts, Gumties, Cable/OFC Huts, Telecom Towers etc., if any.]

Annex - II
(Schedule-A)

Dates for providing Right of Way

The following are complete details of the Right of Way showing the dates on which the Authority shall provide the different sections of the Right of Way to the Contractor:

Sl. No	**From km to km**	**Length (km)**	**Distance of Railway Boundary from C/L of [UP/DN] line (in m)**		**Date of providing Right of Way**
			Right Hand Side	**Left Hand Side**	
1	**2**	**3**	**4**	**5**	**6**
Part A:					
Right of Way being 95% (ninety five percent) of the core land length and 90 % (ninety percent) of the non-core length of the Project, under Clauses 4.1.3 read with Clauses 8.2 and 8.3 of the Agreement					Within 15 (fifteen) days of the signing of the Agreement or within 30 (thirty) days of the date of receiving the Performance Security from the Contractor, whichever is later.
(i) Full Right of Way (full width) a) Section b) Section c) Section					
(ii) Part Right of Way (part width) a) Section b) Section c) Section					
	Total length	*** km			

Part B					
Balance of the Right of Way not covered in Part A above.					
(iii) Balance Right of Way a) Section b) Section c) Section					
Total length		**** km			

For Electrification Work*

[The dates on which the Authority shall provide the Right of Way to the Contractor on different sections of the Site are specified below:

Sl. No	**From km to km**	**Length (km)**	**Width (m)**	**Date of Providing Right of way**
1	**2**	**3**	**4**	**5**
For OHE work (a) Section (b) Section (c) Section				
For Sub-Station work (a) (b)				
For Switching Posts				

(a) (b)				
For Signalling work (a) Station…. (b) Station…. (c) Relay hut For Telecom works Site for Telecom Towers , Cable Huts etc. (a)…… (b)……				
Site for Service Buildings, Tower Wagon Sheds, Quarters (a) (b)				

* Details to be provided for electrification works only.

Annex - III
(Schedule-A)

Plan and Profile

The proposed alignment plan, L-sections, Engineering Scale Plans (ESPs), Signalling Interlocking Plans (SIPs) of the Railway Project Line are attached. This is based on survey conducted by the Authority. The Contractor shall verify alignment plan, L-sections, ESPs, SIPs for ensuring technical feasibility within the Right of Way boundaries. (Any deviation [positive/negative] from the enclosed Engineering Scale Plans, Approved Alignment plan, L section and Signal Interlocking Plan will be treated as Change of scope.)

[For Railway Electrification]*

The proposed sectioning arrangement of the Railway Electrification Project is attached. The Contractor shall verify the same for ensuring technical feasibility within the Right of Way boundaries.

* Delete it if not required.

Annex - IV
(Schedule-A)

Environment Clearances and Forest Clearances

1. Environment clearances*

(a) The following environment clearances have been obtained:

***

(b) The following environment clearances are awaited:

***

2. Forest clearances

(a) The following forest clearances have been obtained:

***

(b) The following forest clearances are awaited:

***

* If environmental is not required, it may be clearly stated.

SCHEDULE - B
(See Clause 2.1)

Development of the Railway Project

Development of the Railway Project shall include design and construction of the Railway Project as described in Annex 1 to this Schedule-B and in Schedule-C.

Annex - I
(Schedule-B)

Description of Railway Project[17]

Description of Railway Project

[Note: Description of the Project shall be given by the Authority in detail together with explanatory drawings (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 Technical Specifications and Standards for construction and maintenance of Permanent Works, signalling and telecommunication works and overhead equipment. If any standards, specifications or details are not given in the concerned manuals, the minimum design/construction requirements 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.].

The data and information related to L-section/ Geo technical data provided are indicative and for guidance only. These should be rechecked, verified and modified by conducting site investigation to suit the site conditions. Site Investigation should include but not limited to topographical survey, hydrological survey and geotechnical surveys etc. Any change on account of existing ground conditions/ground levels mentioned in L-Section/Alignment/ESPs shall not be considered as Change of Scope. For avoidance of doubt, it is clarified that the existing ground conditions/ground levels are to be validated by bidders before bid and hence no change on this account is payable.

1. Construction of Civil and Track Works

1.1 Operational Requirements

1.1.1 The Permanent Way shall be [single line/ double line] and designed to permit the Authority to operate satisfactorily at a maximum design speed of *** km/h. All the bridges and formation shall be constructed for *** loading standard. Track shall be constructed for an axle load of ***. [The Laying of track to be done by NTC, if Project length is 100 Km or more.] In case a particular stretch/es is not suitable for NTC working, the Authority Engineer may permit track laying without NTC.

1.2 Alignment

1.2.1 The alignment of the Railway Project shall be as per the alignment plans given in Schedule A, Annex III. The Contractor is required to review and

[17]The contents of this Annexure-I may be suitably modified to reflect project specific requirements and there should be no mismatch in payament milestone and this schedule.

revalidate Engineering Scale Plans, Alignment &L section, SIPs for technical feasibility.

1.3 Geometric design and general features

1.3.1 Geometric design, gradients, curves and all other general features of the Railway Project shall be in accordance with provisions of the Indian Railway Permanent Way Manual.

1.3.2 The formation level at various chainages along the alignment is indicated in the project sheets. These shall be verified and corrected by the Contractor in the final alignment design in conformity with the Specification and Standards specified in the Permanent Way Manual.

1.4 Bridges

1.4.1 All bridges shall be designed and constructed in accordance with the design standards and specifications as per codes and manuals specified in Schedule-D. Use of RDSO standard drawings if available, shall be preferred. As far as possible, the new bridges should have RDSO standard spans and RDSO standard drawings for Railway loading standard. For intermediate span/heights, structural design details for immediately higher span/height configuration shall be adopted. Contractor shall provide RDSO standard design of the box as indicated in the scope of work.

The Contractor should give reasons in writing to the Authority Engineer wherever Standard RDSO drawing cannot be used, subject to approval of Authority Engineer. Contractor may propose suitable alternate structure, while conforming to relevant codes, stipulations, subject to approval of Authority engineer.

1.4.2 All bridges shall be designed for the following minimum recurrence interval of floods:

a) For Important and Major Bridges: 1 in 100 years

b) For Minor Bridges: 1 in 50 years

1.4.3 Width and cross-sections features of bridges:

[Attach typical cross-section]

[Provide details if any bridge is to be designed to carry utility services]

1.4.4 Minimum size of RCC box shall be in accordance with the Specifications and Standards.

1.4.5 Important Bridges shall be constructed at the following locations:

S. No.	Bridge No	Proposed Location	Linear length of Bridge (in m)	Type of Super str

1.4.6 Major Bridges shall be constructed at the following locations:

S. No.	Bridge No	Proposed Location	Linear length of Bridge (in m) dirt wall to dirt wall	Type of Super str

1.4.7 Minor Bridges shall be constructed at the following locations:

a) Slab Bridges

S. No.	Bridge No	Proposed Location	Linear length of Bridge (in m)and skew angle w.r.t. to track	Type of Super str

b) RCC Box Bridges

S. No.	Bridge No	Proposed Location	Box perpendicular opening size (Span in m) ,Barrel length(in m) and skew angle w.r.t. to track	Remarks

1.4.8 **Pipe Culvert**

Pipe culverts will be constructed at the following locations:

S. No.	Location (km)	Type of culvert	Dia (m)	Length of barrel (m)

1.4.9 **Railway flyovers**

Railway Flyovers shall be provided at the following crossings as per GAD attached:

S. No.	Bridge No	Crossing (Chainage)	Linear length of Flyover (dirt wall to dirt wall) (in m)	Vertical clearance w.r.t rail level

1.4.10 **Road under bridges (RUB)**

Road under-bridges (RUB)shall be provided at the following crossings as per GAD attached

S. No.	Bridge No	Crossing (Chainage)	Box perpendicular opening size ((Span in m),Barrel length (in m) and skew angle w.r.t. to track	Vertical Clearence above Road level (in m)

1.4.11 **Road over bridges (ROB)**

Road over bridges (ROB) shall be provided at the following crossings as per GAD attached:

S. No.	Bridge No	Location (Chainage)	Linear length of Flyover dirt wall to dirt wall (in m) and skew anglew.r.t. to track	Length of approach of ROB in and Type	Vertical clearance w.r.t rail level

1.5 Track

1.5.1 The track layout shall be based on the provisions contained in the Indian Railways Permanent Way Manual [and specify other manuals, if any].

1.5.2 The final designs of the track layouts, including horizontal and vertical alignment, station yard layouts, LWR plans etc shall be reviewed by the Authority Engineer in accordance with the provisions of the Agreement.

1.6 Railway level crossings

The railway level crossings shall be provided at following locations:

S. No.	Chainage	LC No.	Class	Road Width

1.7 Track layouts in station yards

Station yards shall be constructed as per the final engineering scale plans.

[Site details showing the station yard drawings for all stations to be enclosed.]

1.8 Building Works:

All items of building works shall conform to specification of works of concerned zonal railway. The building work shall include electrical internal wiring with allied work, system electrical power supply arrangement with transformer/main distribution supply, sanitary fittings, sewerage system, water supply arrangement (bore wells, pump house, water tanks) and internal fittings, approach roads, street lighting, boundary wall, fencing, site levelling, landscape elements, water harvesting and other works incidental to buildings. Building works shall be deemed to include railway stations, staff quarters, service buildings, buildings required for installation of equipment for signalling, telecommunication and electrification works, and facilities along the railway line.

1.8.1 Railway stations

Railway stations shall be constructed at the following locations: [Provide preliminary drawings and other details to explain the Authority's requirements]

S. No.	Name of Station	Centre line chainage	Nos. of platform and their individual length and width (m)	Minimum width of platform (m)	Nos. of foot over bridge with width (m)
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Nos. of stairs on each platform	**Lifts/ Escalators**	**PF Shelter (Nos.)*L*B**	**Washable Apron**	**Watering Line**	**Parking (Sq. Metre)**

(7)	(8)	(9)	(10)	(11)	(12)

1.8.2 Service buildings

Service buildings shall be constructed at each station as follows:

[Provide preliminary drawings and other details to explain the Authority's requirements]

S. No.	Station	Service building	Area at ground floor level

1.8.3 Staff quarters

Construction and development of staff colony comprising of following types of staff quarters at each station:

[Provide preliminary drawings and other details to explain the Authority's requirements]

S. No.	Station	Type	Single/Multi-storey	No.	Remarks

1.8.4 Out-door power supply, distribution, and lighting works

[Provide details]

1.8.5 Water supply and distribution

Construction of bore wells, pump house, overhead tanks, etc
[Provide details]

1.8.6 Drainage system

Efficient drainage system for disposal of water from the buildings and for drainage of the area shall be provided.
[Provide details]

1.8.7 Sewerage system

Construction of sewerage system

[Provide details]

1.9 Pedestrian Bridges

Foot over bridges for pedestrians crossing railway track/station shall be constructed at as follows:

S. No.	**Station/ Block Section**	**Length**	**Width**	**No. of staircase**

1.10 Service roads/ internal roads/approach roads and footpaths

Service roads/ internal colony roads/approach roads and footpaths shall be constructed at the locations and for the lengths and widths indicated below:

S. No.	Road/Footpath	Location From km to km	Length (km)	Width	Remarks

1.11 Boundary walls, boundary pillars

[Provide details]

1.12 Signage information boards and posts

All signage, information boards and posts shall be provided which include train Indication Board (TIB), Coach guidance system (CGS), utility boards (such as cloak room, parcel, waiting rooms etc.) etc. in accordance with Good Industry Practice.

[Specify requirements and relevant specifications and standards]

1.13 Drainage along the railway line

Drainage system including surface and subsurface drains for the Railway Project shall be provided in accordance with the [specify relevant clauses and name of the manual]

1.14 Embankment/slope protection works

Requirement of retaining walls, boulder pitching, geo grid, turfing etc. shall be specified.

1.15 Supply of Materials and Stores

Requirement of store depot/maintenance depot for permanent way, signalling, electrification etc. shall be as follows:

[Provide details of inventory for civil and track works for stores]

S. No.	Particulars	Quantity	Unit	Location of Supply

1.16 Compulsory afforestation and tree plantation

[Refer to the relevant orders of the Government Instrumentality and provide details of number of trees which are required to be planted by the Contractor as compensatory afforestation. Refer to the relevant paragraphs of the Manuals and state its provisions for tree plantation.]

1.17 Any other requirements:

[Specify with relevant details to explain the Authority's requirements]

1.18 Change of Scope

The length of structures and bridges specified hereinabove shall be treated as an approximate assessment. The actual lengths as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any variations in the lengths specified in this Schedule-B shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

2. Signalling and telecommunication

2.1 Signalling works

2.1.1 All signalling works including Survey, design, supply, installation, testing and commissioning shall be executed in accordance with the provisions of the Indian Railway Signal Engineering Manual.

2.1.2 Signalling works at wayside stations

The details of signalling works at wayside stations are:

SN	Description of work	Details of wayside stations								
		Name of station	No of Lines	Std. of interlocking	Type of Signalling	Type of block working	Type of train detection system	Type of point operation & locking arrangement	Type of lifting barrier & locking arrangement	Details of siding
1	**Survey, design, supply, installation, testing, manuals for new technology equipment installed each place, supply of completion drawings, and commissioning at wayside stations**	i. ii. iii. iv.								
2	**Inventory. Supply of signalling spares:** 2.1 Electronic Interlocking or Relay Interlocking equipment 2.2 Power supply system 2.3 Data logger system 2.4 Axle counter system 2.5 Signalling cables 2.6 Power cables 2.7 Relays 2.8 Point machines with accessories 2.9 Train Detection system 2.10 On Board (Cab) equipment for TPWS system	[Specify the name of location(s) and the quantity of inventory to be supplied at each location]	Quantity with unit							

	2.11 Line side equipment for TPWS system 2.12 TMS (with remote operation system) 2.13 Any other item/items for functioning of Signalling system as per contract requirement. 2.14 Testing and measuring tools and equipment as determined in accordance with the manufacturer's manuals		
3	**Integrated testing and commissioning**		

2.1.3 Signalling works at major or junction stations:

The details of signalling works at major/Junction stations are:

SN	Description of work	Details of Major/Junction stations									
		Name of station	**No of Lines**	**Std. of interlocking**	**Type of Signalling**	**Type of block working**	**Type of train detection**	**Type of point operation & locking**	**Type of lifting barrier & locking**	**Details of siding**	**Junction arrangement with adjacent**

1	**Survey, design, supply, installation, testing, manuals for new technology equipment installed for each place, supply of completion drawings, and commissioning of major/junction stations**	i. ii. iii. iv.									
2	**Inventory: Supply of signalling spares: List spares 2.1 to 2.14 as under paragraph 2.1.2 above.**	[Specify the name of location(s) and the quantity of inventory to be supplied at each location]									
3	**Integrated testing and commissioning**										

2.1.4 Block Signalling (BPAC/Token/Token less).

Details of block signalling (BPAC/Token/Token less) are:

S N	Description of work	**Details of Block signalling (BPAC/Token/Token less)**								
		Details of block section	**System of Block**	**Type of block signallin**	**Nominal length of**	**No. of aspects**	**Type of**	**Provisio n of**	**Token/ Token**	**Any other details**

		Chainage (From)	**Chainage (To)**								
1	**Survey, design, supply, installation, testing, manuals for new technology equipment installed for each place, supply of completion drawings, and commissioning of block signalling (BPAC/token/ token less)**										
2	**Inventory: Supply of signalling spares: List spares 2.1 to 2.14 as under paragraph 2.1.2 above.**	[Specify the name of location(s) and the quantity of inventory to be supplied at each location]		Quantity with unit							
3	**Integrated testing and commissioning**										

2.1.5 Train Protection and Warning System (TPWS)

The details of the Train Protection and Warning System are:

S N	Description of work	Details of Train Protection and Warning System				
		Details of block section	On Board	Line side equipment	Single/ double	Any other

		Chainage (From)	Chainage (To)		Wayside station	Junction station	Auto section	line section	details (pl specify)
1	**Survey, design, supply, installation, testing, manuals for new technology equipment installed for each place, supply of completion drawings, and commissioning of train protection and warning system (TPWS)**								
2	**Inventory, Supply of signalling spares: List spares 2.1 to 2.14 as under paragraph 2.1.2 above.**	[Specify the name of location(s) and the quantity of inventory to be supplied at each location]	Quantity with unit						
3	**Integrated testing and commissioning**								

2.1.6 Sections

[Specify meaning and description of section, and give each section a unique name.]

SN	Description of work	Details of Sections															
		Name of section	Operation Control Centre	Section single/ Double line	LC Gate	EI/PI/RRI (New/ Modification)	Train Detection (TC, Axle Counter, AFTC etc.)	Block Signalling	Block Proving Axle Counter	Point Operation and locking arrangement	Signal arrangement system	LC Gate interlocking	LC Gate telephone	Integrated Power supply at stations and UPS at OCC	Indoor/Outdoor Installation for IBS/IBH or ABS	Train Management System(TMS)/ Centralised Traffic Control	Any other details (pl specify)
1	**Survey, design, supply, installation, testing, manuals for new technology equipment installed for each place, supply of completion drawings, and commissioning**																
2	**Inventory: Supply of signalling spares:** **List spares 2.1 to 2.14 as under paragraph 2.1.2 above.**	[Specify the name of location (s) and the quantity of inventory to be supplied at each location]	Quantity with unit														
3	**Integrated testing and commissioning**																

Construction must also include verification and validation of system installed and independent certification for maintenance and operation system during its life cycle. All other associated materials and works for completion not limited to items in the above table as required for execution of the signalling and telecom works to suit 25 KV has to be provided by the Contractor.

2.2 Telecommunication

2.2.1 All telecommunication works including survey, design, supply, installation, testing and commissioning shall be executed in accordance with the provisions of the Indian Railway Telecom Manual.

2.2.2 Optic fibre cable system

Optic fibre cable supply, laying in trench in all types of soil including cable laying through trenchless technique for road/road crossing, jointing, termination, testing and design, supply, installation, testing and commissioning of STM, P D/I Mux system including all associated control equipment to achieve the end goal .

SN	Description of work	Details of OFC system										
		Chainage		Name of stations	Type of STM equipment		Type of multiplexer	Power supply	Control office equipment with Power supply			Any other details
		From	To		Short Haul	Long haul			Way station	HQ	Emergency control	
1	**Survey, design, supply, installation, testing, manuals for new technology equipment installed for each place, supply of completion drawings, and commissioning of optical fibre cable Communication system**											

2	**Inventory: Supply of communication spares:** 2.1 Optical fibre cable with accessories 2.2 HDPE duct with accessories 2.3 Optical fibre Digital equipment's (STM with accessories) 2.4 Digital Multiplexer equipment's (PDH with accessories). 2.5 Power supply of STM/PDH with accessories 2.6 Control office equipment with accessories (a) Way station (b) HQ (c) Power supply 2.7 Emergency communication system with accessories 2.8 Any other item/items for functioning of telecommunication system as per contract requirement. 2.9 Testing and measuring tools and equipment as determined in accordance with the manufacturer's manuals	Quantity with unit

3	**Integrated testing and commissioning**	

2.2.3 Six quad telecom cable

Six quad telecom cable supply and laying in trench in all types of soil including cable laying through trenchless technique for road/road crossing, jointing, termination and testing including provision of EC sockets at every km for emergency communication and Level crossing gate.

SN	**Description of work**	**Details of 6 Quad telecom cable system**				
		Chainage		**Name of stations**	**LC gate No.**	**Any other details**
		From	**To**			
1	**Survey, design, supply, installation, testing, manuals for new technology equipment installed for each place, supply of completion drawings, and commissioning of 6 Quad telecom cable system**					
2	**Inventory: Supply of communication spares:** 2.1 Six quad telecom cable and accessories 2.2 Emergency sockets with box and pins 2.3 Any other item/items for functioning of telecommunication system as per contract requirement 2.4 Testing and measuring tools and equipment as determined in accordance with the manufacturer's manuals	Quantity with unit				
3	**Integrated testing and commissioning**					

2.2.4 Mobile train radio communication

Survey, design, supply, installation, testing and commissioning of mobile train radio communication, including supply and installation of porta cabins/ service buildings, towers, power supply equipment and antenna etc.:

SN	Description of work	Details of Mobile Train Radio Communication system					
		Chainage		Name of station	No. of 3 direction base service station.	No. of 2 direction base service station	Any other Details
		From	To				
1	**Survey, design, supply, installation, testing, manuals for new technology equipment installed for each place, supply of completion drawings, and commissioning of mobile train radio communication system**						
2	**Inventory: Supply of communication spares:** 2.1 Master switching centre equipment 2.2 Base switching centre equipment 2.3 DT/Cab radio/Handheld 2.4 Dispatch/Control terminals 2.5 OPH 2.6 GPH 2.7 GSM Set 2.8 Cab radio 2.9 Any other item/items for functioning of telecommunication system as per contract requirement 2.10 Testing and measuring tools and equipment as determined in accordance with the manufacturer's manuals	Quantity with unit					
3	**Integrated testing and commissioning**						

2.2.5 Other locations

The details of supply, testing and commissioning of telecommunication equipment for other locations are:

(A)

SN	Description of work	Details of telecommunication equipment																					
		Station	LC Gate	Operation control centre(OCC)	Automatic signalling block hut	Single/-double line section	Optical fibre cable equipment	Control office equipment	Master switching center	Base switching center	DT/Cab Radio/ Handheld	Dispatcher/Control terminals	GPH	GPH	GSM set	CAB Radio	Master Clock system	Video surveillance System	Telephone exchange	EC Sockets	LC Gate Telephones	Earthing arrangements	Power supply equipment with	Any other Details
1	**Survey, design, supply, installation, testing, manuals for new technology equipment installed for each place, supply of completion drawings, and commissioning of tele-communication equipment at specified locations**																						

2	**Inventory: Supply of communication spares:** 2..1 Optical fibre cable communication system 2.2 Mobile Radio communication system 2.3 CCTV system 2.4 Electronic Exchange system 2.5 Public address system 2.6 Passenger Information display system 2.7 Digital Clock system 2.8 Control office equipment's with accessories 2.9 Master switching centre equipment 2.10 Base switching centre equipment 2.11 DT/Cab radio/Handheld 2.12Dispatch/Control terminals 2.13 OPH 2.14 GPH 2.15 GSM Set 2.16 Cab radio 2.17 Master clock system 2.18 Any other item/items for functioning of telecommunication system as per contract requirement.	Quantity with unit

	2.19 Testing and measuring tools and equipment as determined in accordance with the manufacturer's manuals.	
3	**Integrated testing and commissioning**	

(B) Other Equipment

SN	**Description of work**	**Details of telecommunication equipment**											
		Station	**LC Gate**	**CCTV**	**PA system**	**Passenger information**	**Electronic exchange**	**Digital clock**					**Any other Details**
1	**Survey, design, supply, installation, testing, supply of manuals for new technology equipment installed for each place, supply of testing tools and testing equipment, completion drawings, and commissioning of tele-communication equipment**												

2	**Inventory: Supply of communication spares:** 2..1 Optical fibre cable communication system 2.2 Mobile Radio communication system 2.3 CCTV system 2.4 Electronic Exchange system 2.5 Public address system 2.6 Passenger Information display system 2.7 Digital Clock system 2.8 Control office equipment's with accessories 2.9 Master switching centre equipment 2.10 Base switching centre equipment 2.11 DT/Cab radio/Handheld 2.12 Dispatch/Control terminals 2.13 OPH 2.14 GPH 2.15 GSM Set 2.16 Cab radio 2.17 Master clock system 2.18 Any other item/items for functioning of telecommunication system as per contract	**Quantity with unit**

	requirement. 2.19 Testing and measuring tools and equipment as determined in accordance with the manufacturer's manuals.	
3	**Integrated testing and commissioning**	

All other associated materials and works for completion not limited to items in the above table as required for execution of the signalling and telecom works to suit 25 KV has to be provided by the Contractor.

1.3 Automatic Fire Alarm & Detection System:

Way Side Stations		**Major/Junction Stations**		**Other Location Stations**	
SN	**Name of Stations**	**SN**	**Name of Stations**	**SN**	**Name of Stations**
1		**1**		**1**	
2		**2**		**2**	
3		**3**		**3**	
4		**4**		**4**	
5		**5**		**5**	
6		**6**		**6**	

1.4 Automatic Fuse Alarm System:

Way Side Stations		**Major/Junction Stations**		**Other Location Stations**	
SN	**Name of Stations**	**SN**	**Name of Stations**	**SN**	**Name of Stations**
1		**1**		**1**	
2		**2**		**2**	
3		**3**		**3**	
4		**4**		**4**	
5		**5**		**5**	
6		**6**		**6**	

1.5 Maintenance Free Earthing & Surge Protection System:

Way Side Stations		Major/Junction Stations		Other Location Stations	
SN	**Name of Stations**	**SN**	**Name of Stations**	**SN**	**Name of Stations**
1		**1**		**1**	
2		**2**		**2**	
3		**3**		**3**	
4		**4**		**4**	
5		**5**		**5**	
6		**6**		**6**	

2.6 Any other requirements of signalling and telecommunication:

[Specify with relevant details to explain the Authority's requirements]

*Guidelines of requirement for S&T works:

Authority's Requirement of Works

The Authority's Requirement of Works shall be prepared by Zonal Railways, as each project has its own scope of works, specific functional requirement, specific site conditions, specific technical requirements etc. However broad guidelines mentioned below, but not limited to, will facilitate zonal railways in formulating Authority's Requirement of Works.
The Authority's Requirement of Works should cover in details following requirements:

a) A section should cover Objective of Project, A System Overview and Scope of Works.

b) A section should cover Project Planning and Project Management requirements which stipules requirement of various management plans such as, but not limited to, Signal Interlocking Plan, Document Management Plan, Design Management Plan, Interface Management Plan, Procurement Plan, Site Management Plan, Quality Assurance Plan, Testing & Commissioning Management Plan, RAMS Management Plan, Training Plan and Defect Liability Management Plan.

c) A section should cover Project Program requirements which stipules requirement of various works program such as Overall Works Program, Design Submission Program, Procurement Program, Installation Program, Testing & Commissioning Program and Training Program. This should also include mechanism of monitoring progress through Progress Reports and Progress Review Meetings.

d) A section should cover Design Requirements which stipules various design criteria and design specification to be followed by Contractor while preparing design under the project. It should also cover list of design & documents to prepared by Contractor. It should also stipulate various stages of design and procedures to be followed for review and approval of design .

e) A section should cover interface requirements for System Design, Installation and Testing & Commissioning.

f) A section should cover technical requirements which stipulates various standards and specification of cables, equipment, material, items & accessories to be followed in project.

g) A section should cover system requirements which stipulates requirements related with overall system architecture.

h) A section should cover requirements which stipules various standards, guidelines, procedures, methods to be followed during supply, storage and laying, construction and installation of cables, equipment, material, items & accessories in the project.

i) A section should cover testing requirements. This should cover various stages of testing such as factory, supply, storage, installation, system acceptance etc. This should cover agency responsible for such testing and procedure to followed during such testing.

j) A section should cover requirements related with RAMS. This should also include requirements of redundancy and spare capacity in the system.

k) A section should cover requirements related with Training for Authority's Personnel.

l) A section should cover requirements related with Spares to supplied to Authority's Personnel.

m) A section should cover requirements related with Operation & Maintenance Documents. These documents include Operation Manual, Technical Manuals, Maintenance Manuals, As Built Drawings etc.

n) A section should cover requirements related with Defect Liability Period.

[3. Electrification of existing railway line

3.1 Overhead Equipment (OHE)

[Specify scope of the OHE work]

3.1.1 Regulated conventional type OHE with normal contact wire height 5.80 Metre

S.N.	From Station to Station	km to km	Total Track km	Remarks

3.1.2 Regulated high rise type OHE with normal contact wire height 7.57 Metre

S.N.	From Station to Station	km to km	Total Track km	Remarks

3.1.3 Regulated Tramway type OHE with normal contact wire height 5.80 metre

S.N.	From Station to Station	km to km	Total Track km	Remarks

3.1.4 Regulated tramway type high rise OHE with normal contact wire height 7.57 metre.

S.N.	From Station to Station	km to km	Total Track km	Remarks

3.1.5 Unregulated conventional type OHE with normal contact wire height 5.80 metre.

S.N.	From Station to Station	km to km	Total Track km	Remarks

3.1.6 Unregulated type OHE high rise with normal contact wire height 7.57 metre.

S.N.	From Station to Station	km to km	Total Track km	Remarks

3.2 25 KV Sectioning post (SP) and sub-sectioning post (SSP) (Switching Post)

S.N.	Location	Type of Switching Post	Remarks

3.3 25 KV Booster Transformer and return conductor arrangement [Specify scope of booster transformer stations]

S.N.	From Station to Station	km to km	Length of RC (Metres)	Remarks

3.4 25 KV Auxiliary transformer stations

[Specify scope of auxiliary transformer stations]

S.N.	Location	Capacity	Quantity	Remarks

3.5 Traction sub-stations (TSS)

[Specify scope of TSS work]

S. N.	Location of TSS	Input Voltage	Number of Transformers	Capacity of each Transformer	Remarks

3.6 High voltage transmission line from grid sub-station to railway TSS

[Specify scope of work]

3.6.1 Overhead transmission line

S.N.	Location km to km	Total length in km	Nominal Voltage level	Single Circuit/ Double Circuit	3-Phase/ 2- Phase	Remarks

3.6.2 Monopole overhead transmission line

S.N.	Location km to km	Total length in km	Nominal Voltage level	Single Circuit/ Double Circuit	3-Phase/ 2- Phase	Remarks

3.7 Underground high-tension cable transmission

S.N.	Location km to km	Total length in km	Nominal Voltage level	Single Circuit/ Double Circuit	3-Phase/ 2- Phase	Remarks

3.8 Bay augmentation work at grid sub-station [Specify scope of work]

S.N.	Location	Nominal Voltage level	Number of bays	Remarks

3.9 Supervisory control and data acquisition system (SCADA).

[Specify scope of work]

S.N.	Item	Quantity	Remarks
1.	Remote Control Centre with SCADA Hardware and software		
2.	Modification of existing SCADA System		

3	SCADA Equipment at Traction Sub-Station		
4	SCADA Equipment at Switching Posts (SP/SSP)		

3.10 Various electrical general services works

[Specify scope of work]

3.11 Modification of HT power lines and crossings (raising of height)

[Specify scope of work]

Serial No.	**Item**	**Nominal Voltage level**	**Single Circuit / Double Circuit**	**No of Phases**	**Designated current carrying capacity**	**Quantity**	**Remarks**
1.	**Track crossing**						
2.	**Along the Track**						

3.12 Modification of HT power lines and crossings (replacement by UG cabling)

S.N.	**Item**	**Nominal Voltage level**	**Single Circuit / Double Circuit**	**No of Phases**	**Designated current carrying capacity**	**Quantity**	**Remarks**
1.	**Track crossing**						
2.	**Along the track**						

3.13 Modification of LT power lines and crossings (replacement by UG

cabling):

S.N.	Item	Nominal Voltage level	Single Circuit/ Double Circuit	No of Phases	Designated current carrying capacity	Quantity	Remarks
1.	Track crossing						
2.	Along the track						

3.14 Extension of LT power supply for CLS Work:

S.N.	Location	Current capacity/ size of conductor	Quantity	Remarks

3.15 Extension/Augmentation of electrical power supply arrangements and associated works

S.N.	Location	Load (KWH)	Remarks

3.16 Modifications of existing electrical works

3.16.1 List modifications to existing switching posts, if any.

3.16.2 List modifications to existing OHE, including dismantling of OHE, removal of brackets, cutting of masts, dismantling and removal of existing auxiliary transformer

3.16.3 List modifications to existing traction substation, such as augmentation of bay, addition or replacement of traction transformer, circuit breakers etc.

3.17 Inventory electrical

[Specify details of tools, equipment, Materials for supply to stores]

3.18 Signalling system (for electrification works)

3.18.1 Modification to existing PI/RRI/EI systems and modification in signalling system of LC gates

All signalling works including design of signalling plan, route control chart or selection/control table, panel diagram, wiring/circuit diagram, application logic, interface details, cable route chart, cable core diagram, termination and equipment position diagram etc. as part of the modification to the existing signalling system along with supply, installation, testing and commissioning shall be executed in accordance with the provision of IRSEM and signal and Interlocking principles issued in the form of typical designs.

In addition to above, augmentation of existing service buildings to accommodate additional signalling equipment/ racks etc shall be carried out.

The released materials shall be transported to the railway depot within the Site, as nominated by the Authority Engineer.

(a) Modification in existing PI/RRI/EI systems.

SN	Description of work	Details of modifications														
		Name of station	No of Lines	Std of interlocking	Major (Junction)/ Wayside station	Relay type (metal to metal or metal to carbon)	Cables (Sig/Tele)	Type of Signal feed (local or remote)	Type of train detection system (relay, AC, AFTC Etc.)	Point Motor immunisation	Type of lifting barrier & locking arrangement	Earthing and protection	Power supply	Block working	Details of siding	Any other requirement
1	**Survey, Design, Supply, Installation, Testing, supply of manuals for new technology equipment for each place, supply of completion drawings, and commissioning of**															
2	**Supply of signalling spares:** **2.1** Electronic Interlocking or Relay Interlocking equipment **2.2** Power supply system **2.3** Data logger system **2.4** Axle counter system **2.5** Signalling cables **2.6** Power cables **2.7** Relays **2.8** Point machines with accessories **2.9** Train Detection system **2.10** Any other item/items for functioning of Signalling system as per contract requirement. **2.11** Testing and measuring tools and equipment as determined in accordance with the manufacturer's manuals	Name of station				Quantity with unit										
3	**Integrated testing and commissioning**															

(b) Modification in existing LC gate:

SN	Description of work	Details of modifications						
		LC Gate No.	Type of lifting & barrier locking arrangement	Cables (Sig/Tele)	Type of Signal feed (local or remote)	Earthing and protection	Power supply	Any other requirement
1	**Survey, Design, Supply, Installation, Testing, supply of manuals for new technology equipment for each place, supply of completion drawings, and commissioning of**							
2	**Supply of signalling spares:** **2.1** Electronic Interlocking or Relay Interlocking equipment **2.2** Power supply system **2.3** Data logger system **2.4** Axle counter system **2.5** Signalling cables **2.6** Power cables **2.7** Relays **2.8** Train Detection system **2.9** Any other item/items for functioning of Signalling system as per contract requirement. **2.10** Testing and measuring tools and equipment as determined in accordance with the manufacturer's manuals	LC gate No.			Quantity with unit			
3	**Integrated testing and commissioning**							

3.18.2 Commissioning of new Electronic Interlocking/Panel Interlocking/ Route Relay Interlocking

All signalling works including design of signalling plan, route control chart or selection/control table, panel diagram, wiring/circuit diagram, application logic, interface details, cable route chart, c core diagram, termination and equipment position diagram etc. as part of the detail design along with supply, installation, testing and commissioning shall be executed in accordance with the provision of IRSEM and signal and interlocking principles issued in the form of typical designs.

In addition to above, provision of new service buildings to accommodate signalling equipment, power supply equipment etc., shall be carried out.

Releasing and transporting the released materials to railway depot nominated by the Authority Engineer.

SN	Description of work	Details of Major/Junction or Wayside stations										
		Name of station	No of Lines	Std. of interlocking	Type of Signalling	Junction (major)/ Wayside station	Type of block working	Type of train detection system	Type of point & operation locking arrangement	Type of lifting barrier & locking arrangement	Details of siding	Junction arrangement with adjacent stations

1	**Survey, Design, Supply, Installation, Testing, supply of manuals for new technology equipment for each place, supply of completion drawings, and commissioning of**											
2	**Supply of signalling spares:** **2.1** Electronic Interlocking or Relay Interlocking equipment **2.2** Power supply system **2.3** Data logger system **2.4** Axle counter system **2.5** Signalling cables **2.6** Power cables **2.7** Relays **2.8** Point machines with accessories **2.9** Train Detection system **2.10** On Board (Cab) equipment for TPWS system **2.11** Line side equipment for TPWS system **2.12** TMS (with remote operation system) **2.13** Any other item/items for functioning of Signalling system as per contract requirement. **2.14** Testing and measuring tools and equipment as determined in accordance with the manufacturer's manuals	Name of station			Quantity with unit						
3	**Integrated testing and commissioning**											

3.18.3 Diversion of utilities like cables, location boxes and huts and lifting barriers etc., wherever necessary shall be done prior to taking up of any work in the vicinity of existing Signalling and Telecom systems.

3.18.4 All other associated materials and works for completion not limited to items in the above table as required for execution of the signalling and telecom works to suit 25 KV has to be provided by the Contractor.

3.19 Telecommunication (for electrification works)

3.19.1

a) Where optical fibre cable (OFC) and quad cable already exist in the section

Where optical fibre cable (OFC) and quad cable already exist in the section , scope of work includes supply , trenching and laying of 6 quad cables, jointing of quad cables for provision of emergency sockets in the section and SP/SSP/TSS /LC gates etc., transferring the existing communication circuits including block on new cables,

supply and installation of power supply equipment, batteries and other telecom equipment, supply and installation of SDH and PD MUX equipment and their networking with the existing OFC link for augmenting existing OFC equipment at stations in the section, supply, installation and testing and commissioning of HQ and way station control equipment for giving various control phones at stations, SP/SSP/TSS etc., augmentation of existing service buildings as required, provision of cable huts and service buildings, protection of telecom lines entering 25 KV sub-station /switching posts, and protection against surge and lightning. The scope also includes masonry works for erection and installation of signalling equipment and all types of painting as per Railway Telecom Manual and standard practices. Supply of spares to the extent of 10% (minimum 1) of each type of equipment like SDH, PDMUX, control phones, emergency sockets etc.
All the materials not limited to above as required for execution of the signalling works to suit 25 KV has to be provided by the Contractor in accordance with the Good Industry Practice. The Contractor shall transport the released materials railway depot nominated by the Authority Engineer.

b) Where OFC and quad cable does not exist in the section.

Where OFC and quad cable does not exist in the section, scope of work includes supply , trenching and laying of OFC and 6 quad cables, jointing of quad cables, splicing of OFC cable, provision of emergency sockets in the section and SP/SSP/TSS /LC gates etc., transferring the existing communication circuits including block on new cables, supply and installation of power supply equipment , batteries and other telecom equipment, supply and installation of SDH and PD MUX equipment and their networking with the existing OFC link or forming new link if OFC is not existing in the section, commissioning of quad cable system , supply, installation and testing and commissioning of HQ and way station control equipment for giving various control phones at stations, SP/SSP/TSS etc., provision of cable huts and service buildings, protection of telecom lines entering 25 KV sub-station /switching posts, protection against surge and lightning . The scope also includes masonry works for erection and installation of signalling equipment and all types of painting as per Railway Telecom Manual and Good Industry Practice. Supply of spares to the extent of 10% (ten percent) (minimum 1) of each type of equipment like SDH, PDMUX , control phones, emergency sockets, etc.
All the materials not limited to above as required for execution of the signalling works to suit 25 KV has to be provided by the Contractor.
On completion of above works, testing and commissioning of entire system in totality shall be carried out by the Contractor. The Contractor shall transport the released materials to railway depots nominated by the Authority Engineer.

3.19.2 Quad cable work

The details of quad cable work are:

S N	Description of work	Details of 6 Quad telecom cable system					
		Chainage		Name of stations	LC gate No.	Loc of TSS/SP/SSP	Any other details
		From	To				
1	**Survey, design, supply, installation, testing, supply of manuals for new technology equipment for each place, supply of completion drawings, and commissioning of6 Quad telecom cable system**						

2	**Supply of communication spares:** 2.1 Six quad telecom cable and accessories 2.2 Emergency sockets with box and pins 2.3 Any other item/items for functioning of telecommunication system as per contract requirement 2.4 Testing and measuring tools and equipment as determined in accordance with the manufacturer's manuals	Quantity with unit					
3	**Integrated testing and commissioning**						

3.19.3 Optic Fibre Cable work

The details of optic fibre cable work are:

SN	Description of work	Details of OFC system											
		Chainage		Name of stations	OF Cable	Type of STM equipment		Type of multiplexer	Power supply	Control office equipment with Power supply			Any other details
		From	To			Short Haul	Long haul			Way station	HQ	Emergency control equipment	
1	**Survey, design, supply installation, testing, supply of manuals for each place, supply of completion drawings, and commissioning of optical fibre cable communication system**												
2	**Supply of communication spares:** 2.1 Optical fibre cable with accessories 2.2 HDPE duct with accessories 2.3 Optical fibre Digital equipment's (STM with accessories) 2.4 Digital Multiplexer equipment's (PDH with accessories). 2.5 Power supply of STM/PDH with accessories 2.6 Control office equipment with accessories	Quantity with unit											

	(a) Way station (b) HQ © Power supply 2.7 Emergency communication system with accessories 2.8 Any other item/items for functioning of telecommunication system as per contract requirement. 2.9 Testing and measuring tools and equipment as determined in accordance with the manufacturer's manuals	
3	**Integrated testing and commissioning**	

3.19.4 Modification in passenger amenity works

The details of modification in passenger amenity works are

SN	Description of work	Details of telecommunication equipment														
		Station	LC Gate	Mobile radio communication system	CCTV	PA system	Passenger information display system	Electronic exchange	Digital clock	Master Clock system	Video surveillance System	Telephone exchange	EC Sockets	LC Gate Telephones	Earthing arrangements	Power supply equipment with protection	Any other Details
1	**Survey, Design, Supply, Installation, Testing, supply of manuals for new technology equipment for each place, supply of completion drawings, and commissioning of Telecommunication equipment**																
2	**Supply of communication spares:**	Quantity with unit															

	2..1 Mobile Radio comm. system 2.1 CCTV system 2.4 Electronic Exchange system 2.5 Public address system 2.6 Passenger Information display system 2.7 Digital Clock system 2.8 Master clock system 2.9 Video surveillance system 2.10 Telephone exchange 2.11 EC Sockets 2.12 LC Gate telephones 2.13 Any other item/items for functioning of telecommunication system as per contract requirement. 2.14 Testing and measuring tools and equipment as determined in accordance with the manufacturer's manuals.	
3	**Integrated testing and commissioning**	
2	**Inventory: Supply of communication spares:** 2..1 Optical fibre cable communication system 2.2 Mobile Radio communication system 2.3 CCTV system 2.4 Electronic Exchange system 2.5 Public address system 2.6 Passenger Information display system 2.7 Digital Clock system 2.8 Control office equipment's with accessories	**Quantity with unit**

	2.9 Master switching centre equipment 2.10 Base switching centre equipment 2.11 DT/Cab radio/Handheld 2.12 Dispatch/Control terminals 2.13 OPH 2.14 GPH 2.15 GSM Set 2.16 Cab radio 2.17 Master clock system 2.18 Any other item/items for functioning of telecommunication system as per contract requirement. 2.19 Testing and measuring tools and equipment as determined in accordance with the manufacturer's manuals.	

All other associated materials and works for completion not limited to items in the above table as required for execution of the signalling and telecom works to suit 25 KV has to be provided by the Contractor.

3.20 Civil works (for electrification works)

3.20.1 General

Civil works include building works (staff quarters, service building, tower wagon shed and siding, platform shed) raising height of FOB/ROB and any other work necessary for completion of the electrification works.

3.20.2 Staff quarter

Construction and development of staff colony comprising of following types of staff quarters including electrical internal wiring with allied work, electrical power supply arrangement with transformer/main distribution supply, sewerage system, water supply arrangement, augmentation of water supply, provision of bore well with

electrical pump and pump house, approach road, levelling and earth filling of land, barbed wire fencing, boundary wall, development of lawn, rain water harvesting, street lighting arrangement etc.

S. N.	Location	Type of quarters	Single storey/multi-storey building	No. of quarters
		Type-II		
		Type-III		
		Type-IV		
		Type-V		

3.20.3 Tower wagon shed and siding:

Construction of tower wagon shed and siding including inspection pit, earthwork, approach road, water supply arrangement, ballast supply and its spreading, permanent way work with all Contractor's permanent way material for M+7 sleeper density with 60 Kg (90 UTS) rail and sleeper (Drg. No. T/2496), track connection with main line including thermit welding, insertion of glued joint, internal electrical wiring with allied works and electrical power supply arrangement with transformer/main distribution supply, as per the Schedule D.

Description of permanent way associated with the above work is:

S. No.	Location	Length of track	No. of turnout and derailing switch with sleepers, rail components and fittings	No. of glued joint

3.20.4 Service buildings

Construction of service buildings including electrical internal wiring with allied work, electrical power supply arrangement with transformer/main distribution supply, sewerage system, water supply arrangement, augmentation of water supply, provision of bore well with electrical pump and pump house, approach road, levelling and earth filling of land, boundary wall, street lighting arrangement etc.

Sr. no.	Description of service building	Location	Plinth area
	Administrative Offices		
	Supervisor's office and store		

	Remote Control Centre		
	OHE Depot		
	OHE and PSI depot		

3.20.5 Trip shed and siding:

Construction of trip shed and siding including inspection pit, earthwork, water supply arrangement, ballast supply and its spreading, Permanent way work with all Contractor's permanent way material for M+7 sleeper density with 60 Kg (90 UTS) rail and sleeper (Drg. No. T/2496), track connection with main line including thermit welding, insertion of glued joint, approach road, levelling and earth filling of land, street lighting arrangement, internal wiring with allied works and electrical power supply arrangement with transformer/main distribution supply.

Description of permanent way associated with the above work is:

S. No.	Location	Length of track	No. of turnout and derailing switch with sleepers, rail components and fittings	No. of glued joint

3.20.6 Raising height of FOB

Raising height of FOB with running out of ramp up to specified height including material required for this work, design and drawings and temporary arrangement drawing adhering approved FOB drawing.

Sr. no.	Location	FOB no.	Existing height	Height to be raised

3.20.7 Raising height of ROB

Raising height of ROB with running out of approach road up to specified height including material required for this work, design and drawings and Temporary arrangement drawing adhering approved ROB drawing.

Sr. no.	Location	ROB no.	Existing height	Height to be raised

3.20.8 Modification of platform shed

Modification of platform shed up to specified height including material required for this work, adhering approved cover over platform drawing in connection with railway electrification works.

Sr. no.	Location	Length of shed	Existing height	Height to be raised

3.20.9 Other works

Provide details of other works (sample list below)

(a) Service roads for traction substation and switching posts,

(b) Tree plantation

(c) Fencing

(d) Bore wells

(e) Pump house

(f) General power supply sub-station

(g) Number plates

(h) [others (to be specified)]

SCHEDULE - C
(See Clause 2.1)

PROJECT FACILITIES[18]

1 Project Facilities

The Contractor shall construct the Project Facilities in accordance with the provisions of this Agreement. Such Project Facilities shall include:

Civil works, signalling and telecom

a) Subordinate rest house
b) Officers rest house
c) Tree plantation;
d) Sub stations
e) Lighting
f) Water harvesting
g) Project network with project monitoring software like MS project along with closed user telecom group, fax and e-mail facilities and mobile communication network for project monitoring.
h) Training set up (to be specified)

i) [Others to be specified]

Railway electrification

a) Officers' rest house
b) Camp office for authority
c) Subordinate rest house
d) Danger and caution boards
e) Protective screens
f) Earthing arrangement for structures

2 Description of Project Facilities

Each of the Project Facilities is described below:

S. No.	Project Facility	Location	Design Requirements	Other essential details

Note: Provide adequate details of each Project Facility to ensure their design and completion in accordance with the project-specific requirements and the provisions of the Manuals.

[18]This Schedule may be suitably modified to reflect project specific requirements.

[3.0 Contractor's Project Organisation]

The content given below is for guidance only. It can be modified as per requirement of Authority.

3.1 The Contractor is fully responsible for ensuring quality of construction, supervision of the works being executed by him. He has to deploy adequate number of personnel from his side in order to complete the work within the completion period and also to maintain the infrastructure created under this work till defect liability period. Please refer para 3.4 of Article-3. However, the Contractor(s) shall employ following minimum number of Technical personnel during the execution of the allotted work as per table below. This list is indicative and not exhaustive. Additional manpower as required from time to time to be deployed as per progress for ensuring supervision, quality control etc. Apart from the key personnel mentioned below, the Agency has to engage required number of skilled and un-skilled workers to complete the work within the stipulated time and to meet the targets of the project.

S.No	**Title of Position**	**Nos**	**Minimum Experience in relevant field (in years)**	**[Scale check]**	**Minimum Qualification**
1	Project Head	1	15		B. Tech (Civil Engg.)
2	PMs for Civil, S&T, Electrical		10	2 for Civil, 1 each for Electrical and S&T	B.Tech/ diploma in relevant field.
3	Safety Consultant	1	10		Science/Engineering Graduate. Refer para 10.2.11 under Article-10
4(a)	Quality Assurance Engineer/Civil		10	1 per each 20 km length	B.Tech/ diploma in relevant field.
4(b)	Quality Assurance Engineer/S&T		10	1 per each 40 km length	B.Tech/ diploma in relevant field.
4(c)	Quality Assurance Engineer/Electrical		10	1 per each 40 km length	B.Tech/ diploma in relevant field.
5(a)	Site Engineer (Civil)		5	1 per each 10 km, 1 per each Important bridge	B.Tech/ diploma in relevant field.
5(b)	Site Engineer (S&T)		5	1 per each 20 km	B.Tech/ diploma in relevant field.
5(c)	Site Engineer (Electrical OHE)		3/5	1 per each 10 km	3 Yrs for B. Tech & 5 Yrs for Diploma in relevant

5(d)	Site Engineer (Electrical PSI)		3/5	1 for each project	Field
5 (e)	Site Engineer (Electrical GS)		3/5	1 for each project	
6	Asst. Site Engineer		2	1 per each site engineer	Diploma in relevant field.
7	Computer Operator with knowledge of Software like Trimble Tilos or equivalent, AutoCAD, Microsoft Office, etc	2	5		Graduate
8	Design Engineer (Electrical)	3	2	1 each for OHE/PSI/GS	Diploma/B.Tech in relevant field.

{NOTE: Data in column 3 above shall be filled for personnel at Serial no: 2, 4, 5 & 6 as per the scale check and length of the project being tendered for. If S&T/Electrical works are not included, requirement of respective site engineers and quality assurance engineer to be omitted.}

3.2 The Personnel shall be deployed throughout the Contract period during the execution of work. However, the deployment schedule of these Engineers shall be as per the plan submitted by the Contractor and approved by Authority Engineer. Deployment of these personnel will not absolve the Contractor from his responsibility of proper supervision of work.

3.3 Sufficient number of personnel to assist the personnel at S. No.-3,4,5 shall be deployed fulfilling the requirement of Article 11 of the EPC document

3.4 In case the Contractor(s) fails to employ the Contractor's personnel aforesaid above, he shall be liable to pay an amount given below for the default period:

(i) Rs. 200,000/- per head per month for Sr.No. 1
(ii) Rs. 100,000/- per head per month for Sr.No. 2 ,3 & 4
(iii) Rs. 50,000/- per head per month for Sr.No. 5 & 6
(iv) Rs. 40,000/- per head per month for Sr.No.7 & 8

3.5 The Contractor shall submit the copy of Bio-data and Degree/ Diploma certificate of the above technical staff employed by him for the scrutiny by Authority Engineer and the same will be approved by Authority Engineer and shall be available during the currency of work execution for record purpose. Authority Engineer reserves the right to scrutinise the records of the Contractor to ascertain as to whether the qualified staff has been actually employed by him and is paid for.

3.6 The contractor's technical personnel should work in cohesion with Authority Engineer's personnel.

The agency shall provide adequate personnel to facilitate the PMS engineers in collecting samples, in conducting various quality control tests, in carrying out survey works, in checking measurements, facilitating site inspections, etc. as required.

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 Railway Project. The time limit for the review and clearances by the Authority for design and drawings submitted by the Contractor shall be as indicated in Annexure-II.

2 Design Standards

The Railway Project including Project Facilities shall conform to design requirements set out in the following documents:

[Indian Railways Permanent Way Manual, Indian Railway Bridge Manual, Indian Railway Schedule of Dimensions & relevant IRS Specifications referred in the Manual, Indian Railway Signalling Engineering Manual, Indian Railway Telecom Manual, & relevant IRS/RDSO Specifications referred in the Manual, AC Traction Manual, Rules for Opening Railways]

[Note: Specify the relevant Manual, Specifications and Standards]

3 Latest Version

Latest version of the Manuals, Specifications and Standards including the amendments notified/published by the Base Month shall be considered applicable.

4 Terms used in Manuals

The terms [‘Inspector’, ‘AEE’, ‘DE’] used in the Manuals shall be deemed to be substituted by the term “**Authority Engineer**”; to the extent it is consistent with the provisions of the Agreement.

5 Absence of specific provision

In the absence of any specific provision on any particular issue in the aforesaid Manuals, Specifications, or Standards, the following standards shall apply in order of priority

[Bureau of Indian Standards (BIS)

Euro Codes or British Standards or American Standards

Any other specifications/standards proposed by the Contractor and reviewed by the Authority Engineer.]

6 Alternative Specifications and Standards

6.1 The requirements specified in the Manuals are the minimum. The Contractor shall, however, be free to adopt international practices, alternative specifications, materials and standards to bring in innovation in the design and construction provided they are better or comparable with the standards prescribed in the Manuals. The specifications and techniques which are not included in the Indian Railway Manuals/ RDSO specifications shall be supported with authentic specifications and standards specified in paragraph 5 above. Such a proposal shall be submitted by the Contractor to the Authority Engineer. In case, the Authority Engineer is of the opinion that the proposal submitted by the Contractor is not in conformity with any of the international standards or codes, then he shall record his reasons and convey the same to the Contractor for compliance.

6.2 In case, the Contractor is offering an alternative product which is not as per the designs/specifications stipulated in this Agreement, but the same is already in the use with satisfactory performance in one or more major world Railway(s) for more than 5(five) years for the same or higher design speed/rating (as applicable for project line), such product can be permitted to be used by the Authority Engineer in accordance with the Cross Approval policy of the Railway Board as existing at the time of offering of such product. The products covered for the purpose of this clause shall be as per the list provided in the policy.

Annex - I

(Schedule-D)

Specifications and Standards for Construction[19]

1 Specifications and Standards

All Materials, works and construction operations shall conform to the following manuals:

1.1 For civil works:

(a) Indian Railways Permanent Way Manual

(b) Indian Railway Bridge Manual

(c) Indian Railway Schedule of Dimensions

(d) The relevant IRS Specifications referred to in the above documents listed at (i), (ii) and (iii)

(e) Specifications of Works of concerned zonal railway

(f) In case of any contradiction in the various codal provisions, the order of precedence shall be as follows:-

aa) Provisions of this Annex I.

bb) IRS Codal provisions

cc) IRC Codal provisions

dd) IS (BIS) Codal provisions

1.2 For signalling and telecommunication works:

(a) Indian Railway Signal Engineering Manual for signalling; and

(b) Indian Railway Telecom Manual for telecommunication works.

(c) Latest IRS / RDSO specifications

1.3 For electrification works:

(a) Indian Railways Manual AC Traction, Volume-II Part-I and Volume-II Part-II.

(b) Manual of Standards & Specification for Railway Electrification

(c) Indian Railways Standards of Dimension

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[19]The contents of this Annexure-I may be suitably modified to reflect project specific requirements.

2 Deviations from the Specifications and Standards

[Notwithstanding anything to the contrary contained in Paragraph 1 above, the following Specifications and Standards shall apply to the Railway Project, and for purposes of this Agreement, the aforesaid Specifications and Standards shall be deemed to be amended to the extent set forth below:]

[Specify the deviations, if any]

[**Note**: 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.]

Annex - II

(Schedule-D)

(See Clause 10.2.7(c))

Time Schedule for Review of Drawings by the Authority:

Sl. No.	Item	Prepa-ration	Authority's Review with time limit	Review by Open Line/ RDSO
1.	Alignment plan	-	-	Approved copy enclosed with RFP.
2.	L Section	-	-	Approved copy enclosed with RFP.
3.	LWR Plans	Contractor	CE/C (45 days)	Copy to CTE to give remarks in 30 days, if any.
4.	Design basis report for important bridges	Contractor	CE/C (60 days)	CBE and RDSO to give remarks in 45 days.
5.	GAD of important bridges	Contractor	CE/C (45 days), CBE and RDSO to give remarks in 30 days	Contractor to submit GAD after clearance of design basis report.
6.	GAD of major and minor bridges, affecting the existing bridge (requiring load sharing or imposition of SR during construction)	Contractor	CE/C (45 days)	Copy to CBE to give remarks in 30 days, if any.
7.	GAD of major and minor bridges (without any reduction in waterway/ vertical clearance and not affecting the existing bridge)	Contractor	CE/C (30 days)	
8.	Structural drawings of important and major bridges	Contractor	CE/C (30 days)	
9.	Structural drawings of minor bridges	Contractor	Dy.CE/C (30 days)	
10.	GADs of RUBs	Contractor	CE/C or CE of Open Line and State Authority	Nil
11.	Structural Drawings of ROBs/RUBs	Contractor	CE/C (30 days)	
12.	GADs of FOB	Contractor	CE/C (45 days)	Copy to CBE and DRM to give remarks in 30 days, if any.
13.	Structural Drawings of FOBs	Contractor	CE/C (30 days)	

Sl. No.	Item	Prepa-ration	Authority's Review with time limit	Review by Open Line/ RDSO
14.	Engineering Scale Plans (ESPs)	-	-	Approved copy enclosed with RFP.
15.	Signal Interlocking Plans (SIPs)	-	-	Approved copy enclosed with RFP.
16.	Route Control Charts (RCCs)	Contractor	CSTE/C (14 Days)	Remarks to be given within one month of submission and approval by Railways to be furnished to the contractor within one month of submission of compliance of remarks by contractor.
17.	Cable Route Plan	Contractor	CSTE/C (45 days)	Remarks to be given within one month of submission and approval by Railways to be furnished to the contractor within one month of submission of compliance of remarks by contractor.
18	Interface and logic circuits (to be submitted within 30 days after receipt of approved RCCs).	Contractor	CSTE/C (30 Days for Both)	Remarks to be given within one month of submission and approval by Railways to be furnished to the contractor within one month of submission of compliance of remarks by contractor.
19	Station Working Rule Diagrams & Station Working Rules. (to be submitted within 21 days, after receipt of approved RCCs)	Contractor	CSTE/C (30 Days)	Remarks to be given within one month of submission and approval by Railways to be furnished to the contractor within one month of submission of compliance of remarks by contractor.
20	Technical System Approval for EI	Contractor	CSTE/C (30 Days)	Remarks to be given within one month of submission and approval by Railways/RDSO to be furnished to the contractor within one

Sl. No.	Item	Prepa-ration	Authority's Review with time limit	Review by Open Line/ RDSO
				month of submission of compliance of remarks by contractor.
21	Track circuit and traction Bonding plan (to be submitted within 21 days, after receipt of approved SIPs)	Contractor	CSTE/C and CEE/C. (21 Days)	Remarks to be given within one month of submission and approval by Railways to be furnished to the contractor within one month of submission of compliance of remarks by contractor.
22	Power supply scheme (to be submitted 21 days, after receipt of approved SIPs)	Contractor	CSTE/C (21 Days)	Remarks to be given within one month of submission and approval by Railways to be furnished to the contractor within one month of submission of compliance of remarks by contractor.
23	Cable Core Plan, (to be submitted within 21 days, after receipt of approved SIPs)	Contractor	CSTE/C (21 Days)	Remarks to be given within one month of submission and approval by Railways to be furnished to the contractor within one month of submission of compliance of remarks by contractor.
24.	Building Plans	Contractor	CE/C or CE of Open Line and if require, State Authority	Nil
25.	Drainage Plans	Contractor	Dy.CE/C (30 days)	
26.	Protection Work Design and Drawings	Contractor	CE/C (30 days)	

Time Schedule for Review of Drawings by the Authority for electrification works:

Sl. No.	Item	Prepa-ration	Authority's Review with time limit	Review by Open Line/ RDSO
1.	Final Layout Plan based on Pegging Plan supplied by Railway	Contractor	CEE(C)/CPD/RE (21 days)	NIL
2.	Cross Sectioning Drawings	Contractor	CEE(C)/CPD/RE (21 days)	NIL
3.	Structure Erection Drawings	Contractor	CEE(C)/CPD/RE (21 days)	NIL
4.	Long Section drawings of OHE under over line structures and overhead crossings	Contractor	CEE(C)/CPD/RE (21 days)	NIL
5.	Other design and drawings where there are any deviation from RDSO standards	Contractor	CEE(C)/CPD/RE (15 days))	NIL
6.	As erected SED and CSD	Contractor	CEE(C)/CPD/RE (30 days)	NIL
7.	Any special arrangement, including bridge masts, FOB/ROB modification, or structural modifications.	Contractor	CEE(C)/CPD/RE (45 days)	CEE of the concerned Railway. CBE in case of bridge masts, FOB/ROB, engineering structure modification (CEE or CBE to review and return to CEE(C)/CPD/RE within 30 days)
8.	All PSI Drawings/Designs	Contractor	CEE(C)/CPD/RE (21 days)	NIL
9.	Relay setting calculation of TSS	Contractor	CEE(C)/CPD/RE (21 days)	Sr DEE (TRD) of concerned Division. (Review to be returned to CPM/RE within 14 days)
10.	HT Crossing and LT crossing modifications	Contractor	CEE(C)/CPD/RE (45 days)	Sr DEE(TRD) of concerned Division (Review and return to CPM/RE within 30 days).
11.	Bonding Plan of Yard Area	Contractor	CEE(C)/CPD/RE (28 days)	Sr DEE(TRD) of concerned Division (Review and return within 21 days to CEE(C)/CPD/RE)

12.	Signalling Plan for each interlocked station, including interlocked level crossings situated outside station limits and inter locked mid-section sidings.	-	-	Approved copy enclosed with RFP.
13.	Locking Table and locking diagrams for each interlocking frames, station master's slide control, frame, interlocking key box, power frame with mechanical locking.	Contractor	CSTE (45 days)	Divn/HQ of concerned Railway. (within 75 days to
14.	Selection Table for each EI/Relay Interlock Station	Contractor	CSTE (14 Days)	Remarks to be given within one month of submission and approval by Railways, to be furnished to the contractor within one month of submission of compliance of remarks by contractor.
15	All other Signalling/Telecom Drawings/Designs	Contractor	CSTE (60 days)	Remarks to be given within one month of submission and approval by Railways, to be furnished to the contractor within one month of submission of compliance of remarks by contractor.
16.	All other drawings not mentioned above, where mandatory review by Railway is necessary to comply with provision of Manuals/Codes.	Contractor	21 days where CPD/RE is approving Authority. 45 days where approval has to be taken from Open Line Railway.	As per the case.

Note: All other drawings/designs which are not mentioned herein will fall under the review of Authority Engineer (Dy. CEE/ Dy. CE/ Dy. CSTE as the case may be) and the time limit thereof will be as per the terms and conditions mentioned in the Contract Document.

******

SCHEDULE - E

(See Clause 3.1.6(a))

APPLICABLE PERMITS

1 Applicable Permits

1.1 The Contractor shall obtain, as required under 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.

1.2 Applicable Permits, as required, relating to environmental protection and conservation shall have been or shall be procured by the Authority in accordance with the provisions of this Agreement.

–

SCHEDULE - F

(See Clauses 7.1.1, 7.5.3 and 17.2)

FORM OF BANK GUARANTEE

Annex-I
(See Clause 7.1.1)
Performance Security

[The General Manager],

……..**,** ……..**[**Railway],

……

WHEREAS:

(A) ……(insert name and address of the contractor) (hereinafter called the "**Contractor**") and (insert name and address of the project authority), (hereinafter called the" **Authority**") have entered into an agreement (hereinafter called the "**Agreement**") for the construction of the new railway line between **……..-……..** in the **……..……..** Railway zone 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 } (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 dueand faithful performance of the Contractor's obligations during the {Construction Period/ Defects Liability Period}under and in accordance with the Agreement, and agrees and undertakes to pay to the [mention Finance of 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 [***in the ***]Railway, 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, fulfilment 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 fulfilment, 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.

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

SCHEDULE - F

(See Clauses 7.1.1, 7.5.3 and 17.2)

FORM OF INSURANCE SURETY BOND

Annex-I**A**
(See Clause 7.1.1)
Performance Security

Name of the issuer of surety bond:

President of India,

Acting through……..,

…….

Railway.

Date:……
……..

Surety Bond No: …… Issue Date:……

Amount of Bond:…… Expiry Date:…….

WHEREAS, In consideration of the President of India acting through ……*(Designation & address of contract signing authority)*,……Railway,……, (hereinafter called "The Railway") having accepted the bid of M/S *XXXXX* hereinafter called the contractor, for the work of *XXX*" under invitation for bids No *XXXX* Dated *XXXXX*, Vide Letter of Acceptance No.

AND

WHEREAS, the contractor is required to furnish Performance Security for the sum of **Rs. *XXXX* (Rupees *XXXX* Only)**, in the form of Surety Bond, being a condition precedent to the signing of the contract agreement

SBNo: Date:

WHEREAS, we, _____, *(Name of insurance company)* hereinafter called the Surety, acting through [*Designation(s) of the authorised person of the Surety*], have, at the request of the **M/s. *XXXX*** contractor, agreed to give Bond for performance security/ additional performance security as hereinafter contained:

1. KNOW ALL MEN by these present that I/We the undersigned [*Insert name(s) of authorized representatives of the Surety*], being fully authorized to sign and incur obligations for and on behalf of the Surety, confirm that the Surety, hereby, unconditionally and irrevocably Bond to pay the Railway the full amount in the sum of ***XXXX*** **(Rupees *XXXX* Only)** as above stated.
2. The Surety undertakes to immediately pay on presentation of demand by the Railway any amount up to and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the Railway on the Surety shall be final, conclusive and binding, absolute and unequivocal notwithstanding any disputes raised/pending before any Court, Tribunal, Arbitration or any Authority or any threatened litigation by the Bidder or Bank.
3. On payment of any amount less than aforementioned full amount, as per demand of the Railway, the Bond shall remain valid for the balance amount i.e. the aforementioned full amount less the payment made to the Railway.
4. The Surety shall pay the amount as demanded immediately on presentation of the demand by Railway without any reference to the contractor and without the Railway being required to show grounds or give reasons for its demand or the amount demanded.
5. The Surety Bond shall be unconditional and irrevocable.
6. The Bond hereinbefore shall not be affected by any change in the constitution of the Surety or in the constitution of the Contractor.
7. The Surety agrees that no change, addition, modifications to the terms of the Contract Agreement or to any documents, which have been or may be made between the Railway and the Contractor, will in anyway release us from the liability under this Bond; and the Surety, hereby, waives any requirement for notice of any such change, addition or modifications to the Surety.
8. This Bond is valid and effective from the date of its issue, which is *[insert date of issue]*. The Bond and our obligations under it will expire on ***XXXX*** *(Expiry Date)*. All demands for payment under the Bond must be received by us on or before that date.
9. The Surety agrees that the Railways right to demand payment of aforementioned full amount in one instance or demand payments in parts totalling up to the aforementioned full amount in several instances will be valid until either the aforementioned full amount is paid to the Railway or the Bond is released by Railway before the Expiry date.
10. The Surety agrees that its obligation to pay any amount demanded by the Railway before the expiry of this Bond will continue until the amount demanded has been paid in full.
11. The expressions Surety and Railway hereinbefore used shall include their respective successors, administrators and assigns.

SBNo: Date:

12. The Surety hereby undertakes not to revoke the Bond during its currency, except with the previous consent in writing of the Railway. This Bond is subject to the Uniform Rules for Demand Bonds, ICCPublicationNo.758.

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

14. The Bond shall be in addition to and without prejudice to any other security Bond (s) of the contractor in favour of the Railway available with the Railway. The Surety, under this Bond, shall be deemed as Principal Debtor of the Railway.

Notwithstanding anything to the contrary contained in these presents,

a. Our liability under this Surety Bond shall not exceed ***XXXX*** **(Rupees *XXXXX* Only)**

b. This Surety Bond shall be valid up ***XXXX*** *(being the date of expiry)*;

c. Unless the bank is served a written claim or demand on or before ***XXXX*** all rights under this Bond shall be forfeited and the Surety shall be relieved and discharged from all liabilities under this Bond irrespective of whether or not the original Surety bond is returned to the Surety

Dated the day of 2024

15. The Insurance Surety Bond shall be verified by sending mail to [customer.care@sbigeneral.in]

Place…….

Bank's Seal and authorized signature(s)
[Name in Block letters] ……
[Designation with Code No.]……

[P/Attorney] No.

Witness

1.

2.

* * * * *

Note: All italicized texts are for guidance on how to prepare this Insurance Surety Bond and shall be deleted from the final document.

Annex – II
(Schedule - F)
(See Clause 7.5.3)

Form of Guarantee for Withdrawal of Retention Money

[General Manager,***

***Railway,

…….]

WHEREAS:

(A) [insert name and address of the contractor] (hereinafter called the "**Contractor**") has executed an agreement (hereinafter called the "**Agreement**") with the [name and address of the project authority), (hereinafter called the "**Authority**") for the construction of the new railway line between ****-**** in the **** Railway zone on Engineering, Procurement and Construction (the "**EPC**") basis, subject to and in accordance with the provisions of the Agreement.

(B) In accordance with Clause 7.5.3 of the Agreement, the Contractor may withdraw the retention money (hereinafter called the "**Retention Money**") after furnishing to the Authority a bank guarantee for an amount equal to the proposed withdrawal.

(C) We, …….. through our branch at ……. (the "**Bank**") have agreed to furnish this bank guarantee (hereinafter called the "**Guarantee**") for the amount of Rs. …… cr. (Rupees……crore) (the "**Guarantee Amount**").

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

1. The Bank hereby unconditionally and irrevocably 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 [*** in the ***Railway], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for 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 Retention Money and 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 Retention Money.

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 15 (fifteen) days after the date of the Completion Certificate specified in Clause 12.4 of the Agreement.

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 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 well as of issuing branch should be mentioned on the covering letter of issuing branch.

Annex – III
(Schedule - F)
(See Clause 17.2)

Form of Guarantee for Advance Payment

[***],

[***]Railway,

[New Delhi – 110001].WHEREAS:

(A) [name and address of the contractor] (hereinafter called the "**Contractor**") has executed an agreement (hereinafter called the "**Agreement**") with the [name and address of the project authority], (hereinafter called the "**Authority**") for the construction of the new railway line between ***in the ***Railway zone on Engineering, Procurement and Construction (the "**EPC**") basis, subject to and in accordance with the provisions of the Agreement.

(B) In accordance with Clause 17.2 of the Agreement, the Authority shall make to the Contractor 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 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 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

[$]The Guarantee Amount should be equivalent to 110% of the value of the applicable installment.

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 [***in the ***Railway], 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.

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 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.

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 Advance Payment.

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 on or before the aforesaid date, 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. The Bank hereby confirms that it is on the SFMS (Structured Financial Mes saging System) and shall invariably send the advice of this Bank Guarantee to the following bank details –

IFSC CODE	SBIN000RAIL
IFSC TYPE	BRANCH
BANK NAME	STATE BANK OF INDIA
BRANCH NAME	RAIL
CITY NAME	NAVI MUMBAI
ADDRESS	SECTOR-11, CBD BELAPUR, NAVI MUMBAI
DISTRICT	NAVI MUMBAI
STATE	MAHARASHTRA
BG ENABLED	YES

[$] 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 17.2 of the Agreement).

12. 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.

(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.

SCHEDULE - G

(See Clauses10.1.4 and 17.3)

Contract Price Weightages[(For Lump sum value of this agreement)]

1.1 The Contract Price for this Agreement is Rs. ******. [It is assigned for different components of the Railway Project as follows:]

[For works consisting of civil works, signalling and telecom works without railway electrification]

Civil and track works	***% of the Contract Price
Signalling works	***% of the Contract Price
Telecom works	***% of the Contract Price
Electrification works	***% of the Contract Price

[For Railway Electrification works]

Electrification works	***% of the Contract Price
Signalling modification works	***% of the Contract Price
Telecom modification works	***% of the Contract Price
Civil works	***% of the Contract Price

[For works consisting of Signalling and Telecom works]

Signalling works	***% of the Contract Price
Telecom works	***% of the Contract Price
Electrification works	***% of the Contract Price
Civil and track works	***% of the Contract Price

1.2 Proportions of the Contract Price for different stages of Construction of the Railway Project shall be as specified below:

1. Civil and track works

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage	Payment Procedure
1	2	3	4	5

1.1 Earthwork	***%	**1.1.1 Earthwork in embankment/cutting including compaction up to H*/4 from ground level complete in all respects.** **1.1.2 Earthwork in embankment/cutting including compaction from H/4 to H/2 from ground level complete in all respects.** **1.1.3 Earthwork in embankment/cutting including compaction from H/2 to 3H/4 from ground level complete in all respects** **1.1.4 Earthwork in embankment/cutting including compaction from 3H/4 level to H from ground level complete in all respects.**	[30%] [30%] [20%] [20%]	(a) Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a continuous length of minimum 50 m. (b) Provided that payment for the blanketing layer shall be made on completion of minor bridges including slab/RCC box(item no 1.4)/pipe culverts (item 1.5) in the length for which stage payment is claimed. For the avoidance of doubt, payment for minor Bridges shall be payable separately in accordance with item 1.4 and pipe culverts shall be payable separately in accordance with item 1.5. *H = Height of formation from ground level minus blanketing thickness Note:- The whole Project length may be divided in sections depending on average Formation Height/depth Up to 3 m, 3 to 6 m, 6 to 9 m and 9 m and above. In each section Km number shall be grouped according to average formation Ht and separate EW payment milestone may be made as it is made for item No. 1.1.(i.e. 1.1A, 1.1 B, 1.1C, 1.1D)
			100%	

1.2	***%	1.2.1 Blanketing work complete in all respect 1.2.2 Slope Protection by Turfing of formation Slope 1.2/3 Pitching of Formation Slope 1.2.4 Retaining wall/toe wall and other misc works.	[***%] [***%] [***%] [***%]	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a continuous length of minimum 50 m.
		Total	**100%**	
1.3. Important Bridges	***%	1.3.1 Foundation: Completion of the foundation work including pile caps/ well caps and foundations for wing and return walls, and testing. 1.3.1/a Foundation of pier/Abutment. 1.3.1/b Foundation of return/wing wall 1.3.2 Sub-structure: Completion of abutment/piers including bed blocks (without bearings). 1.3.2/a Pier/Abutment shaft.	 [***%] [***%] [***%]	(a) Cost of each bridge shall be determined on pro-rata basis with respect to the total linear length of the Important Bridges. (b) In case a particular component of a bridge is not complete in full linear waterway, Cost of each individual component of that bridge shall be determined in proportion to that particular span with respect to the full linear waterway of that bridge. (c) Payment shall be made on completion of each component/stage of an Important Bridge as per the weightage given in this schedule.

		1.3.2/b Pier/Abutment cap 1.3.3 Completion of the wing walls, return walls in all respects 1.3.4 Super-structure: Completion of the super structure except deck slab and bearings 1.3.5 Completion of the deck slab, bearings/ expansion joints and making bridge ready for track linking including Bearings. 1.3.6 Miscellaneous works: Completion of the remaining works including hand rails, walls, all protection works, pitching, turfing, river training works, if any, tests, etc., complete in all respects and fit for use.	[***%] [***%] [***%] [***%]	(d) For item no 1.3.4 if a bridge is constructed using pre-cast concrete element/composite girders/plate girders/open web girders etc :60 % payment shall be released upon finishing casting of concrete pre-cast elements/Assembled plate girders/Assembled open web girders etc& transportation to site (e) For item no 1.3.1/a and 1.3.1/b if a bridge is constructed with pile/well foundation : 70% payment shall be released upon finishing the piling/well sinking activity. [For the purpose of calculation of quantity item No. 1.3.1/a and 1.3.1/b, the cost of each foundation shall be determined by dividing total cost of the foundation of all the bridges by number of piers and abutments/return wall of all bridges, for item No. 1.3.2/a and 1.3.2/b cost of each sub-structure shall be determined by dividing total cost of the sub-structure of all the bridges by number of piers and abutments of all the bridges , for item no 1.3.3 cost of each set of wing and return wall shall be determined by dividing total cost of the wing and return wall of all the bridge by number of abutments of all the bridges, for item no 1.3.4 and 1.3.5 cost of each span shall be determined by dividing

				total cost of the super structure of all the bridge by number of spans of all the bridges, for item no 1.3.6 cost of misc works shall be determined by dividing total misc. cost of the bridge of all the bridge by number of all the bridges - **These instructions are to be deleted after customisation**].
		Total	**100%**	
1.4 Major Bridges		1.4.1 Foundation: Completion of the foundation work including pile caps/ well caps and foundations for wing and return walls, and testing. 1.4.1/a Foundation of pier/abutments 1.4.1/b Foundation of return/wing wall 1.4.2 Sub-structure: Completion of abutment/piers including bed blocks (without bearings). 1.4.2/1 Pier/Abutment 1.4.2/b Pier/Abutment cap 1.4.3 Completion of the wing walls, return walls in all respects 1.4.4 Super-structure: Completion of the super structure except deck slab and bearings	**[***%]** **[***%]** **[***%]** **[***%]**	a. Cost of each bridge shall be determined on pro-rata basis with respect to the total linear length of the Major Bridges. b. In case any component of bridge is not complete in full, then Cost of each component of individual bridge shall be determined on pro-rata basis with respect to the total linear length of that bridge. c. Payment shall be made on completion of each component/stage of a Major Bridge as per the weightage given in this schedule. d. For item no 1.4.4 if a bridge is constructed using pre-cast concrete element/composite girders/plate girders/open web girders etc : 70% payment shall be released upon finishing casting of concrete pre-cast elements/Assembled plate girders/Assembled open web girders etc & transportation to site.

		1.4.5 Completion of the deck slab, bearings/ expansion joints and making bridge ready for track linking including Bearings. 1.4.6 Miscellaneous works: Completion of the remaining works including hand rails, walls, all protection works, pitching, turfing, river training works, if any, tests, etc., complete in all respects and fit for use.	**[***%]** **[***%]** **[***%]** **[***%]**	i. The supply of structural steel for fabrication of girders may be paid at the rate of 75% of cost of material on its delivery at a RDSO's approved workshop on submission of BG/insurance surety bond of equivalent amount. ii. If contractor sets up workshop at site, then BG/insurance surety bond shall not be insisted upon. The amount paid against the supply of structural steel shall in any case not exceed 75% of payment admissible under the stage. e. For item no 1.4.1/a and 1.4.1/b if a bridge is constructed with pile/well foundation : 70% payment shall be released upon finishing the piling/well sinking activity. [For the purpose of calculation of quantity item No. 1.4.1/a and 1.4.1/b, the cost of each foundation shall be determined by dividing total cost of the foundation of all the bridges by number of piers and abutments/return wall of all bridges, for item No. 1.4.2/a and 1.4.2/b cost of each sub-structure shall be determined by dividing total cost of the sub-structure of all the bridges by number of piers and abutments of all the bridges , for item no 1.4.3 cost

				of each set of wing and return wall shall be determined by dividing total cost of the wing and return wall of all the bridge by number of abutments of all the bridges, for item no 1.4.4 and 1.4.5 cost of each span shall be determined by dividing total cost of the super structure of all the bridge by number of spans of all the bridges, for item no 1.4.6 cost of misc works shall be determined by dividing total misc. cost of the bridge of all the bridge by number of all the bridges - **These instructions are to be deleted after customisation**].
		Total	**100%**	
1.5. Minor Bridges	***%	1.5.1 On completion of the RCC boxes, Abutments, pier & slab for slab bridges including Wing wall and Return wall. 1.5.2 On completion of the Wing wall and Return wall 1.5.3 On completion of Balance works of apron, curtain wall, drop wall and other protection works in all respects	[***%] [***%] [***%]	(a) Cost of each bridge shall be determined on pro-rate basis with respect to the total clear span of the Minor Bridges. (b) Payment shall be made on completion of each component/stage of an Minor Bridge as per the weightage given in this schedule. [For the purpose of calculation of quantity of item No. 1.5.1, the cost of each RCC boxes, Abutments, pier & slab for slab bridges shall be determined by dividing total cost of the RCC boxes, Abutments, pier & slab

				for slab bridges of the bridge by number of Minor bridges, for item No. 1.5.2, the cost of each Return /wing wall shall be determined by dividing total cost of the Return/wing wall of all bridges by number of Minor bridges and for item No. 1.5.3, payment shall be made on completion of the all stages of Bridge on prorate basis- **These instructions are to be deleted after customisation**].
1.6 Pipe Culverts	***%	**1.5 Pipe culvert**	100%	Cost of each pipe culvert shall be determined on pro rata basis with respect to the total barrel length (in linear metre) of the culverts. Payment shall be made on completion of a formation above culvert in a continuous length of minimum 100 m.
1.7. ROB	***%	1.7.1 Foundation: Completion of the foundation work including pile caps/ well caps and foundations for wing and return walls (in any), and testing. 1.7.1/a Foundation of pier/abutment 1.7.1/b Foundation of return/wing wall	 [***%] [***%]	(a) Cost of each ROB shall be determined on pro rate basis with respect to the total linear length of the ROB. (b) In case any component of bridge is not complete full, then Cost of each component of foundation/substructure of ROB shall be determined on pro rate basis with respect to the total linear length of the individual ROB.

		1.7.2 Sub-structure: Completion of abutment/piers including bed blocks (without bearings). 1.7.2/a Pier/abutment shaft 1.7.2/b Pier/Abutment cap 1.7.2/c Return/wing wall 1.7.3 Super-structure: Completion of the super structure 1.7.3/a Construction of Super structure except deck slab, expansion joint , bearings 1.7.3/b Construction of deck slab, expansion joint, bearings and making superstructure fit for laying road carpeting **1.3.3** 1.7.4 Miscellaneous works: Completion of the remaining works including bearings, hand rails, walls, all protection works, pitching, turfing, load tests, etc., complete in	[***%] [***%] [***%] [***%] [***%]	(c) Payment shall be made on completion of each stage of a ROB as per the weightage given in this schedule. (d) For item no 1.7.1/a and 1.7.1/b if a bridge is constructed with pile foundation : 70% payment shall be released upon finishing the piling activity. [For the purpose of calculation of quantity item No. 1.7.1/a and 1.7.1/b, the cost of each foundation shall be determined by dividing total cost of the foundation of all the bridges by number of piers and abutments/return wall of all bridges, for item No. 1.7.2/a , 17.7.2/b and 1.7.2/c cost of each sub- structure shall be determined by dividing total cost of the sub-structure of all the bridges by number of piers and abutments/return wall of all the bridges , for item no 1.7.3/a and 1.7. 3/b cost of each span shall be determined by dividing total cost of the super structure of all the bridge by number of spans of all the bridges, for item no 1.7.4 cost of misc works shall be determined by dividing total misc. cost of the bridge of all the bridge by number of all the bridges, for item no 1.7.5 cost of approaches works shall be determined by dividing total approaches works cost of the bridge of all the bridge by number of all the bridges - **These instructions are to be deleted after customisation**].

		all respects 1.7.5 Completion of approaches in all respect and fit for offering the asset for CRS inspection..	 [***%]	
		Total	100%	
1.8 RUB/LHS	***%	1.8.1 On completion of the RCC boxes barrel/Abutments, pier & slab for slab bridges. 1.8.2 On completion of works of Wing wall/return wall and making bridge Fit for track linking 1.8.3 On completion of Retaining wall of Approach Roads and Road works in all respect 1.8.4 On completion height gauge, Roofing of approaches, drainage arrangement and all other ancillary works in all respects	[***%] [***%] [***%] [***%]	(a) Cost of each RUB/LHS shall be determined on pro rate basis with respect to the total clear span of the RUB/LHS. (b) Payment shall be made on completion of each component/stage of an RUB/LHS as per the weightage given in this schedule [For the purpose of calculation of quantity of item No. 1.8.1, the cost of each RCC boxes, Abutments, pier &slab for slab bridges shall be determined by dividing total cost of the RCC boxes, Abutments, pier & slab for slab bridges of all RUB/LHS by number of ROB/LHS, for item No. 1.8.2, the cost of each Return /wing wall shall be determined by dividing total cost of the Return/wing wall of all RUB/LHSs by number of RUB/LHS and for item No. 1.8.3, the cost of each Retaining wall of Approach Roads shall be determined by dividing total cost of Retaining wall of Approach Roads for all RUB/LHS by number of ROB/LHS and for item No. 1.8.4, the cost of each height gauge, Roofing of approaches, drainage arrangement and all other ancillary works shall be determined by dividing

				total cost of height gauge, Roofing of approaches, drainage arrangement and all other ancillary works for all RUB/LHS by number of ROB/LHS **These instructions are to be deleted after customisation**].
		Total	100%	
1.9. Flyovers	***%	1.9.1 Foundation: Completion of the foundation work (open foundations/pile foundations including pile caps) and testing. 1.9.1/a Foundation work of abutment/piers 1.9.1/b Foundation work of return walls 1.9.2 Sub-structure: Completion of substructure, abutment/piers including bed blocks (without bearings) 1.9.2/a Pier/abutment shaft 1.9.2/b Pier/abutment caps 1.9.2/c return walls 1.9.3 Super-structure: Completion of	 [***%] [***%] [***%] [***%] [***%]	a. Cost of each flyover shall be determined on pro rate basis with respect to the total linear length of the flyovers. b. In case any component of Flyover is not complete full, then cost of each component of foundation/substructure of flyover shall be determined on pro rate basis with respect to the total linear length of the individual flyover. c. Payment shall be made on completion of each stage of a flyover as per the weightage given in this schedule. d. For item no 1.9.1/a and 1.9.1/b if a bridge is constructed with pile foundation : 70% payment shall be released upon finishing the piling activity e. For item no 1.9.3 if a bridge is constructed using pre-cast concrete element/composite girders/plate girders/open web girders etc : 70% payment shall be released upon finishing casting of concrete pre-

		the super structure ready for track linking including bearings. 1.9.3/a Casting /launching of super str without deck slab and bearing 1.9.3/b Casting of deck slab, expansion joints and fixing bearings and making bridge fit for track linking 1.9.4 Miscellaneous works: Completion of the remaining works, hand rails, walls, all protection works road works etc., complete in all respects and fit for use	 [***%] [***%] [***%]	cast elements/Assembled plate girders/Assembled open web girders etc & transportation to site [For the purpose of calculation of quantity of item No. 1.9.1/a and 1.9.1/b, the cost of each foundation shall be determined by dividing total cost of the foundation of all the Flyovers by number of piers and abutments of all the Flyovers, for item No. 1.9.2/a and 1.9.2/b cost of each sub- structure shall be determined by dividing total cost of the sub-structure of all Flyovers by number of piers and abutments/return wall of all the Flyovers, for item no 1.9.3/a and 19.9.3/b cost of each span shall be determined by dividing total cost of the super structure of all Flyovers by number of spans of all the Flyovers, for item No. 1.9.4 the cost of each remaining works, hand rails, walls, all protection works road works shall be determined by dividing total cost of remaining works, hand rails, walls, all protection works road works for all Flyover by number of all Flyovers - **These instructions are to be deleted after customisation**].
		Total	**100%**	

1.10 Track works	[***%]	1.10.1 Supply of ballast and staking 1.10.2 Bed Ballast laying, compacting initial layer of 200 mm to facilitate mechanized track laying.	[***%] [***%]	(a) Unit of measurement is cum for item No. 1.10.1 cum. [80%] payment may be will be released after taking indemnity bond. The unit of measurement of cum ballast is only

		1.10.3 Mechanized track laying in block section between station limits on PSC sleepers complete in all respects including laying [60 Kg] PSC sleepers at sleeper density of [1600/km], laying of rails, supplying and fixing switch expansion joints, glued joints, guard rails, check rails, along with welding of rails, supply and fixing all rail sleeper fittings etc. complete linkage of track as per track diagram. 1.10.3/a Skelton linking without supplying and fixing switch expansion joints, glued joints, guard rails, check rails, along with welding of rails, supply and fixing all rail sleeper fittings etc. complete linkage of track 1.10.3/b Supplying and fixing switch expansion joints, glued joints, guard rails, check rails, along with welding of rails, supply and fixing all rail sleeper fittings etc. complete linkage of track 1.10.4 Mechanized Track laying in yards (within station limits) on PSC sleepers complete in all respects including supply of new [60 kg] PSC sleepers, laying of sleepers at sleeper density of [1600/km on main line and 1540/Km on loop line], providing and laying points and crossings, switch expansion joints, glued joints, derailing switch in all lines in yards etc. complete to ensure continuous and complete linkage of track in the yard as per yard plan. 1.10.4/a Skelton linking without providing and laying points and crossings, switch expansion joints, glued joints,	[***%] [***%] [***%]	for releasing interim payment. After completion of track work qty of ballast will be reconciled on basis of minimum ballast cushion of [350] mm on main line and [250] mm on loop line. (b) Unit of measurement is linear length. For items from 1.10.2to 1.10.4.Payment of each stage shall be made on pro rata basis on completion of a stage in a continuous length of minimum 100 m. (c) For item no 1.10.3Payment shall be made on completion of a track work in block section on pro rata basis with reference to the total length of main lines. (d) For item no 1.10.4Payment shall be made on completion of a yard on pro rata basis with reference to the total length of all loop lines in all the yards. (e) On supply of complete T/O sleepers sets payments of [***%] of item No. 1.10.4/a and 1.10.4/b will be released on prorate basis after taking

		derailing switch in all lines in yards etc. complete to ensure continuous and complete linkage of track in the yard as per yard plan. 1.10.4/b providing and laying points and crossings, switch expansion joints, glued joints, derailing switch in all lines in yards etc. complete to ensure continuous and complete linkage of track in the yard as per yard plan. 1.10.5 Ballast laying to facilitate lifting of track, making of full ballast cushion and profile, distressing of long welded rails, machine tamping of track.	[***%] [***%] [***%]	indemnity bond. (f) On supply of T/O switches , Xings and fittings, payments of [***%] of item No. 1.10.4/a and 1.10.4/b will be released on prorate basis after taking indemnity bond. Note: In case option of item No. 1.10.1 is not operated, then this item will be added in item No. 1.10.2and 1.10.5
		Total	**100%**	
1.11. Tunnels	[***%]	1.11.1 On completion of tunnel portals including protection of earth slopes above and around portals. 1.11.2 On completion of tunnelling including all activities of drilling, blasting or use of TBM etc. complete with final lining. 1.11.3 On completion of tunnel safety works and tunnel ventilation works. 1.11.4 On completion of track works inside the tunnel.	[***%] [***%] [***%] [***%]	(a) Cost of each tunnel shall be determined on pro rate basis with respect to the total linear length of all tunnels. (b) Payment shall be made on completion of each stage of a tunnel as per the weightage given in this schedule.
		Total	**100%**	

1.12 Other Engineering works	[***%]	1.12.1(a) Construction of platforms including platform fencing/Wall but excluding items mentioned in item no 1.12.1(b) and (c) as per yard diagram.	[***%]	For 1.12.1(a), (b), (c) unit of measurement is square metres, Payment shall be made on pro rata basis on completion of each platform.
		1.12.1(b) Surfacing of platform with [kota stone/ CC] including passenger amenities.	[***%]	1.12.2 Unit of measurement is number. Payment of each level crossing shall be made on completion on prorate basis with respect to total number of level crossings
		1.12.1(c) Provision of platforms including shelters	[***%]	
		1.12.2 Railway level crossings and gate lodges including water supply, sewer line, approach road, fencing and electrification.	[***%]	1.12.3 Unit of measurement is linear length including landings and stairs. Payment shall be made on completion of a foot over bridge on pro rata basis with respect to total length of all foot over bridges.
		1.12.3 Foot over bridges on railway stations and pedestrian foot over bridges at other locations	[***%]	
		1.12.4 Construction of railway station buildings and service buildings complete in all respects including fixing doors, windows, sanitary, water supply works, electrification, lifts, escalators and all other specified and incidental works	[***%]	1.12.4 Unit of measurement is plinth area in square metres. For the buildings having more than one storey, the total area shall be found out by adding the area of each storey. Unit cost shall be determined on pro rata basis with respect to the total area of all stations and service buildings.
		1.12.5 Construction of staff quarters complete in all respects including fixing doors, windows, sanitary, water supply works, electrification, lifts, escalators and all other specified and incidental works	[***%]	• 50% Payment shall be paid after completion of structural works i.e. beam, columns & slab in case of framed structure or walls & slabs in case of other buildings and

		1.12.6 On completion of circulation area, parking area, boundary wall, internal roads, drainage, water supply works including bore well, pump house, power supply, lighting, landscaping and all other incidental works in railway station/colony area. 1.12.7 Boundary walls, boundary pillars, fencing, roads, footpaths in block sections 1.12.7.1 Boundary walls 1.12.7.2 Boundary pillars 1.12.7.3 Fencing 1.12.7.4 Roads 1.12.7.5 Footpaths 1.12.8 Signage, information boards and posts 1.12.9 Drainage along the railway line	[***%] [**%] [**%] [**%] [**%] [**%] [***%] [***%]	• 30% Payment shall be paid after completion of finishing and • 20% Final completion of works in all respects ready for use. 1.12.5 Unit of measurement is plinth area in square metres. For the staff quarters having more than one storey, the total area shall be found out by adding the area of each storey. Unit cost shall be determined on pro rata basis with respect to the total area of all staff quarters. 50% Payment shall be paid after completion of structural works i.e. beam, columns & slab in case of framed structure or walls & slabs in case of other buildings and 50% Final completion of works in all respects ready for use. 1.12.6 Payment shall be made on pro rata basis on completion of these works for the area and buildings covered as completed works for stage payment under Items 1.12.4 and 1.12.5.

		1.12.10 Compulsory afforestation and tree plantation	[***%]	1.12.7 Unit of measurement is linear length. Payment shall be made on pro rata basis with respect to the total length on completion of work in a block section. 1.12.8 Unit of measurement is linear length. Payment shall be made on pro rata basis with respect to the total length on completion of installation of all signage, boards and posts in a block section. 1.12.9 Unit of measurement is linear length. Payment shall be made on pro rata basis with respect to the total length on completion of work in a block section. 1.12.10 Payment shall be made for surviving plants, at least two years old, on pro rata basis with respect to the specified number of plants.
		Total	**100**%	
1.13	[***%]	**1.13** Transportation/shifting of Rails	**100%**	The payment shall be made on basis of actual work done as per [SOR] rates. The details of rates are mentioned in annexure-I of schedule-B
1.14 Inventory for civil & track works	[***%]	**1.14** Supply of material as per the inventory	**100%**	On completion of supply of full inventory at least three months before the issue of the Provisional Certificate.

1.15 Integrated testing and commissioning.	[***%]	**1.15 S**uccessful completion of Integrated testing and commissioning.	100%	On issue of Completion Certificate. In case the Completion Certificate is for part of the Railway Project, the payment shall be made for the route km covered by the Completion Certificate pro rata to the total route km for the Project.
Total	**100%**			

Note – The Above list is illustrative and may require modification as per the scope of the work

2.0 Signalling and telecommunication works:

Item	**Weightage in percentage to the Contract Price**	**Stage for Payment**	**Percentage weightage**	**Payment Procedure**
2.1Signalling works	[***%]	2.1.1 Survey &Design of signalling works at wayside station **2.1.2 Signalling works at wayside stations** Supply, installation, testing, manuals for Signalling & telecommunication equipment installed for each place, supply of completion drawings, and	[***%] [***%]	2.1.1 Payment shall be made on completion of Survey and Design of signalling works at wayside stations and approval of all drawings, designs and schemes. Unit of measurement shall be no. of way side stations. Payment shall be made on the pro rata basis for work completion with respect to total no. of way side stations. 2.1.2 Unit of measurement shall be no. of stations. Payment shall be made on completion of signalling work at a wayside station on pro rata basis with respect to the

		commissioning of wayside stations except EI/ Underground Signalling Cable, Power Cable, 6Quad Cable/Axle Counters/Various types of Relays/IPS.		total number of wayside stations.
		2.1.3 Survey &Design works at major or Junction station	[***%]	2.1.3 Payment shall be made on completion of Survey and Design works at major or junction stations and approval of all drawings, designs and schemes. Unit of measurement shall be no. of stations. Payment shall be made on the pro rata basis for work completion with respect to total no. of stations.
		2.1.4 Major or Junction stations Supply, installation, testing, , manuals for Signalling & Telecommunication equipment installed for each place, supply of completion drawings, and commissioning of major/junction stations except EI/Underground Signalling Cable, Power Cable, Six Quad Cable/ Axle Counters /Various types of Relays/IPS.	[***%]	2.1.4 Unit of measurement shall be major/junction station. Payment shall be made on completion of signalling work at a major or junction station on pro rata basis with respect to the total number of major or junction stations.
		2.1.5 Survey & Design works for block signalling	[***%]	2.1.5 Payment shall be made on completion of Survey and Design works for Block signalling and approval of all drawings, designs and schemes. Unit of measurement shall be no. of block sections. Payment shall be made on the pro rata basis for work completion with respect to total no. of block sections.
		2.1.6 Block Signalling (BPAC/ Token/Token less) Supply, installation, testing,	[***%]	

		manuals for Signalling & Telecommunication equipment installed for each place, supply of completion drawings, and commissioning of block signalling Underground Signalling Cable, Power Cable, Six Quad Cable/ Axle Counters /Various types of Relays/IPS.		2.1.6 Unit of measurement shall be block station. Payment shall be made on completion of each block signalling work on pro rata basis with respect to the total number of block signalling work (BPAC/Token/Token less/Automatic)
		2.1.7 Survey & Design works for Automatic Train protection system	[***%]	2.1.7 Payment shall be made on completion of Survey and Design works for Automatic Train protection system after approval and submission of all drawings, schemes etc. on pro rata basis after work completion in at least one block section with respect to required work in total km of route length.
		2.1.8 Automatic Train protection system Supply, installation, testing, manuals for Signalling & Telecommunication equipment installed for each place, supply of completion drawings, and commissioning of Automatic Train protection system except Axle Counter	[***%]	2.1.8 Payment shall be made on completion of work on pro rata basis for each block section for track side equipments. For cab equipment, payment shall be made for [10%] locos on a pro rata basis.
		2.1.9 Survey & Design works at Sections	[***%]	2.1.9 Payment shall be made on completion of Survey and Design works at sections

		2.1.10 Sections Supply, installation, manuals for new technology equipment installed for each place, supply of completion drawings, and commissioning of sections.	[***%]	2.1.10 Payment shall be made on completion of signalling work for a section on pro rata basis with respect to the total number of sections.
		2.1.11 EI system including various type of indoor Relays Supply and Installation.	[***%]	2.1.11 [70%] payment shall be made on completion of supply of EI system, [10%] payment shall be made on completion of supply of Various indoor Relays and [20%] payment shall be made on completion of installation and commissioning of work on pro rata with respect to total no. of EI. Supply may be planned as per Para 10.1.5 of EPC document.
		2.1.12 Signalling Underground Signalling Cable, Power Cable, 6 Quad Cable Supply and Installation	[***%]	2.1.12 [80%] payment shall be made on completion of supply and [20%] payment shall be made on completion of installation of work on pro rata with respect to total no. of stations.
		2.1.13 Axle Counters Supply and Installation	[***%]	2.1.13 [80%] payment shall be made on completion of supply and [20%] payment shall be made on completion of installation and commissioning of work on pro rata with respect to total no. of stations.
		2.1.14IPS Supply and Installation	[***%]	2.1.4 [80%] payment shall be made on completion of supply and [20%] payment shall be made on completion

		2.1.15Commissioning of EI/Underground Signalling Cable, Power Cable, 6 Quad Cable/Axle Counters/Various types of Relays/IPS.	[***%]	of installation and commissioning of work on pro rata with respect to total no. of stations/locations. Note: 1. [80%] payment against 2.1.11, 2.1.12, 2.1.13 and 2.1.14 shall not be more than 80% of percentage weightage against each item respectively. 2.1.15 payments shall be made on completion of Commissioning on pro rata with respect to total no. of stations. For item No. 2.1.11, 2.1.12, 2.1.13, and 2.1.14 payment against supplies under these items shall be made for quantities as per the approved layout, on receipt of material at contractor depot and production of inspection certificates and other documents and against BG of equivalent amount. Note: payment made for supplies under these items shall not be counted for completion of Project milestone under schedule-I.
		Total	100%	
2.2 Inventory : Supply of signalling spares	[***%]	2.1.1 Inventory for wayside stations 2.1.2 Inventory for Major or Junction stations	[***%] [***%]	Payment for inventory (supply of signalling spares) for each stage shall be made on completion of works (item 2.1) and supply of entire quantity of spares. There will not be any payment for part supply of inventory.

		2.1.3 Inventory for block signalling (BPAC /Token / Token less) 2.1.4 Inventory for Automatic Train protection system 2.1.5 Inventory for Sections	[***%] [***%] [***%]	
		Total	100	
2.3 Integrated testing and commissioning of signalling works	[***%]	Integrated testing and commissioning of the signalling works of railway project along with supply of all as made drawing of signalling works.	100%	On the issuance of Completion Certificate. In case the Completion Certificate is for part of the Railway Project, the payment shall be made for the route km covered by the Completion Certificate on pro rata basis with reference to the total route km for the Project.
2.4 Telecommunication works	[***%]	2.4.1 Optical fibre cable system including its survey, design, testing, manuals for new technology Telecommunication equipment installed for each place, supply of completion drawings, and commissioning. 2.4.2 6Quad telecom cable system including survey, design, testing, manuals for new technology equipment installed for each place, supply of completion drawings, and commissioning of 6 Quad telecom cable system.	[***%] [***%]	2.4.1 Unit of measurement is distance in track km between two stations. Payment shall be made on completion of work between two stations on pro rata basis with respect to the total track km length. 2.4.2 As in the case of 2.4.1 above

		2.4.3 Mobile train radio communication system including survey, design, supply, installation, testing, manuals for each place, supply of completion drawings, and commissioning of mobile train radio communication system.	[***%]	2.4.3 Payment shall be made on completion of the entire work
		2.4.4 Other locations including their survey, design, supply, installation, testing, supply of manuals for new technology equipment installed for each place, supply of completion drawings, and commissioning of telecommunication equipment at specified locations.	[***%]	2.4.4 Work on five Locations on pro rata basis with respect to total numbers of locations.
		2.4.5 Other communication Equipment including the survey, design, supply, installation, testing, supply of manuals for new technology equipment installed supply of completion drawings, and commissioning of the other telecommunication equipment	[***%]	2.4.5 Payment shall be made on completion of the entire work.

		2.4.6 Supply and Installation of OFC 2.4.7 Supply and Installation of 6 (six)Quad telecom cable	[***%] [***%]	2.4.6 [80%] payment shall be made on completion of supply and [20%] payment shall be made on completion of installation work between two stations on pro rata basis with respect to total track kilometre (TKM) length. 2.4.7 [80%] payment shall be made on completion of supply and [20%] payment shall be made on completion of installation work between two stations on pro rata basis with respect to total track kilometre (TKM) length. For item No. 2.4.6 and 2.4.7 payment for supplies, to the extent of maximum [10%] of the total quantity involved in scope of work may be done. Payment against supplies under these items shall be made for quantities as per the approved layout, on receipt of material at contractor depot and production of inspection certificates and other documents and against BG of equivalent amount. Note: payment made for supplies under these items shall not be counted for completion of Project milestone under schedule-I.
		Total	100%	
2.5 Inventory : Supply of communication spares	[***%]	2.5.1 Inventory for optical fiber cable system 2.5.2 Inventory for six quad telecom cable system 2.5.3 Inventory for Mobile train radio communication system	[***%] [***%] [***%]	Payment for inventory (supply of communication spares) for each stage shall be made on completion of works (item 2.4) and supply of entire quantity of spares. There will not be any payment for part supply of inventory.

		2.5.4 Inventory for Other locations 2.5.5 Inventory for other communication equipment	[***%] [***%]	
		Total	100%	
2.6 Integrated testing and commissioning of communication works	[***%]	Integrated testing and commissioning of the communication works of railway project along with supply of all as made drawing of communication works.	100%	On the issuance of Completion Certificate. In case the Completion Certificate is for part of the Railway Project, the payment shall be made for the route km covered by the Completion Certificate pro rata to the total route km for the Project.
2.7 Passenger Amenities	[***%]	Supply, installation, testing and commissioning of various passenger amenities	100%	90% payment shall be made on completion of supply & installation & 10% payment shall be made on completion on testing & commissioning

Note : The above list is illustrative and may require modification as per the scope of the work.

[Railway Electrification Works]

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage	Payment Procedure
1	3	4	5	6
1. Overhead Equipment Work	[***%]	1.1 Completion of Design & drawing and Foundation work for block sections including stations and yards 1.2 Supply of steel (Mast and Portals components only) 1.3 Completion of Steel erection (Mast & Portal) & grouting with painting of location Numbers 1.4 Completion of erection of Bracket, Guy Rod, anticreep (Complete pre wiring	[***%] [***%] [***%] [***%]	Payment for each stage shall be made after completion of a previous stage for a Section and its yards, measured in track kilo metre(TKM) pro rata with reference to the total TKM. Note- In case completion of work in any yard is delayed on account of Authority, work of yard may be delinked from the rest of the section with approval of CPD for the purpose of payment For item 1.2 and 1.5 of stage payment, payment for supplies for additional sections, to the extent of maximum 10% of the total TKM, in addition to the payment admissible under item 1.0 above may be done. Payment against supplies under this item shall be made for quantities as per the approved layout, on receipt of material at contractor depot and production of inspection certificates and other documents and against BG of equivalent amount. Note: payment made for additional supplies under

		activity), Height gauge & protection screen		item 2.0 above shall not be counted for completion of Project milestone under schedule-I.
		1.5 Supply of Contact & Catenary wire only	[***%]	For item No. 1.6 Stage payment will be released on completion of work under item no. 12 (modification of HT power lines and crossing replacement of UG cabling) and item 13 modification of LT power lines and crossings (replacement of UG cabling) and Item no 2.1, 4.1, 10, 14.1,
		1.6 Completion of wiring along with erection of balance weight, dropping & clipping including antitheft charging	[***%]	
		1.7 Commissioning	[***%]	For item No. 1.7 Stage payment will be released on completion of work under Item no [2.2, 4.2],
		Total	**100%**	
2.Switching Posts	[***%]	2.1 Completion of all works	[***%]	Payment shall be made for each stage after completion of all the switching posts work for a Section and its yards, measured in number of switching posts on pro rata basis with reference to the total switching posts for the Railway Project.
		2.2 Commissioning and charging at 25 KV.	[***%]	
		Total	**100%**	

3.Booster Transformer and Return Conductor	[***%]	3.1 Completion of all works including testing. 3.2 Commissioning	[***%] [***%]	Payment shall be made for each stage after completion of each booster transformer and related work on pro rata basis with reference to the total of the booster transformers for the Railway Project.
		Total	**100%**	
4. Auxiliary Transformer Stations	[***%]	4.1 Completion of all works including testing. 4.2 Commissioning	[***%] [***%]	Payment shall be made for each stage after completion of each auxiliary transformer station and related work on pro rata basis with reference to the total of the auxiliary transformer stations for the Railway Project.
		Total	**100%**	
5. Traction Sub-Station (TSS)		5.1Completion of all civil works for the TSS (works like earth filling, retaining wall, approach road, control building, fencing 5.2 Completion of all supply and erection works of TSS except supply and erection of Transformers 5.3 Supply and erection of transformers.	[***%] [***%] [***%]	Payment for each stage shall be made after completion of all the TSS work measured in number of TSS on pro rata basis with reference to the total TSS for the Railway Project

		5.4 Completion and Commissioning of TSS and charging at 25 KV.	[***%]	
		Total	**100%**	
6. High voltage Transmission Line Overhead from grid sub-station to TSS	[***%]	6.1Completion of erection of all towers/poles associated with a TSS 6.2 Stringing of conductors 6.3 Commissioning	[***%] [***%] [***%]	6.1 Payment shall be made for each stage after completion of each transmission line overhead and related work. The unit of measurement is linear metre on pro rata basis with reference to the total length of all the transmission line overhead for the Railway Project.
		Total	**100%**	
7. Underground High Tension Cable Transmission Line	[***%]	7.1Completion of cable trench and laying of cable 7.2 Commissioning	[***%] [***%]	7.1 Payment shall be made for each stage after completion of each underground high tension cable transmission line. The unit of measurement is linear metre on pro rata basis with reference to the total length of all the underground high tension cable transmission line for the Railway Project.
		Total	**100%**	
8. Bay Augmentation work at Grid Sub-Station/Terminal Arrangement at TSS	[***%]	8.1 Completion of erection including testing 8.2 Commissioning	[***%] [***%]	8.1 Payment shall be made for each stage after completion of each bay augmentation work at grid sub-station/terminal arrangement at TSS. The unit of measurement is unit on pro rata basis with reference to the total of all the bay augmentation work at grid sub-station/terminal arrangement at TSS for the Railway Project.
		Total	**100%**	

9. SCADA	[***%]	9.1 Supply and erection of SCDA at remote control centre at division 9.2 Supply and erection of remote terminal units at switching post/ TSS. 9.3 Commissioning of SCADA per switching post/TSS 9.4 Final commissioning of SCADA system for the division	[***%] [***%] [***%] [***%]	Payment shall be made after completion of the work of each stage.
		Total	**100%**	
10.Various electrical general services works	[***%]	10.1 Completion and commissioning of various electrical general services.	[***%]	Payment shall be made after the completion and commissioning of works under this item of work.
11. Modification of HT power lines and crossings (raising of height)	[***%]	11.1Completion of work including testing 11.2Commissioning	[***%] [***%]	Payment shall be made after completion of all work of a HT power line crossing, on pro-rata basis with reference to the total number of HT power line crossings.
		Total	**100%**	
12. Modification of HT power lines and crossings (replacement by UG cabling)		12.1Completion of work including testing 12.2Commissioning	[***%] [***%]	Payment shall be made after completion of all work of a replacement of HT power line crossing by UG cabling, on pro-rata basis with reference to the total number of replacements of HT power line crossing by UG cabling.

		Total	**100%**	
13. Modification of LT power lines and crossings (replacement by UG cabling	[***%]	13.1Completion of work including testing 13.2Commissioning	[***%] [***%]	Payment shall be made after completion of all work of a replacement of LT power line crossing by UG cabling, on pro-rata basis with reference to the total number of replacements of LT power line crossing by UG cabling.
		Total	**100%**	
14 Extension of LT power supply for CLS Work	100%	14.1Completion of work including testing 14.2Commissioning	[***%] [***%]	Payment shall be made after completion of all work at 5 locations, on pro-rata basis with reference to the total number of locations.
		Total	**100%**	
15Extension/Augmentation of general power supply	[***%]	15 Completion including commissioning	[***%]	Payment shall be made after completion of the work.
16Modifications of existing electrical works	[***%]	16.1 Modification of electrical works including all associated works and testing at existing 16.1.1 Switching posts 16.1.2 OHE works 16.1.3 TSS	 [***%] [***%] [***%]	Payment shall be made for completion of work at every 5 (five) locations on pro-rata basis with reference to the total number of locations. It will be made separately for SP, OHW, and TSS.
		Total	**100%**	
17 Inventory electrical	[***%]	17.1 Supply of tools, equipment, Materials for supply to stores	100%	17.1 Payment shall be made on completion of the supply of the entire inventory items.
18. Signalling System	[***%]	18.1 Modification of		For item No. 18.1. 1 and 18.1.2 payment for each

Modification		existing signalling system (except supply and Installation of Signalling Cables) including survey, design, supply, installation, testing, supply of manuals for each place, supply of as made drawings (wiring diagram of location, relay room, circuit, SIP, selection table, cable route plan etc), testing and measuring tools and equipment and commissioning at 18.1.1 PI/RRI/EI systems 18.1.2 LC gate 18.2 New Panel Interlocking/ Route Relay Interlocking(except supply and Installation of Signalling Cables)	[***%] [***%]	stage shall be made on completion of work at a location on pro rata basis with respect to the total number of locations 95% of respective stage payment may be made on supply of concerned Drawings and approval thereafter by Railway and commissioning of associated works. Balance 5% to be linked with supply of as made drawing. For item No. 18.2.1. Payment for each stage shall be made on completion of work at [5 (five)] wayside stations on pro rata basis with respect to the total number of wayside stations For item No. 18.2.2. Payment for each stage shall be made on completion of work at [2 (two)] Major/Junction stations on pro rata basis with respect to the total number of Major/Junction stations

		including survey, design, supply, installation, testing, supply of manuals for each place, supply of as made drawings (wiring diagram of location, relay room, circuit, cable route plan etc), testing and measuring tools and equipment and commissioning at 18.2.1 Way side stations 18.2.2 Major/Junction stations 18.3 Diversion of utilities 18.4 Supply and Installation of Signalling Cables	[***%] [***%] [***%] [***%]	For item no 18.2.1 and 18.2.2 95% of respective stage payment may be made on supply of concerned Drawings and approval thereafter by Railway and commissioning of associated works. Balance 5% to be linked with supply of as made drawing For Item No. 18.3 Payment shall be made on completion of the entire work 18.4 [80%] payment shall be made on completion of supply and [20%] payment shall be made on completion of installation work between two stations on pro rata basis with respect to total track kilometre (TKM) length. For item No. 18.4 payment for supplies, to the extent of maximum [10%] of the total quantity involved in scope of work may be done. Payment against supplies under these items shall be made for quantities as per the approved layout, on receipt of material at contractor depot and production of inspection certificates and other documents and against BG of equivalent amount. Note: payment made for supplies under these items shall not be counted for completion of Project milestone under schedule-I.
		Total	**100%**	
19. Signalling Inventory	[***%]	19.1 Completion of the entire supply of inventory at nominated locations	100%	19.1 Payment shall be made after completion of the signalling work item 18 above. There will not be any payment for part supply of inventory.

20. Integrated testing and commissioning of Signalling works	[***%]	20. Integrated testing and commission of Signalling works and supply of as made drawings	100%	Payment shall be made after issue of Provisional Acceptance Certificate. In case the Provisional Acceptance Certificate is for part of the railway Project, the Payment shall be made for the route Km covered by the Provisional Acceptance certificate on pro rata basis with respect to the total route Km of the Project.
21. Telecommunications modifications	[***%]	**21.1 Cable works** 21.1.1 Sections with existing optical fibre cable and quad cable. Completion of the work specified in Schedule B, Annex I. 21.1.2 Sections without optical fibre cable and quad cable**.** Completion of the work specified in Schedule B, Annex I. **21.2** Quad cable work including survey, design, supply, installation, testing, supply of manuals for each place, supply of as made drawings (cable	[***%] [***%] [***%]	For item No. 21.1.1 Unit of measurement is section. Payment shall be determined on pro rata basis on track rout km completed on pro rata basis with respect to total route km to be completed as per the final design. For item No. 21.1.2 Unit of measurement is section. Payment shall be determined on pro rata basis on track rout km completed on pro rata basis with respect to total route km to be completed as per the final design. For Item No. 21.2Payment shall be made on completion of each set of [1 (one)] section (cable hut to cable hut including station connected) on pro rata basis with respect to the total number of sections. 95% of respective stage payment may be made on supply of concerned Drawings and approval

		core plan and numbering scheme, schematic and wiring diagram, cable route drawing, etc) , and commissioning of 6 Quad telecom cable system		thereafter by Railway and commissioning of associated works. Balance 5% to be linked with supply of completion drawing
		21.3 Optical fibre cable including Survey, design, supply installation, testing, supply of manuals for each place, supply of as made drawings (layout in equipment rack, channelling plan, schematic and wiring diagram etc), and commissioning of optical fibre cable communication system	[***%]	For Item No. 21.3 Payment shall be made on completion of each set of [1 (one)] section (cable hut to cable hut including station connected) on pro rata basis with respect to the total number of sections. 95% of respective stage payment may be made on supply of concerned Drawings and approval thereafter by Railway and commissioning of associated works. Balance 5% to be linked with supply of completion drawing
		21.4 Modification in passenger amenity works	[***%]	For item No. 21.4Payment shall be made on completion of each set of [1 (one)] location on pro rata basis with respect to the total number of locations.
		Total	**100%**	

22.Telecommunication inventory	[***%]	**22.1** Completion of the entire supply of inventory at nominated locations	100%	22.1 Payment shall be made after completion of the signalling work item 21 above. There will not be any payment for part supply of inventory.
23. Integrated testing and commissioning of Telecommunication works	[***%]	**23.** Integrated testing and commission of the Telecommunication works and supply of as made drawings.	100%	Payment shall be made after issue of Provisional Acceptance Certificate. In case the Provisional Acceptance Certificate is for part of the railway Project, the Payment shall be made for the route Km covered by the Provisional Acceptance certificate on pro rata basis with respect to the total route Km of the Project.
24. Civil Engineering works	[***%]	24.1Completion of buildings (staff quarters, service buildings) including sanitation, electricity, water supply and final handing over of building. 24.2 Completion of tower wagon shed including siding, sanitation, electricity, water supply and final handing over of building 24.3 Completion of trip	[***%] [***%] [***%]	For item No. 24.1 Unit of measurement is plinth area in square metres. For the staff quarters having more than one storey, the total area shall be found out by adding the area of each storey. Unit cost shall be determined on pro rata basis with respect to the total area of all staff quarters/service buildings. 50% payment shall be paid after completion of structural works i.e. beam, columns & slab in case of framed structure or walls & slabs in case of other buildings and 50% final completion of works in all respects ready for use. For item No. 24.2 and 24.3 payment shall be made after completion of the work in all respects For item No. 24.4 unit of measurement is linear length including landings and stairs. Payment shall

		shed including siding, sanitation, electricity, water supply and final handing over of building 24.4 Completion of FOB modification works in all respects 24.5 Completion of ROB modification works in all respects	 [***%] [***%]	be made on completion of modification work of a FOB on pro rata basis w.r.t total length of all FOBs For item No. 24.5 Cost of each ROB shall be determined on pro rata basis with respect to the total linear length (m) of the two lane ROBs including approaches. For ROBs other than two lane, a multiplying factor in proportion to number of lanes shall be applied. Payment shall be made on completion of modification work of an ROB including approaches complete in all respects and fit for use.
		Total	**100%**	

SCHEDULE - H

(See Clause 10.2.7)

DRAWINGS

1 Drawings

In compliance of the obligations set forth in Clause 10.2 of this Agreement, the Contractor shall furnish to the Authority Engineer, free of cost, all Drawings listed in Annex-I of this Schedule-H.

2 Additional Drawings

If the Authority 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 Engineer, as if such drawings formed part of Annex-I of this Schedule-H.

Annexure-I

(Schedule-H)

List of Drawings

List of Drawings and Documents to be furnished by the Contractor shall include, but not be limited to:

1. General & Civil Engineering:

    (a) General map of the country traversed by the Project, scale about 20 km to 1 cm;
    (b) Index map, scale about 1 km to 1 cm;
    (c) Index Plan and Sections prepared in accordance with the terms of Engineering Code;
    (d) Schematic Plans of Station Yards;
    (e) General arrangement drawings of Structures; and
    (f) River training/ Protection work.
    (g) Details of level Crossing and RUB/LHS and RFOs.
    (h) Station Yard Layout including details of connectivity with existing yards
    (i) Station Building including cabins, approach connectivity etc.
    (j) Details of Track Structure & its component.
    (k) Details of Integrated Maintenance Depots (IMD & ISMD) if any.
    (l) Details of existing utilities in Row and plan for their shifting.

2. Signal Engineering:

    (a) Signal interlocking plan (station/auto huts/gate huts)
    (b) Route Control table (station/auto huts/gate huts)
    (c) Panel/ VDU diagram (station/ gate huts)
    (d) Cable Core Chart.
    (e) Cable Route Plan (Separate for station & blocks sections)
    (f) Power Supply Diagram (station/auto huts/ control)
    (g) Equipment sizing (station/ auto huts/gate huts/control)
    (h) Equipment lay out and details including cable troughs required(station/ auto huts/gate huts/control)
    (i) Track circuit diagram (station/ auto huts/gate huts/control)
    (j) Bonding plan (station/ auto huts/gate huts/control)
    (k) Circuit Diagrams.
    (l) Station/Gate working Rule/Rule diagrams
    (m) Equipment Rack details
    (n) Cable Termination Rack Diagram
    (o) Fuse Details
    (p) Location/junction boxes lay out & wiring details
    (q) Lightening, surge protection & earthing plan.

3. Telecommunication Engineering:

   (a) Location and connectivity of all equipment's and cables
   (b) Schematic and wiring diagrams
   (c) Cable core plan and numbering scheme
   (d) Equipment mounting details
   (e) Cable route drawings
   (f) Layouts in equipment racks, in equipment rooms, trackside, and all other equipment locations
   (g) Channelling plan.

4. Electrical Engineering (Traction):

   (a) General arrangement of the Traction substation for (2 x 25 KV) system single transformer and the double transformer with incoming as 220 KV or 132 KV 3 phase. (These substations will be remotely controlled and operated)
   (b) General arrangement of SP (Sectioning Post) with the autotransformer. (These substations will be remotely controlled and operated)
   (c) General arrangement of the SSP (Sub sectioning post) with the autotransformer. (These substations will be remotely controlled and operated)
   (d) Power supply arrangement for (2 X 25 KV) AT system and Sectioning drawing for the traction arrangement.
   (e) Power supply arrangement for the signals at the stations (Auxiliary transformer and the arrangement of 230 volt supply)
   (f) Typical layout of the control room at the traction substation SP, SSP.
   (g) Typical layout of the remote control centre.
   (h) General arrangement of the implementation of the SCADA system.
   (i) Earthing arrangement at the TSS, SP and SSP.
   (j) Typical arrangement of the regulated OHE for (2 X 25 KV) system with the feeder arrangement.
   (k) Power supply arrangement with IR at interface point.

5. Electrical Engineering (General Power supply):

   (a) General arrangement of the 11/33/66 KV substations for the station and the service buildings.
   (b) General arrangement of the distribution of the 415 V 50 Hz supply to various loads

6. Tabulated details which shall consist of important characteristics of the railway or a portion of railway to be constructed, which shall, as may be applicable, include, but not be limited to the following:

   (a) Curve Abstract;
   (b) Gradient abstract;
   (c) Bridge abstract;

(d) Important bridges-particulars of waterway and construction;
(e) Ballast and permanent way;
(f) Station and station sites;
(g) Station accommodation;
(h) Station machinery;
(i) Level crossing abstract;
(j) Brief particular of tractions installations;
(k) Power supply installation abstract;
(l) Traction maintenance depot abstract;
(m) Restricted overhead equipment clearance abstract; and
(n) Electrical crossing over railway track abstract;

SCHEDULE - I
(See Clause 10.3.2)

PROJECT COMPLETION SCHEDULE

[1 Project Completion Schedule

During Construction period, the Contractor shall comply with the requirements set forth in this Schedule-I 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

2.1 Project Milestone-I shall occur on the date falling on the [240th (two hundred and fortieth)] day from the Appointed Date (the "**Project Milestone-I**").

2.2 Prior to the occurrence of Project Milestone-I, the Contractor shall have commenced construction of the Railway Project 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

3.1 Project Milestone-II shall occur on the date falling on the [480th (four hundred and eightieth)] day from the Appointed Date (the "**Project Milestone-II**").

3.2 Prior to the occurrence of Project Milestone-II, the Contractor shall have continued with construction of the Railway Project 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.

4 Project Milestone-III

4.1 Project Milestone-III shall occur on the date falling on the [700th (seven hundredth)] day from the Appointed Date (the "**Project Milestone-III**").

4.2 Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the Railway Project 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.

5 Scheduled Completion Date

5.1 The Scheduled Completion Date shall be the [900th (nine hundredth)] day from the Appointed Date.

5.2 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 - J

(See Clause 12.1.2)

Tests on Completion

1 Schedule for Tests

1.1 The Contractor shall, no later than 30 (thirty) days prior to the likely completion of construction, notify the Authority Engineer and the Authority of its intent to subject the Railway Project to Tests, and no later than 10 (ten) days prior to the actual date of Tests, furnish to the Authority Engineer and the Authority detailed inventory and particulars of all works and equipment forming part of Works.

1.2 The Contractor shall notify the Authority Engineer of its readiness to subject the Railway Project to Tests at any time after 10 (ten) days from the date of such notice, and upon receipt of such notice, the Authority 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 Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Article 12 and this Schedule-J.

2 Tests

2.1 Visual and physical test: The Authority 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 [***].

2.2 Integrated Testing of system followed by a period of trial running. The test sequence may be as shown below:-

a) Tests on Equipment
b) Installation Test and sub-system individually
c) System Integrated Test
d) Final Acceptance Test
e) Trial Running

2.3 Sanction of Commissioner of Railway Safety (CRS) is required before opening of track in terms of Chapter XIII of Indian Railway Permanent Way Manual.

2.4 [Riding quality of track and recording of various track parameters on electronic track recording car will be arranged and run by the Authority. This run will be scheduled after the floating parameters recorded are found to be within acceptable limits. The TGI value of this trial run shall be more than (specify value)].

2.5 Tests for bridges: All major and minor bridges shall be subjected to the tests as prescribed in Specifications and Standards in Schedule D.

2.6 Other tests: The Authority 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 Railway Project with Specifications and Standards.

2.7 Environmental audit: The Authority Engineer shall carry out a check to determine conformity of the Railway Project with the environmental requirements set forth in Applicable Laws and Applicable Permits.

2.8 Safety Audit: The Authority Engineer shall carry out, or cause to be carried out, a safety audit to determine conformity of the Railway Project with the safety requirements and Good Industry Practice.

3 Agency for conducting Tests

All Tests set forth in this Schedule-J shall be conducted by the Authority Engineer or such other agency or person as it may specify in consultation with the Authority.

4 Completion Certificate

Upon successful completion of Tests, the Authority Engineer shall issue the Provisional Certificate in accordance with the provisions of Article 12. For the avoidance of doubt, the Completion Certificate shall not be issued by the Authority Engineer unless authorisation of the Commissioner for Railway Safety has been obtained.

———

SCHEDULE - K

(See Clause 12.2 and 12.4)

1. PROVISIONAL CERTIFICATE

1 I/We, ……. (Name of the Authority Engineer), acting as the Authority Engineer, under and in accordance with the Agreement dated ……. (the "**Agreement**"), for construction of the ..... section (km ....to km ...) in the State of .....in .....-..... Railway (the "**Railway Project**") 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 undertaken to determine compliance of the Railway Project with the provisions of the Agreement.

2 Certain minor works are incomplete and these are not likely to cause material inconvenience to the Users of the Railway Project or affect their safety or the movement of rail traffic in any manner. These works have been specified in the Punch List appended hereto, and the Contractor has agreed and accepted that it shall complete all such works in the time and manner set forth in the Agreement.

3 In view of the foregoing, I/We am/are satisfied that the Railway Project from km ..... to km ..... can be safely and reliably placed in service of the Authority for railway freight and passenger traffic, subject to authorisation by the Commissioner of Railway Safety in accordance with Applicable Laws. In terms of the Agreement, the Railway Project is hereby provisionally declared fit for entry into operation on this the …… day of …….. 20…...

ACCEPTED, SIGNED, SEALED AND DELIVERED For and on behalf of CONTRACTOR by: by:	SIGNED, SEALED AND DELIVERED For and on behalf of AUTHORITY ENGINEER
(Signature)	(Signature)

2. COMPLETION CERTIFICATE

1 I/We, ……. (Name of the Authority Engineer), acting as the Authority Engineer, under and in accordance with the Agreement dated …… (the "**Agreement**"), for construction of the .....section (km ..... to km .....) of ……in the State of ..... in .....-..... Railway (the "**Railway Project**") 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 Railway Project with the provisions of the Agreement, and the authorisation by the Commissioner for Railway Safety under Applicable Laws has been obtained.

2 It is certified that, in terms of the aforesaid Agreement, all works forming part of Railway Project have been completed, and the Railway Project is hereby declared fit for entry into operation on this the …… day of …… 20…..

SIGNED, SEALED AND DELIVERED

For and on behalf of

the Authority Engineer by:

(Signature)

(Name)

(Designation)

(Address)

SCHEDULE - L
(See Clause 16.1.1)

SELECTION OF AUTHORITY ENGINEER

1 Selection of Authority Engineer

1.1 Authority shall appoint a railway engineer/ Project Management Services (PMS) Agency, to be the engineer as set forth in Article 16, to be the engineer under this Agreement (the "Authority Engineer").

Generally, a railway officer of Selection Grade (SG)/Junior Administrative Grade (JAG)/Project Management Services (PMS)*Agency****shall be appointed as Authority Engineer. Authority shall notify the Contractor in writing of the appointment and identity of the Authority Engineer and of any replacement thereof from time to time.***

2 Terms of Reference

The Terms of Reference for the Authority Engineer (the "**TOR**") shall substantially conform with Annex 1 to this Schedule L.

Annex – I
(Schedule - L)

DUTIES & RESPONSIBILITIES FOR AUTHORITY ENGINEER

1 Scope

1.1 These Duties & Responsibilities (DR) shall apply to construction and maintenance (wherever applicable) of the Railway Project.

2 Definitions and interpretation

2.1 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.

2.2 References to Articles, Clauses and Schedules in this DR 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 DR.

2.3 The rules of interpretation contained in Clauses 1.2, 1.3 and 1.4 of the Agreement shall apply, *mutatis mutandis*, to this DR.

3. General

3.1 The Authority Engineer shall discharge its duties in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.

3.2 The Authority 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 (where Authority Engineer is designated as the Authority, the compliance of these conditions have to be ensured by him/her) before determining:

(a) any Time Extension;

(b) any additional cost to be paid by the Authority to the Contractor;

(c) the Termination Payment;

(d) providing Power Block or Traffic Block to the Contractor;

(e) approval of signalling plan and signalling plan and route control chart;

(f) approval of disconnections for modification of signalling and telecom works;

(g) any other matter which is not specified in (a) to (f)above and which creates an obligation or liability on either Party for a sum exceeding Rs.5,000,000/- (Rupees fifty lakh).

3.3 The Authority Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions assigned to him for the project. Such reports shall be submitted by the Authority Engineer within 10 (ten) days of the beginning of every month.

3.4 The Authority Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article 13.

3.5 In the event of any disagreement regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Authority Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on Good Industry Practice and authentic literature.

3.6 The Authority Engineer shall verify the as built drawings submitted by the Contractor after completion of the works. These drawings will be signed by the Authority Engineer after due verification.

4. Construction Period

4.1 During the Construction Period, the Authority Engineer shall review 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 and topographical surveys. The Authority Engineer shall complete such review 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 an Important Bridge, a Major Bridge or Structure, and interlocking and telecom switching equipment the aforesaid period of 15 (fifteen) days may be extended up to 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.

4.2 The Authority Engineer shall review any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving such Drawings.

4.3 The Authority Engineer shall review 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.

4.4 The Authority Engineer shall complete the review 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. The Authority Engineer shall draw the non-interlocking programme for works

involving existing yards and issue a jointly agreed NI programme for each such yard.

4.5 The Authority 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 Railway Project for purposes of maintenance during the Construction Period in.

4.6 The Authority 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.

4.7 The Authority Engineer shall inspect the Construction Works and the Railway Project 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.

4.8 The Authority 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 Engineer may require.

4.9 For determining that the Works conform to Specifications and Standards, the Authority 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 4.9, the tests specified in ***** Manuals or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.

4.10 The Authority Engineer shall test check prescribed in this agreement for each category or type of test for quality control by the Contractor.

4.11 The timing of tests referred to in Paragraph 4.9, and the criteria for acceptance/ rejection of their results shall be determined by the Authority 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.

4.12 In the event that results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Authority Engineer shall require the Contractor to carry out remedial measures.

4.13 The Authority Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Railway Project, 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 19.6 shall apply.

4.14 In the event that the Contractor fails to achieve any of the Project Milestones, the Authority Engineer shall undertake a review of the progress of

construction and identify potential delays, if any. If the Authority Engineer shall determine that completion of the Railway Project 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 Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.

4.15 The Authority 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 12.4.

4.16 Authority Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the public and pedestrians. After the Contractor has carried out remedial measure, the Authority Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.

4.17 In the event that the Contractor carries out any remedial measures to secure the safety of suspended works and the public, and requires the Authority Engineer to inspect such works, the Authority 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.

4.18 The Authority Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-J and issue a Completion Certificate or Provisional Certificate, as the case may be. For carrying out its functions under this Paragraph 4.18 and all matters incidental thereto, the Authority Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-J.

5. Determination of costs and time

5.1 The Authority Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.

5.2 The Authority Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.

5.3 The Authority Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 16.5.

6. Payments

6.1 The Authority Engineer shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority Engineer in accordance with the provisions of Clause 10.2.7 (d).

6.2 Authority Engineer shall -

(a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 17.4, determine the amount due to the Contractor and recommend the release of 80 (eighty) percent of the amount so determined as part payment, pending issue of the Interim Payment Certificate; and

(b) within 20 (twenty) days of the receipt of the Stage Payment Statement referred to in Clause 17.4, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable to the Contractor.

7. Other duties and functions

The Authority Engineer shall perform all other duties and functions as specified in the Agreement.

8. Miscellaneous

8.1 A copy of all communications, comments, instructions, Drawings or Documents sent by the Authority Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Authority Engineer thereon, shall be furnished by the Authority Engineer to the Authority forthwith.

8.2 The Authority 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.

8.3 Within 90 (ninety) days of the Project Completion Date, the Authority 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 Railway Project as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Railway Project 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.

8.4 The Authority Engineer shall inform the Authority and the Contractor of any event of Contractor's Default within one week of its occurrence.

SCHEDULE - M

(See Clauses 17.4.1, 17.6.1, and 17.6.1)

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 17.3.1 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 13.2.3 (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 payable by the Contractor to the Authority under the provisions of the Agreement; and

  (iii) Any amount towards deduction of taxes at source under Applicable Laws.

  (iv) Total of (i) to (iii) above.

(g) Net claim: (e) – (f) (iv);

(h) The amounts received by the Contractor up to the last claim:

  (i) For the Works executed (excluding Change of Scope orders);

  (ii) For Change of Scope Orders, and

  (iii) Taxes deducted at source under Applicable Laws

2. Contractor's claim for Damages

Note: The Contractor shall submit its claims in a form acceptable to the Authority.

___

SCHEDULE - N
(See Clause 18.1)

INSURANCE

1. Insurance during Construction Period

1.1 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.

1.2 The insurance under paragraph 1.1 (a) and (b) 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 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 Applicable Laws and in accordance with Good Industry Practice.

3. Insurance against injury to persons and damage to property

3.1 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 18.9), 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 specified below with no limit on the number of occurrences.

The insurance cover shall be not less than: Rs. [**.....**]

3.2 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.

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SCHEDULE - O

(See Clauses 4.6 &4.7)

Provision of Traffic Blocks and Power Blocks

1. Provision of Traffic Blocks Power Blocks and Disconnections

1.1 The authority shall provide Power Blocks or Traffic Blocks or Power Blocks, or both, during day or night, as the case may be, to enable the Contractor to execute the construction works of overhead equipment, or such other work as may be determined by the Authority Engineer. The maximum aggregate duration of blocks for the Railway Project shall be [***] hours.

1.2 The Contractor is entitled to execute the construction work within the block period specified in this Schedule-O. The total duration of Power Block or Traffic Block or both, as the case may be, shall not exceed 20% of the period specified in this Agreement. In case such total duration exceeds 20% the Contractor shall pay Damages at the rate of [Rs.***] per hour or part thereof for the exceeded Block periods.

1.3 The Authority shall arrange for disconnections of S&T system as determined by Authority Engineer, to enable the Contractor to execute the construction work which affects existing Signalling and Telecommunication installations.

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SCHEDULE - P

(See Clauses 4.4)

Machinery and equipment

1. The Authority shall provide the following machinery and equipment to the Contractor at the daily rates shown against each machinery and equipment:

S. No.	**Particulars of each type of machinery and equipment**	**[Daily rate in rupees in rounded figures.]**
	[Tower Wagon 4W/8W]	
	[Tie Tamping Machine]	
	[Point &Crossing Tamping Machine]	
	[Ballast Regulating Machine]	
	[Wagons for wiring deck and mast erection]	

Note: For Machines and T&P whose hire charges on not mentioned above, the monthly rate for those machines/ equipment shall be equal to 2% (two per cent) of the cost of such machine or equipment, as published in the latest Pink Book of Ministry of Railways. If the cost of any machine or equipment has not been published in the latest Pink Book, then the last purchase price thereof, shall be applicable for determining the charges for such machine or equipment.

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The End of Schedules.

Appendices

APPENDIX-I

LIST OF BID-SPECIFIC CLAUSES[$]

A. Clauses with non-numerical ($) footnotes:

1. Clause 3.2.1 : Obligation relating to sub-contracts and any other agreements
2. Clause 13.5.1 : Power of the Authority to undertake works
3. Article 26 : Definition of Consortium/Joint Venture
4. Schedule-F, Annexure-I : Item (C)-8
5. Schedule-F, Annexure-III : Item (B) and Item (C)-8

B. Clauses with curly { } brackets:

1. Recital : Para 2
2. Clause 1.5 : Joint and several liability
3. Clause 3.2.1 : Obligations relating sub-contracts and any other agreements
4. Clause 5.1 (l) : Representations and warranties of the Contractor
5. Article 26 : Definition of "Affiliate", "Consortium/Joint Venture" and "Lead Member"
6. Contract Agreement : 'Signature' page
7. Schedule-F, Annexure-I : Item (B) and Item (C) 1
8. Schedule-F, Annexure-III : Item (B)

[$] This Appendix-I contains a list of clauses that would need to be suitably modified for reflecting bid-specific provisions after the contractor has been selected. This Appendix-I may be included in the draft EPC Agreement forming part of the bid documents. It may, however, be deleted when the Contract Agreement is to be executed.

C. Clauses with Blank Spaces (.....), (***)

1. First line of the Concession Agreement
2. Recital : Para 2
3. Recital : Item A, B, C and D
4. Clause 3.9 : Training of Authority's Personnel
5. Clause 17.1.1 : Contract Price
6. Schedule-F, Annexure-I : Item A, B and C
7. Schedule-F, Annexure-I : Signing Date
8. Schedule-F, Annexure-II : Item A and C
9. Schedule-F, Annexure-II : Signing Date
10. Schedule-F, Annexure-III : Item A, B and C
11. Schedule-F, Annexure-III : Signing Date
12. Schedule-L, Annexure-I : Clause 1.1 : Scope

APPENDIX-II

LIST OF PROJECT SPECIFIC CLAUSES[20]

A. Clauses with serially numbered footnotes

1. First line of Contract Agreement (footnote no.1)
2. Recital : Para 2 (footnote no.2 & 3)
3. Recital : Para 2 : Item A (footnote 4 & 5)
4. Clause 3.9.2 : Training of Authority's Personnel (footnote no.6)
5. Clause 4.1.3(b) and (c) : Obligation of the Authority (footnote no. 7 & 8)
6. Clause 4.3 : Environmental and forest clearances (footnote no.9)
7. Clause 4.4.3 : Machinery and equipment (footnote no.10)
8. Clause 4.5 : Electricity transmission lines (footnote no.11)
9. Clause 7.1.1 : Performance Security (footnote no.12)
10. Clause 7.5 : Retention Money (footnote no.13)
11. Clause 17.2.1 : Advance Payment (footnote no.14)
12. Clause 17.8.4 : Price adjustment for the works (footnote no.15)
13. Schedule-A, Annexure-I : Site (footnote no.16)
14. Schedule-B, Annexure-I : Description of Railway Project (footnote no.17)
15. Schedule-C : Project facilities (footnote no.18)
16. Schedule-D, Annexure-I : Specifications and standards for construction (footnote no.19)

[20] This Appendix-II contains a list of clauses that would need to be suitably modified prior to issue of bid documents for reflecting project specific provisions. This Appendix-II should be omitted before issuing the draft Concession Agreement, forming part of the bid documents

B. Clauses with square [ ] parenthesis:

1. Recital : Para 1
2. Recital (B)
3. Clause 3.2.1 : Obligations relating to sub-contracts and any other agreements
4. Clause 3.4.1 : Contractor's Personnel
5. Clause 3.9 : Training of Authority's Personnel
6. Clause 4.1.3(c) : Obligations of the Authority
7. Clause 4.1.4 : Obligations of the Authority
8. Clause 4.4.1(c) : Machinery and equipment
9. Clause 4.5 : Electricity transmission lines
10. Clause 4.7 : Provision of power blocks and traffic blocks
11. Clause 8.1(a) : The Site
12. Clause 10.3.1 : Construction of Railway Project
13. Clause 10.4.1(a) : Extension of time for completion
14. Clause 12.2.1 : Provisional certificate
15. Clause 15.1.2 : Defects liability period
16. Clause 17.8.4 : Price adjustment for the works (formulae for price adjustment)
17. Clause 18.1.6 : Insurance for works
18. Clause 20.1 : Governing Law and Jurisdiction
19. Clause 25.13(a) and (b) : Notices
20. Article 26 : Definitions

    "GAD" or "General Arrangement Drawings"

    "Project Assets"
21. Signature of the Authority on the last page of the Agreement
22. Schedule-A, Annexure-I : Site

23. Schedule-A, Annexure-II : Date for providing Right of Way
24. Schedule-A, Annexure-III : Alignment Plans
25. Schedule-B, Annexure-I : Description of Railway Project
26. Schedule-C : Project Facilities
27. Schedule-D, Annexure-I : Specifications and Standards for Construction
28. Schedule-F, Annexure-I : Form of Bank Guarantee for Performance Security
29. Schedule-F, Annexure-IA : Form of Insurance Surety Bond for Performance Security
30. Schedule-F, Annexure-II : Form of Guarantee for Withdrawal of Retention Money
31. Schedule-F, Annexure-III : Form of Guarantee for Advance Payment
32. Schedule-G : Contract Price Weightages
33. Schedule-I : Project Completion Schedule
34. Schedule-J : Tests on Completion
35. Schedule-N : Insurance

Schedule-O : Provision of traffic blocks and power blocks