



**Standard Engineering, Procurement and Construction (EPC)
Agreement with Schedule G-1**

for

Jeypore-Malkangiri New BG Railway Line: Design & Construction of New BG Railway line from **Km 69.60** to **Km 125.18** involving Earthwork in Formation , Embankment/Cutting, Blanketing, Side Drains, Catch Water Drains, Minor Bridges, Major Bridge,Road Under Bridge (RUBs),Road Over Bridge (ROB's), Protection Works, P.Way Track Works with Contractor's own materials(except New/SH Rails) construction of Platforms, Station Buildings, Service Buildings, SP/SSP buildings and Residential Buildings, Water Supply, indoor and outdoor Electrification, Provision of 1X25 kV Conventional Type OHE, Provision of 2 Nos TSS, 1 No SP, Construction new Sub stations, Electrification of Station building, Circulating areas, FOBs, PFs, Quarters, Goomties, Modifications/Conversion to Underground for overhead electrical HT/LT Power Line Crossings etc. on EPC Basis in Rayagada Division of East Coast Railway.

**East Coast Railways
Bhubaneswar**

Jeypore-Malkangiri New BG Railway Line: Design & Construction of New BG Railway line from **Km 69.60** to **Km 125.18** involving Earthwork in Formation , Embankment/Cutting, Blanketing, Side Drains, Catch Water Drains, Minor Bridges, Major Bridge,Road Under Bridge (RUBs),Road Over Bridge (ROB's), Protection Works, P.Way Track Works with Contractor's own materials(except New/SH Rails) construction of Platforms, Station Buildings, Service Buildings, SP/SSP buildings and Residential Buildings, Water Supply, indoor and outdoor Electrification, Provision of 1X25 kV Conventional Type OHE, Provision of 2 Nos TSS, 1 No SP, Construction new Sub stations, Electrification of Station building, Circulating areas, FOBs, PFs, Quarters, Goomties, Modifications/Conversion to Underground for over head electrical HT/LT Power Line Crossings etc on EPC Basis in Rayagada Division of East Coast Railway.

ENGINEERING, PROCUREMENT AND CONSTRUCTION AGREEMENT

THIS AGREEMENT¹ is entered into on this theday of, 20.....

BETWEEN

- 1 [The President of India, represented by Chief Engineer/Con-II/Visakhapatnam, East Coast Railway, and having its principal offices at Office of the Chief Administrative Officer(Con), East Coast Railway, Rail Sadan, SamantaVihar, Bhubaneswar-751017 (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 bidder³ 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 zone⁵.
- (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.

¹ Serially numbered footnotes in this Agreement are for guidance of the Authority and 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 Standard EPC Agreement have been enclosed in square parenthesis and may be modified, as necessary, before issuing the draft EPC Agreement forming part of Bid Documents.

- (C) The Authority had prescribed the Technical and Financial terms and conditions, and invited Request for Participation (RFP) No. EPC-CECONIIVSKP2026023, Dt:- 17-06-2026 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 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 Railsetc), 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) **New Rails and second hand rails for service track & guard rails for track linking works, except those covered in Clause 2.1(a) above will be supplied by the Authority free of cost at Jeypore.**
- (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 **40% (forty per cent)** of the Contract Price and shall carry out Works for at least **60% (sixty 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 Works equal to at least 30% (thirty per cent) of the Contract Price shall be discharged solely by the Lead Member.}\$

Procurement of material, hire of equipment or engagement of labour by prime contractor or procuring entity will not mean sub-contracting.

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

- 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 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.

⁶Delete 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% (ninetyfivepercent)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 length of 1 (one) kilometre for each such railway over-bridge or railway line under-bridge or canal crossings, as the case may be.]

⁷Clause 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.

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

- 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 be 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 operation of the existing facilities

The Authority shall undertake the maintenance of the facilities existing prior to the Appointed Date including 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 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

⁹Clause 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.

¹⁰Delete if not applicable.

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.
- 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.

¹¹Delete if not applicable.

- 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 fivepercent) 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 Security¹²

- 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 **and additional performance Security as per para 7.1.4** 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.
- 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

¹²This is different from Retention Money

percent)of the Contract Price for each day until the Performance Security is provided.(i.e. from 31stday to 60th day).

- 7.1.4 If a tender is accepted below the advertised tender value, an additional performance security shall be submitted by the bidder as below:

Bid quoted in % of advertisedcost	Additional PerformanceGuarantee (%)
Below 0 -5% (inclusive)	Nil
Below 5%	5%

7.2 Extension of Performance Security

The Contractor may initially provide the Performance Security for a periodof [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 encase 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 Money¹³

- 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 per cent) thereof as guarantee money for performance of the obligations of the Contractor during the Construction Period (the “**Retention Money**”) subject to the condition that the maximum amount of Retention Money shall not exceed 5% (five per cent) of the Contract Price.
- 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.

¹³This is different from Performance Security

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 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 Encumbrances

Subject to the provisions of Clause 8.2, the Site shall be made available by the Authority to the Contractor pursuant hereto free from all Encumbrances and occupations and without the Contractor being required to make any payment to the Authority 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.

9.1.2 Diversion of utility(ies) not owned by Railways or not communicated to Contractor as part of Tender document shall be payable under BOQ items of relevant Schedule-G1

9.1.3 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 utility(ies) as per 9.1.2 (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 utilities are to be diverted with proper liaison and approval of the utility owning agencies. NOC & Approval of schemes of Diversion of Utilities from the concerned regulatory /statutory / Local Authority is the responsibility of the Contractor. Cost of such utility shifting unless otherwise specified will be paid separately under relevant item of BOQ (Schedule G1B). No claim on account of delay in execution of utility diversion will be entertained.

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 date 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.

Part-IV 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 and G1 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 conforming 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.

10.2.1A In 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 Contractor 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 **Railway** shall appoint a proof checking consultant at its cost (the “proof Consultant”). For the avoidance of doubt, it must be ensured that no firm or person having any conflict of interest shall be engaged for a proof checking consultant

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) organization, 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 regularly, 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.

11.12.2 If 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 Clause 12.3.

- 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, except for works under schedule G1.
- (e) any change in quantities under Schedule G1;

13.1.2.1 Unless parties agree to the contrary, following shall be the limits of variation for items of works under Schedule G1;

(a)For Items related to work of foundation	No Limits
(b)For Items in Schedule G1 related to works other than foundation	25%

13.1.3 (1) 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, as under :-

(a) for works under schedule G, and for items covered under schedule G1 beyond the limits of variation mentioned in article 13.1.2.1, at its own cost; or

(b) for works under schedule G1 within the limits of variation mentioned in article 13.1.2.1, as per cost derived on the basis of accepted rates of respective items under schedule G1.

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.

(2) In case Change of Scope is proposed by Authority Engineer to the contractor is for items covered under schedule G1 within the limits of variation mentioned in article 13.1.2.1, the contractor shall accept and continue the works as per rate accepted for those items/schedules under schedule G1.]

In case Change of Scope is proposed by Authority Engineer to the contractor [is for the items not covered either in the scope of work under schedule G, or within the limits of variation mentioned in article 13.1.2.1 for the items under schedule G1,] 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 Contractors 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 Engineer will 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. *****) under schedule G and on the basis of actual work done for an amount of Rs. *****] (the “**Contract Price**” [= **Sum of schedule G and Schedule G1= Rs ***** Rs *******]), 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 15% (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 5% (five per cent) 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 installment of the Advance Payment at any time after the Appointed Date, along with an irrevocable and unconditional guarantee from a Bank for an amount equivalent to 110% (one hundred and ten per cent) of such

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

instalment, substantially in the form provided at Annex-III of Schedule-F, to remain effective till the complete and full repayment thereof.

- 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 installments 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 per cent) 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 annual rate of 5% (five 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 avoidance of doubt, the aforesaid interest shall be payable on each installment of the Advance Payment, regardless of whether the installment 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 clauses 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, for a length, number or area as specified, and valued in accordance with the proportion of the Price assigned to each item and its stage and payment procedure in Schedule-G *or/and as per actual execution of items as specified for works under schedule G1*.

17.3.2 The Contractor shall base its claim for interim payment for the stages completed for works under schedule G *or/and as per execution of items for works under schedule G1* 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 under schedule G *or/and* completed items of works under schedule G1. 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 than 30 (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 for Works under schedule G 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;

¹⁵The 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:

$$(i) \quad VEW = 0.85 \text{ EW} \times [\text{PLB} \times (\text{LBi} - \text{LBo})/\text{LBo} + \text{PC} \times (\text{Ci} - \text{Co})/\text{Co} + \text{PF} \times (\text{Fi} - \text{Fo})/\text{Fo} + \text{PMACH} \times (\text{MACHi} - \text{MACHo})/\text{MACHo} + \text{POTH} \times (\text{OTHi} - \text{OTHo})/\text{OTHo}];$$

$$(ii) \quad \text{VBRIMP} = 0.85 \text{ BRIMP} \times [\text{PLB} \times (\text{LBi} - \text{LBo})/\text{LBo} + \text{PC} \times (\text{Ci} - \text{Co})/\text{Co} + \text{PS} \times (\text{Si} - \text{So})/\text{So} + \text{PF} \times (\text{Fi} - \text{Fo})/\text{Fo} + \text{PMACH} \times (\text{MACHi} - \text{MACHo})/\text{MACHo} + \text{POTH} \times (\text{OTHi} - \text{OTHo})/\text{OTHo}];$$

$$(iii) \quad \text{VBR} = 0.85 \text{ BR} \times [\text{PLB} \times (\text{LBi} - \text{LBo})/\text{LBo} + \text{PC} \times (\text{Ci} - \text{Co})/\text{Co} + \text{PS} \times (\text{Si} - \text{So})/\text{So} + \text{PF} \times (\text{Fi} - \text{Fo})/\text{Fo} + \text{PMACH} \times (\text{MACHi} - \text{MACHo})/\text{MACHo} + \text{POTH} \times (\text{OTHi} - \text{OTHo})/\text{OTHo}];$$

$$(iv) \quad \text{VTRK} = 0.85 \text{ TRK} \times [\text{PLB} \times (\text{LBi} - \text{LBo})/\text{LBo} + \text{PC} \times (\text{Ci} - \text{Co})/\text{Co} + \text{PS} \times (\text{Si} - \text{So})/\text{So} + \text{PF} \times (\text{Fi} - \text{Fo})/\text{Fo} + \text{PMACH} \times (\text{MACHi} - \text{MACHo})/\text{MACHo} + \text{POTH} \times (\text{OTHi} - \text{OTHo})/\text{OTHo} + \text{PR} \times (\text{Ri} - \text{Ro})/\text{Ro}];$$

$$(v) \quad \text{VTUNL} = 0.85 \text{ TUNL} \times [\text{PLB} \times (\text{LBi} - \text{LBo})/\text{LBo} + \text{PC} \times (\text{Ci} - \text{Co})/\text{Co} + \text{PS} \times (\text{Si} - \text{So})/\text{So} + \text{PF} \times (\text{Fi} - \text{Fo})/\text{Fo} + \text{PMACH} \times (\text{MACHi} - \text{MACHo})/\text{MACHo} + \text{POTH} \times (\text{OTHi} - \text{OTHo})/\text{OTHo} + \text{PXL} \times (\text{XLPi} - \text{XLPo})/\text{XLPo}];$$

$$(vi) \quad \text{VOEW} = 0.85 \text{ OEW} \times [\text{PLB} \times (\text{LBi} - \text{LBo})/\text{LBo} + \text{PC} \times (\text{Ci} - \text{Co})/\text{Co} + \text{PS} \times (\text{Si} - \text{So})/\text{So} + \text{PF} \times (\text{Fi} - \text{Fo})/\text{Fo} + \text{PMACH} \times ((\text{MACHi} - \text{MACHo})/\text{MACHo} + \text{POTH} \times (\text{OTHi} - \text{OTHo})/\text{OTHo})];$$

- (vii) $VINVCIV = 0.85 INVCIV \times [PR \times (R_i - R_o)/R_o + POTH \times (OTH_i - OTH_o)/OTH_o]$; and
- (viii) $VINTGTESTCIV = 0.85 INTGTESTCIV \times [PLB \times (LB_i - LB_o)/LB_o + POTH \times (OTH_i - OTH_o)/OTH_o]$;

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 PXLPL 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 clause 17.8.4(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 clause 17.8.4-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)	5%	-	20%	----	----	10%	---	----
Explosives (PXL P)	-	-	-	----	----	-	---	----
Fuel and lubricants (PF)	35%	-	10%	20%	----	15%	---	----
Labour (PLB)	7%	-	10%	50%	----	20%	---	----
Machinery and Plants (PMACH)	40%	-	10%	30%	----	25%	---	----
Other Materials (POTH)	8%	-	20%	----	----	15%	85%	----
Rail (PR)	-	-	-	----	----	-	15%	----
Steel (PS)	5%	-	30%	----	----	15%	---	----
Fixed		-						
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:~~

$$(i) \quad \text{VSIGWK} = 0.85 \text{ SIGWK} \times [\text{PELEX} \times (\text{ELEX}_i - \text{ELEX}_o) / \text{ELEX}_o + \text{POFC} \times (\text{OFC}_i - \text{OFC}_o) / \text{OFC}_o + \text{PLB} \times (\text{LB}_i - \text{LB}_o) / \text{LB}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o + \text{S30C} \times (\text{P30C}_i - \text{P30C}_o) / \text{P30C}_o + \text{S24C} \times (\text{P24C}_i - \text{P24C}_o) / \text{P24C}_o + \text{S19C} \times (\text{P19C}_i - \text{P19C}_o) / \text{P19C}_o + \text{S12C} \times (\text{P12C}_i - \text{P12C}_o) / \text{P120C}_o + \text{S9C} \times (\text{P9C}_i - \text{P9C}_o) / \text{P9C}_o + \text{S6C} \times (\text{P6C}_i - \text{P6C}_o) / \text{P6C}_o + \text{S4C} \times (\text{P4C}_i - \text{P4C}_o) / \text{P4C}_o + \text{S2C} \times (\text{P2C}_i - \text{P2C}_o) / \text{P2C}_o + \text{S12C2.5} \times (\text{P12C2.5}_i - \text{P12C2.5}_o) / \text{P12C2.5}_o + \text{S2C2.5} \times (\text{P2C2.5}_i - \text{P2C2.5}_o) / \text{P2C2.5}_o + \text{S2C25} \times (\text{P2C25}_i - \text{P2C25}_o) / \text{P2C25}_o + \text{QC} \times (\text{PQC}_i - \text{PQC}_o) / \text{PQC}_o];$$

$$(ii) \quad \text{VINVSIG} = 0.85 \text{ SIGWK} \times [\text{PELEX} \times (\text{ELEX}_i - \text{ELEX}_o) / \text{ELEX}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o];$$

$$(iii) \quad \text{VINTGTESTSIG} = 0.85 \text{ INTGTESTSIG} \times [\text{PLB} \times (\text{LB}_i - \text{LB}_o) / \text{LB}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o];$$

$$(iv) \quad \text{VCOMWK} = 0.85 \text{ COMWK} \times [\text{PELEX} \times (\text{ELEX}_i - \text{ELEX}_o) / \text{ELEX}_o + \text{POFC} \times (\text{OFC}_i - \text{OFC}_o) / \text{OFC}_o + \text{PLB} \times (\text{LB}_i - \text{LB}_o) / \text{LB}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o + \text{S30C} \times (\text{P30C}_i - \text{P30C}_o) / \text{P30C}_o + \text{S24C} \times (\text{P24C}_i - \text{P24C}_o) / \text{P24C}_o + \text{S19C} \times (\text{P19C}_i - \text{P19C}_o) / \text{P19C}_o + \text{S12C} \times (\text{P12C}_i - \text{P12C}_o) / \text{P120C}_o + \text{S9C} \times (\text{P9C}_i - \text{P9C}_o) / \text{P9C}_o + \text{S6C} \times (\text{P6C}_i - \text{P6C}_o) / \text{P6C}_o + \text{S4C} \times (\text{P4C}_i - \text{P4C}_o) / \text{P4C}_o + \text{S2C} \times (\text{P2C}_i - \text{P2C}_o) / \text{P2C}_o + \text{S12C2.5} \times (\text{P12C2.5}_i - \text{P12C2.5}_o) / \text{P12C2.5}_o + \text{S2C2.5} \times (\text{P2C2.5}_i - \text{P2C2.5}_o) / \text{P2C2.5}_o + \text{S2C25} \times (\text{P2C25}_i - \text{P2C25}_o) / \text{P2C25}_o];$$

$$P2C25_e)/P2C25_o + QC \times (PQC_i - PQC_o)/PQC_o + PCEQP \times (CEQP_i - CEQP_o)/CEQP_o];$$

$$(v) \text{ ~~VINVCOM = 0.85 SIGWK \times [PELEX \times (ELEX_i - ELEX_o)/ELEX_o + PCEQP \times (CEQP_i - CEQP_o)/CEQP_o + POTH \times (OTH_i - OTH_o)/OTH_o];~~$$

~~and~~

$$(vi) \text{ ~~VINTGTESTCOM = 0.85 INTGTESTCOM \times [PLB \times (LB_i - LB_o)/LB_o + POTH \times (OTH_i - OTH_o)/OTH_o].~~$$

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;~~

~~CEQP_o = 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;~~

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

~~ELEX_o = The WPI for electronics for the month of the Base Month;~~

~~ELEX_i = 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)	***%	=	=	***%	=	=
19C x 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:~~

$$P_i = P_o + CuF (Cu - Cu_o) + CCF_{Cu}(CC - CCo) + FeF (Fe - Fe_o)$$

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

$$P_i = P_o + CuF (Cu - Cu_o) + AlF_{Cu}(Al - Alo) + CCF_{Cu}(CC - CCo) + FeF (Fe - Fe_o)$$

~~For Aluminium Power Cables:~~

$$P_i = P_o + AlF (Al - Alo) + CCF_{Al}(CC - CCo) + FeF (Fe - Fe_o)$$

Where,

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

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

CuF = Variation factor for Copper

Cu_o = 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

Al_o = 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

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

(Prices per MT for Cu_o , CCo , Fe_o , Al_o 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.~~

$$\text{P30C}_i = \text{P30Co} + 0.391(\text{Cu} - \text{Cuo}) + 0.557(\text{CC} - \text{CCo}) + 0.425(\text{Fe} - \text{Feo})$$

~~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~~

$$\text{P24C}_i = \text{P24Co} + 0.313(\text{Cu} - \text{Cuo}) + 0.481(\text{CC} - \text{CCo}) + 0.398(\text{Fe} - \text{Feo})$$

~~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~~

$$\text{P19C}_i = \text{P19Co} + 0.248(\text{Cu} - \text{Cuo}) + 0.395(\text{CC} - \text{CCo}) + 0.343(\text{Fe} - \text{Feo})$$

~~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~~

$$\text{P12C}_i = \text{P12Co} + 0.157(\text{Cu} - \text{Cuo}) + 0.277(\text{CC} - \text{CCu}) + 0.289(\text{Fe} - \text{Feo})$$

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

~~(v) Size 9C x 1.5 sq.mm~~

$$\text{P9C}_i = \text{P9Co} + 0.117(\text{Cu} - \text{Cuo}) + 0.241(\text{CC} - \text{CCu}) + 0.383(\text{Fe} - \text{Feo})$$

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

~~(vi) Size 6C x 1.5 sq.mm~~

$$\text{P6C}_i = \text{P6Co} + 0.078(\text{Cu} - \text{Cuo}) + 0.199(\text{CC} - \text{CCu}) + 0.329(\text{Fe} - \text{Feo})$$

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

~~(vii) Size 4C x 1.5 sq.mm~~

$$\text{P4C}_i = \text{P4Co} + 0.052(\text{Cu} - \text{Cuo}) + 0.152(\text{CC} - \text{CCo}) + 0.277(\text{Fe} - \text{Feo})$$

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

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

$$\text{P2C}_i = \text{P2Co} + 0.073(\text{Cu} - \text{Cuo}) + 0.156(\text{CC} - \text{CCo}) + 0.3(\text{Fe} - \text{Feo})$$

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

~~(ix) Size 12C x 2.5 sq.mm~~

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

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~~

$$P2C2.5_i = P2C2.5_o + 0.047 (Cu - Cu_o) + 0.139 (CC - CC_o) + 0.277 (Fe - Fe_o)$$

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~~

$$P2C25_i = P2C25_o + 0.146 (Al - Al_o) + 0.303 (CC - CC_o) + 0.306 (Fe - Fe_o)$$

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~~

$$PQC_i = PQCo + 0.135 (Al - Al_o) + 0.139 (Cu - Cu_o) + 0.515 (CC - Cco) + 0.693 (Fe - Fe_o)$$

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 for electrification 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);~~

~~MODLTLTTOUG = 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;~~

~~EXTNPWRSUPPLY = 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)
$$VOHE = 0.85 \times OHE \times [PLB \times (LBi - LBo)/LBo + PC \times (Ci - Co)/Co + PSST \times (SSTi - SSTo)/SSTo + PCU \times (CUi - CUo)/CUo + PINS \times (INSi - INSo)/INSo];$$~~

~~(ii)
$$VSP = 0.85 \times SP \times [PLB \times (LBi - LBo)/LBo + PC \times (Ci - Co)/Co + PSWGR \times (SWGRi - SWGRo)/SWGRo];$$~~

~~(iii)
$$VTRANSBOO = 0.85 \times TRANSBOO \times [PLB \times (LBi - LBo)/LBo + PSST \times (SSTi - SSTo)/SSTo + PTR \times (TRi - TRo)/TRo];$$~~

- (iv) ~~$VTRANS AUX = 0.85 TRANS AUX \times [PLB \times (LB_i - LB_o)/LB_o + PSST \times (SST_i - SST_o)/SST_o + PTR \times (TR_i - TR_o)/TR_o];$~~
- (v) ~~$VTSS = 0.85 TSS \times [PLB \times (LB_i - LB_o)/LB_o + PTR \times (TR_i - TR_o)/TR_o + PC \times (C_i - C_o)/C_o + PSST \times (SST_i - SST_o)/SST_o + PSWGR \times (SWGR_i - SWGR_o)/SWGR_o];$~~
- (vi) ~~$VTLOH = 0.85 TLOH \times [PLB \times (LB_i - LB_o)/LB_o + PSST \times (SST_i - SST_o)/SST_o + PCOND \times (COND_i - COND_o)/COND_o + PC \times (C_i - C_o)/C_o + PINS \times (INS_i - INS_o)/INS_o + POTH \times (OTH_i - OTH_o)/OTH_o];$~~
- (vii) ~~$VTLUG = 0.85 TLUG \times [PLB \times (LB_i - LB_o)/LB_o + PPC \times (PC_i - PC_o)/PC_o];$~~
- (viii) ~~$VBAY = 0.85 BAY \times [PLB \times (LB_i - LB_o)/LB_o + PSST \times (SST_i - SST_o)/SST_o + PC \times (C_i - C_o)/C_o + PCU \times (CU_i - CU_o)/CU_o];$~~
- (ix) ~~$VSCADA = 0.85 SCADA \times [PLB \times (LB_i - LB_o)/LB_o + PELEX \times (ELEX_i - ELEX_o)/ELEX_o];$~~
- (x) ~~$VELEGWK = 0.85 ELEGW \times [PLB \times (LB_i - LB_o)/LB_o + POTH \times (OTH_i - OTH_o)/OTH_o];$~~
- (xi) ~~$VMODHTPWRLINE = 0.85 MODHTPWRLINE \times [PLB \times (LB_i - LB_o)/LB_o + PSST \times (SST_i - SST_o)/SST_o + POTH \times (OTH_i - OTH_o)/OTH_o];$~~
- (xii) ~~$VMODHTLTOUG = 0.85 MODHTLTOUG \times [PLB \times (LB_i - LB_o)/LB_o + PPC \times (PC_i - PC_o)/PC_o + POTH \times (OTH_i - OTH_o)/OTH_o];$~~
- (xiii) ~~$VMODLTLTOUG = 0.85 MODLTLTOUG \times [PLB \times (LB_i - LB_o)/LB_o + PPC \times (PC_i - PC_o)/PC_o + POTH \times (OTH_i - OTH_o)/OTH_o];$~~
- (xiv) ~~$VEXTNLTPWRSPLY = 0.85 EXTNLTPWRSPLY \times [PLB \times (LB_i - LB_o)/LB_o + POTH \times (OTH_i - OTH_o)/OTH_o];$~~
- (xv) ~~$VEXTNPWRSUPPLY = 0.85 EXTNPWRSUPPLY \times [PLB \times (LB_i - LB_o)/LB_o + POTH \times (OTH_i - OTH_o)/OTH_o];$~~
- (xvi) ~~$VMODELETRICAL = 0.85 MODELETRICAL \times [PLB \times (LB_i - LB_o)/LB_o + POTH \times (OTH_i - OTH_o)/OTH_o];$~~
- (xvii) ~~$INVELECTRICAL = 0.85 INVELECTRICAL \times [POTH \times (OTH_i - OTH_o)/OTH_o];$~~
- (xviii) ~~$VSIGMOD = 0.85 SIGMOD \times [PLB \times (LB_i - LB_o)/LB_o + PELEX \times (ELEX_i - ELEX_o)/ELEX_o + PPC \times (PC_i - PC_o)/PC_o + POTH \times (OTH_i - OTH_o)/OTH_o];$~~
- (xix) ~~$VINVSIG = 0.85 INVSIG \times [POTH \times (OTH_i - OTH_o)/OTH_o];$~~
- (xx) ~~$VTESTSIG = 0.85 TESTSIG \times [PLB \times (LB_i - LB_o)/LB_o + POTH \times (OTH_i - OTH_o)/OTH_o];$~~
- (xxi) ~~$VCOMMODO = 0.85 COMMODO \times [PLB \times (LB_i - LB_o)/LB_o + PELEX \times (ELEX_i - ELEX_o)/ELEX_o + OFC \times (OFC_i - OFC_o)/OFC_o];$~~
- (xxii) ~~$VINVCOM = 0.85 INVCOM \times [POTH \times (OTH_i - OTH_o)/OTH_o];$~~
- (xxiii) ~~$VTESTCOM = 0.85 TESTCOM \times [PLB \times (LB_i - LB_o)/LB_o + POTH \times (OTH_i - OTH_o)/OTH_o];$~~ and
- (xxiv) ~~$VCIVENG = 0.85 \times VCIVENG \times [PLB \times (LB_i - LB_o)/LB_o + PS \times (S_i - S_o)/S_o + PC \times (C_i - C_o)/C_o + POTH \times (OTH_i - OTH_o)/OTH_o];$~~

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);~~

~~VMODLTTLTOUG = 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);~~

~~VEXTNPWRSUPPLY = 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);~~

~~VCOMMODO = 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;~~

C_i = ~~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;

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

~~SWGR₀ = The WPI for MANUFACTURE OF ELECTRICAL EQUIPMENT for the month of the Base Month;~~

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

~~TR₀ = The WPI for transformers for the month of the Base Month; and~~

~~TR_i = 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~~

~~P30C₀ = 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~~

~~P24C₀ = 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~~

~~P19C₀ = 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~~

~~P12C₀ = 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~~

~~P9C₀ = 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 transformers		
Labour (PLB)	13.66%	3.80%	10.57%	***%	1.57%	6.80%	43.78%	100%
Cement (PC)	5.28%	-	6.57%	-	-	3.73%	-	-
Structural steel (PSST)	72.26%	-	-	***%	-	24.62%	38.20%	-
Insulators (PINS)	8.80%	-	-	-	-	-	-	-
Copper wire (PCU)	-	96.20%	-	-	-	-	-	-
Transformer (PTR)	-	-	-	***%	98.43%	-	18.02%	-
Electrical Switch Gear (PSWGR)	-	-	82.86%	-	-	64.85%	-	-
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)	***%	***%	***%	18%	***%	100%
Structural steel	***%	-	***%	-	***%	-
Cement (PC)	***%	-	***%	-	-	-
Conductor (PCOND)	***%	-	-			
PVC Insulated Cable (PIC)	-	***%	-	-	-	-
Copper wire (PCU)	-	-	***%	-	-	-
Insulators (PINS)	***%	-	-	-	-	-
Other items (POTH)	***%	-	-	82%	***%	-
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)	6.92%	41.00%	8.99%	***%	***%	***%	100%
Electronics (PELEX)	93.08%	-	-	-	-	-	-
PVC Insulated Cable (PIC)	-	23.40%	16.64%	*	*	*	-
Fibre Cable (POFC)	-	-	-	-	-	-	-
All other commodities (POTH)	00.00%	35.60%	74.37%	***%	***%	***%	-
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)	***0%	***0%	-	***0%
Electronics (PELEX)	***0%	***0%	-	-
30C x 1.5 sq mm signalling cable (S30C)	***0%	***0%	-	-
24C x 1.5 sq mm signalling cable (S24C)	***0%	***0%	-	-
19C x 1.5 sq mm signalling cable (S19C)	***0%	***0%	-	-
12C x 1.5 sq mm signalling cable (S12C)	***0%	***0%	-	-
9C x 1.5 sq mm signalling cable (S9C)	***0%	***0%	-	-
6C x 1.5 sq mm signalling cable (S6C)	***0%	***0%	-	-
4C x 1.5 sq mm signalling cable (S4C)	***0%	***0%	-	-
2C x 1.5 sq mm signalling cable (S2C)	***0%	***0%	-	-
12C x 2.5 sq mm signalling cable (S12C2.5)	***0%	***0%	-	-

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.

17.8.4-B

The Contract Price for Works under schedule G1 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:

- (a) Price adjustment shall be applied on execution of the respective item of work in accordance with Schedule-G1. The 1st Quarter will start from Bid Due date month;
- (b) Adjustment for each item of work shall be made as per classification of those item of work. Classification for item/ work for determining applicable components will be mentioned either in the work order against Schedule G1 or sub schedules of G1.

S N	Classification		1A&2	5A	6A	7	8A	9A	1B, 5B, 6B 8B & 9B	1C, 5C, 6C, 8C & 9C	5D,6D, 8D& 9D	5E,6E, 8E& 9E
	Components											
1	Fixed	*	15	15	15	15	15	15	15	15	15	15
2	Labour	L _C	20	30	20	50	20	20	0	0	10	25
3	Steel	S _C	0	0	0	0	0	0	85	0	50	0
4	Cement	C _C	0	15	0	0	0	0	0	85	0	0
5	Plant Machinery &Spares	PM _C	30	5	20	15	20	30	0	0	10	30
6	Fuel & Lubricants	F _C	25	5	15	15	20	15	0	0	10	20
7	Other Materials	Mc	10	30	30	5	25	20	0	0	5	10
Total			100	100	100	100	100	100	100	100	100	100

* Itshallnotbeconsideredforanypricevariation.

Theclassificationmentionedinthetableabovereresentsfollowingtypeofitem(s)in thework(s)–

1 EarthworkinFormation

1A All Item(s) excluding 1B or/and 1C

1B Item(s)forsupplyofSteel

1C Item(s)for supplyof Cement

2 BallastSupplyWorks

3 DELETED

4 DELETED

5 BuildingWorks

5A All Item(s) excluding 5B or/and 5C or/and 5D or/and 5E

5B Item(s) for supply of Steel

5C Item(s) for supply of Cement

5D Item(s) for Fabrication & Erection of Structures including supply of Steel

5E Item(s) for Fabrication & Erection of Structures excluding supply of Steel.

6 Bridges&Protectionwork

- 6A All Item(s) excluding 6B or/and 6C or/and 6D or/and 6E
- 6B Item(s) for supply of Steel
- 6C Item(s) for supply of Cement
- 6D Item(s) for Fabrication, Assembly, Erection& Launching of Girders including supply of Steel
- 6E Item(s) for Fabrication, Assembly, Erection&Launching of Girders excluding supply of Steel

7 Permanent Way linking Platform,

8 Passenger Amenities

- 8A All Item(s) excluding 8B or/and 8C or/and 8D or/and 8E
- 8B Item(s) for supply of Steel item/fittings
- 8C Item(s) for supply of Cement Item
- 8D Item(s) for Fabrication & Erection of Structures including supply of Steel
- 8E Item(s) for Fabrication & Erection of Structures excluding supply of Steel

9 Any Other Works not covered in Classification 1 to 8

- 9A All Item(s) excluding 9B or/and 9C or/and 9D or/and 9E
- 9B Item(s) for supply of Steel
- 9C Item(s) for supply of Cement or/and Grout
- 9D Item(s) for Fabrication & Erection of Structures including supply of Steel
- 9E Item(s) for Fabrication & Erection of Structures excluding supply of Steel

Formulae: The Amount of variation in prices in various components (labour, material etc.) shall be worked out by the following formulae:

$$(i) L = \frac{(W \text{ or } WSF \text{ or } WF \text{ or } W_{SFL} \text{ or } W_{FL}) \times (L_Q - L_B) \times L_C}{L_B \times 100}$$

$$(ii) M = \frac{(W \text{ or } WSF \text{ or } WF \text{ or } W_{SFL} \text{ or } W_{FL}) \times (MQ - MB) \times MC}{MB \times 100}$$

$$(iii) F = \frac{(W \text{ or } WSF \text{ or } WF \text{ or } W_{SFL} \text{ or } W_{FL}) \times (FQ - FB) \times FC}{FB \times 100}$$

(iv) DELETED

$$(v) PM = \frac{(W \text{ or } WSF \text{ or } WF \text{ or } W_{SFL} \text{ or } W_{FL}) \times (PMQ - PMB) \times PMC}{PMB \times 100}$$

$$(vi) S = \frac{(W \text{ or } W_s \text{ or } WSF) \times (SQ - SB) \times SC}{SC}$$

SB x100

$$(vii) C = \frac{(WorWC) \times (CQ - CB) \times CC}{CB \times 100}$$

Where,

L Amount of price variation in Labour

M Amount of price variation in Materials

F Amount of price variation in Fuel

PM Amount of price variation in Plant, Machinery and Spares

S Amount of price variation in Steel Supply Item

C Amount of price variation in Cement Supply Item

T Percentage variation payable on the gross value of bill of Concreting (Bill(s) of Quantities for concrete items)

L_C % of Labour Component in the item(s)

M_C % of Material Component in the item(s)

F_C % of Fuel Component in the item(s)

PM_C % of Plant, Machinery and Spares Component in the item(s)

S_C % of Steel Supply item Component in the item(s)

C_C % of Cement Supply item Component in the item(s)

W Gross value of work done by Contractor under work orders in schedule G1 or sub schedule of G1, as per stage payment certificate excluding the Gross value of work under W_S or/and W_C or/and W_{SF} or/and W_F or/and W_{SFL} or/and W_{FL} and cost of materials supplied by Railway either free or at fixed rate,

W_S Gross value of work done by Contractor under work orders in schedule G1 or sub schedule of G1, for item(s) of supply of steel.

W_C Gross value of work done by Contractor Gross value of work done by Contractor under work orders in schedule G1 or sub schedule of G1, for item(s) of supply of cement and /or supply of grout material.

W_{SF} Gross value of work done by Contractor Gross value of work done by Contractor under work orders in schedule G1 or sub schedule of G1, for item(s) of Fabrication & Erection of Structures including supply of Steel.

W_F Gross value of work done by Contractor Gross value of work done by Contractor under work orders in schedule G1 or sub schedule of G1, for Fabrication & Erection of Structures excluding supply of Steel.

W_{SFL} Gross value of work done by Contractor Gross value of work done by Contractor under work orders in schedule G1 or sub schedule of G1, for item(s) of Fabrication, Assembly, Erection/Launching of Girders including supply of Steel.

W _{FL}	Gross value of work done by Contractor Gross value of work done by Contractor under work orders in schedule G1 or sub schedule of G1, for item(s) of Fabrication, Assembly, Erection/Launching of Girder excluding supply of Steel.
L _B	Consumer Price Index for Industrial Workers- All India: Published in R.B.I. Bulletin for the base period
L _Q	Consumer Price Index for Industrial Workers- All India: Published in R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration
M _B	Wholesale Price Index: All commodities – as published in the R.B.I. Bulletin for the base period
M _Q	Wholesale Price Index: All commodities – as published in the R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration
F _B	The average of official prices of Diesel available on the official website of 'Petroleum Planning and Analysis cell' under Ministry of Petroleum and Natural Gas for Delhi, Kolkata, Mumbai & Chennai, for the base period
F _Q	The average of official prices of Diesel available on the official website of 'Petroleum Planning and Analysis cell' under Ministry of Petroleum and Natural Gas for Delhi, Kolkata, Mumbai & Chennai, for the 3 months of the quarter under consideration
PM _B	Index Number of Wholesale Prices in India by Groups and Sub Groups (Averages) for 'Manufacture of machinery for mining, quarrying and construction' – published in RBI (Reserve Bank of India) Bulletin, for the base period.
PM _Q	Index Number of Wholesale Prices in India by Groups and Sub Groups (Averages) for 'Manufacture of machinery for mining, quarrying and construction' – published in RBI (Reserve Bank of India) Bulletin, for the average price index of 3 months of the quarter under consideration.
S _B	The average rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in Clause 46A.9; for the base period.
S _Q	The average rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in Clause 46A.9; for the 3 months of the quarter under consideration.
C _B	Index No. of Wholesale Price Index of sub-group Cement, Lime & Plaster as published in RBI Bulletin for the base period
C _Q	No. of Wholesale Price Index of sub-group Cement, Lime & Plaster published in RBI Bulletin for the average price index of the 3 months of the quarter under consideration

Note:--

- A) The demands for escalation of cost shall be allowed on the basis of provisional indices as mentioned in the formulae in clause 17.8.6 above. Any adjustment needed to be

done based on the finally published indices shall be made as and when they become available.

B) 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.

C) Relevant city for referring "JPC (Joint Plant Committee)" rates of steel items (S_Q / S_B) 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, within 15 (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 18 shall 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 18 shall 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 19 with evidence in support thereof;
- (b) the estimated duration and the effect or probable effect which such Force Majeure Event is having or will have on the Affected Party's performance of its obligations under this Agreement;
- (c) the measures which the Affected Party is taking or proposes to take for alleviating the impact of such Force Majeure Event; and
- (d) any other information relevant to the Affected Party's claim.

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 provisions of 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 under schedule G or *and* as per actual execution of items as specified for works under schedule G1, 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 and cost 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 21 shall constitute a full and final settlement of all claims of the Contractor on account of Termination of this Agreement and that it shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

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 (1 for Important bridge and other for 03 bridges) 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 23 shall survive Termination.

ARTICLE 24

DISPUTERESOLUTION

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 as set forth in Clause 13.2.1;

“Change of Scope Order” shall have the meaning as set 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, gumtiesetc), 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;

“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;

[§] This definition may be omitted if the Contractor is not a Consortium/Joint Venture.

“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 Article 18, 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;}^{\$}

“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;

^{\$} This definition may be omitted if the Contractor is not a Consortium/Joint Venture.

“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 on the 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 Railwayline between two railway stations, on which traffic is blocked with 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

Annex - I

(Schedule-A)

Site¹⁶

Jeypore- Malkangiri new BG line Project.

1. Site

The Site of the Railway Project comprises the section commencing from **Km 69.60** to **Km 125.18** of proposed Jeypore - Malkangiri new BG line Project including yard of intermediate stations in Waltair division in the State of Odisha in the East Coast Railway. The land and other structures comprising the Site are described below:

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	Start Chainage (km)	End Chainage (km)	Length (km)	Remarks
1	Km 69.600	Km 125.18	55.58 km	Start Ch. Km 69.600 reckoned from Jeypore
	Total		55.58 km	

¹⁶The contents of this Annexure-I may be suitably modified to reflect project specific requirements.

3. Core Land

The Site of the Railway Project comprises the land described below:

b. Non CoreLand

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

4.0 Details of existing structures and facilities on adjoining railway track (For doubling or 3rdline projects or electrification)-NA

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.	Chainage (m)		Distance (m)	Width (m)		Remarks
	From	To		Left	Righth	
1	41540	41680	140	45	45	
2	41680	41840	160	10	10	
3	41840	42180	340	55	55	
4	42180	42340	160	65	65	
5	42340	42560	220	40	40	
6	42560	42880	320	45	45	
7	42880	43449	569	10	10	
8	43449	43649	200	65	65	
9	43649	43889	240	50	50	
10	43889	44120	231	25	25	
11	44120	44940	820	55	55	
12	44940	45300	360	40	40	
13	45300	46555	1255	35	35	
14	46555	47015	460	70	70	
15	47015	47400	385	25	25	
16	47400	47795	395	80	80	
17	47795	48235	440	40	40	
18	48235	49635	1400	100	100	
19	49635	49855	220	30	30	
20	49855	50216	361	40	40	
21	50216	50455	239	10	10	
22	50455	50780	325	50	50	
23	50780	51915	1135	10	10	
24	51915	52055	140	50	50	
25	52055	52555	500	10	10	
26	52555	52836	281	50	50	
27	52836	53115	279	10	10	
28	53115	53535	420	50	50	
29	53535	53775	240	25	25	
30	53775	54255	480	80	80	
31	54255	54495	240	30	30	
32	54495	54900	405	25	25	
33	54900	54980	80	80	80	
34	54980	55160	180	55	55	
35	55160	55360	200	25	25	

Sl. No.	Chainage (m)		Distance (m)	Width (m)		Remarks
	From	To		Left	Rigth	
36	55360	55580	220	80	80	
37	55580	55760	180	50	50	
38	55760	56280	520	25	25	
39	56280	56500	220	80	80	
40	56500	57000	500	25	25	
41	57000	57140	140	75	75	
42	57140	57260	120	20	20	
43	57260	57480	220	45	45	
44	57480	57640	160	60	60	
45	57640	59248	1608	30	30	
46	59248	59531	283	45	45	
47	59531	59845	314	75	75	
48	59845	60100	255	25	25	
49	60100	60260	160	60	60	
50	60260	60500	240	50	50	
51	60500	60683	183	30	30	
52	60683	60900	217	55	55	
53	60900	61310	410	30	30	
54	61310	61614	304	50	50	
55	61614	61716	102	30	30	
56	61716	61920	204	45	45	
57	61920	62040	120	30	30	
58	62040	62260	220	50	50	
59	62260	62560	300	35	35	
60	62560	62980	420	30	30	
61	62980	63309	329	60	60	
62	63309	63626	317	75	75	
63	63626	63700	74	25	25	
64	63700	63760	60	70	70	
65	63760	63880	120	25	25	
66	63880	63940	60	80	80	
67	63940	64120	180	60	60	
68	64120	64320	200	40	40	
69	64320	64360	40	80	80	
70	64360	64580	220	25	25	
71	64580	64980	400	75	75	
72	64980	65280	300	40	40	
73	65280	65500	220	50	50	
74	65500	65820	320	35	35	
75	65820	66220	400	80	80	
76	66220	66440	220	70	70	
77	66440	66720	280	30	30	
78	66720	66940	220	55	55	
79	66940	67300	360	35	35	

Sl. No.	Chainage (m)		Distance (m)	Width (m)		Remarks
	From	To		Left	Rigth	
80	67300	67460	160	90	90	
81	67460	67920	460	25	25	
82	67920	68040	120	80	80	
83	68040	68388	348	70	70	
84	68388	68630	242	60	60	
85	68630	68840	210	50	50	
86	68840	69320	480	60	60	
87	69320	69380	60	45	45	
88	69380	69540	160	40	40	
89	69540	69640	100	25	25	
90	69640	70267	627	20	20	
91	70267	71315	1048	25	25	
92	71315	71485	170	30	30	
93	71485	73100	1615	100	100	
94	73100	73660	560	40	40	
95	73660	73920	260	45	45	
96	73920	74040	120	30	30	
97	74040	74880	840	20	20	
98	74880	76380	1500	25	25	
99	76380	77380	1000	35	35	
100	77380	78180	800	25	25	
101	78180	79580	1400	50	50	
102	79580	79980	400	30	30	
103	79980	80580	600	20	20	
104	80580	80940	360	35	35	
105	80940	82380	1440	25	25	
106	82380	83980	1600	35	35	
107	83980	85286	1306	20	20	
108	85286	86880	1594	30	30	
109	86880	88580	1700	50	50	
110	88580	88980	400	35	35	
111	88980	89580	600	25	25	
112	89580	90280	700	40	40	
113	90280	90540	260	25	25	
114	90540	91180	640	35	35	
115	91180	91480	300	25	25	
116	91480	92424	944	20	20	
117	92424	92825	401	30	30	
118	92825	93843	1018	40	40	
119	93843	95425	1582	30	30	
120	95425	98895	3470	25	25	
121	98895	99415	520	45	45	
122	99415	99795	380	60	60	
123	99795	99995	200	45	45	

Sl. No.	Chainage (m)		Distance (m)	Width (m)		Remarks
	From	To		Left	Rigth	
124	99995	101125	1130	25	25	
125	101125	102815	1690	100	100	
126	102815	104285	1470	30	30	
127	104285	105025	740	45	45	
128	105025	105825	800	30	30	
129	105825	106169.96	344.96	70	70	
130	106169.96	106380	210.04	90	90	
131	106380	106785	405	80	80	
132	106785	107385	600	50	50	
133	107385	107805	420	80	80	
134	107805	108125	320	45	45	
135	108125	108445	320	65	65	
136	108445	108625	180	35	35	
137	108625	108895	270	80	80	
138	108895	109445	550	40	40	
139	109445	109964.401	519.401	25	25	
140	109964.401	110185	220.599	45	45	
141	110185	110985	800	80	80	
142	110985	111125	140	25	25	
143	111125	111340	215	50	50	
144	111340	111465	125	30	30	
145	111465	112185	720	60	60	
146	112185	112885	700	45	45	
147	112885	113165	280	30	30	
148	113165	113689	524	35	35	
149	113689	115595	1906	25	25	
150	115595	117111	1516	100	100	
151	117111	117504	393	40	40	
152	117504	119693	2189	25	25	
153	119693	120072	379	30	30	
154	120072	120695	623	35	35	
155	120695	123566	2871	30	30	
156	123566	125187	1621	200	200	

Annex - III

(Schedule-A)

Plan and Profile

The proposed alignment plan, L-sections, GADs of Major bridges, RUB's, ROB's and Minor Bridges of the Railway Project Line are attached. This is based on survey conducted by the Authority. The Contractor shall verify alignment plan, L-sections and all GADs for ensuring technical feasibility within the Right of Way boundaries. (Any deviation [positive/negative] from the approved Engineering Scale Plans, Approved Alignment plan, L section will be treated as Change of scope.)

Alignment Plans and other drawings:

- (1) The Contractor shall verify & revalidate all relevant factors which could have an impact on the Design and construction of the earthwork including but not limited to the topography, subsurface conditions, ground water levels, Temporary Works, dewatering, drainage, climatic conditions, the availability or lack of access, working space, storage, accommodation, restrictions imposed by the existing Indian Railways Tracks, the proximity of adjoining structures and roads, the local regulations regarding the obstruction of public highways and any other limitations imposed by the site and its surroundings, for the satisfactory completion of Works meeting with performance requirements in the stipulated time.
- (2) It will be presumed that Contractor has taken note of all effects of these constraints on his construction operations to ensure on-time completion of the Works.
- (3) No claim by the Contractor on the grounds of lack of foresight or knowledge of the site conditions or any unknown parameters shall be considered.
- (4) The Permanent Works shall not infringe the Indian Railway schedule of dimensions and land boundary limits provided by Railways.
- (5) If the definitive design requires additional land over and above that already set out, the Contractor will inform the Engineer.
- (6) The Geotechnical Investigation data provided by the Authority shall be supplemented by verifications / additional investigations if considered necessary by the Contractor for development of his Technical Design at his own cost. No claim shall be entertained by the Authority in case the Contractor encounters the data different than that included during the verification / additional investigation or actual execution of work.

(a) **List of drawings/Plans:**

The tentative drawings of proposed Structures are attached as per Annexure given in following table. All the Drawings of the proposed structures as shown in this list are tentative indicative/reference drawings based on Preliminary Surveys by Railways. Final Surveys are to be conducted by the Contractor, Detailed Design and Drawings to be prepared and got Approved by Railways before execution as per design procedure described in relevant clauses of this document.

SL No	Description
1	Index plan: Enclosed with Tender document
2	Index section: Enclosed with Tender document
3	Alignment Plan: Schematic alignment sketch is enclosed with Tender document.
4	L-Section: Tentative working plan & section enclosed with Tender document. Final L Section to be submitted by the agency after approval of Bridge GADs.
5	Major Bridges: Tentative sample GADs of Major bridges are enclosed with Tender document. However the Tenderer has to submit the GADs for approval by Railway.
6	Minor bridges: Tentative sample drawings of some bridges enclosed with tender document. However the Tenderer has to submit the GADs for approval by Railway.
7	ROBs/RUBs: Tentative sample GADs of ROBs/RUBs enclosed with Tender document. However the Tenderer has to submit the GADs for approval by Railway.
8	Yard ESP's: Tentative ESPs of yard enclosed with Tender document. However the Tenderer has to submit the GADs for approval by Railway.
9	Buildings: Tentative GADs of Station Buildings and quarters are enclosed with Tender document. However the Tenderer has to submit the GADs for approval by Railway.

[For Railway Electrification]*

The proposed sectioning arrangement of the Railway Electrification Project is to be prepared by Contractor. The Contractor shall verify the same for ensuring technical feasibility within the Right of Way boundaries.

Environment Clearances and Forest Clearances

1. Environment clearances: Not Required

2. Forest clearances: REQUIRED.

Forest diversion is under process.

The following forest clearances have been obtained:

i. Forest Diversion Stage-I&II

(a) The following forest clearances are awaited: **Nil**

SCHEDULE - B

(See Clause 2.1)

Development of the Railway Project

Development of the Railway Project shall include Construction of New BG Railway line from **Km 69.60** to **Km125.18** Involving Earthwork in Formation in Embankment/Cutting, Blanketing, Side Drains, Catch Water Drains, Minor Bridges, Major Bridge, Road Under Bridge (RUBs), Road Over Bridges (ROB's), Protection Works, P.Way Track Works with Contractor's own material supplies including supply of Track Ballast, new wide based PSC Sleeper, Special PSC Sleepers (For Turnouts, Improvised SEJs, Guard Rails Etc), Point (Thick Web Switches & WCMS Crossing, Glued Joints, H-Beam/Composite Sleepers over Girder Bridges, Improvised SEJs, all P-Way fittings, OHE foundations, Supply and Erection of OHE Masts, Modifications/Conversion to Underground for over head electrical HT/LT Power Line Crossings, construction of Platforms, Station Buildings, Service Buildings, SP/SSP buildings and Residential Buildings, Water Supply, indoor and outdoor Electrification etc.as described in Annex 1 to this Schedule-B and in Schedule-C.

(Schedule-B)

Description of Railway Project¹⁷

Description of Railway Project

The project comprises laying of Jeypore - Malkangiri new BG line of **Km 69.60 to Km 125.18** for a length of **55.58 km**.

It is intended to design & construct the system for a maximum train speed of **100 km/h** with an initial axle load of 25 tonnes. Formation, track and bridge structures are to be provided for 25 tonne axle load.

Detailed scope of work:

The scope of the works to be performed under the contract (hereinafter referred to as ‘the scope of work’) shall comprise of (i) Design & Construction of Civil works such as Earthwork in Embankment/Cutting, side drains, catch water drains, Blanketing work, Minor Bridges (**142 Nos**), Major Bridges (**12 Nos**), ROB's (**25 Nos**), protection works, P-Way track works including supply of all materials (except new Rails, Guard Rails and Service Rails), Residential Buildings, Service Buildings and other ancillary works etc and (ii) execution of OHE foundations, supply and erection of OHE Masts etc, Electrification of Station buildings, Platforms, Service Buildings, TSS, SP/SSP buildings etc, modification/making underground of overhead Powerline crossings etc.

All the chainages, length as indicated below are indicative & approximate. Chainage 0 is reckoned from CSB of Jaypore station.

SI No.	Station	Centerline of Station
1	Govindpalli (PH)	72.10 km
2	Mithili	78.90 km
3	Pongam	87.32 km
4	Pandripani	102.00 km
5	Panchabati	116.8 km
6	Malkangiri	124.38 km

The salient features are as described below:

SL	Description	Features
1.	Length of the line	55.58 Km
2.	Number of proposed Stations&PH	05 & 01
3.	Ruling Gradient	1 in 80 Compensated
4.	Gauge	Broad Gauge, 1676 mm
5.	Maximum Degree of Curvature	6°
6.	Maximum Height of Bank	28.015m
7.	Maximum Depth of Cutting	26.261m
8.	Major Bridges	12 No's
9.	ROB's	25 No's
10.	Minor Bridges	142 No's

Earthwork in Embankment/Cutting: Bank/Cutting as per the tentative L-Section.

¹⁷The contents of this Annexure-I may be suitably modified to reflect project specific requirements and there should be no mismatch in payment milestone and this schedule.

- All the cuttings have been proposed with 1H:1V side slopes and berms of 2m width at every 6m depth. All embankments are proposed with 2H:1V side slopes and berms of minimum 2m width at every 6m height.
- The side drains in cutting should be provided to cater the run off of the cutting area as the length of cutting is more.
- Top blanketing of suitable material to be provided for total length of embankment including cut spoil lead stretches.
- The top width embankment is considered as 7.85 m. Bottom width of Cutting at Formation level is considered as 7.85m, excluding side drains. In case the depth of cutting is more than 15m, then the cutting profile to be further widened by 2m on either side beyond the side drains.
- The work includes without limitation the design, construction & removal of any temporary works and diversions of utility services both of Railways and Local Authorities as defined in the agreement. In addition, the contractor shall undertake the rectification of defects happening in the permanent works arising due to new line works to the standards.
- The contractor is fully responsible for delivery a safe, sound, durable & satisfactorily functioning state of the track conforming to project requirements, applicable standards, codes & manuals as listed & retained in '*Manual of Specification & Standards for Railway Projects*'.
All Site investigations, Geo-technical surveys, setting of alignment, bridge planning, bore holes, communication, ancillary works, record keeping, material testing; inspection reports etc shall form part of scope of Works for successful completion of Permanent Works.
- Comprehensive guidelines and specifications for Railway Formation specification No.RDSO/2020/GE'IRS-0004 September 2020 up to latest correction slips to be followed strictly.

A. Site Surveys & Investigations

Prior to the Alignment verification and reviews of the various Reference Drawings by the Contractor, the Contractor shall carry out validation of the data as provided by the Authority and any additional surveys if considered necessary by the Contractor.

Validation of the data and any additional surveys as considered necessary by the Contractor is particularly important in this Contract which imposes on the Contractor a single point responsibility for the whole design and construction of the Works.

The Contractor shall plan and programme those validation and additional surveys if considered necessary and investigations required to commence the design of Works and develop them to the Survey Plan and Programme.

The Contractor shall summarize the results of Validation of Data and Additional Survey including all the site surveys and investigations into different reports which shall form part of the Survey Report and shall be submitted to the Authority's Engineer for his consent. The Contractor shall continue to be solely responsible for the accuracy and entirety of all the site surveys and investigations including Traverse Survey, Topographic Survey, Centre Line Survey and Geotechnical Investigations etc. throughout the Contract.

Traverse Survey

The Contractor shall carry out Traverse Survey and establish the horizontal and vertical systems at Site. The Contractor shall summarize the Traverse Survey results with verification studies in the Benchmark Establishing Report.

Topographic Survey

Upon review of the Benchmark Establishing Report by the Authority's Engineer, the Contractor shall immediately carry out the validation of the data provided by the Authority including additional Topographic Survey, if considered necessary by the Contractor, and meeting all the requirements including verification of the Right of Way (ROW), details of which is provided by the Authority and submit the Site Location / Layout

Maps and Structure Setting-out Maps etc., to the Authority's Engineer for his review and consent. It shall be the Contractor's sole responsibility to ensure that there are no obstructions to in the Right of Way for Permanent Works based on the validation of data and additional survey carried out by the Contractor. If any obstructions such as trees, structures or charted / uncharted public utilities etc. exist, the Contractor shall locate the obstructions on the Site Location Maps or Structure Setting-out Maps with the procedure and method statement that addresses the handling of the obstructions and submit to the Authority's Engineer for consent. Such obstructions shall be dealt with as per the provisions of the Contract. The Contractor shall summarize the results of validation of data and topographic survey and include the same in the Survey Report and submit to the Authority's Engineer for his consent.

Centre Line Survey

The Contractor shall validate the horizontal and vertical Alignment and yard layout for each Station as per the Design Criteria specified in the Design Standards and within the available ROW giving due consideration to the various obligatory points.

The Contractor shall validate that the Alignment is located adequately within the Right of Way as indicated in the Alignment Drawings. If not adequately aligned, then the Contractor shall notify the Authority's Engineer of the conflicts including descriptions on the issue and modify the same to ensure that there is no conflict with the Right of Way and in compliance with the Design Criteria as stipulated in the Design Standards. The Contractor shall submit the revised Alignment Drawings (if required) to the Authority's Engineer for his review and consent of the Authority.

Geotechnical investigations

- (1) Authority has carried out geotechnical investigation along the alignment at major bridge & ROB locations and details of the same including the bore log data are available in the typical GAD (General Arrangement Drawings). The contractor shall carry out the confirmatory and additional exploratory core boring at his own cost. The Authority shall not entertain any claim in case the contractor encounters the strata different than that indicated in GAD.
- (2) The Contractor shall carry out the exploratory core boring for all the bridges such as the Major Bridges, the ROBs, RUBs, Minor Bridges, Rock Cutting locations along the Alignment as well as for all the stretches on which the Embankment is to be constructed, in compliance with the following as a minimum requirement:
 - (a) **For Major Bridge& Viaducts** one (1) exploratory bore hole shall be done at all pier & abutment locations;
 - (b) **For Minor Bridges** - For a culvert box, two (2) exploratory bore holes shall be made in one location of the structure. For slab bridges, one (1) exploratory bore hole shall be done at each abutment & pier location
 - (c) For Rock Cutting locations, the exploratory bore holes shall be made at every fifty (50) meters along the alignment; and
 - (d) The Contractor shall carry out the exploratory core borings for locations on which the Rail Track Formation is to be constructed (for both embankment and excavation stretches) at least one (1) exploratory bore hole in every five hundred (500) meters along the Alignment.

In case the Contractor considers that the additional geotechnical investigations are necessary for undertaking the Detailed Design work, he may make use of the geotechnical investigation data as provided by the authority in case the Contractor is satisfied that the results of the exploratory core boring undertaken by him (as detailed above) are in conformity with the results of the geotechnical investigation

as provided by the authority. Alternatively, the Contractor may carry out additional geotechnical investigation as planned in his Geotechnical Investigation Plan in compliance with the requirements and the Specifications under the Contract. The amount for all the geotechnical investigation to satisfy the Contractor's requirement shall be deemed to be included in the Contract Price.

- (3) The Contractor shall also carry out Plate Load Test, second step Plate Load Test (Ev2) as required and at the locations as consented by the Authority's Engineer, to determine the bearing capacity of the soil.
- (4) Based on the geotechnical investigation as above, the Contractor shall submit the Geotechnical Interpretative Report on Structure Foundation and Rail track Formation to the Authority's Engineer for review.

B. Alignment Drawings

The Contractor shall be responsible for validation of the data provided by the Authority and additional surveys if considered necessary and investigations necessary for development of his Design. During validation of the data and additional surveys, the Contractor shall link the same with GTS Bench Marks (Survey of India Bench Marks). The final Alignment and yard layout for each Station (horizontal and vertical) shall ensure that it caters to the design of all the Works including, but not limited to, the Rail track formations, the Bridge Structures, the Track Works, the Stations and depots, etc. Any structures adjacent to or traversing across the alignment is to be consistently developed without infringing the ROW, the Structure Gauge and the Clearances, as stipulated in the latest IR Schedules of Dimensions, 2004 during the Technical Design development.

(1) The actual land as required for the execution of Permanent Works within the ROW shall be handed over to the Contractor free from all encumbrances except for the land area occupied by the duty huts & gate lodges, public power lines of 33kV and below, existing roads, abandoned structures, other charted public utilities which are to be handled / supported / protected permanently diverted and all the trees including the trees having girth 300mm and more. Tree cutting is the responsibility of Contractor. Such land area shall also be handed over to the Contractor and making it free from all the encumbrances and / or handling the utilities to facilitate the execution of Permanent Works shall be the responsibility of the Contractor.

(2) The Contractor shall ensure that the land, for which the Right of Access has been given by the Authority, is not encroached by unauthorized persons and is not used for any purposes not connected with the Works.

C. Site & Work Areas

The Site is where the Permanent Works are to be executed within the available ROW. The Site has been identified in the Alignment drawings and in other drawings as included in the Reference Drawings indicating the structures proposed to be constructed for operation, inspection and maintenance of facilities.

The Work Areas comprises of the Site and areas for the Temporary Works including the area outside the ROW.

D. Contractor's Possession of the Site

The Authority has in its possession more than 95% of the land within Right of Way (ROW) required for this Package. The Authority shall give Right to Access of the Site to the Contractor as per the schedule specified in Annexure II of Schedule A and in conformity with the Contractor's work plan duly consented by the Authority's Engineer and Authority. Conditions of Possession of the Site from the Authority shall be described as follows:

- (1) The actual land as required for the execution of Permanent Works within the ROW shall be handed over to the Contractor free from all encumbrances except for the land area occupied by the duty huts & gate lodges, public power lines of 33kV and below, existing roads, abandoned structures, other charted public utilities which are to be handled / supported / protected permanently diverted and all the trees including the trees having girth 300mm and more. Tree cutting is the responsibility of Contractor. Such land area shall also be handed over to the Contractor and making it free from all the encumbrances and / or handling the utilities to facilitate the execution of Permanent Works shall be the responsibility of the Contractor.
- (2) The Contractor shall ensure that the land, for which the Right of Access has been given by the Authority, is not encroached by unauthorized persons and is not used for any purposes not connected with the Works.
- (3) Diversion of all the uncharted utilities shall be handled as specified in the EPC agreement and Schedules.
- (4) Although the Site within the ROW shall become a possession of the Contractor during his construction as described below, the Contractor shall be solely responsible for maintaining the same and reinstating the same within the occupancy of Temporary Works to the entire satisfaction of the Authority's Engineer / Authority at his own expenses.
- (5) The Contractor shall divide the Site into separate segments and shall elaborate a schedule for the time periods of the availability of these areas for his contract performance.
- (6) The Contractor shall indicate the exact nature of the various Work Segments and the extent of Works to be carried out therein prior to the execution of the Permanent Works or making use of the area as working space and/or for temporary works / site facilities.
- (7) The information as above shall be submitted as part of the Contractor's technical proposal and shall be finalized before the Commencement Date and shall be subject to consent of the Authority's Engineer and approval by the Authority.
- (8) On the basis of the consented information above, the Contractor shall submit proposals for the use and the occupation of each Work Segments of the Site, such submissions being at least sixty (60) days prior to the programmed use of the specific segment of the Site. The availability of Work Segment will only be permitted for the actual duration of the Permanent and Temporary Works within the particular Work Segment of the Site.
- (9) Prior to the scheduled dates for returning of any of the Segment / works areas for subsequent use by Other Contractors /Interfacing Parties/Authority, the Contractor shall carry out the following activities: (a) Construct all Permanent Works within the Work

E. Contractor's Access to the Site

The timings, sequence & conditions relating to the Contractor's possession of the Site shall be and as detailed below:

- (a) Construct all Permanent Works within the Work Segment of the Site, to the extent as defined in the Technical Design and in accordance with the requirements of the Contract;
- (b) Reinstall the area to the same condition as it was taken over from the Authority, unless otherwise as consented by the Authority's Engineer and the Authority;
- (c) Form the area to the approved lines and levels and carry out such other works as shall be required by the provisions of the Contract;
- (d) Remove all rubbish, debris and other materials to the entire satisfaction of the Authority's Engineer and the Authority.

The schedule for all the segments / work areas as above shall include, but not limited to the following data:

- (a) Indication of the segments of the Site;
- (b) Description and the intended use of the segments of the site;
- (c) The start and the end date of the Works in the segments of the site;
- (d) The start and the end date of the periods in which the Contractor shall allow the segment of the Site to be accessed by the Other Contractors and / or the Interfacing Party(ies)

***Note:** 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 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 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 and designed to permit the Authority to operate satisfactorily at a maximum design speed of **100 km/h**. All the bridges and formation shall be constructed for 25T loading standard. Track shall be constructed for an axle load of 25T. The sharpest Curvature is 6°. The steepest Gradient is 1 in 80 (Compensated for curves @ 0.4% per 1° of curvature). Road Under Bridges (RUBs) shall have a minimum vertical opening of 5.6m (60cm to be filled upto bottom hunch top level net clearance will be min 5m) or as specified in the drawings. For ROB the vertical clearance above the proposed Rail Level should be as per IRSOD-2020 with up to date correction slips. 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.

Maximum gradient in the yards shall be governed as per Schedule of Dimensions. The gradient of the main line and its connections to existing yards shall be governed as per the Schedule of Dimensions.

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 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 Viaducts 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:

GADs of bridges are uploaded for reference.

- 1.4.4 Minimum size of RCC box shall be in accordance with the Specifications and Standards.

- 1.4.5 Important shall be constructed at the following locations: Nil

- 1.4.6 Major Bridges shall be constructed at the following locations:

S. No.	Bridge No	Chainage from Jeypore (m)	Span in m	Linear length of Bridge (in m) dirt wall to dirt wall	Type of Super Structure
1	178	71360.00	1 X 24.4 M	26.160	COMPOSITE GIRDER
2	183	73540.00	3 X 24.4M	74.960	COMPOSITE GIRDER
3	205	79509.63	1 X 24.4M	26.160	COMPOSITE GIRDER
4	228	84811.70	5 X 30.5M	154.260	COMPOSITE GIRDER
5	262	94460.00	1 X 24.4M	26.160	COMPOSITE GIRDER
6	294	106169.96	9 X 30.5M	276.260	COMPOSITE GIRDER

7	300	107420.00	5 X 30.5M	154.260	COMPOSITE GIRDER
8	308	110569.45	2 X 24.4M	50.560	COMPOSITE GIRDER
9	323	115880.00	1 X 45.7M	47.460	OPEN WEB GIRDER
10	327	117172.26	1 X12.2 M	13.380	PSC SLAB
11	332	118087.73	1 X 24.4 m	26.160	COMPOSITE GIRDER
12	336	119694.55	1 X 24.4M	26.160	COMPOSITE GIRDER

1.4.7 Minor Bridges shall be constructed at the following locations:

a) Slab Bridges–

S. No.	Bridge No	Chainage from Jeypore (m)	Span	Type of Bridge
1	173	69760	1 X 3.05 M	PSC SLAB
2	175	70400	1 X 3.05 M	PSC SLAB
3	177	70980	1 X 3.05 M	PSC SLAB
4	179	71640	1 X 4.57. M	PSC SLAB
5	180	72060	1 X 4.57. M	PSC SLAB
6	191	75610	1 X 3.05 M	PSC SLAB
7	192	75820	1 X 3.05 M	PSC SLAB
8	193	75900	1 X 3.05 M	PSC SLAB
9	196	76880	1 X 3.05 M	PSC SLAB
10	198	77360	1 X 3.05 M	PSC SLAB
11	201	77932.236	1 X 3.05 M	PSC SLAB
12	202	78560	1 X 3.05 M	PSC SLAB
13	203	79240	1 X 3.05 M	PSC SLAB
14	208	79860	1 X 3.05 M	PSC SLAB
15	209	80100	1 X 6.1 M	PSC SLAB
16	213	81080	1 X 3.05 M	PSC SLAB
17	215	81900	1 X 3.05 M	PSC SLAB
18	216	82280	1 X 3.05 M	PSC SLAB
19	230	85320	1 X 3.05 M	PSC SLAB
20	232	85740	1 X 3.05 M	PSC SLAB
21	234	86060	1 X 3.05 M	PSC SLAB
22	235	86280	1 X 3.05 M	PSC SLAB
23	236	86760	1 X 3.05 M	PSC SLAB
24	240	88600	1 X 3.05 M	PSC SLAB
25	241	88840	1 X 3.05 M	PSC SLAB
26	252	91200	1 X 3.05 M	PSC SLAB
27	253	91400	1 X 3.05 M	PSC SLAB
28	254	91840	1 X 3.05 M	PSC SLAB
29	259	93600	1 X 3.05 M	PSC SLAB
30	260	93880	1 X 3.05 M	PSC SLAB
31	261	94200	1 X 3.05 M	PSC SLAB
32	265	95480	1 X 3.05 M	PSC SLAB
33	267	95820	1 X 3.05 M	PSC SLAB
34	268	96180	1 X 9.15 M	PSC SLAB
35	270	96800	1 X 3.05 M	PSC SLAB

S. No.	Bridge No	Chainage from Jeypore (m)	Span	Type of Bridge
36	271	97300	1 X 3.05 M	PSC SLAB
37	272	97460	1 X 4.57. M	PSC SLAB
38	278	98740	1 X 3.05 M	PSC SLAB
39	285	100780	1 X 3.05 M	PSC SLAB
40	287	101080	1 X 3.05 M	PSC SLAB
41	309	111220	1 X 3.05 M	PSC SLAB
42	315	112980	1 X 3.05 M	PSC SLAB
43	316	113200	1 X 3.05 M	PSC SLAB
44	317	113480	1 X 3.05 M	PSC SLAB
45	331	117696.06	1 X 3.05 M	PSC SLAB
46	334	119300	1 X 3.05 M	PSC SLAB
47	339	120851.47	1 X 3.05 M	PSC SLAB
48	340	121100	1 X 3.05 M	PSC SLAB
49	344	122314.09	1 X 3.05 M	PSC SLAB
50	345	122640	1 X 3.05 M	PSC SLAB
51	346	122910.1	1 X 3.05 M	PSC SLAB
52	348	123140	1 X 3.05 M	PSC SLAB
53	351	124880	1 X 3.05 M	PSC SLAB

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	Type of Bridge
1	182	73280	4, 32.220	1X 4.0 X4.0 M RCC BOX
2	184	73730	4, 26.222	1X 4.0 X4.0 M RCC BOX
3	194	76260	3, 19.236	1 X 3.0 X3.0 M RCC BOX
4	195	76480	3, 22.500	1 X 3.0 X3.0 M RCC BOX
5	200	77861.75	3, 11.676 ,36°	1 X 3.0 X 2.5 M RCC BOX
6	206	79600	3, 17.338	1 X 3.0 X3.0 M RCC BOX
7	210	80640	3, 24.530	1 X 3.0 X3.0 M RCC BOX
8	211	80820	3, 19.146	1 X 3.0 X3.0 M RCC BOX
9	214	81600	3, 17.598	1 X 3.0 X3.0 M RCC BOX
10	218	82440	4, 28.830	1X 4.0 X4.0 M RCC BOX
11	219	82700	4, 19.012	1X 4.0 X4.0 M RCC BOX
12	220	82820	4, 23.602	1X 4.0 X4.0 M RCC BOX
13	222	83180	3, 21.392	1 X 3.0 X3.0 M RCC BOX
14	223	83480	4, 28.258	1X 4.0 X4.0 M RCC BOX
15	225	83880	4, 16.738	1X 4.0 X4.0 M RCC BOX
16	226	84180	3, 18.472	1 X 3.0 X3.0 M RCC BOX
17	227	84340	4, 20.012	1X 4.0 X4.0 M RCC BOX
18	229	85140	3, 19.012	1 X 3.0 X3.0 M RCC BOX
19	238	87630	3, 34.194	1 X 3.0 X3.0 M RCC BOX
20	242	89220	3, 7.850	1 X 3.0 X3.0 M RCC BOX
21	244	89820	4, 23.822	1X 4.0 X4.0 M RCC BOX

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	Type of Bridge
22	246	90180	4, 20.414	1X 4.0 X4.0 M RCC BOX
23	248	90620	4, 19.806	1X 4.0 X4.0 M RCC BOX
24	250	90900	4, 21.618	1X 4.0 X4.0 M RCC BOX
25	256	92340	3, 7.850	1 X 3.0 X3.0 M RCC BOX
26	280	99260	4, 32.202	1X 4.0 X4.0 M RCC BOX
27	281	99460	4, 25.358	1X 4.0 X4.0 M RCC BOX
28	289	101720	4, 34.758	1X 4.0 X4.0 M RCC BOX
29	293	105800	4, 26.106	1X 4.0 X4.0 M RCC BOX
30	295	106500	4, 79.690	1X 4.0 X4.0 M RCC BOX
31	296	106820	3, 19.874	1 X 3.0 X3.0 M RCC BOX
32	297	107040	4, 19.574	1X 4.0 X4.0 M RCC BOX
33	299	107240	4, 24.766	1X 4.0 X4.0 M RCC BOX
34	301	107540	3, 31.956	1 X 3.0 X3.0 M RCC BOX
35	302	108040	4, 32.200	1X 4.0 X4.0 M RCC BOX
36	303	108590	6, 25.224	1 X 6.0 X 6.0 M RCC BOX
37	306	110240	3, 7.850	1 X 3.0 X3.0 M RCC BOX
38	310	111520	3, 20.266	1 X 3.0 X3.0 M RCC BOX
39	312	112020	4, 19.334	1X 4.0 X4.0 M RCC BOX
40	314	112700	3, 7.850	1 X 3.0 X3.0 M RCC BOX
41	325	116400	3, 45.462	1 X 3.0 X3.0 M RCC BOX
42	326	116985.55	6, 44.148	1 X 6.0 X 6.0 M RCC BOX
43	328	117369.82	3, 31.306	1 X 3.0 X3.0 M RCC BOX
44	329	117450.99	3, 30.646	1 X 3.0 X3.0 M RCC BOX
45	330	117540	4, 24.406	1X 4.0 X4.0 M RCC BOX
46	337	120000	3, 29.368	1 X 3.0 X3.0 M RCC BOX
47	338	120500	3, 21.218	1 X 3.0 X3.0 M RCC BOX
48	350	124575.25	3, 66.011	1 X 3.0 X 2.5 M RCC BOX

RCC Box SYPHON 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	Type of Bridge
1	186	74440	3,8.700	1 X 3.0 X3.0 M RCC BOX(SYPHON)
2	187	74980	3,8.700	1 X 3.0 X3.0 M RCC BOX(SYPHON)
3	189	75320	3, 8.500	1 X 3.0 X3.0 M RCC BOX(SYPHON)
4	255	92240	2, 8.700	1 X 2.0 X2.0 M RCC BOX(SYPHON)
5	257	93240	3, 8.550	1 X 3.0 X3.0 M RCC BOX(SYPHON)
6	263	94920	3, 8.550	1 X 3.0 X3.0 M RCC BOX(SYPHON)
7	274	98040	3, 8.550	1 X 3.0 X3.0 M RCC BOX(SYPHON)
8	276	98460	3, 8.550	1 X 3.0 X3.0 M RCC BOX(SYPHON)

9	282	99980	3, 8.550	1 X 3.0 X3.0 M RCC BOX(SYPHON)
10	284	100480	3, 8.550	1 X 3.0 X3.0 M RCC BOX(SYPHON)
11	292	105180	3, 8.700	1 X 3.0 X3.0 M RCC BOX(SYPHON)
12	304	109183.83	3, 8.550	1 X 3.0 X3.0 M RCC BOX(SYPHON)
13	305	109860	3, 8.550	1 X 3.0 X3.0 M RCC BOX(SYPHON)
14	313	112380	3, 8.550	1 X 3.0 X3.0 M RCC BOX(SYPHON)
15	319	113900	4, 8.900	1X 4.0 X 4.0 M RCC BOX(SYPHON)
16	320	114140	4, 9.050	1X 4.0 X 4.0 M RCC BOX(SYPHON)
17	322	114880	4, 8.900	1X 4.0 X 4.0 M RCC BOX(SYPHON)
18	333	118600	3, 8.700	1 X 3.0 X3.0 M RCC BOX(SYPHON)
19	342	121860	3, 8.550	1 X 3.0 X3.0 M RCC BOX(SYPHON)
20	349	123420	3, 8.550	1 X 3.0 X3.0 M RCC BOX(SYPHON)

1.4.8 **Pipe Culvert -NA**

1.4.9 **Railway flyovers -NA**

1.4.10 **Road under bridges (RUB):**

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)
			(Span in m)	Barrel length (in m)	
1	176	70715.03	6.00	7.85	3.5
2	181	73154.78	6.00	19.858	5
3	185	73876.55	6.00	11.482	5
4	204	79480.00	6.00	7.85	5
5	207	79753.38	6.00	7.85	5
6	212	80870.90	6.00	8.438	5
7	217	82303.73	6.00	7.85	5
8	221	83044.14	6.00	10.366	5
9	224	83622.66	6.00	10.542	5
10	231	85620.00	6.00	7.85	5
11	233	85894.03	6.00	7.85	5
12	245	90113.27	6.00	14.202	5
13	247	90343.86	6.00	7.85	5
14	249	90715.90	6.00	7.85	5
15	251	91172.79	6.00	10.258	5
16	273	97608.85	6.00	7.85	5
17	279	99222.05	6.00	16.362	5
18	288	101480.00	6.00	18.294	5
19	311	111785.36	6.00	17.982	5
20	324	116280.00	6.00	7.85	5
21	335	119640.00	6.00	28.09	5

Note: (i) 1.2m width RCC outfall drain is to be provided upto the adjacent bridge for RUB's whose final road level is below the existing road level.

(ii) The gradient in approaches of RUB's must not be less than 1 in 25.

1.4.11 Road Over Bridges (ROB's) :

S. No.	Bridge No	Location (Chainage) from Jeypore (m)	Span in m	Type	Length of approach of ROB	Vertical clearance w.r.t rail level (m)
1	174	70154.982	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
2	188	75050.53	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
3	190	75478.14	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
4	197	77021.55	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
5	199	77546.716	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
6	237	86845	1X30.0 m	COMPOSITE GIRDER(ROB)	450	6.55
7	239	88212.12	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
8	243	89514.74	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
9	258	93452.06	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
10	264	95072.17	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
11	266	95684.86	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
12	269	96547.08	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
13	275	98301.03	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
14	277	98626.26	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
15	283	100173.97	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
16	286	100902.58	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
17	290	103067.18	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
18	291	104113.97	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
19	298	107127	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
20	307	110433.99	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
21	318	113688.5	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
22	321	114215.15	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
23	341	121580	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
24	343	121949.157	1X7.5X8.0M	RCC BOX (ROB)	450	7.088
25	347	122934.26	1X7.5X8.0M	RCC BOX (ROB)	450	7.088

Note: (i) RCC Crash barrier should be provided upto 15m on either side of the road approach. Rest of the road approaches are to be provided with double w beam crash barrier.

(iii) The minimum width of road approaches for Br. No.174 & 188 is more than 10m and for other remaining bridges is more than 8m between RE walls.

(iv) Road surfacing is to be provided with 75mm compacted thick bituminous in two layers. Minimum BT surface area of all bridge approaches must be more than 56,600 sqm.

(v) The gradient in approaches of RUB's must not be less than 1 in 30.

1.5 Track

1.5.1 The track layout shall be based on the provisions contained in the Indian Railways Permanent Way Manual, Indian Railway works Manual, Indian Railway Bridge Manual, Indian railway track machine manual, Indian railway AT weld and FB weld manual, LWR manual, Indian railway

schedule of dimensions, RDSO guide lines etc. The track shall be laid with 60Kg rail on 60Kg PSC sleepers of 1660 per km density with 350 mm ballast cushion on main line. On loop line the track structure consists of 60 Kg rail on 60Kg PSC sleepers of 1540 per Km density with 300 mm ballast cushion. The track should be capable of running trains at 100 Kmph. Load carrying capacity to be of 25T axle loading. The Curve should be laid with transition designed for speed potential of 100 Kmph and super elevation should be provided as per sectional speed. The super elevation should be provided in the blanket layer/subgrade itself for curve portion.

Ballast shall be machine crushed and comply with the specifications set out in —IRS GE 0001 Feb 2023 or latest.

Service rails in 13m-6.5 m length up to the extent of about 10.0 Km shall be issued to the contractor by Railway for temporary use for laying service track. However, if available more service rails can be issued on the request of the contractor. SH Rails for use as Guard rails for Girder Bridges shall be issued by Railway from anywhere in Waltair Division. Contractor has to arrange for transportation the same at his own cost to the site of work. For linking of track with service rail, all fittings and fixtures are to be arranged by the contractor at his/their own cost. After linking of track over service rail, new rail (free rail/130m/260m panel) will be arranged by the Authority. Panel Rails will be supplied in EUR (End Unloading Rake). The contractor will have to link main line track with 2nd hand rails for unloading of Panel Rails. 2nd hand Rails will be provided to the contractor as and where available in Waltair Division, the contractor will have to transport it at his own cost and return after replacing the old rails with new rails. While returning the old rails and balance new rails, any shortfall will have to be accounted for by the contractor. All Joints of Rails (those required to be welded as per approved LWR plan and Manual provisions) are to be welded using contractor's Mobile Flash Butt Welding Plants and the Joints are to be tested in accordance with USFD Manual. All track fittings including PSC Sleepers (for Straight Track), Spl PSC sleepers for Turn-outs, Derailing Switches (as per yard plan) ,SEJs) etc, Points (Thick Web Switches) & WCMS Crossings, glued joints, H-beam/ composite sleepers over girder bridges, joggle plates with clamps, 1m long fish plates, etc. Shall be procured by EPC Contractor from RDSO approved sources.

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.

1.5.3 For execution of Track works the contractor is required to procure all P-Way materials on his own cost except for New 60 KG Rails, SH rails for Guard Rails and SH rails for Service track. The New Rails and SH rails shall be issued by Railway free of cost as mentioned in the tender. The SH rails issued for Service track have to returned back to Railway after completion of P-Way works. The RDSO drawing numbers of various P.Way materials to be procured for the work are mentioned below for ready reference of contractor.

Sl No	P.Way material	RDSO's Drg No
1	60 Kg Wider base PSC Sleepers	T-8746
2	60 Kg 1 in 12 PSC Sleeper	T-4218
3	60 Kg I in 16 PSC Sleeper	T-5691
4	60 Kg D S Sleeper	T-6068
5	60 Kg Curve Sleepers (accommodate with T-8746)	T-8979 to 8982
6	Wider Sleeper for Br Straight (accommodate with T-8746)	T-8970
7	Wider Sleeper for Br Approach (accommodate with T-8746)	T-8971 to 8978

8	60 Kg 1 in 8.5 PSC Sleeper	T-4865
9	60 KG 1 in 12 TWS with fittings	T-6155
10	60 KG 1 in 8.5 TWS with fittings	T-6280
11	CGRSP for Wider PSC (accommodate with T-8746)	T-8747
12	ERC MK-V for Wider PSC (accommodate with T-8746)	T-5919
13	M S Liner for Wider PSC Sleeper (accommodate with T-8746)	T-8748
14	GFN Liner for Wider PSC Sleeper (accommodate with T-8746)	T-8751
15	Fish Plate	T-1898
16	Fish Bolt & Nut	T-1899
17	Plate Screw	T-3913
18	Joggled Fish Plate	T-5849
19	Glued Joint 60Kg	T-2572
20	1 in 8.5 Weldable CMS Crossings	T-6441
21	1 in 12 Weldable CMS Crossings	T-6412
22	60 Kg Derailing switch	T-6068
23	60 Kg 1 in 16 CMS Crossings	T-5693
24	60 Kg Glued Joints-6mm EP	T-2572
25	GRSP for 60 Kg 1 in 12 T/O	T-4218
26	GRSP for 60 Kg 1 in 8.5 T/O	T-4865
27	GRSP for 60 Kg DS	T-6068
28	GRSP for 60 Kg 1 in 16	T-5691
29	60 Kg 1 mtr long Fish plates	T-5916
30	60 Kg joggled Fish plates	T-5849
31	60 Kg Fish bolts with Nuts	T-1899
32	Bolt for C I Distance bracket	T-11551
33	C I Bracket for LC	T-4917
34	Plate screws	T-3912
35	Single coil spring washers	T-10773

Note: *The above list is indicative and for reference only. The list is not exhaustive and some items may not pertain to the instant work.*

1.6 Railway level crossings -Nil

1.7 Track layouts in station yards: Station yards shall be constructed as per the final engineering scale plans. 06 No's of **Station yards ESPs attached.**

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, electrification works, and facilities along the railway line.

1.8.1 Railway stations-

Railway stations shall be constructed at the following locations:

S No	Name Station of	Centre line chainage (Km)	Nos of platform and their individual length and width (m)	Minimum width of platform (m)	Nos of foot over bridge with width (m)
	Govindpalli (PH)	72.10 km	01 Nos(home) @ 400m x 6.10m	6.10m	-
	Mithili	78.90 km	02 Nos(01 home) @ 580m x 12.13m& 01 Island @580x12.13m)	12.13m	01 Foot Over Bridge with staircase -3 m wide& other side Ramp -2.00 m width
	Pongam	87.32 km	02 Nos(01 home) @ 580m x 12.13m& 01 Island @580x12.13m)	12.13m	01 Foot Over Bridge with staircase -3 m wide& other side Ramp -2.00 m width
	Pandripani	102.00 km	02 Nos(01 home) @ 580m x 12.13m& 01 Island @580x12.13m)	12.13m	01 Foot Over Bridge with staircase -3 m wide& other side Ramp -2.00 m width
	Panchabati	116.8 km	02 Nos(01 home) @ 580m x 12.13m& 01 Island @580x12.13m)	12.13m	01 Foot Over Bridge with staircase -3 m wide& other side Ramp -2.00 m width
	Malkangiri	124.38 km	02 Nos(01 home) @ 6200m x 12.13m& 01 Island @580x11.00m)	11.00m	01 Foot Over Bridge with staircase -3 m wide& other side Ramp -2.00 m width
		PF Shelter as per RDSO Drg	Goods Platform	Ballast Loading PF	Parking/ Circulating Area (Sq. Metre)
	Govindpalli (PH)	2 bays on each platform (Each bay 160 Sqm)	-	-	500
	Mithili	2 bays on each platform (Each bay 160 Sqm)	-	-	1500
	Pongam	2 bays on each platform (Each bay 160 Sqm)	-	01 Nos(@ 300m x 10m	1500
	Pandripani	2 bays on each platform (Each bay 160 Sqm)	-	-	1500
	Panchabati	2 bays on each platform (Each bay 160 Sqm)	-	-	1500
	Malkangiri	2 bays on each platform (Each bay 160 Sqm)	01 Nos(Goods PF- CC surfacing) @ 700m x 15m	01 Nos(@ 300m x 10m	1500

1.8.2 Service buildings -Service buildings shall be constructed at each station as follows: Schematic drawings of the Service Buildings are enclosed.

S No	Station	Service building	Area at ground floor level(sqm)
01	Govindpalli (PH)	Station Building	50
		PF Toilet	25
		S&T Goomties	-
	Mithili	Station Building	300
		PF Toilet	25
		S&T Goomties	72
	Pongam	Station Building	300
		PF Toilet	25
		S&T Goomties	72
		DG Room	22
		SSE office	600
		SSE Stores cum godown	600
		TSS	200
		OHE Depot	250
		TMRH	150
		Community Hall	150
		SRH/ORH	150
	Pandripani	Station Building	300
		PF Toilet	25
		S&T Goomties	72
		DG Room	22
		TMRH	150
	Panchabati	Station Building	300
		PF Toilet	25
		S&T Goomties	72
		DG Room	22
	Malkangiri	Station Building	300
		PF Toilet	25
		S&T Goomties	72
		DG Room	22
		Running Room	200
		TTE Rest Room	100
		RFP Barrack	300
		RPF Outpost	200
		SSE office	500
		SSE Stores cum godown	500
		TSS	200
		OHE Depot	250
		Merchant Room	60
		Community Hall	300
		Goods Shed	200
		SRH/ORH	350
		LOCO Pitline With Shed	100m long
		ARME	100

1.8.3 Staff quarters:

Construction and development of staff colony comprising of following types of staff quarters at each station:

S No	Station	Type-II	Type-III	Type-IV	Type-V
1	Govindpalli (PH)	-	-	-	-
2	Mithili	21	06	-	-
3	Pongam	39	08	05	-
4	Pandripani	13	04	-	-
5	Panchabati	13	04	-	-
6	Malkangiri	61	18	05	01
	Total	147	40	10	01

GENERAL SPECIFICATIONS FOR ALL BUILDINGSWORKS :

1.8.3.1 Plinth Area Norms for Residential Buildings:

Plinth Area Norms for Dwelling Units for Type-II to Type-V building shall be as per Table Below:

Sl. No	Category	Unit	Area In Sq. m
A	Type-II	Main unit	75.00
B	Type-III	Main Unit	85.00
C	Type-IV	Main Unit	110.00
		Servant Unit	25.00
D	Type-V	Main Unit	161.50
		Servant Unit	25.00

1.8.3.2 Scale of Amenities

a. **General Design Guidelines for Railway Quarters:**

Guidelines given below may be adopted while designing Railway houses:

- Minimum floor to floor height may be kept as 3,000 mm.
- Generally, no room or space of less than 1,800 mm may be designed.
- The size of toilets may be minimum 1,500 mm x 2,100 mm, but it is desirable to design bigger toilets. All water closets must have a wash basin also.
- Utility balcony may be avoided on front side of the building. Utility Balcony to be provided in all unit types.
- Balcony must be provided in all the climatic regions of the country. These balconies may be enclosed with glaze windows only in the hilly regions. The area of balconies may vary with the design depending on the architectural & structure considerations. Minimum depth 1,200 mm.
- Provision for power points and drainage of split/window type ACs may also be made.
- The layout of electrical points, fittings and fans shall match with furniture layout.
- The staircase and balcony railing may be made of SS 316 or cast iron or timber.
- Large size granite stone slabs may be used in common circulation areas.
- The main entrance to the building may be designed for barrier free access.
- Wherever required, additional area for staircase, circulation, porch and services like electrical sub-station, pump house, meter room, guard room etc. will be allowed over and above the norms. Staircase and circulation to be as per local bye laws/NBC.
- Shafts for services like water supply, drainage and sanitary pipes, electrical and communication lines will be allowed over and above the norms.
- Generally, no deviation from the prescribed norms should be made, but if any deviation becomes essential, proposal for such deviation should be referred to for specific approval of the competent Authority.
- The proposed plinth area Norms are based on standard single brick wall of 230 mm (9").

b. Scale of Amenities for Architectural Services

Scale of Amenities: Architectural (Main Unit)

Sl. No	Category	Drawing room	Dinning Room	Bed Room	Kitchen	Store	Number of Attendant's Unit	Utility Balcony	Toilets
1	Type-II	One	-	Two	One	-	-	One	Two
2	Type-III	One	-	Two plus study	One	-	-	One	Two
3	Type-IV	One	One	Three	One	-	One	One	Three
4	Type-V	One	One	Three	One	One	One	Two	Three

c. Scale of Amenities for Civil Fittings and Fixtures

SL. No	Item	Type- II & III	Type- IV	Type-V	Attendant unit
1	Kitchen				
(i)	Granite cooking platform	Yes	Yes	Yes	Yes
(ii)	Stainless-steel 316 kitchen sink with drain board	Yes	Yes	Yes	Yes
(iii)	Modular cupboard with shelves and drawers	Yes	Yes	Yes	Yes
2	Built in wardrobe in each bedroom up to ceiling height, minimum about 900mm wide and 600 mm deep. It may be made up of 18 mm thick blackboard or woodcompositeplasticorsteel. Thinner side of ones shutter may have mirror of size 600 mm x 1200 mm approx.	Yes	Yes	yes	Yes
3	Magic eye in front entry door	Yes	Yes	Yes	Yes
4	Curtain rod with required accessories, except for kitchen and toilet doors and windows	Yes	Yes	Yes	Yes
5	18 mm thick granite window sill lining	Yes	Yes	Yes	Yes
6	Indian or European or wall hung WC pan with flushing cistern	Yes	Yes	Yes	Yes
7	Water jet spray/ Hand faucet with each IWC/EWC	Yes	Yes	Yes	Yes
8	Wash basin with CP brass mixer tap in each toilet	Yes	Yes	Yes	Yes
9	Wash basin in balcony. Tap for washing machine	Yes	Yes	Yes	No
10	Taps in kitchen, toilets and balcony directorsupply connection in kitchen	Yes	Yes	Yes	Yes
11	Swan neck CP brass mixer tap in kitchen sink	Yes	Yes	Yes	Yes
12	Shower with CP brass mixer taps	Yes	Yes	Yes	Yes
13	SS 316 towel rail	Yes	Yes	Yes	Yes

SL. No	Item	Type- II & III	Type- IV	Type-V	Attendant unit
14	SS 316 toilet paper holder	Yes	Yes	Yes	Yes
15	Mirror of size 450 x 600 mm or of bigger size	Yes	Yes	Yes	Yes
16	Granite quadrant of 250 mm radius near shower, one at 1200 mm and second at 1500 mm height	Yes	Yes	Yes	Yes
17	Plumbing for water filter and geyser	Yes	Yes	Yes	Yes
18	Terrace water tank of 1000 litres capacity	Yes	Yes	Yes	Yes
19	Facility for IGL pipeline, where applicable	Yes	Yes	Yes	Yes
20	PVC pipe for drainage of water from ACs	Yes	Yes	Yes	No
21	Provision for window A/Cs in each room	Yes	Yes	Yes	No
22	Provision for split A/Cs in each room	Yes	Yes	Yes	No

d. Scale of Amenities for Electrical Services

S No	Item	Type- II & III	Type- IV	Type-V & VI	Attendant unit
1	Light fittings, minimum one in each room and kitchen	Yes	Yes	Yes	Yes
2	Bracket or decorative lights, minimum one in each room balcony, each toilet and mirror light for each bathroom	Yes	Yes	Yes	Yes
3	Fans (minimum one decorative in each room)	Yes	Yes	Yes	Yes
4	Modular switches	Yes	Yes	Yes	Yes
5	5 A sockets (minimum two in each room and kitchen)	Yes	Yes	Yes	Yes
6	15 A sockets (minimum two in each room and kitchen)	Yes	Yes	Yes	Yes
7	15 A socket with MCB for geyser in each toilet and kitchen	Yes	Yes	Yes	Yes
8	15 A socket with MCB for AC in each room	Yes	Yes	Yes	—
9	5 A and 15 A sockets, one each, in balcony, and utility area, store	Yes	Yes	Yes	Yes
10	Call bell near main door	Yes	Yes	Yes	Yes
11	Electric chimney in kitchen	—	—	Yes	—
12	Fresh air exhaust fan in kitchen and each toilet	Yes	Yes	Yes	Yes
13	25 liters geyser in each toilet	Yes	Yes	Yes	—

S No	Item	Type- II &III	Type- IV	Type-V &VI	Attendant unit
14	Telephone and cable TV sockets & modular mobile charging socket each room	Yes	Yes	Yes	Yes
15	Electrical points for water filter and oven	Yes	Yes	Yes	Yes
16	Electrical point for fridge and washing machine	Yes	Yes	Yes	Yes
17	Call bell point with image displaysystem			Yes	
18	Dressing light point	Yes	Yes	Yes	Yes

1.8.3.3 General specifications:

General specification of flooring, doors, windows, water supply, sanitary installation and other services as follows:

***Note:**The materials, specifications and design values given here are only illustrative. Use of local and renewable materials shall be preferred. The actual design values may vary according to type of building, bye-laws, and special requirements, if any.*

SI . No.	Description	Specifications and design
Civil Works		
1	Foundation	
i	Bearing capacity	60 kN/m ² at 2500 mm below the ground level
ii	Ground water table	7 meters below ground during rainy season
iii	Type	RCC Raft
iv	Masonry	Fly ash cement concrete bricks in cement mortar 1:6
2(a)	Superstructure	RCC framed structure
i	Concrete mix	M 30
ii	Rebars	Corrosion resistant Fe 550 D
iii	External walls	230 mm thick fly ash cement concrete brick masonry with cement mortar 1:6. OR 200 mm thick autoclaved aerated concrete blocks laid with adhesive.
iv	Internal Walls	115 mm thick fly ash cement concrete brick masonry with cement mortar 1:4. OR 100 mm thick autoclaved aerated concrete blocks laid with adhesive.
2b	Superstructure	Load bearing masonry in burnt clay FPS bricks.
i	Load bearing walls	230 mm thick brick masonry in cement mortar 1:6.
ii	Partition walls	115 mm thick brick masonry in cement mortar 1:4.

SI . No.	Description	Specifications and design
3	Doors	
i	Entrance Door	2nd class teak wood frame and 2- leaf shutters. 35 mm thick decorative flush door shutter. The frames will have double rebate for wire mesh shutters.
ii	Room frames	2nd class teak wood or UPVC.
iii	Room Shutters	35 mm thick decorative or commercial flush door.
iv	External doors	35 mm thick flush door shutters or UPVC. Exposed face of shutters in balcony or mumty will be protected with 1 mm thick PVC rigid foam sheet fixed using rubber based adhesive.
v	Toilets	Frames and 25 mm thick shutters made of wood fibre composite board of density 650 kg/m ³ .
vi	Wire gauze shutters (for all external doors)	Wire mesh of SS 304 stainless steel.
vii	Architraves	Teak wood or wood fibre composite or UPVC.
4	Windows	
i	Frames	2nd class teak wood or UPVC extruded profiles having 2.3 mm thick wall.
ii	Shutters	2nd class teak wood or UPVC extruded profiles having 2.3 mm thick wall.
iii	Fixed glazing	2nd class teak wood or UPVC extruded profiles having 2.3 mm thick wall.
iv	Toilets	5mm glass louvers in colour anodized aluminum frame
v	Wire gauze shutters (for all external)	Wire mesh of SS 304 stainless steel.
vi	Window sill level	Rooms: 900 mm, Toilets: 1225 mm, Kitchen: 1225 mm
5	Wardrobes	Boxes and shelves of 19 mm thick commercial block board, shutters of 19 mm teak veneered or laminated or commercial block board. OR boxes, shelves and shutters of 18 mm thick wood fibre composite board of density 650 kg/m ³ .20 mm diameter aluminum hanger rods with slotted (non screw type) brackets. Clear distance of hanger rod below the board bottom: 40 mm . Or S.S 304
6	Kitchen cupboards	Boxes shelves, and shutters of teak veneered orcommercial or laminated 19 mm thick block board OR 18 mm thick wood fibre composite board of density 650 kg/m ³ . Stainless steel drawers with telescopic channel.
7	Hardware fittings	ss 304 stainless steel. OR colour anodized aluminum 125 *64*1.90 mm stainless steel butt hinges
8	Curtain rods	Elliptical shaped SS 304 stainless steel with heavy duty non-screw type brackets and finials. Height 100 mm above window top.

SI . No.	Description	Specifications and design
9	Flooring and skirting	
i	Circulation areas	18 mm thick gang saw cut granite of light shade with contrast border. The skirting will not project beyond wall surface. Staircase skirting will be parallel to waist slab.
ii	Rooms	8mm to 10mm thick Vitrified tiles of size 600*1200mm.
iii	Kitchen	Satin matt vitrified tiles of minimum size 600*600 mm.
iv	Kitchen platform	18 mm thick gang saw cut black granite; edges rounded. Height above finished floor level: 900 mm Granite slab will be supported over 19 mm thick block board boxes, no RCC slab is required for modular kitchen platform.
v	Kitchen dado	Above platform: 600 mm high with vitrified tiles of size 600*600 mm OR with ceramic tiles of size 600*300 mm. Elsewhere: full height dado of same tiles.
vi	Toilets and WC	Anti-skid ceramic tiles of size 300*300 mm. Two granite corners of 250 mm radius will be fixed in wall near shower, first at 1200 and second at 1500 mm height.
vii	Toilet dado	Vitrified tiles of size 600*600 mm OR ceramic tiles of size 600*300 mm up to ceiling. One decorative band.
viii	Wash basin counter	Counter and 100 mm high skirting with 18 mm thick gang saw cut black granite. Edges rounded. 1500 mm high dado of vitrified tiles of size 600*600 mm OR 1500 mm dado of ceramic tiles of size 600*300 mm. Only under countertop wash basins will be used.
ix	Window sill	18 mm thick gang saw cut black granite, edges rounded, and projecting 12mm from finished wall surfaces.
10	Parapet walls	1200 mm high, 230 mm thick. Top finished with black granite, sloping inwards edges rounded, projecting 12mm from finished wall surfaces.
11	Balustrade/railing	1200 mm high powder coated aluminium sections or factory made SS 304 stainless steel. OR cast iron.
12	Terracing	Vitrified tile of size 600*600 mm with adhesive or crazy marble flooring. The RCC roof slab will be cast with a slope of 1:100.
13	Sanitary fittings	CP brass fittings Sanitaryware of reputed brands. Rigid PVC or GI waste pipe for wash basins and kitchen sinks.
14	Sanitary ware height	Wash basin top: 800 mm Urinal lip top: 600 mm Shower: 2100 mm Mirror: 1200 mm Towel rail: 1500 mm WC faucet: 300 mm
15	Internal services	
i	Rain water pipes	150 mm diameter UPVC pipes clamped over MS heavy duty brackets 50 mm away from wall surface.

SI . No.	Description	Specifications and design
ii	Soil and waste pipes	100 mm diameter centrifugally cast (spun) iron pipes and fittings. OR UPVC pipes and fittings. All pipes shall be 50 mm away from wall surface, clamped over MS heavy duty brackets. No pipe will be < 75 mm diameter.
iii	Floor traps	Long arm P-type floor traps placed at a corner of toilet Each floor trap outlet will be separate and join the vertical stack externally. No Nahani traps shall be used.
iv	Spouts	75 mm diameter UPVC OR GI spouts, projecting 150 mm beyond wall surface, sloping outwards, laid 5 mm below floor level. End of pipe shall be cut at 45°.
v	Sewer lines	HOPE pipes. Cushion of 600 mm.
vi	Manholes	At 30 metrecentres, and at bends and junctions.
vii	Terrace tanks	PVC tank of 1000 litres capacity for each unit, with screw type lid. Tanks will be placed over 1200 mm wide RCC slab cantilevering from a beam spanning over two columns. The top of slab will be 900 mm above the terrace level. OR SS
16	Finishing	
i	Cement plaster	1:6 mortar with well graded coarse sand.
ii	Internal walls, ceiling	Low VOC acrylic paint over cement-based putty.
iii	External walls	Low VOC textured or smooth acrylic paint over cement based putty.
iv	Wood and steel	Synthetic enamel paint.
v	Brick-RCC junction	200 mm wide polypropylene wire mesh with U-clip will be used at the junction before plastering.
17	Modular Kitchen	The cabinets will be made of 18 mm thick wood fibre composite board of density 650 kg/m ³ OR galvanized steel.No RCC slab Is required for kitchen platform.
18	Clothes lines	Three or four rows of PVC coated steel wire 450 mm apart, tied to 75 mm long J hooks fixed with m-seal.
Electrical		
1	Wiring	FRLS PVC insulated single core copper wiring of 1.5 mm ² for light and 4 mm ² for power points. Concealed wiring in recessed medium class PVC conduits. Separate conduits from mains for wiring of essential, non-essential, and UPS distribution system.

SI . No.	Description	Specifications and design
2	Electrical fittings	Modular switches and sockets. Energy efficient LED luminaries of minimum 110 lumen per watt. 5-star, brushless direct current motor fans of 1200 mm sweep. Occupancy sensors. Master switch outside hostel and guest house rooms. Fittings will be provided as per furniture lay out. Minimum two 5A and one 15A sockets will be provided in each room. Fans and light shall be fitted symmetrically as per furniture lay out Height of fittings: Switch board centre: 1200 mm Tube light or lamps: 2400 mm, 16A sockets: 300 mm
3	Exhaust fans	125 mm inline duct booster exhaust ventilation fan
4	Escape lighting	Escape routes to get illuminated from an independent power source within 5 sec of power failure. The luminaries shall be mounted at 2400 mm height.
5	Exit signage	Green colour photo luminescent exit signs of size 450* 150 mm at 2400 mm height at 30 m intervals and at all changes in direction.
6	Distribution Boards	Powder coated, prewired DBs with detachable cassette for safe removal of MCBs, RCCBs and terminal blocks.
7	Phone and TV cables	Only on specific requirement, telephone and coaxial TV cables will be provided in recessed, PVC conduits
8	LAN	Core switches, L2 switches, gigabites switches, SFP modules, OFC, wifi access and controller.
9	Uninterruptible power systems	Online (double conversion voltage and frequency independent) UPS shall comply with IEC 62040-3 to provide continuous power to life safety circuits and sensitive equipment. It must have both static bypass switch and manually operated bypass switch for maintenance. Battery banks shall be designed to provide at least 30 minutes back- up at full load.
10	Lifts	Two regenerative lifts of 20 persons capacity each, with speed of 1.5 mis, microprocessor-based control, and variable voltage variable frequency drive system for AC motor. It should be equipped with automatic rescue device and maintenance free dry batteries, It should meet accessibility requirements for especially abled persons. like minimum lift size of 1500 mm x 1500 mm, minimum door width of 900 mm, call button, control panel, hand rails, and audio and visual indicators
11	Air-conditioning	Two modular air cooled variable refrigerant flow outdoor units of 20 HP capacity each with inverter type scroll compressor and R410 A refrigerant, suitable to deliver coefficient of performance (CoP) of minimum 4.7 at 50% load. High wall type indoor units of 2 TR capacity each.

SI . No.	Description	Specifications and design
12	Fire alarm system	The intelligent addressable fire alarm system (AFAS) will integrate public address, lifts, fire fighting, pressurization and smoke management systems.
13	Fire fighting system	The wet riser system will consist of electric pump, diesel pump, jockey pump, all suitable for automatic operation and control panel for pumps in a pump room near the underground sump, delivery pipe, terrace pump and air vessel. Powder coated MS glazed cabinet will be provided for wet riser shaft on each floor to encase one 150 mm diameter C class MS delivery pipe, fire hose box containing two reinforced rubber lined hose pipes each of 63 mm diameter and 15 m length with 20 mm diameter nozzle, powder coated MS hose reel disc with 30 m long rubber braided hose of 20 mm nominal diameter and 19 m shut off nozzle and hydrant landing valve. Four-way and three-way fire brigade inlet connection valves will also be provided in the sump and riser respectively. The landing valve, hose coupling, fire brigade inlet connection valve etc, will be of stainless steel. The yard hydrant will consist of ring main of 200 mm diameter C class MS pipe, hydrants spaced at 45 metrecentres and connected to ring main with 80 mm diameter MS pipe, and fire hose box containing two reinforced rubber lined hose pipes each of 63 mm diameter and 15 m length with 20 mm diameter nozzle. The clear size of wet riser shaft will be 1200*800 mm
14	Ventilation system	The basement and corridors will have supply air fans, ducts, grills, and exhaust air fans. The lift shaft, lift lobby and staircase will have pressurization system consisting of axial flow fan. Fan motor and casing shall be suitable for smoke exhaust application having thermal rating of 250° C for 2 hours as per BS EN12101-3: 2015. The ventilation system will be designed for minimum 12 air change per hour and pressure differential of 25 to 30 Pa.
15	Lightning protection	Single prong finial with GI tape of 20 mm*3 mm suitably earthed lo the ground.
	Bulk services	
1.	Compound wall	Low height compound wall is preferable. The maximum height may be 2100 mm, with 1500 mm high masonry and 600 mm high MS grill. The length of each wall panel may be 3600 mm centres. Expansion joint will be provided at 45 metrecentres. The entrance gate, wall panels, coping, and grill will be designed aesthetically. About 1200 mm wide strip along the wall will be used for plantation. laying cables and pipes.
2.	Buildings in hills	Hill slopes of up to 30° are generally stable. Therefore, building sites will be located on hillside with slope is 45°, preferably on south slope for more heat gain. Stepped terrace development and stepped storeyconstruction will be adopted for economy

SI . No.	Description	Specifications and design
		and environment protection.
3.	Levelling	The entire plot will be levelled to a slope of 300:1 to allow natural drainage of rain water.
4.	Internal roads	6 meter wide carriage way with 2% camber. 750 mm wide unpaved shoulders on both sides sloping outwards to drain off rain water. Paver finished bituminous road section will consist of 150 mm GSB, 150 mm WMM 50 mm BM and 40 mm thick bituminous concrete OR 150 mm thick vacuum dewatered M 30 concrete laid over 100 mm thick base of M10 concrete, in chequered bays of maximum 3*3 metre size. The grooves will be 5 mm wide, 50 mm deep and filled with suitable sealant
5.	Footpath	200 mm high and 1200 mm wide footpath finished with 60 mm thick paver blocks of M30 and kerb stone
6.	Tube Well	200 mm diameter, 100 m deep tube well with uPVC pipe. Distribution network of CPVC pipes and with 10 HP submersible pump.
7.	Filtered water supply	Tube well water will be chlorinated and fed into the UG sump. Water from the sump will be pumped to terrace tanks through CPVC distribution lines.
8.	Sewerage system	HOPE pipes of 300, 200, and 100 mm diameter laid to minimum slope of 300:1. Manholes at 30 m intervals. 100 kl sewage treatment plant on MBBR technology
9.	Recycled water	Treated water from STP will be collected into a sump and pumped for horticulture purpose through CPVC distribution lines. The hydrants will be of ball cock type.
10.	Rainwater harvesting	2 pits each of size 1.5*2*2 m with borewell of 100 mm diameter and 15 m depth
11.	Sub-station	Two 1250 kVA, 5-star, 3 phase dry type 11 kV/433-250 V transformers, HT panel, LT panels, APFC panel, and surge protection device.
12.	DG set	Two 250 kVA 3 phase DG set with AMF panel mounted on platform of size 7000*6000 mm. Shed of MS tubular truss and galvalume sheet.
13.	Solar power	On grid, roof top solar PV plant of 250 kWp installed capacity with monocrystalline cell panels of minimum 20% efficiency. Power conditioning unit. Net metering and data monitoring system.
14.	Street lights	LED fitting over 9 m high ornamental MS/CI poles
15.	Horticulture works	Grassing in select areas, tree and shrub plantation
General		

SI . No.	Description	Specifications and design
1	Floor height (minimum)	Residential: 3000 mm. False ceiling height 2700 m
2	Pantry	Pantry of minimum 1800 width may be provided on each floor of a non-residential building. It may have 600 mm wide platform and one kitchen sink
3	Toilets	Each water closet will be provided with a wash basin
		Wherever feasible, sanitary ware will be provided on external wall of the building. The clear depth of sunken slab for Indian WC will be 600 mm and that for EWC will be 300 mm to accommodate pipes, traps, and slope
4	Accessible terrace	All the buildings with flat roof will have accessible terrace for ease of maintenance.

1.8.3.4 Parking Norms:

The parking norms of the local body shall be followed.

1.8.4 Out-door power supply, distribution, and lighting works

The Contractor has to provide necessary outdoor power supply, distribution and lighting works scheme and drawing for approval of Authority Engineer. Based on the approved scheme and drawing the outdoor power supply, distribution and lighting works have to be done.

1.8.5 Water supply and distribution:

Construction of bore wells, pump house, overhead tanks, etc. The Contractor has to provide necessary Water supply and distribution works scheme and drawing for approval of Authority Engineer. Based on the approved scheme and drawing the Water supply and distribution works have to be done.

The scheme should have at least one deep bore well at each station with pump house, RCC overhead tank etc, laying of pipeline network for giving water supply connection to staff quarters Station buildings, water taps on Platform etc at each station.

The Contractor shall make his own arrangements to provide adequate potable water supply in the Camp.

Where piped water supply is available, supply shall be at stand posts and where the supply is from wells or river, storage tanks of metal or other consented material shall be provided.

The Contractor shall also at his expense make arrangements for the provision and laying of water pipe lines from the existing mains wherever available.

1.8.6 Drainage system

Efficient drainage system for disposal of water from the buildings, Station and Circulating area and for drainage of the area shall be provided. The Contractor has to provide necessary Drainage system and distribution works scheme and drawing for approval of Authority Engineer. Based on the approved scheme and drawing the Drainage system and distribution works have to be done.

Surface water shall be drained away from paths and roads and shall not be allowed to accumulate into ditches or ponds where mosquitoes can breed.

1.8.7 Sewerage system:

Septic tanks of suitable capacity, sewerage line arrangements at station buildings and staff quarters and service buildings. The Contractor has to provide necessary Sewerage system and distribution works scheme and drawing for approval of Authority Engineer. Based on the approved scheme and drawing the Sewerage system and distribution works have to be done.

Arrangements shall be made for conservancy and sanitation in the labour camps according to the rules and regulations of the Local Public Health and Medical Authorities.

The sewage disposal system shall be adequate for the number of residents in the camp, and which meets the norms of the local authorities.

The provision of the latrines and wash places shall be in accordance with applicable Codes and Standards. However, the layout shall be subject to consent by the Authority.

Maintaining all latrines and wash places on the Site in a clean and sanitary condition and for ensuring that they do not pose a nuisance or a health threat.

The Contractor shall also take such steps and make such provisions as may be necessary or directed by the Authority to ensure that vermin, mosquito breeding etc are at all times controlled.

The Contractor shall be responsible for providing water, electricity, communication, sewage disposal arrangements, drainage, roads, paths and parking facilities etc. for all the site accommodations, structures and buildings and meeting all the requirements as specified in the Bid Documents.

The Contractor shall also be responsible to obtain the necessary approval from the relevant civic and utility authorities and shall maintain all such services that are necessary for satisfactory performance of the Works.

1.9 Pedestrian Bridges: NA

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	Length (km)	Remarks
1	Station&Colony road	From main road to each Station and colony	10.5 km	Black top road 3.1m width with 1m shoulder on either side connecting to existing PWD road/SH.
2	Goods Platform Roads	To Goods Platform	0.41 km	Black top road 7m width with 1m shoulder on either side.

1.11 Boundary walls, boundary pillars

a) Boundary pillars to be provided at 50 mtr interval and also at change of land width on both side of new Railway line as per IRWM.

1.12 Signage information boards and posts

All signage, information boards and posts shall be provided as per the latest Indian Railway Bridge Codes and Mannuals, Railway Board Circulars etc. in accordance with Good Industry Practice.

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 Indian Railway Bridge Codes and Mannuals, Railway Board Circulars.

1.14 Embankment/slope protection works

The Embankment shall be constructed as per the standards specified. The slope of the embankment shall be protected with boulder/ PCC blockpitching/turfing.

1.15 Supply of Materials and Stores;

Requirement of store depot/maintenance depot for P-Way track shall be as follows:

In addition to the P-Way materials required for consumption in the work the following additional materials and equipment are to be supplied by the contractor at his own cost in the depot of the Authority atJeypore.

A) Equipment :

1. Lifting Jack 10T(15 Nos),
2. Toe load measuring Machine (2Nos),
3. Abrasive Rail Cutter (2Nos),
4. Rail Hole Drilling Machine (2Nos),
5. Weld trimmer (2 Nos.)
6. Generator for Track Machine 2KV (2 Sets),
7. Generator for Track Machine 3KV (2 Sets).

(B) Gang Tools:

1. Ballast Rack (iron) (60Nos),
2. Ballast Fork (60 Nos),
3. Crow Bar (20Nos.),
4. Key Hammer 2.5KG (20Nos),
5. Shovel (40 Nos),
- 6 Chamfering Kit (2Nos),
7. Double Action Rail Grinder with welding frame AG-9 model (2 Nos),
- 8.Box type Track Gauge with Sprit Level(4 Nos),
9. Rechargeable TricolourLamp(10 Nos),
10. Gang Hooter Remote Control Type (2 Nos)
11. Infrared Rail Temperature Thermometer (6 Nos),

12. Air Blower for welding (2 Nos),
13. Drill Bit 31.5mm (2 Nos),
14. Drill Bit 18mm (2 Nos),
15. Drill Bit 26.5mm. (20 Nos),
16. Gas cutter torch (2 Nos.) ,
17. Spanner (20 Nos.) ,
18. Push Trolley (2 Nos),
19. Light Weight Motor Trolley (2 Nos),
20. Banner Flag Red (10 Nos),
21. Hand Flag Red (10 Nos),
22. Hand Flag Green (20No.),
23. Detonator (100Nos),
24. Rail Dolly (8Nos),
25. Rail Dip Lorry (2Nos),

1.16 Compulsory afforestation and tree plantation-

Tree plantation of 1000 Nos to be done at each station.

1.17 Any other 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 -NA

~~2.2 Telecommunication~~

3.0 ELECTRICAL/TRD:

3.1 Scope of Work:

The scope of work includes the Provision of 1X25 kV Conventional Type OHE (OHE-71 TKM) in between 69.6 to 125.18in Between Jeypore-Malkangiri Section of Waltair Division.

S.N .	Description	Remarks
1	Wind Pressure Zone	136Kgf/m ²
2	Maximum Permissible Span	63m
3	Type of Conductor	(i) 150 mm ² Hard Drawn Grooved Copper Contact Wire for Main Lines & Loop lines. (ii) 65 mm ² Cadmium-Copper Catenary wire.
4	Type of OHE	1x25 kV Regulated OHE
5	Type of Steel Structures	For OHE Works, 'B' Series Masts, Portals & TTC shall be used.
6	New TSS	2 TSS
7	SP/SSP	1 No SP
8	Dismantling of Existing Switching Stations/TSS	Not Required

1) General Guidelines for TRD Works:

- OHE works shall be carried out as per ACTM, Special Maintenance Instructions, IRSOD, RDSO/CORE Drawings with latest correction slips and amendments.
- Measures for getting good Quality of foundations in OHE & PSI work shall be done.
- Implantation and clearances shall be in compliance with latest IRSOD-2022 or latest and ACTM
–2022 or latest with correction slips and amendments. Employment schedule as per RDSO letter no. TI/CIV/MS/20 dated: 19.05.2023 or latest shall be adopted.
- Weight of OHE structures shall be as per RDSO guidelines issued vide letter No. TI/CIV/MS/ 2020 dt: 01.06.2022 and weight of galvanization shall be as per RDSO letter No. TI/CIV/GCP /2020 dt: 22.10.2020.
- Provision of Auxiliary Transformers of 10kVA, 50KVA 25kV/240 volts LT supply Transformers (Oil type) Switching Stations as per latest RDSO Specification No. ETI/PSI/15 (08/03) or latest.
- Stenciling on OHE structures, earthpits etc. shall be done as per latest guidelines.
- Provision of number plates on OHE structures shall be done as per latest guidelines.
- All the material to be procured from RDSO/CORE approved vendors only.
- Material should be inspected by RITES as per guidelines issued by RDSO/Railway Board letter No. 2000/RS(G)/379/2 dt: 06.09.2017 & 2000/RS(G)/379/2 dt: 29.08.2018 or latest.
- The released materials shall be transported to the nearest railway depot, as nominated by the Authority Engineer.
- Provision of standard height gauges on both sides of the LC gates to be ensured.

12. Provision of Mast between the tracks normally to be avoided.
13. Minimum implantation to be adopted as per RB letter dt 06.12.2023 reg. advance Correction Slip No. 5 or latest to Railway Manual of AC traction (ACTM Revised 2022) Vol. II Part II Appendix-I Para 20.1, 20.2, 20.9 & 30.2.
14. All Auxiliary Transformers (10kVA/25kVA/50kVA) should be with standard cable, junction box & CLS panel as per latest RDSO guidelines.
15. Instructions for improving reliability of the TRD assets issued from time to time shall be followed.
16. PCEE/ECOR's instructions shall be followed.
17. Joint Procedure Order for undertaking digging work in the vicinity of cables issued by East Coast Railway shall be followed.
18. All Drawings, charts, Schedules, specifications, instructions, policy guidelines and other data given in the tender document is indicative only. Latest version of such drawings, charts, schedules of specifications, instructions and policy guidelines as issued by the Railway Board/RDSO/CORE/RITES/PCEE/Purchaser/etc., from time-to-time shall be adopted.
19. All important policy letters should be adopted during execution of work.
20. 6 copies of all drawings are in the scope and the same to be submitted by the contractor. In addition, extra copy (if required) may be supplied to authority engineer for reference and guidance in connection with execution of TRD work at site.
21. Preparation of Sectioning diagram, wiring diagram, General Power Supply, Layout Plans, OHE Profile drawing for ROB/FOB/Bridge/Tunnel etc., Bridge Mast arrangement Drawing, TSS/SP/SSP drawings (location plans, general layout, structural layout, earthing layout, cable run drawings, cable trench drawings, foundations drawings etc.) and identifying the location for PTFE and all other relevant drawings as and when required are in the scope of the contract.
22. Bonding of PF SHED columns, bonding of each leg of FOB, all bonds on PF. Embedded by 10cm on PF.
23. Provision of Bridge masts on all major bridges

3.1.1 Regulated 1x25 kV type OHE with normal Contact Wire Height-5.80 Metre

Over Head Equipment (OHE):

The scope of work includes provision of OHE with 1x25kV system for the subject section, as per OHE guidelines issued by RDSO with latest amendments/ correction slips. Over Head Equipment including design, preparation of LOPs, Sectioning Diagram, Wiring Diagram, General Power Supply diagram. Foundations, Structures and all ancillary equipment, anti-monkey menace protection etc as per following details along with PTFE neutral section, Structure arrangement on bridge piers, feeder wire, provision of bonds, provision of height gauges & protective screens at FOB/ROBs, all types of caution, warning, retro-reflective sigma boards, DJ-ON/OFF boards, instruction and protection boards etc as per standard drawings at required locations, anti-theft charging arrangement, Traction Station Working Rule along with sectioning diagram at required locations (TPC, Traffic control, OHE Depot, AEE office etc.), Safety items (i.e. 36 kV hand gloves, key box, First aid box, shock treatment chart, Collar ring, men at work board etc) at required locations and submission of all necessary documentation for EIG sanction and PCEE authorisation for introduction of electric traction, attention/breakdown attention till PCEE authorisation. Any other modification to existing OHE/PSI installations in open route/yards due to new line electrification work.

S.N.	From Station to Station	Km to Km	Total Track Km	Remarks
1	Between Jeypore Malkangiri	69.6 to 125.18	71TKM	

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
NIL				

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
1		-	-	

3.1.4 Regulated Tram way 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
NIL				

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
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NIL				

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
NIL				

3.2 25 KV Sub-Sectioning Post (SSP) (Switching Post)(SP)

Design, supply, erection, testing and commissioning of single phase, 1x25 kV, Switching Stations (SSP&SP) including Foundations, Structures and all ancillary equipment etc. as per following details along with fencing, retaining wall, earth filling, Internal Wiring with switch/fittings/equipment, Battery Set, All types of caution, warning, instruction, protection, location/Name and schematic diagram boards, earthing stations, Safety items (i.e. Fire fighting equipment, First Aid box, Shock treatment chart, key box etc.), manning till stabilization of SCADA (At least for a period of 06 months from commissioning) and submission of all necessary documentation for EIG sanction and PCEE authorisation for introduction of electric traction, attention/breakdown attention till PCEE authorisation. PSI guidelines issued by RDSO with latest amendments/correction slips and instructions issued by Railway Board/RDSO/CORE/RITES/Purchaser etc., from time to time shall be adopted.

S.N.	Location	Type of SwitchingPost	Remarks
1	Pangam	SP	

3.3 25 KV Booster Transformer and Return Conductor Arrangement:

S.N.	From Station to Station	Km to Km	Length of RC (Metres)	Remarks
NIL				

3.4 25 kVAuxiliary Transformer Stations

S.N.	Location	Capacity	Quantity	Remarks
1	69.6 to 125.18	10KVA	6Nos	

3.5 Traction Sub-Stations (TSS)

S.N.	Location of TSS	Input Voltage	Number of Transformers	Capacity of each Transformer	Remarks
1	Mathili	220KV or 132KV	2	21.6MVA	
2	Panchibati	220KV or 132KV	2	21.6MVA	

3.6High Voltage Transmission Line from Grid Sub-Station to Railway TSS:

NIL (Not included in this Scope of Work)

3.6.1 Over Head Transmission Line for TSS

S.N.	Location Km to Km	Total Length in	Nominal Voltage Level	Single Circuit/Double	3-Phase/2-	Remarks
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		Km		Circuit	Phase	
NIL						

3.6.2 Mono Pole Over Head Transmission Line for TSS

S.N.	Location Km to Km	Total Length in Km	Nominal Voltage Level	Single Circuit/ Double Circuit	3-Phase/ 2-Phase	Remarks
NIL						

3.7 Under Ground 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
NIL						

3.8 Bay Augmentation Work at Grid Sub-Station for TSS

S.N.	Location Km to Km	Total Length in Km	Nominal Voltage Level	Single Circuit/ Double Circuit	3-Phase/ 2-Phase	Remarks
NIL						

3.9 Supervisory Control and Data Acquisition System (SCADA)

Supply, Erection, Testing & Commissioning of RTU new TSS/SSP/SP to suit 1X25kV System and necessary integration with existing SCADA system through SCADA approved vendors as per latest RDSO Specification. Telecom side work associated with commissioning of SCADA system is in the scope of EPC Contractor and shall be deemed to be part of SCADA work for payment purpose.

S.N.	Item	Quantity	Remarks
1	SP	1	
2	TSS	2	

I)Jeypore to Malkangiri (69.6Km to 125.18):

Design, Procurement, Supply, Erection, Testing and commissioning with associated wiring & power supply arrangement works as per the standards of requirement based on site(s) condition for facilities in the following locations:

SN	Name of new RCC Building	LED Lighting Recess Mounting 2'x2', 1'x1', Round & Surface mounting Batten, Linear.	BLDC Ceiling Fan, Wall Mounting Fan, Exhaust Fan.	6A, 16A & 20A Socket etc.	Split AC
1	Staff Quarters (scale of fittings shall be as per RB'S LR NO:2021/EEM/180/11 .Dt.20.01.2025)	300 Lux	Required	Required	---
2	Station Building	500 Lux	Required	Required	Required
3	S&T Goomties	300 Lux	Required	Required	Required
4	TSS/SP/SSP building/TW Shed/TRD Depo	300 Lux	Required	Required	---
5	TTE Rest Room	300 Lux	Required	Required	Required
6	RPF Armored Barrack	500 Lux	Required	Required	---
7	Running Room	300 Lux	Required	Required	Required
8	SSE(W) Office & Godown	500 Lux	Required	Required	---
9	SSE(Pway) Office & Godown	500 Lux	Required	Required	---
10	SSE(Sig) Office & Godown	500 Lux	Required	Required	---
11	ASTE/SSE(Tele) Office & Godown	500 Lux	Required	Required	Required
12	SSE(OHE) Office & Godown	500 Lux	Required	Required	---
13	RPF Outpost	300 Lux	Required	Required	---
14	Running Room	300 Lux	Required	Required	Required
15	Health Unit	500 Lux	Required	Required	Required
16	TMRH	300 Lux	Required	Required	---
17	Community Hall	300 Lux	Required	Required	---
18	Merchant Room	300 Lux	Required	Required	---
19	ARME	300 Lux	Required	Required	ORH Required
20	SRH/ORH	300 Lux	Required	Required	---
21	Goods Shed	300 Lux	Required	Required	---

SN	Name of other facility	Lux level (min.)	LED Street Lighting/All-in one solar Street Light
1	Approach Road	100 Lux	Required
2	External Lighting for service buildings	100 Lux	Required

The above requirement is for information purpose only which may be changed after final approval of drawings, plans etc. which is to be approved by Dy.CEE/Con/VSKP or CEE/C-I/BBS after finalisation of contract.

1. PROVISION OF LUMINARIES, FANS, WATER COOLER ETC.

- Supply, installation, testing and commissioning of 230V A.C. ceiling fan with double ball bearing and suitable capacitor complete with wiring with 1.5sq.mm FRLS, PVC insulated, copper conductor, single core/three cable as instructed, earthing etc. as required.

(i) Supply and Erection of 1200 mm BLDC fan with remote. Total quantity as per the site requirement @ 1 fan for each 10 sqmtrs.

(ii) Supply and Erection of 1400 mm ceiling fan with remote. Total quantity as per the site requirement @ 1 fan for each 10 sqmtrs.

Supply and fixing of stepped type. Electronic fan regulator with suitable rating for the Ceiling fan on the existing phenolic laminated sheet cover plate/modular plate of switch box, including connections, testing & commissioning as required.

- Supply of LED street light luminaire 45watt with all accessories. (ISI marked) as approved by Engineer.

- Supply , installation, testing & Commissioning of 18Watt ,4ft 220V LED tube light fittings complete with batten, acrylic cover ,18W LED tube light and all accessories.

- Supply, installation, testing & Commissioning of exhaust fans 300mm sweep, 1400 RPM with louvers shutter

- Supply, installation, testing & Commissioning of 12W,42W LED square shaped surface mounting downlight fitting with complete accessories.

- Supply & erection of 10Watt LED Bulk head fitting with all accessories.

- Supply of Decorative 8W LED Bollard light fitting with all accessories.

- Supply & erection of Water storage cooler cum purifier of capacity 80ltr. **10 NOS QTY**

2. LT SWITCH BOARDS AND FEEDER PILLAR

- Supply, Installation, testing & commissioning of weather proof, L.T. feeder pillar of different capacities complete with all respect: Switchgear Make: Legrand, ABB, Siemens, C&S and L&T

(i) Design, fabrication, Supply, erection, testing and commissioning of **39 Nos.** of wall mounted panel consisting of copper bus bar 200Amp with LED type indication lamp for RYB in incoming side. The feeder pillar shall be consisted of I/C: 1X100A MCCB 4P Ics 25KA multifunction energy meter with 100/5A CTs ,O/G:4X60A MCCB 4P Ics 10kA. Panel size:600 mmx500 mmx200 mm approx Sheet : 1.6mm thick, Angle :40x40x6mm, Channel :75X40mm)(For MCCB's Ics=100% Icu). Icu).

(ii) Design, fabrication, Supply, erection, testing and commissioning of **55 Nos** of wall mounted panel consisting of copper bus bar 100Amp with Led type indication lamp for RYB in incoming side in a CRS sheet with front double door provision & locking arrangement. The panel shall be consist of I/C:1x63A MCCB 4P 25KA with multifunction energy meter with 63/5A CTs, Outgoing:4x40A MCB DP 10KA C series, 2x10A MCB DP 10KA C series, size:600mmx500mmx250mm approx, sheet:1.6mm thick, Angle:40x40x6mm, Channel:75x40mm)(for MCCB's Ics=100% Icu)

(iii) Design, fabrication, Supply, erection, testing and commissioning of **23 Nos** LT outdoor feeder pillar consisting of copper bus bar 300Amp with LED type indication lamp for RYB in incoming side .The feeder pillar shall be consist of I/C: 1X250A MCCB 4P Ics 37KA multifunction energy meter with 250/5A CTs ,O/G:3x100A MCCB 4P Ics 25kA with

multifunction energy meters with 100/5A CTs (in all outgoing feeders), 4x32A MCB TPN 10KA C series as outgoing .Panel size:1200mmx1100mmx375mm approx Sheet : 1.6mm thick, Angle :40x40x6mm, Channel :75X40mm)(For MCCB's Ics=100% Icu).

(iv) Design, fabrication, Supply, erection, testing and commissioning of **23 No** LT outdoor feeder pillar (commercial feeder pillar) consisting of copper bus bar 200Amp with LED type indication lamp for RYB in incoming side .The feeder pillar shall be consist of I/C: 1X175A MCCB 4P Ics 35KA with multifunction energy meter with 200/5A CTs, O/G:3X60A MCCB 4P Ics 35KA with multifunction energy meters with 60/5A CTs(in all out going feeders), 3X32A MCB TPN 10KA as outgoing .Panel size:1100x1000x 375mm approx (Sheet : 1.6mm thick, Angle :40x40x6mm, Channel :75X40mm (For MCCB's Ics=100% Icu)

(v) Supply, erection, testing and commissioning of **20 No** LT outdoor feeder pillar consisting of copper bus bar 200Amp with LED type indication lamp for RYB in incoming side. The feeder pillar shall be consist of I/C: 1X100A MCCB 4P Ics 25KA multifunction energy meter with 100/5A CTs ,O/G:4x63A MCCB 4P Ics 10kA ,2x32A MCB TPN 10KA C series. Panel size:900 mmx800 mmx350 mm approx Sheet : 1.6mm thick, Angle :40x40x6mm, Channel :75X40mm)(For MCCB's Ics=100% Icu).

**Guaranteed technical particulars to be approved from Railway Authority for different capacities of LT feeder pillar and LT switch boards.*

3. EXTERNAL ELECTRIFICATION WORKS

- Supply and erection of GI Octagonal pole including digging of pit, making foundation with cement, sand and concrete in ration 1:2:6, muffing, accommodating GI pipe in foundation for cable loop in loop out of suitable size as required.

(i) **614 nos.** of 6 meters long Galvanized Octagonal Pole shall be fabricated from Fe-510 grade steel Plates as per BSEN 10025/IS 5986 with Yield stress 355Mpa. HT Plates to be folded to form an octagonal cross section and welded longitudinally as per IS 9595/IS 10178. The Poles shall with stand wind pressure of 50m/sec as per IS:875.

(ii) Additional cost of **160Nos.** of double arm bracket suitable for street light fixture

- Supply and erection of GI pipe of different sizes class 'B' ISI marked with accessories including bends etc. for support of cable with erected pole/recessing in wall/floor/passing earth strip or passing cable as per requirement.

4. POWER SUPPLY DISTRIBUTION ARRANGEMENT:

- Supply, Erection, Testing and Commissioning of 8 Nos 100KVA, 2 No 250KVA and 2 No 500KVA 11KV/430V, 3Phase, 50Hz, Outdoor type plinth mounted, Oil immersed, Non sealed type Distribution transformer, ONAN Cooled, energy efficient Level-2 and above conforming to IS 1180 (Part-1):2014 with ammendment Nos.1,2,3 & 4 and supplied with all standard fittings mentioned in caluse 20.1 of IS:1180 Part-1 along with oil temperature indicator & winding temperature indicators, drain-cum-sampling valve of steel with plug, terminal arrangement, transformer shall be fitted on high voltage and low voltage sides with bushings of appropriate voltage and current ratings, suitable cable end box is to be provided in LT side, Tap changer: Off load tap change for variation of HV voltage from +5% to -10% in steps of 2.5%.

- Supply, erection/fixing of Fire extinguishing equipments (ISI) Marked, Rubber mat (ISI) marked, GI fire buckets filled with clean dry sand held on free standing steel stand. First aid Box with medicines (ISI marked) and associated materials, shock treatment chart on aluminum frame, Schematic diagram of HT/LT installation & transformer data on white hylem sheet with aluminum frame & fixing / providing in the substation area.
- The substation should be protected by suitable fencing with gate.
- Supply and erection of Fencing Panel and gate made of 50mmx50mm MS angle, 40mmx6mm MS flat, an expand metal of 25 mm measurement as per Railway drawing and specification (Measurement excludes the fencing uprights. Measurement includes painting of painting work of two coats of aluminium paint over one coat of red oxide primer paint)
- Including charges to be paid to the state authority for service connection, Surity charges, supervision charges, metering charges i.e all charges to b e borne by contractor
- 1 sub station is commercial and 1 is Domestic connection to be taken from state authority
- Guaranteed technical particulars to be approved from Railway Authority.

5. EARTHING ARRANGEMENT

- Earthing with 3 meter long, 50 mm dia, G.I. pipe class 'B' earth electrode, adding of charcoal or coke and salt, providing concrete enclosure and MS cover plate with lifting arrangement etc. including connections with 4mm G.I. wire from earth electrode to switch board/electrical equipment as required to keep earth structure within permissible limit.
- Supply, erection, testing & commissioning of G.I pipe earthing as per CEE's approved drawing.
- Supply & fixing of G.I. Flat of size 50X6mm/25x5mm/25x3 mm

6. EARTHING CONNECTIONS

- Supply and laying 25 mm x 6 mm G.I. strip at not less than 0.50 meter below ground or in recess as required.
- Supply and laying 40 mm x 6 mm G.I. strip at not less than 0.50 meter below ground or in recess as required.

7. LT CABLING

- Supply, laying, 1.1 KV grade LT XLPE Insulated armored, aluminum conductor cable, making good the damages, end terminations with aluminum crimping Sockets/Plugs, provision of cable route markers, testing and commissioning etc. as required. All cables are FRLS
 - (i) 2 Core 16 Sq mm.
 - (ii) 2 Core 25 Sq mm.
 - (iii) 4 Core 16 Sq mm.
 - (iv) 4 Core 25 Sq mm.
 - (v) 4 Core 50 Sq mm
 - (vi) 4 Core 70 Sq mm.
 - (vii) 4 Core 95 Sq mm
 - (viii) 4 Core 185 Sq mm.
 - (ix) Extra for provision of cable route marker.

- Supply & laying of 3.5 Core 400 Sqmm Aluminum conductor XLPE Armoured LT 1.1 KV Cable.

XLPE LT cables of different sizes confirming to IS:7098-Pt-I(1988) or latest.

Guaranteed technical particulars to be approved from Railway Authority.

Make: Polycab/Havells India/Universal cable/V-Guard/Gemscab or similar reputed manufacturer as approved by Railway Authority. (Dy.CEE/Con/VSKP or CEE/Con-I/BBS).

8. ELECTRIFICATION BY HIGH MASTS

- Supply, Erection, Testing and Commissioning **8Nos** of 16m High Mast Tower as per "Technical Data Sheet for 16m High Mast and Accessories at Annexure-A along with 06Nos. Of 200W LED Flood Light Luminaires as per CEE/ECOR's Specification No. ECoR/PCEE/LED FLOOD LIGHT/05-2018, dt.24.09.18 Mod-1 @2021.

Codes and Standards

1	Technical Report No.-7	High Masts for Lighting and CCTV(2000 Edition amended & reprinted 2003) of ILE, U.K.
2	SABS0225:1991	High Mast Natural frequency calculation.
3	IS 875 Part-3	Wind Loading
4	BS EN 10025:1993	High Tensile Steel Sheets
5	IS 2062	Mild Steel
6	BS EN ISO 1461	Galvanization
7	IS 3459 / 2266	Stainless steel Wire rope
8	IS 9968 Part – 1	Trailing Cable
9	IS 325	Motor

The mast shaft and material construction shall be made of best steel grade in compliance with BSEN – 10025 or BS – 4360.

All holding bolts shall be hot dip galvanized to BS 729.

The high mast and the lowering system with the required number of LED lights with accessories etc., in place shall be capable of withstanding a sustained basis wind speed of 180 Km/h with 3 seconds gust, the above two factors are to be measured at a height of 10 m.

The design shall be such that the high mast with accessories is capable of withstanding external forces exerted by wind pressure and should have a minimum wind load factor of 1.25 and material factor of 1.15. Design life of mast should be minimum 25 years.

Each mast section to be delivered at site in two pieces. The mast thus delivered to site should withstand a wind pressure of 180 Kmph and should be able to carry the weight of 6/9/12 LED luminaries as the case may be. The overlap should be 1.5 times of Dia. at penetration. The section shall not be circumferential welded through slip joint of multiple short sections. The high mast shall be continuously tapered polygonal cross section presenting a good appearance.

The top section shall have a flange plate for bolted connection to the head frame. The base shall have a flange plate for fixing the high mast on to the concrete foundation by anchor bolts.

The light fixtures used shall have an ingress protection rating of IP-65 or higher as per application.

Construction of foundation shall be done as per approved drawing in presence of OEM & erection of high masts shall be completed in all respect.

9'/. SUPPLY & LAYING OF 11KV CABLES

- Supply and laying of following sizes XLPE(E) (ISI marked) Insulated, armored, aluminum conductor HT cable.
 - (i) 11 KV, 3 core, 185 sq.mm, conforming to IS:7098 Pt-II or latest: Quantity as per the requirement.
 - (ii) Supply and Erection of 11KV T/T AB switch Mounting Arrangement.

Guaranteed technical particulars to be approved from Railway Authority.

Make: APAR Industries/Havells India/GEMSCAB Industries/Gupta power Infrastructure Ltd/KEI Industries or similar reputed manufacturer as approved by Railway Authority. (Dy.CEE/Con-I/BBS or CEE/Con-II/BBS).

- Supply of outdoor type, heat shrinkable, end termination kit, suitable for following cable sizes XLPE(E) (ISI marked) insulated, armored aluminum conductor cable and making termination, connections with overhead conductor, testing & commissioning etc.
 - (i) 3 Core 11KV 70 to 185 Sq.mm and 3 Core 11KV 240sqmm
 - (ii) Make: Denson/Raychem/Frontec or similar reputed manufacturer as approved by Railway Authority.
- Supply of outdoor type, heat shrinkable, straight through jointing kit, suitable for following cable sizes XLPE(E) insulated, armored aluminium conductor cable and making termination, connections with overhead conductor, testing & commissioning etc.

(1) Supply and laying of HDPE pipe as per IS:4984-1995 (PN-4/PE-80, with minimum wall thickness of 6.2 mm) of different sizes under the Railway track/ road etc after digging of trench and back filling with excavated earth after laying of pipe and making good the damages as required.

Make: Aadi Polyextrusion&molding Pvt Ltd/Lingaraj Pipes/Hari Udyog/Velentina pipes/Metroplast Industries or similar reputed manufacturer as approved by Railway Authority.

Supply and laying of HDPE pipe as per IS: 4984-1995 (PN-4/PE-80, with minimum wall thickness of 6.2 mm) of different sizes under the Railway track with trenchless boring method and making good the damages as required.

Make: Aadi Polyextrusion&molding Pvt Ltd/Lingaraj Pipes/Hari Udyog/Velentina pipes/Metroplast Industries or similar reputed manufacturer as approved by Railway Authority.

10. PROVISION OF PUMPS

- Supply, installation, testing & commissioning of submersible pump set (ISI marked) suitable to operate on 3 phase, 415V, 50 Hz, AC supply along with control panel etc. complete for supplying water at suitable discharge and head as per site requirements (ISI marked) complete in all respect.
- (i) 15 HP pump set-20set

11. MISC. WORKS

- Co-ordination/liasoning and chasing with State Utility Company for availing new electrical connection/augmentation of sanctioned load at stations etc, including applying for load, collection of estimates for loads, modification of power line crossings, arranging payment, depositing payment to State Utility Company, arranging release of load & other related works. Payment to be made to SEB for new connection, load augmentation, modification of power line crossings etc. shall be made by Railway.
- Design and preparation of working & completion drawings of all HT/LT electrical installations of the project section where work is carried out such as service building, shed, internal electrification of offices, power line crossings, power supply distribution arrangements of stations /sub stations, electrification of sub-station buildings etc.& approval from the competent authority.

12. GLOW SIGN BOARDS

- Supply, installation, testing & commissioning of LED Signage (long visibility) (Similar to neon sign) M/s Glowz or similar reputed manufacturer as approved by Railway Authority. Standard Digital Signages for work shop and other premises to be ensured as per the guidelines issued by Railway board vide letter No.2023/SD-II/22/07/02 dated 15.05.2023.

The material for signages should be non- reflective, preferably matt finish to reduce the stray light reflectance and increase the visibility. The surface should be processed to prevent glare. Backlighting is preferred. The material of all signage boards shall be chosen to reduce wear and tear and possible damage by vandalism and at the same time easy to maintain. Some suggested materials for signage include Aluminum Composite Panel (ACP), acrylic, Concrete, Steel, wood etc.

The installation/erection of signages should be executed in accordance with good industry practices followed for achieving high standards of workmanship, thus ensuring safety and durability of the Works. All codes and standards referred to in these specifications shall be the latest thereof, unless otherwise stated. The design of various components, assemblies and subassemblies should be done so that it facilitates easy field assembly and dismantling.

Design, fabrication, supply, erection, fixing, testing, commissioning and loading, transportation and unloading to site of LED type Individual English letters boards. The height of letters shall be 450 mm and shall have proportionate width. Letter should be

manufactured from high quality 3 mm thick acrylic sheet. For uniform brightness of the letters height of the acrylic letter shall be about 4". Acrylic letters should be illuminated from inside by 2nd generation Superflux IP 66 medium power LED string make of NICHIA/PHILIPS/LUMILIDE/AVAGO/Seol semiconductor/ OSRAMOSRAM or similar reputed firm (ISI marked) as approved by Railway Authority. Distance between 2 LED's shall be about 3" LED circuit should be provided with 24 V LED driver of Philips/Osram make of suitable capacity and quantity. Acrylic letters along with LED should be fixed on 3 mm thick Aluminium composite sheet and entire sheet shall be supported on suitable size of MS angle frame from the backside to withstand wind pressure. The LED signage system shall be confirming to RDSO specification no RDSO/ PE/SPEC/PS/0086-2009 (Rev – 0) Amdt-1 or latest.

The work shall be completed in all respect as per site requirement in consultation with Railway Authorities.

Design, manufacturing, display of wall/hanging/floor mounting type LED illuminated sign/direction board in half elliptical shape.

Erection

and installation of wall/hanging/floor mounting type LED illuminated sign/direction board in half elliptical shape.

Supply, Installation and commissioning of 3D letter signage board.

13. PROVISION OF AIR CONDITIONER

- Supply, installation, testing & commissioning of A.C. unit complete with LCD display Cordless remote, min 3 star energy rating, suitable for 1-phase 230 volts + 10% A.C Supply Including supply & installation of suitable rating, wall mounted, IC controlled electronic auto-voltage corrector.
- (i) 2.0 Tonne window type AC- **60 nos**

14. SOLAR ITEMS

- Design, manufacture, supply, installation, testing and commissioning of Grid connected Solar Photovoltaic (PV) Plants without battery backup complete of capacity 60kWp (10kWp on each station)
- Supply and erection of All-in-One 40W LED Solar street light fitting with motion detection, Smart controller, Battery capacity: 12.8V, 24 AH with pole height 6Mtr above on ground= **00 Nos.**

15. ADDITIONAL REQUIREMENTS

- Supply and erection of 100 Sq.mm/55 sqmm (or as approved by Dy.CEE/Con/VSKP or CEE/C-I/BBS) AAA/ACSR conductor as per site requirement.
- Supply and spreading of gravel/ballast in the switch yard.
- Supply & fixing of 11KV pin insulator complete with GI pin heavy duty including nuts and bolts, washers etc. on vertical/ horizontal cross arms.

- Supply and erection of 11 KV danger board in Telugu, Hindi & English as per IS:2551.
- Supply, erection of 4 pole structure/ 2 pole structure as per site requirement with 150x150, 11 mtr RSJ including 100x50x6mm channel and 65x65x6mm angle with MS bolts & nuts etc. complete in all respect.
- Supply & erection of HT stay sets with stay wire thimble tum buckle, stay insulator, stay clamps etc. including drawing of stay wire and casting of foundation providing necessary clamps etc. complete in all respect.
- Supply & erection of LT stay sets with stay wire thimble tum buckle, stay insulator, stay clamps etc. including drawing of stay wire and casting of foundation providing necessary clamps etc. complete in all respect.
- Supply & fixing of 11KV pin insulator complete with GI pin heavy duty including nuts and bolts, washers etc on vertical/ horizontal cross arms complete in all respect.
- Supply & fixing of LT pin insulators / shackle insulator /CI knob with hardware / fixtures complete in all respect.
- Supply and erection of lightening arrestor of 9kV, 5 KA rating (3 piece per set).
- Supply and erection of loop in loop out way wiring (upto 50m) for lights and fans with 2.5 sq. mm, PVC insulated, PVC sheathed (FRLS), Stranded copper wire, (P+N+E) in 25mm dia 1.6 mm thick GI conduit
- Supply and erection of loop in loop out way wiring (above 50m and upto 100m) for lights and fans with 2.5 sq. mm, PVC insulated, PVC sheathed (FRLS), Stranded copper wire, (P+N+E) in 25mm dia 1.6 mm thick GI conduit.
- Supply and erection of GI (or as approved by Dy.CEE/Con/VSKP or CEE/C-I/BBS) perforated type cable tray of size 150mm x 50mmx2mm along with coupler plate and GI nuts and bolts on FOB & Platform Shelter (3mtr Long).
- Supply and Preparation of details wiring diagram, power supply diagram and as erected drawings for each building, each panel etc.
- All safety items viz. Insulating Mat, Fire Bucket Stand with buckets, First Aid Box, Rubber Gloves, Fire Extinguisher, Shock Treatment Chart, Men at work board, Danger Board etc. are to be provided for new sub-station.
- Supplying, installation, testing and commissioning of hydro pneumatic water consisting pumps, supply sytem microprocessor based pneumatic tank, micro processor based control panel, VED, inter connecting pipes with 250lpm.
- similar.

15. DISMANTLING WORKS

- Dismantling of wiring installations of buildings, sheds, quarters, etc. complete with luminaries, fans, distribution boards, LT Panels and associated cables including accountal, stocking, transportation and handing over of released materials to Electrical department as directed by the Engineer and making temporary arrangements if required.
- Dismantling of erected pole/overhead conductor, GI wire, cross arm brackets. insulators, stay, luminary etc. including S054 (i) accountal., stocking, and handing over released materials to railway's authorized official as instructed by the Engineer and making temporary arrangements if required.

- Dismantling of sub-station equipments such as transformers, DG Set, HT & LT Panels, cables etc. at site including transporting, stocking and handing over to Electrical department as instructed by the Engineer and making temporary arrangements if required.
- Dismantling of high mast of any height with panel, light fittings and with all accessories completely and handing over released materials to railway's authorized official as instructed by the Engineer.
- ***NOTE: 1. Guaranteed technical particulars to be approved from Railway Authority for items like cables (HT/LT), transformer, VCB panel, DG set, poles, ACB panel etc. 2. The above quantities/ capacities/ ratings mentioned is for information purpose only which may be increased or decreased after final approval of drawings, plans etc. as per actual site requirement which is to be approved by Dy.CEE/Con/VSKP or CEE/C-I/BBS after finalisation of contract.**

GENERAL GUIDELINES:

- The work for upgradation of power supply from the premises of State Government to Railways premises upto metering point will be executed by State Electricity Board authorities directly. The necessary estimate charges/demand charges/Supervision Charges against the load enhancement and extending power supply upto metering point shall be borne by the Railways. However, Liaisoning and obtaining statutory clearances/ Estimates from state electricity board to be co-ordinated by EPC agency. NOTE: Station load enhancement upto 50kW and LC gate load enhancement upto 5kW to be done.
- The scope of work under this scheme includes supply, transportation, unloading, erection and commissioning of the electrical items. All connected equipment/services which are deemed necessary for the successful operation of the system complete in all respects shall be in Contractor's scope.
- It is Contractor's responsibility to execute the job in all respect as per the detailed drawings/specifications. The Contractor shall be responsible for all electrical installations and electrical fixtures including lighting and other power equipment for shed and suitable systems for shed, Circulation, landscaping etc.
- Dismantling of the fittings / fixtures, keeping them in safe custody and /or protection of the fittings & fixtures, electrical installations in the best interest of the Railway. Dismantling the old electrical assets under the project and the released materials shall be transported to the railway depots as per the instructions of Railway engineer.
- Approval and sanction of Electrical load from Local / State supply shall be arranged by EPC Contractor.
- The EPC Contractor shall ensure that replacement / modification / augmentation of existing system shall be done as per the detailed design in such a manner so that it would not cause any effect on shed operations.
- Electrical Installation: Before shifting, all electrical installations and cable to be provided in advance and only connections with existing line to be done in period (if required). Work of connections of old with new to be done only in presence of concerned department supervisor's/ Railway representative.
- Additional Spare Cables in Each Electrical room to be provided by the EPC contractor. Cable Sizes should as per the site requirement and Final load calculations.
- All the necessary Safety Equipment's, Measuring Equipment's, Tools, Safety Charts,

- Maintenance Charts etc needs to be provided by the EPC contractor,
- EPC contractor shall make provisions of track crossing/Road/Platform crossings of cables through HDD, HDPE of suitable size cable between platforms if necessary. For the same EPC contractor has to take prior approvals on drawing sand material.
- Provision of MDBs, DBs, with proper rating switchgear (MCBs, MCCBs, ELCBs etc.), suitable rating XLPE Cables along with laying with HDPEs, FRP cable trays, FRLS copper conductor of suitable rating for the concealed conduit wiring on wall and ceilings, modular switch board, modular switches, lighting, BLDC fan, exhaust fan, air cooling, power points, ACs, Geysers, Road lighting, pathway, Earthing set as per the yard sticks, guide lines of Railway board for respective assets and specification mentioned. (LetterNo: RB letter No.2018/LM(PA)03/06 Dt:09.04.2018).
- Quality of Electrical Works planned & executed should be confirming to IE Rules/CEA Regulations, National Building Code (NBC) of India – 2016, National Electrical Code (NEC) of India – 2023, **Super ECBC Codes**, relevant IS Standards etc. Proper earthing, suitable Fire detection, Fire alarm and Fire suppression systems (including provision of Gas Insulated Switchgear (GIS) panels) are to be planned & incorporated in proposals. HT/LT switchgears and cables to be provided as per load requirements.

All cables to be laid in trenches/ s/cable trays for ease of maintenance & aesthetic look. Proper fault protection & gradation system to be ensured.

2. PRE NI, NI & COMMISSIONING WITH CRS INSPECTION:

- As the EPC work involves integrated planning & execution of various Civil, Track, S & T, Electrification and Electrical General services works, the Contractor is expected to understand the sequencing of various activities for all these works so that a proper interface planning is done so as to meticulously/ smoothly execute various independent activities/inter-linked activities to maintain coordinated efforts in yielding desired progress.
- The Contractor shall also liaison with the Authority Engineer with regard to discussing of such planning and execution of various issues involved.
- The Contractor and his engineers/ staff responsible shall also ensure proper liaising efforts with various agencies/departments involved in the process of resolving various issues during the course of execution of works.
- For instance, the S&T cables, S&T structures like location boxes, etc. and OHE structures like masts, portals, anchors, etc. including the hidden one in and around the site of work shall be surveyed using cable route plans, layout plans, etc., appropriately marked and properly relocated before commencement of any work. It is the responsibility of Contractor to plan for re location of such cables and structures such that progress of work is not affected. Adequate technical manpower and equipment may be deployed for co-ordinating approvals, surveying and supervising such works for safety and smooth running of trains.
- All items required for NI/PNI i.e Hiring charges for 7.5KVA DG set along with manpower for operation & maintenance, Hiring charges for fixing & testing with associated wiring for Temporary lighting with 100/200 watt LED flood light fittings including manpower for operation and maintenance, Fuel charges for running of 7.5KVA DG set. Considering each DG running for 12hrs/day, Hiring charges for fixing, testing and associated wiring for temporary lighting with 1 X 18W LED batten fitting or above or LED fittings with lamp, Temporary laying of cables of adequate capacity to sustain load

for power supply arrangement during execution period, which includes hiring charges for cable, Hiring Charges for extension of Power supply arrangement from DG/local supply to work site by temporary fixing of 1 phase, 32A Change over switch /1 phase, 32A Iron Clad DP main switch, adequate quantity of extension board consists of 3 Nos of 5 Amps switch and socket and provision of portable Emergency light, Hiring charges for fixing, testing, commissioning and associated wiring for Temporary provision of Energy efficient ceiling fan/pedestal fan, Temporary earthing arrangement for safety point of view at site during execution period, Hiring charges of fixing, testing & commissioning of Desert Air Cooler, Hiring charges of one Chain cloured RICE/LED Lights (each Chain consisting of 1000 lamps) including fixing testing & commissioning with associated wiring should be born by Contractor.

- The works related to pre-pre-NI, pre-NI and NI, which are pre-cursor for opening of section, shall be carefully and meticulously planned. A detailed combined programme for all the works shall be submitted to Authority Engineer, Divisional and Zonal Authority well in advance for approval. These works shall be executed within the block period as allotted by deploying required manpower, machinery and other equipment. The decision of the Authority regarding number of blocks and duration of blocks, Pre-NI and NI programme is final and the EPC contractor has to execute the work as per the approved programme.
- For the inspection and commissioning of work by CRS, all the opening documents shall be prepared, co-ordinated at different levels and submitted in advance. A detailed minute to minute programme to be made for inspection day(s). Execution of all necessary works for conducting speed trial and successful commissioning during CRS inspection shall be made. The assets to be offered shall be planned in advance. All the drawings including as built drawings, construction quality records along with inspection registers and test reports including codes/manuals and measuring equipment shall be kept ready for the inspection. Trolley arrangements shall be co-ordinated and made available. Ladder arrangements at important locations like stations and bridges, etc. to be made for inspection.

3. ENERGY CONSERVATION:

Following measures are proposed for energy conservation:

- All Motors to be with efficiency IE-3 as per IS-12615.
- Power Factor to be maintained automatically near unity as far as possible with APFC Relays. This will reduce power distribution losses.
- Copper conductor wires/ cables are proposed for sizes up to 16 Sq mm. This will reduce losses and improve reliability.
- The power distribution shall be designed for 6% voltage drop from source to load, as per NBC-2016.
- All cables shall be de-rated to reduce losses. This will avoid heating of cables & improve reliability.
- As per Railway Board Energy efficiency Policy Letter No.2022/EEM/150/09 dated 30.12.2022, Energy efficient equipment of star rated reputed brands VIZLED Lights, BLDC Fans, 5 Star rated Inverter AC Units, type Air conditioners, Pumps, DG Sets, Transformers, adoption of low carbon cooling system/two stage evaporative/radiant cooling system etc., and Energy Conservation Measures like provision of Natural Day Lights, automation of pumping, PF lighting, Pit line lighting, intelligent water management system etc., are to be ensured.

4. POWER DISTRIBUTION SCHEME:

- LT Power from transformer sand DG sets shall be brought to Main LT Panels/synchronizing through sandwich type bus ducts. Power shall be distributed to respective loads through a network of LT Panels, bus ducts, LT XLPE Insulated, FRLS PVC inner and outer sheathed armored Cables which shall be laid on Cable trays both for horizontal & vertical runs cabling.
- Size of the cable should be designed 1.5 times capacity of calculated load. Approval of competent authority to be taken for proposed power supply, cable laying, internal wiring diagram for power and lighting load etc.
- The power distribution shall be designed for 6% voltage drop from source to load, as per NBC-2016.
- Bulk load is fed directly from the main panels installed in the sub-station.
- Load will be distributed on all the transformers and in the event of failure of one transformer, it will be possible to transfer load by closing bus-coupler for priority load basis.

5. CABLE TAGS:

- Cable tags to be made out of 2 mm thick aluminium sheets, each tag 32 mm in dia. with one hole of 2.5 mm dia. 6 mm below the periphery to be provided for clamping the same with cables.
- Cable designations are to be punched with letter/number punches and the tags are to be tied to cables with piano wires of approved quality and size. Tags to be tied inside the panels beyond the glands as well as below the glands at cable entries. Along trays, tags are to be tied at all bends on straight lengths, tags to be provided at every 15 meters.

6. CABLE TRAY:

- Cable Trays to be perforated type/Ladder Type and will be installed under the Ceiling or on Wall. All joints, bends, tees, reducers, connectors to be factory fabricated. Site fabrication will not be accepted. The cable trays to be Hot Dipped galvanized in the works of the manufacturer.
- The ladder/perforated cable tray to be properly fixed with channels, angles, tie rod, flats to the ceiling. The metal inserts for fixing channels, angles, tierod, flats to be put inplace while casting. If insert plates are not placed in position, Anchor fasteners to be used to support cable trays if required. The cable tray route to be coordinated with other services to avoid crisscrosso fall the services. While laying the cables on the tray minimum one cable diameter distance to be observed between two adjacent cables and about 20% space to be kept spare for any future installation. The width of the cable tray to be selected so as to accommodate required number of cables to be laid on it. The cables to be tied with the cable tray with GI clamps as per item.

The perforated cable trays to be made of having not more than 17.5% perforation and thicknes sand depth to be as under:

- Width 600 mm and above-75mm deep,2.0mm thick.
- Width 100 mm and above and less than 600 mm-50 mm deep,1.6 mm thick.
- Width less than 100 mm-25 mm deep, 1.0 mm thick.

The ladder type cable trays to be fabricated as under:

- Width 1000 mm and above-Runners 25x100x25x3mm, Rungs20x40x20x3mm@250mm

center to center.

- Width below 1000mm-Runners 25x75x25x2.5mm, Rungs 20x30x20x2.5mm @250mm center to center.

7. CONDUITS:

- All conduits for concealed/ surface/ exposed installation including conduits running above false ceiling shall be of medium protection with stove enameled MS conduits. All conduits installed below ground level or in the damp/ wet area shall be 'A' Class G.I.s. All conduits for fire alarm system irrespective of surface or concealed shall be of MS conduits painted with post officered color.
- PVC Conduits: In any special area the Nonmetallic conduits and accessories shall conform to IS 9537 (part 3), IS: 3419 and each conduit shall bear the ISI Mark. PVC conduits shall be medium class as per IS:9537 (Part-3) round. The conduit shall be plain end type as specified in IS:9537 (Part-3). The conduits internal surface shall be smooth. Only approved quality factory made bends/ accessories shall be used unless otherwise stated. Minimum size of conduits shall be 20 mm diameter and wall thickness shall be as per IS:9537 (Part-3) for medium class.
- Metal Conduits: Conduits and Accessories shall conform to IS: 9537 (Part-2). Solid drawn, screwed steel conduits protected by black stove enamel shall be used. Where conduits for buried wiring are passing underground, they shall be of galvanized steel conduit. Joints between conduits and accessories shall be securely made to ensure earth continuity.
- No steel conduit less than 20 mm in diameter shall be used. Conduits shall be solid drawn, lap welded, with minimum wall thickness of 1.6 mm for conduits up to and including 32 mm diameter and 2mm wall thickness for conduits above 32mm diameter.
- The conduits shall be delivered to the site of construction in original bundles and each length of conduit shall be as the label of the manufacturer & ISI Mark (Engraved Markings) or painted markings.
- Conduit accessories such as bends, coupling etc., shall be conforming to relevant Indian Standard Specifications.

INTERNAL & EXTERNAL ELECTRICAL INSTALLATION WORK:

- The electrical Installation work shall be carried out in accordance with Indian Standard Code of Practice. It shall also be in conformity with the current Indian Electricity rules and regulations and requirements of the Local Electricity Supply Authority and Fire Insurance regulation so far as these become applicable to the installation.
- The wiring shall generally be done using FRLS PVC insulated copper conductor wires of 1100V Grade in M.S./PVC conduits as called for including providing switches, sockets, plug tops, electronic fan regulators, outlets etc.
- MS conduits shall be used in all exposed applications. Earth wire shall also be insulated and of same cross-sectional area as phase wire.
- Color Code shall be maintained for the entire wiring i.e., Red, Blue & Yellow for phase wires, black for neutral & green for earth wire.
- Minimum size of copper wire shall be 1.5 Sq mm. for light points. Minimum wire for sub-circuit light points will be 2.5 Sqmm.
- Wires of size 4Sq mm. and above shall be used for power outlets.

- Modular type switches/outlets shall be provided.
- Sufficient number of light points/power points will be provided for using various house keeping electrical/electronic gadgets in common areas.
- Cable of size upto 16 Sqmm will be of copper and above will be that of aluminium conductor.

Note: Jointing or looping of wires shall be done any where except at a switch or a light fitting. No joint shall be permitted above false ceiling.

8. WIRE SIZES:

2) The size of the copper cable/wires used for internal wiring shall be as follows:

- Light Point wiring for single & two points-1.5 Sqmm
- Light Point wiring for more than two points-2.5 Sqmm
- Light Plug Wiring -2.5 Sqmm
- Power Plug (6/16 Amp Socket outlet)-4.0 Sqmm
- Power Plug (20/30 Amp MCB)-6.0 Sqmm
- Circuit Wiring from DB to First Switch - 2.5 Sqmm
- For wiring of higher capacity outlets, size of wires will be decided keeping in view load and distance from DB.
- The size of earth continuity conductor shall be same as phase wire.

9. DISTRIBUTION BOARDS:

- For connection of lighting/power circuits, MCB type distribution boards shall be provided suitable for 3phase 415V and single phase 230V.
- All distribution boards shall be fabricated from 1.6 mm thick sheet and shall be of double door construction. The incomers shall be with MCCB/MCB. In each phase 30mA ELCBs/RCCBs shall be provided for protection against earth leakage. All Distribution boards shall be with IP42 protection.
- MCBs shall be of 10kA fault rating and capacity shall be as per load requirement.
- Distribution boards, MCCB, MCB, ELCB shall be of reputed manufacture and same make.
- Distribution boards shall be provided in an accessible location.
- Each circuit load shall not be loaded with more than 1000-Watt load. Minimum wire size shall be for sub circuit wiring for light points 2.5sqmm and for power 4sqmm with FRLSCu wire. Separate neutral to be pulled for each circuit.
- For External feeders all above specifications except IP protection which shall be IP67 shall be followed. All cable entries for External feeder pillar shall be from bottom. All External feeders shall be provided with Real time delay timer with Day light sensor and contactor for Automatic operation.
- All distribution boards and Feeder pillar shall be provided with RAL-7032 Powdercoating.

10. LIGHTING AND FANS:

- General lighting of various common areas shall be planned as per NBC-2016 and Guidelines issued by Ministry of Railways.
- Internal Lighting has to be done for all areas of Station Building. Electrification of all stations, service buildings, LCgates, end goomties etc.
- Electrification of all LC gates, Station platforms (with 30%-70% Automatic Control system to save energy), yards, circulating area, approach road, Cabling and Lighting arrangements at ROB/RUBs as per the details given by civil engineering department.
- Lux levels at various areas will be maintain proper, minimum LUX levels in the entire building or external areas. All Energy efficient reputed brand LED Lighting Should be 5* BEE Ratings. The minimum lux level to maintained in station premises/circulating area to be ensured.

S.N.	Location	Approved Lux Levels
1	Concourse	150
2	Circulating Area	50
3	Waiting Hall	150
4	Retiring Hall	100
5	Platform	
	a) Open	50
	b) Covered	150
6	Enquiry cum Reservation Office	
	a) General	150
	b) Counter	150
7	Covered Passageway	
	a) Corridors	50
	b) FOB	50
	c) Stairs	50
8	Parcel/Luggage Office	
	a) General	100
	b) Counter	150
9	Timetable	200
10	OutdoorParking	50
11	Restaurant Area	
	a) Kitchen	200
	b) Stores	150
	c) Dining Hall	200
12	Other Service Building at Station	200
13	Cloak Room	
	a) General	150
	b) Counter	150
14	Public Utility Service (Toilet/Bathroom)	100
15	Above Escalators	150
16	Near Lifts	100

All LED fixtures must be as per latest specification & guidelines of East Coast Railway.

- For ventilation of various areas ceiling fans shall be provided in offices/small cabins, waiting rooms, platforms etc. BLDC fans with remote regulators to be provided as per latest specification & guidelines of East Coast Railway.
- Energy efficient exhaust fans to be provided in washare as, S & T installation, battery rooms, power rooms, stores etc.

11. EXTERNAL/ INTERNAL LIGHTING:

- The Contractor will design, supply, install and commission the external/internal lighting including 6m long GI Octagonal pole single arm with inbuilt junction box and foundation accessories, 45watt LED Street light fitting.

12. INSTALLATION:

- Installation of all electrical services as per relevant codes, standard, guidelines & Policies to be followed.
- The light fixtures and fittings shall be assembled and installed in position complete and ready for service, in accordance with details, drawings, manufacturer's instructions and to the satisfaction of the Construction manager/Consultants. Pendent fixtures specified with over all stem lengths are subject to change and shall be checked with conditions on the job and installed as directed. All suspended fixtures shall be mounted rigid and fixed in position in accordance with drawings, instructions and to the approval of the competent authority. Fixtures shall be suspended true to alignment, plumb level and capable of resisting all lateral and vertical forces and shall be fixed as required.
- All suspended light fixtures, fans etc., shall be provided with concealed suspension arrangement in the concrete/ roof members. It is the duty of the Contractor to make these provisions at the appropriate stage of construction. Exhaust fans shall be fixed at location shown on drawings. They shall be wired to a plug socket outlet at a convenient location near the fan. All switch and outlets, for fans and light fittings shall be bonded to earth. The recessed type fixtures shall not be supported into the false ceiling framework. This shall have independent support from the socket of ceiling using conduit down rods/ steel chain with provision for adjusting the level of fitting. Wires shall be connected to all fixtures through connector blocks. Wires brought out from junctions shall be cased in flexibles for connecting to fixtures concealed in suspended ceiling. The flexibles shall be check-nutted to the junction with a brass bush. Double check-nut at the fixture and flexibles, wherever used shall be of make and quality approved by the competent authority.

13. EARTHING:

- All the non-current carrying metal parts of electrical installation shall be earthed as per IS: 3043. All equipment, metal conduits, rising main, cable armour, switch gear, distribution boards, meters, all other metal parts forming part of the work shall be bonded together and connected by two separate and distinct conductors to earth electrodes. Earthing shall be in conformity with the provisions of Rules 32,61,62,67 and 68 of IER 1956.
- G.I. shall be of medium class, 40 mm dia. and 4.0m length. Galvanizing shall conform to relevant Indian Standards. G.I. electrode shall be cut tapered at the bottom and provided with holes of 12mm dia. drilled not less than 7.5 cm from each other upto 2M of length from bottom. The electrode shall be as far as practicable embedded below permanent moisture level. Except where rock is encountered, shall be driven to a depth of at least 4.0 mtr. Where rock is encountered at a depth of less than 2.5mtr the electrode may be

buried inclined to the vertical and the inclinations shall not be more than 30 deg from the vertical. The electrode shall be made of one piece. Earth leads to the electrode shall be laid in a heavy-duty Gland connected to the electrode with brass bolts, nuts and washers. GI shall be terminated in a wire meshed funnel. The funnel shall be enclosed in a masonry chamber of 450 mmx 450 mm dimensions. The chamber shall be provided with C.I. frame and CI inspection cover. The earth station shall also be provided with a suitable permanent identification label tag. The earth electrode shall conform to IS: 3043 latest editions. The soil around the earthing electrode shall be treated to reduce the resistivity of the soil by filling the complete depth of electrode with alternative layers of charcoal and salt.

- Earth resistivity test will be done by contractor to establish correct values and use the same for calculating over all earth resistance.
- Separate and independent earthing stations shall be provided according to IS 3043 and RDSO drawing no. ETI/PSI/222-1 in substation and no. ETI/OHE/P/7021 in other than substations area.

14. METERING:

- Intelligent Meters in major energy consuming equipment/system store lay energy consumption data on wireless network to IBMS for giving power consumption analytics –activity wise as per GRIHA requirement.
- Dual Source Energy Meters are to be provided for giving power consumption analytics.
- All energy meters shall be BMS compatible.

15. SOLAR PV SYSTEM:

- There is very good potential of Solar Power harnessing since huge terrace is available above shed. It is proposed to install **60kWp** solar PV plant(10kWp at each station) which will be Grid Connected on the station buildings.
- The Solar PV Cells will be installed on the terrace as per architectural drawings. It is expected that Solar PV Cells of required capacity can be installed over the areas available.
- The power generated by Solar PV cells is proposed to be used on site in various applications like lighting, ventilation, air-conditioning, lifts and other loads which are available round the clock. The minimum load is expected to be more than the proposed capacity of Solar PV Cells. It is expected that there will be no surplus power generated by Solar PV Cells.
- Provision of connection of Solar Power shall be connected in main LT panels of Transformers.
- The system will also be GRID connected with Net metering.
- This is for guideline only and the contractor may propose superior specification/ arrangement.
- Components and parts used in the SPV power plants including the PV modules, metallic structures, cables, junction, switches, PCUs etc., should conform to the BIS or IEC or international specifications, wherever such specifications are available and applicable.
- Solar PV system shall consist of following equipment's/ components.
 - a) Solar PV modules consisting of required number of Crystal line PV cells.
 - b) Mounting structures.

- c) Junction es.
- d) Earthing and lightening protections.
- e) IR/ UV protected PVC Cables and accessories

Solar Photo-Voltaic Modules:

- The PV modules used should be made in India and PV and PV module should be Mono crystal line PERC or latest.
 - The PV modules used must qualify to the latest edition of IEC PV module qualification test or equivalent BIS standards Crystalline Silicon Solar Cell Modules IEC 61215/ IS14286. In addition, the modules must conform to IEC 61730 Part-1 - requirements for construction & Part 2 – requirements for testing, for safety qualification or equivalent IS.
- a) For the PV modules to be used in a highly corrosive atmosphere through out their lifetime, they must qualify to IEC 61701.
 - b) The total solar PV array capacity should not be less than allocated capacity (kWp) and should comprise of solar crystal line modules of upto 400 Wp and above wattage.
 - c) Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.
 - d) PV modules must be tested and approved by one of the IEC authorized test centres.
 - e) The module frame shall be made of corrosion resistant materials, preferably having anodized aluminium.
 - f) Other general requirement for the PVmodules and subsystems shall be the Following:
 - (i) The rated output power of any supplied module shall have tolerance within +/-3%.

The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2 (two)percent from the respective arithmetic means for all modules

and/or for all module strings, as the case may be.

- (ii)The module shall be provided with a junction with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-passdiode. They shall have hinged, weatherproof lid with captive screws and cable gland entry points or may be of sealed type and IP-65 rated.

- (iii) I-V curves at STC should be provided by contractor.

- Modules deployed must use a RF identification tag. The following information must be mentioned in the RFID used on each module. This should be inside the laminate only.
- a) Name of the manufacturer of the PV module
 - b) Name of the manufacturer of Solar Cells.
 - c) Month & year of the manufacture (separate for solar cells and modules)
 - d) Country of origin (separately for solar cells and module)
 - e) I-V curve for the module Wattage, Im, Vm and FF for the module
 - f) Unique Serial No and Model No of the module
 - g) Date and year of obtaining IEC PV module qualification certificate.
 - h) Name of the test lab issuing IEC certificate.
 - i) Other relevant information on traceability of solar cells and module as per ISO9001 and ISO14001.

16. AT SUPPLY, CLS PANEL, RELAY ROOM:

- 6Nos AT 10KVA capacity for 6 stations
- SP/SSP/TSS according to RDSO drawings AT should be provided
- Extension of AT supply to Lights & Fans in SM/ASM Room, PF, COP, Poles & FOB 30% light circuit as per RB letter No.2018/LM(PA)/03/06 Dt.09.04.2018.
- AT junction to be provided as per latest guideline.
- Provision of CLS panel (60 Amps at RBG room and 60 Amps at end goomties, LC gates and IB huts), extending power supply (UP AT, DOWN AT, Local supply) along with stand by cables arrangements, proper earthing, cable route indicators and preparation of cable route diagrams. Power supply arrangements to be arranged from AT to CLS panels at stations and end Goomties with 2core LT XLPE 180/70 Sq mm cabling arrangements laid in HDPE as per railway specifications and necessary approval to be taken.
- CLS junction as per the following: (1) Bus Bar: 150x32x6mm Bimetallic Tinned copper Busbar (2) Size of the: 485x550x225mm (3) Sheet Thickness: - 14SWG; Cover- 16SWG (4) and cover to be connected for equipotential bonding (5) Suitable earthing provision for the CLS Junction (6) Suitable FRP Insulating Material Base for mounting Busbar (7) Painting: Siemens Grey RAL7032 Powder coated. The junction shall be as per Drg No. 01/2022-4/2/AR.
- Air conditioning of 2TR capacity Precision type with high performance split type cooling units suitable for critical technology/equipment room) in each IPS/Battery/Relay room along with 24 Hrs timer arrangements, proper drainage arrangements & 2Ton split type AC in S & T Service building/Goomties with Voltage stabilizer.

17. LED STATION NAME BOARD AND DIGITAL SIGNAGES:

- Standard Digital Signages for stations and other premises to be ensured as per the guidelines issued by Railway board vide letter No.2023/SD-II/22/07/02 dated 15.05.2023.
- The material for signages should be non- reflective, preferably matt finish to reduce the stray light reflectance and increase the visibility. The surface should be processed to prevent glare. Backlighting is preferred. The material of all signage boards shall be chosen to reduce wear and tear and possible damage by vandalism and at the same time easy to maintain. Some suggested materials for signage include Aluminium Composite Panel (ACP), acrylic, Concrete, Steel, wood etc.
- The installation/erection of signages should be executed in accordance with good industry practices followed for achieving high standards of workmanship, thus ensuring safety and durability of the Works. All codes and standards referred to in these specifications shall be the latest thereof, unless otherwise stated. The design of various components, assemblies and sub assemblies should be done so that it facilitates easy field assembly and dismantling.
- Design, fabrication, supply, erection, fixing, testing, commissioning and loading, transportation and unloading to site of LED type Individual English letters boards and Individual Devnagari letter for Hindi & Telugu letters boards. The height of letters shall be 450 mm and shall have proportionate width. Letter should be manufactured from high quality 3 mm thick acrylic sheet. For uniform brightness of the letters height of the acrylic letter shall be about 4". Acrylic letters should be illuminated from inside by 2nd generation Super flux IP66 medium power LED string make of NICHIA/PHILIPS/LUMILIDE/AVAGO/Seol semiconductor/OSRAM. Distance

between 2 LED's shall be about 3" LED circuit should be provided with 24V LED driver of Philips/Osram make of suitable capacity and quantity. Acrylic letters along with LED should be fixed on 3mm thick Aluminium composite sheet and entire sheet shall be supported on suitable size of MS angle frame from the back side to with stand wind pressure. The LED signage system shall be confirming to RDSO specification no RDSO/ PE/SPEC/PS/0086-2009 (Rev-0) Amdt-1 or latest.

3.10 Modification of HT Power Lines and Crossings (Replacement by UG Cabling):

3.11 Modification of HT Power Lines and Crossings (Replacement by UG Cabling):

3) POWER LINE CROSSINGS:

Modification of all overhead/underground lines running parallel and across the track in between station section on both sides to be executed by EPC Contractor. Required Liaisoning/statutory clearances and permissions also to be done by EPC Contractor.

Additional Special conditions regarding works related to TPSODL or other State authority

- 1)** The HT/LT shifting/modification/crossing works etc. are 6% deposit scheme works of TPSODL. So, the tenderer must execute the works as per guideline. TPSODL/State Authority Estimate will be provided to tenderer by Railway through Railway Engineer incharge/Railway site engineer. The work will be supervised by Railway Engineer/Site Engineer as per guide line of TPSODL/State Authority.
- 2)** All materials must be in compliance to TPSODL/State Authority technical specification and drawings. Tenderer to ensure that the material mentioned in the estimate must be procured from the TPSODL/State Authority approved makes/vendor list.
- 3)** TPSODL/State Authority Engineer-In-Charge shall supervise the execution of work and ensure the compliance to the above work and any deviation observed shall be informed to applicant immediately for correction action. For all connections up to 70KW and LT shifting work; the Sub-Divisional Officer shall be Engineer-in-Charge and all 70KW & above and HT shifting jobs; respective project engineer shall be Engineer-In-Charge.
- 4)** The Tenderer must approve all the required Drawings at his own cost before execution of work from TPSODL/State Authority /Railway.
- 5)** The Tenderer must prepare all the EIG documents and submit those documents to Railway for processing of obtaining EIG.
- 6)** Prior to commissioning, GIS(Geographic Information System) Mapping of Poles/Structures should be done by the Tenderer for locations marking purpose.
- 7)** Prior intimation should be given by the Tenderer regarding requirement of shutdown Period for obtaining approval from TPSODL/State Authority Authorities.
- 8)** Old Dismantled materials should be handed over to TPSODL/State Authority /Railway by the Tenderer immediately after commissioning of lines/installation.

Sl. No.	Item	Nominal Voltage level	Single Circuit/Double Circuit	No of Phases	Designated Current carrying capacity	Remarks
1.	Track crossing	11000V	Single Circuit with Spare	3 Phase	450A-650A	To be under ground. Keeping in view of

	11KV					Future Doubling of Track. Materials to be procured from TPCODL approved vendor.
	Track crossing 33KV	33000V	Single Circuit with Spare	3 Phase	618A-726A	
2.	Along the Track	11000V	Single Circuit with Spare	3 Phase	450A-650A	

3.13 Modification of LT Power Lines and Crossings (Replacement by UG Cabling):

Sl. No.	Item	Nominal Voltage level	Single Circuit/ Double Circuit	No of Phases	Designated current carrying capacity	Remarks
1.	Track crossing	440V	Single Circuit	3	25A-35A	
2.	Along the Track	440V	Single Circuit	3	25A-35A	

3.12 Extension of LT Power Supply for CLS Work:

S.N.	Location	Current capacity/ size of conductor	Quantity	Remarks

3.13 Extension/Augmentation of Electrical Power Supply arrangements & associated Works

S.N.	Location	Load (KWH)	Remarks

3.14 Modifications of Existing Electrical Works:

3.14.1 List modifications to existing switching posts, if any. **(NIL)**

3.14.2 List modifications to existing OHE, including dismantling of OHE, removal of brackets, cutting of masts, dismantling and removal of existing auxiliary transformer.

All OHE modification works at Gunupur station is to be carried out for connecting of New OHE with Existing OHE.

3.14.3 List modifications to existing traction substation, such as augmentation of bay, addition or replacement of traction transformer, circuit breakers etc. **(NIL)**

3.15 Inventory Electrical:

Tools Kit for Wiring and T&P Required for Electrical Maintenance Works - 1Set.

SCHEDULE - C

(See Clause 2.1)

PROJECT FACILITIES¹⁸

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: a. Site facilities for PMS/Railway camp office

b. Furniture for PMS/Railway Camp office .

2 Description of Project Facilities:

Office Building & Other Facilities: The Contractor shall construct or hire an independent office on lease/rent basis as per details given below for the use of Authority Engineer and his team (hereby referred to as Principal Site Office). In case Contractor wants to construct the Office building, design of the principal Site Offices shall be submitted to the Engineer for review prior to commencement of the construction of those facilities as per the following details. In case of hiring of office accommodation, Contractor shall get consent of Authority Engineer on the layout of office building to be hired. In case, The Authority Engineer does not agree with the building layout, the Contractor shall arrange another building and get the Authority agreed upon before entering into any agreement with the owner of the building. The Contractor shall maintain this office in good condition and provide services including, but not limited to maintenance of the office equipment and furniture, repairing and mending, cleaning, consumable replenishment in respect of toiletries, cartridges for the plotter and colour laser Printers, First Aid box, batteries / battery cells, drinking water etc. These facilities shall be maintained by the Contractor for the period up to Defect liability period to the extent required as directed by the Authority Engineer.

Principal Site Office		
Accommodation for	Carpet Area	Nos.
Manager/Team leader + Authority Engineer + Authority Site Engineers (10 Nos.) + Conference Room (20 officials) + ORH (3 suites+ dining)	200 sqm(Each)	03 (Mithili, Pandripani, Malkangiri)

Testing Laboratory-03 Nos		
Accommodation for	Carpet Area	Nos.
Civil Testing Lab (with all equipments as required according to various codes & testing procedure for testing of materials/samples) (1 concrete laboratory + 1 office+2 store room+2 restroom)	140 sqm	03 (Mithili, Pandripani, Malkangiri)

The area mentioned above

will be split up in rooms and halls. Each room will be provided with adequate number of Electric appliances as advised below.

1) Authority officials

2) Chief Engineer /Team leader room

¹⁸This Schedule may be suitably modified to reflect project specific requirements.

- 3) Authority Engineer room
- 4) Authority Site Engineers
- 5) Conference Hall
- 6) First Aid room
- 7) Pantry room
- 8) Toilets

Note: Detailed layout of the office accommodation can undergo minor variations with the approval of the Authority Engineer but all these variations would be within the ceiling of the area indicated above.

1. All building shall be supplied with continuous (24 hours) running potable cold water to the kitchens (RO water) and wash rooms (raw water). The toilets may use recycled/raw water for flushing. The Contractor shall also arrange for the constant and hygienic disposal off all effluent, sewage and rubbish from building.
2. All building shall be supplied with electricity, AC 240 voltage 50 HZ that shall be distributed to each room in accordance with the regulation. Lighting and electrical power points shall be provided in each room. The disposition and location of light and power points will be as directed by the Engineer. 24 hours power supply is to be arranged by Contractor to meet full power load. Each room of Rest house and office building including conference hall/ Visitors rooms/reception etc. shall be provided with adequate number of Fans, ACs etc. will be provided as decided by the engineer.
3. Fire-fighting equipment's shall be provided in accordance with the local department's recommendations.
4. Each kitchen shall be furnished with worktops, cupboards beneath the worktop and mounted on the walls, a cooker with 2 gas rings and a microwave oven and a5 cu ft. refrigerator. Tea/Coffee making facilities for 15 persons shall be provided.
5. The office building shall be provided with Project network with project monitoring software like Trimble, Tilos or equivalent along with closed user telecom group, fax and e-mail facilities and mobile communication network for project monitoring.
6. The approximate total number of Authority Engineer's staff is expected to be about 10(ten) in each office. The Contractor shall provide the office accommodation including audio and video conference facilities as per requirements.
7. a. In case of construction of new building:
 - i. Materials used for the construction of the offices shall be of good quality and finish. Materials shall be chosen such that the buildings when erected shall give good heat and sound insulation. Both external and internal walls shall be sound proof.
 - ii. Windows to each room shall be of an area not less than 10% of the floor area. All windows to ground floor offices shall be fitted with burglar bars firmly attached to the structure of the building. All windows shall be fitted with mosquito netting. All windows shall be fitted with venetian blinds.
 - iii. Internal doors shall be hollow core flush doors and shall be fitted with door closers, lever latches, mortise lock and keys.

- iv. External doors shall have barrel bolts both at top and bottom of one leaf and a Yale lock on the other leaf. External doors shall be of solid external quality and hung with heavy-duty hinges. All sets of keys shall be delivered to the Engineer.
 - v. The Contractor shall make such reasonable amendments to the layout and furnishing as the Authority Engineer may advise.
 - b. In case of hired office building, the Contractor shall carry out all necessary repairs to furnish the building as per general guidelines for construction of new building or to the satisfaction of Authority Engineer within the period specified before setting up the office.
 - c. All furniture supplied by the Contractor shall be new.
8. The office accommodation shall be retained until the expiry of the Defects Notification Period unless otherwise instructed to the contrary by the Engineer.
9. Unless otherwise permitted by the Engineer, the Contractor shall provide all equipment and furnishing in sufficient time to allow the Engineer to occupy the offices prior to the commencement of excavation or any Permanent Works.
10. The accommodation shall be maintained in a clean, stable and secure condition.
11. Equipment provided for the use of the Engineer shall be maintained in a clean and serviceable condition and all consumables shall be replenished when required.
12. Equivalent replacements shall be provided for equipment which are not in working order or otherwise are not in a serviceable condition or are being repaired or serviced.
13. Parking Facilities
- At the office compounds, the Contractor shall provide covered sheds sufficient for about six (6) vehicles.
14. Sanitation and Sewerage
- (i) Sanitation and Sewerage systems for the Authority Engineer's site offices shall be installed and made operational within the specified period of construction as mentioned above in respect of the respective site offices.
 - (ii) The Contractor shall provide a properly designed and constructed septic tank approved by the Engineer for the disposal of domestic sewage from each building in the Engineer's site offices.
 - (iii) Each septic tank shall be regularly emptied, maintained and serviced by the Contractor to ensure proper functioning.
15. Office cleaning, waste and garbage disposal
- (i) The Contractor shall provide personnel and perform daily cleaning of all rooms in the Authority Engineer's site offices.
 - (ii) The Contractor shall collect and dispose of, in a location and manner consented by the Engineer, all domestic waste and garbage from the Authority Engineer's site offices on daily basis.
16. Survey equipment
- All the survey instruments required by the Engineer shall be provided by the Contractor. The instruments shall include all items necessary for the Engineer to be able to establish horizontal and vertical control

both on the surface and underground and to check the Contractor's surveying work. The Contractor shall present to the Engineer for consent the adequate number of equipment with proposed make, type, and models with parts and performance catalogues and manufacturer's warranty, prior to purchase

- i. The Contractor shall furnish the survey equipment within 15 days from appointed Date and maintain them in good conditions until the issue of Completion Certificate unless otherwise authorized by the Engineer.
- ii. All the survey instruments shall be maintained by the Contractor shall be regularly checked and calibrated.
- iii. Any instrument which has been damaged or been non-operational shall be immediately replaced or repaired by the Contractor. Equivalent replacement shall be provided by the Contractor in such cases.
- iv. The instruments will remain the property of the Contractor and will be taken away after defect liability period.

17. Furnishing requirements

The Contractor shall provide the new furniture and equipment to the Authority Engineer's Principal site office in the manner required by the Engineer within the 30 days of appointed date; the same shall be the property of the Contractor on completion of the project. Given below is the indicative list of items required for Engineer's office in each Site office .

Sl. No	Description	Site office
1	Conference Table (For seating of minimum 20 persons)	1
2	Conference Chairs	20
3	Glass-fronted lockable bookcase	2
4	Double pedestal desk (size 1500 mm x 900 mm)	5
5	Swivel office chair with armrests	5
6	Swivel office chair without armrests	5
7 (a)	Display unit-3nos for conference Hall, Computer sets - 5(five) nos., printers- 5(five) nos. (with photocopy & scanning facility), plotter (01 No) with high speed internet facility, Typist chair and other allied items	1set
7(b)	Each computer sets should be provided with Original Windows MS Office 365, MS Project, RIVET, Autocad, BIM	
8	Visitors chairs	20
9	3-Shelf bookcase	05
10	4-Drawer filing cabinet	05
11	Olan chest (A1 size)	01
12	Tables (Size 1500mm x 900mm)	05
13	Lock-able cupboard 6ft high with internal shelves	05
14	A0 size drawing hanger for 1000 drawings	01
15	Heavy Duty paper shredders	01
15a	Floor mounted sofa (size 750 mm x 450 mm x 600 mm)	01
16	A0 Digital document System (Xerox 8830 DDS or similar) capable of printing, scanning, copying, reduction and Enlargement	02
17a	Required spares, ink cartridges and papers of sizes and types for Scanner, Printer cum Photocopier as mentioned in items 18 and 19 above including maintenance Contract for the machines to ensure defect free operations for the period up to Defect Notification period.	As per requirement
17b	A3 digital document system capable of printing, scanning, photocopying with features like reduction, enlargement of size of document etc. of latest Configuration	02
18a	One set tele-facsimile transmission/reception Facility	01

	connected to a dedicated line at site Office	
18B	Telephone switchboard connected to 1 external line at each Site office, as well as Principal Office with independent internal communication facilities of 8 no. (4 handsets with auto answering/message recording facility). The above shall include all charges, rental cost of calls etc. for principal as well as for other Site offices, if any) throughout the Contract period.	01
19	Waste paper baskets	10
20	Desk tray sets	10
21	Fully automatic DSLR camera with video recording facility date and time recording facility downloadable to a PC with latest configuration	01
22	First aid kits for up to 15 persons	02
23	Safety helmets	20
24	Noise Retarder Ear caps	20
25	Safety jacket	20
26	Pairs steel handling gloves	10
27	Pair industrial safety goggles	10
28	Breathing masks and filters	10
29	2L kettles	02
30	Potable water dispenser with hot/cold taps and paper/plastic cups	02
31	Hot water heaters for kitchen and showers	02
32	Cups and saucers	20
33	Side plates	20
34	15 pieces dinner services	02
35	15 pieces cutlery services	02
36	Fire extinguisher	03
37	All stationery as required in principal site office	As per requirement
38	All required lab equipment's (Civil)	As per requirement
39	Power back up/Disel Generator	As per requirement
	Note :Consumable items shall be recouped from time to time.	

In addition to the above listed items, the Contractor shall provide the following personnel

Sl. No	Description	No of personel required
1	Software Engineer well conversant with operation of various software's to be used for this project i.e. display unit, Trimble TILOS or equivalent, AutoCAD, Microsoft office, RIVET, BIM, MSP, etc. and day to day office orking i.e. typing, printing, scanning etc.	1 no for authority
2	Field / Office Attendants	02
3	Messenger	02
4	Watchmen/Security Guard	01 nos for each office (Round the clock)

Note: -

- (i) In case of failure to provide full complement of equipment & personnel
- (ii) as per the above within one month from appointed date, penalty @ Rs 25000/- per week or part thereof will be imposed. The full compliment shall be maintained throughout the contract period. In case of non-availability/under repair of any of the equipment or personnel for more than two days, a penalty of Rs.5000/- per incident per day of failure beyond days, of equipment/personnel, shall be imposed & recovered from contractor's running bills. Also Railway shall be entitled to replace the same and recover the cost of replacement from the contractor's dues.

18. Office Maintenance

The Contractor is required to maintain the principal site office & other site offices (as described above) throughout the Contract period and provide the following, but no limited to:

- (i) Pay all electricity charges.
- (ii) Providing and recouping all Stationery, pantry items etc.
- (iii) Pay the internet connection bills for the use of Authority Engineer's / his team's office.
- (iv) Pay all water charges.
- (v) Carry out necessary repairs to office and equipment as and when required

19. TEMPORARY WORKS

20.1 Scope of Work

- 1) All necessary Temporary Works adequate for the realization of the Works such as Temporary Facilities & Temporary Utility Services shall be provided & maintained by the Contractor for his own use, for his sub-contractors, the Authority's Engineer and the Authority unless otherwise authorised by the Authority's Engineer.
- 2) The Temporary Facilities including, but not limited to, offices, warehouses & material stock areas as well as the Temporary Utility Services including, but not limited to, power, lighting, water & communication shall be provided, equipped and maintained in good conditions until the issue of Taking-Over Certificate.
- 3) The Contractor shall ensure that the Temporary Facilities & Services do not interfere with the Permanent Works or prevent the installation, commissioning & testing of the Permanent Works and works & services of other Contractors. Where necessary the Contractor shall divert or relocate the temporary facilities / services in the course of the works at his own cost.

20.2 Submittals

Technical Design Submission: The Contractor shall submit the Temporary Works Drawings and the Temporary Works Design Report which detail adequate scale, location and all arrangements of the Temporary Works to the Authority's Engineer for review within 90 days after the Appointed Date except for the items as described in Paras (4), (7) & (8) herein below, submissions in respect of the same shall be made by the time when the Final Technical Design Submission is made. The Temporary Works to be carried out shall be consistent with the plan submitted by the Contractor with his technical proposal in his Bid together with any subsequent developments and / or changes subsequently agreed to by the Authority / Authority's Engineer. The Temporary Works shall include but not limited to the following:

- 1. Contractor's camp: Detailed drawings at scale 1:500 showing the camp layout, buildings, road recreation areas, all public utilities, etc and drawings at scale 1:50 showing type building construction details with specifications.
- 2. Offices, parking areas, warehouses, storage areas & medical care services: Drawings & specifications for the establishments & facilities with appropriate details and First Aid Station. Standard EPC Tender Document with Schedule G1
- 3. Water supply, sewerage, sewage treatment and disposal, power supply & illumination, communication services (basically mobile phones & land phones), firefighting services
 - a) Detailed design for industrial & potable water supply to the camps & working areas as well as sewerage systems, sewage treatment & disposal system based upon estimated number of users.
 - b) Detailed layout drawings for electrical installations & distribution system at the Site & Work Areas, showing power sources, voltages, outlets and routing of power lines.
- 4. Temporary construction works including support systems for deep excavations, cofferdam and the support, concrete formworks and its support, temporary bridges & staging and so on. Access routes including temporary road works to all locations necessary to be reached in the course of construction in the Site and the Work Areas including public road diversions.

5. Equipment pools & mechanical workshops.
6. The detailed plan for operation of the Borrow Areas & Quarries as detailed hereinafter including approach roads.
7. The Stockpile areas as detailed hereinafter including approach roads.
8. Concrete batching & mixing plant and crushing plants, including cement storage: Detailed design & drawings including manufacturer's drawings and foundation drawing with the supporting design calculations prepared by the Contractor for concrete batching & mixing plant and crushing plants in accordance with the requirements of the pertinent provisions of the Specifications.
9. Material testing laboratories: Detailed breakdown of all equipment to be used for material testing in field and in laboratories in accordance with the requirements of the pertinent provisions of the Specifications.
10. Explosives magazines, their proposed locations & operation plan.
11. Security & safety arrangements: All arrangements shall comply with the relevant provisions.
12. Layout & drawings for offices for the Authority's and the Authority Engineer's staff.
13. Project Sign boards & Diversion boards.
14. Barricades and other temporary walls and alike with pertinent design considerations & drawings containing details such as height, material, colour scheme, logo, anchoring mechanism, etc complying the requirements.

20.3 Temporary Facilities for the Contractor's Use

20.3.1 Land for temporary facilities for Contractor's Use:

Wherever available, the Contractor shall be allowed to use Railway land for carrying out his Temporary Works including stock piling of ballast and other materials but excluding the Borrow Pits and the Quarries subject to the consent by the Authority's Engineer. Any land required in excess of that shall have to be arranged by the Contractor using his own resources and at his own cost under due intimation to the Authority's Engineer.

20.3.2 **Stockpile Areas:**

- 1) The Land available within the ROW at each bridge will be shown by Authority Engineer for stacking of materials.
- 2) The Contractor may also arrange additional stockpile areas as required by him at his own discretion & cost.
- 3) The location & size of the Stockpile Areas proposed by the Contractor shall be subject to consent of the Authority's Engineer. The Authority Engineer's consent may be withheld for any of the following reasons:

If the Stockpile Area, or access into them, in the opinion of the Authority's Engineer:

- (a) will have a detrimental effect on the natural and social environment;
 - (b) will disturb drainage system around the Stockpile Areas;
 - (c) would constitute a danger to the public; or
 - (d) becomes too high stockpile as decided by the Authority's Engineer.
- 4) Before commencing operations, the Contractor shall submit detail drawings of the proposed Stockpile Areas together with the proposed method of operation including stockpile heights, runoff/dust control measures, access road layout drainage & measures to be taken for restoration etc.,
 - 5) On completion of stockpile operations, the Contractor shall reinstate the Stockpile Area in a safe & stable condition.
 - 6) The Contractor shall indemnify the Authority against all claims in relation to the Stockpile Areas during and after the Works

20.3.3 **Concrete Batching & Mixing Plant & Crushing Plants:**

The Contractor shall plan, install & erect all necessary concrete batching & mixing plant and crushing plants of sufficient capacity to meet the planned peak requirements during construction. The capacity of the plants shall be subject to consent by the Authority's Engineer. All control & measuring equipment shall be regularly calibrated. The Contractor shall submit the Authority's Engineer the results of the calibration regularly.

20.3.4 Material Testing Laboratories:

- 1) The Contractor shall build & equip adequate Material Testing Laboratories on the Site and / or at the Work Areas for sampling and testing of materials for concrete, earth or any other materials as specified in the Specifications. The location of the Material Testing Laboratories shall be consented by the Authority's Engineer.
- 2) The laboratory shall be located in a building properly equipped with electricity, water, air-conditioning, etc and shall have enough room for storing the samples.
- 3) The equipment to be supplied and the methods of testing shall be in accordance with the relevant Indian Standards specified in the Specifications and / or as described in the respective Manual. All apparatus & equipment shall be brand new and of the latest design and manufactured by a reputable manufacturer. The proposed type & number of items of laboratory equipment shall be presented to the Authority's Engineer prior to purchase.
- 4) The equipment & apparatus shall be calibrated before the testing starts and at regular intervals as specified by the manufacturer and as directed by the Authority's Engineer. The Contractor shall submit the results of the calibration to the Authority's Engineer regularly.
- 5) The Contractor shall complete the construction & installation of the facility for operation within 120 days after the Appointed Date and operate & maintain the facility until the issue of Taking-Over Certificate unless otherwise authorized by the Authority's Engineer. The Contractor shall also make all facilities & services available to the Authority's Engineer as required. All sampling & testing to be undertaken shall be under the direct supervision of the Authority's Engineer. The Material Testing Laboratory shall be run by Contractor's personnel fully experienced in sampling & testing of materials, and quality control.
- 6) Specialized testing which may be required and which cannot be performed in the Contractor's laboratory due to lack of time or equipment shall be assigned to an independent organization having NABL Accreditation and duly consented by the Authority's Engineer. The Contractor shall accept all results, instructions or restrictions stipulated by the Authority's Engineer based on such tests.

20.3.5 Communication Systems:

The Communication System to be applied to the project shall be basically the Mobile Phone Base Communication System. The Contractor shall establish the Mobile Phone Base Communication System Plan solely dependent on ready-to-use mobile phones for internal & external communication and submit the plan to the Authority Engineer for consent. The Contractor shall ensure that his Communication System is available for communication with the Authority's Engineer & Authority within 30 days after Appointed Date and shall maintain the same until completion of the Defect Notification Period.

20.3.6 Contractor's Camp:

- 1) The Contractor shall provide adequate camping facilities for the use of his employees / staff and those of his sub-contractors. Camping facilities shall have adequate sanitary facilities including sewage disposal system, medical service, drainage, fire control and all utility services (potable water, power, etc) and shall comply with statutory requirements.
- 2) Contractor's Employee's Camp can be located at the land available within the ROW wherever available subject to the consent by the Authority's Engineer. If any additional area is required by the Contractor for the purpose, the same shall have to be arranged by the Contractor at his own cost.
- 3) No camp construction shall commence until the Contractor's drawings & specifications have been consented by the Authority's Engineer.

- 4) Camp facilities shall be provided to meet the requirements of the maximum anticipated work load & labour force. These facilities shall be made available and fully operational within 120 days after the Appointed Date and maintained in good conditions until the issue of Taking-Over Certificate unless otherwise authorized by the Authority's Engineer.
- 5) The Contractor's camp shall comply with the applicable laws, codes & standards
- 6) The Contractor shall be responsible for keeping the camp, and the buildings within it, in good hygienic conditions. The standards & regulations presently in force in India with regard to personnel treatment, sanitary conditions, and fire & accident prevention shall be duly taken into account.

20.3.7 First Aid Stations:

- 1) The Contractor shall comply with the applicable laws & health standards presently in force in India. In the event of an epidemic breaking out, the Contractor shall carry out and comply with all orders, arrangements or regulations, which may be issued by the Government or local authorities.
- 2) The Contractor shall construct, equip & maintain the First Aid Station at adequate locations on the Site and at each & every camp.
- 3) These facilities shall be fully equipped and staffed as per the applicable regulations in force. These facilities shall be available & fully operational within 120 days after the Appointed Date and maintained in good conditions until the issue of Taking-Over Certificate unless otherwise authorized by the Authority's Engineer.
- 4) Medical services in the First Aid Stations shall be under the direction of a licensed doctor & nurses on the same working hours as the Works throughout the duration of the construction.
- 5) Standing arrangements shall have to be made with the nearest general hospital for providing treatment in case of emergencies and serious cases. The Contractor shall summarise the design of all his Temporary Facilities in the Temporary Works Design Report & Drawings.

3.0 Contractor's Project Organisation

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	2	15		B. Tech (Civil Engg.)
2	PMs for Civil, Electrical	4	10	3 for Civil, 1 each for Electrical	B.Tech/ diploma in relevant field.

3	Safety Consultant	2	10	1 for bridges and another for remaining works.	Science/Engineering Graduate. Refer para 10.2.11 under Article-10
4(a)	Quality Assurance Engineer/Civil	2	10	1 for bridge and another for formation & track works	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	1	10	1 per entire length	B.Tech/ diploma in relevant field.
5(a)	Site Engineer (Bridge)	03	5(in bridge construction)	01 each for 02 adjacent Block Section .	B.Tech/ diploma in relevant field.
5(b)	Site Engineer (Civil)	03	5	01 each for 02 adjacent Block Section .	B.Tech/ diploma in relevant field.
5(c)	Site Engineer (Electrical OHE)	2	3/5	1 per each 40 km	3 Yrs for B. Tech & 5 Yrs for Diploma in relevant Field
5(d)	Site Engineer (Electrical PSI)	-	3/5	1 for each project	
5 (e)	Site Engineer (Electrical GS)	1	3/5	1 for each project	
6	Field supervisors	12	2	2 per each site engineer	Diploma in relevant field.
7	Computer Operator with knowledge of Software like Trimble Tilos or equivalent, AutoCAD, Microsoft Office, etc	06	5well versed in Autocad and MSP including other office application		Graduate

8	Office Attendant	6	2	2 each for each office	intermediate or equivalent
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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

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.

Specifications and Standards for Construction

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) Indian Railway Works Manual
- (e) All Relevant RDSO guidelines.
- (f) All other relevant Indian railway manuals and guidelines issued by Railway board.
- (g) All the relevant IRS, IRC and IS codes and Specifications (referred to in the above documents listed at (i), (ii) and (iii))
- (h) Guidelines for Earthwork in Railway Projects issued by RDSO vide RDSO/2020/GE: IRS-0004 (September – 2020).
- (i) RDSO superstructure standard drawings for relevant IRC loading.
- (j) RDSO superstructure standard drawings for Railway Bridges.
- (k) Specifications of Works of concerned zonal railway
- (l) 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
- (m) The construction of all building works shall conform
 - The construction of all building works shall conform to NBC norms. Specific approval of the authority Engineer shall be taken where minimum dimensions are adopted due to space constraints
 - All Site investigations, Geo-technical surveys, bore holes, communication, ancillary works, record keeping, material testing, inspection reports etc. shall form part of scope of Works for successful completion of Works.
 - The detailed specification attached DA, DB, DC shall be followed wherever applicable as per the good industrial practices.
 - All items of buildings works shall conform to BIS Standard/CPWD Specifications. All buildings, required to be constructed under this Contract, shall comply with the applicable Indian building, standards & codes. The functional & structural design of buildings shall conform to National Building Code & bye-laws of local authorities to the extent of their applicability.
 - For signages standard signages at stations on Indian railways dated April 2023 shall be adopted.
 - . Provision of utilizing sunlight for lighting during day and proper lighting during night shall be ensured,
 - All building, shall have Centralized Fire Fighting Hydrant System
 - Furnishing and finishing of all the floors of the building which shall include flooring, partitions, plastering, internal conduiting for telephone, cables connection, and power supply including power plugs / switches / regulator, electrical fixtures, lighting fixtures, piping for water supply and sanitary, painting, railings, water supply and sanitary fixtures etc. Easy access for maintenance for all areas / fixtures and arrangements for safety line / belts are to be provided in the building.

- Use of modular toilet cubical system needs to be provided along with the fixtures like Wall hung W.C. with concealed cistern tanks having dual flushing system, Urinals, Wash Basin over counter/ under counter in Italian Marble Top, wall mounted taps, unified looking mirror, cabinets, dressing space etc. The required accessories like soap dispenser, small/big dustbins, hangers, tissue paper dispenser, paper towel dispenser, etc. shall be provided. Toilet space shall be duly incorporated with atomization, sensor-based accessories like hand dryers, taps etc. is must as decided by AE.

1.2 For signalling and telecommunication works:

- Indian Railway Signal Engineering Manual for signalling; and
- Indian Railway Telecom Manual for telecommunication works.
- Latest IRS / RDSO specifications

1.3 For electrification works:

- Indian Railways Manual AC Traction, Volume-II Part-I and Volume-II Part-II.
- Manual of Standards & Specification for Railway Electrification
- Indian Railways Standards of Dimension
- Indian Railways specifications and technical standards for 2x25 KV OHE

Note: For superstructures of bridges, if RDSO standard drawings are not available, non-standard designs can be adopted, duly approved by authority engineer.

2 Deviations from the Specifications and Standards

3. Use of Cement, Steel Reinforcement & Admixtures

s.No	Description	Approved makes
1	Steel Reinforcement	SAIL RINL TATA Steel Jindal Panther/JSPL
2	Cement(OPC/PPC)	Ultratech Cement. Ambuja Jaypee J.K.Laxmi/JK cement Lafarge Dalmiya cement Ltd. JSW Cement Birla AI (Orient cement) ACC
3	Admixture / Water proofing compound/ Liquid membrane/ Self adhesive membrane	Pidilite Industries Ltd FOSROC Chemicals India Pvt Ltd. CICO Technologies Ltd Sika India Pvt Ltd. BASF India Ltd

Reinforcement steel bars used for work shall be High strength deformed bars of Grade Fe 500D TMT conforming to specification IS: 1786 (up to date) as well as to Para 5.3 of IS: 13920 (latest) for all seismic Zones i.e. II, III, IV or V. In addition to the above, as per Railway Board's Letter

No. 2018/06/CE-III/BR/Stainless Steel dtd. 02.05.2018 Stainless Steel Reinforcement bars (Grade G(410L)- Ferritic conforming to IS 16651:2017) to be used for the following structures:

- i. Bridges in coastal area (up to 30 kms from coast): Railway bridges, FOB, ROB/RUB, Rail
- ii. Flyover/Metro, Mono Rail crossings.
- iii. Tunnels in coastal areas.
- iv. C & W and Loco inspection pits, catwalks, washing aprons & water tanks at all places.
- v. Any other structure located in extremely adverse environmental conditions or where frequent inspection is not possible even if it is away from coastal area after due justification & with the personal approval of PCE/CAO ©

Annex - II

(Schedule-D)

(See Clause 10.2.7(c))

Time Schedule for Review of Drawings by the Authority:

Sl. No.	Item	Preparation	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/CWR 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 bridges	Contractor	CE/C (45 days)	Copy to CBE to give remarks in 30 days, if any.
7.	GAD of Minor bridges	Contractor	CE/C (30 days)	
8.	Structural drawings of major bridges& ROB's	Contractor	CE/C (45 days)	Proof checking by Railway agency
9.	Structural drawings of minor bridges	Contractor	Dy.CE/C (30 days)	Proof checking by Railway agency
10.	GADs of ROB's	Contractor	CE/C or CE of Open Line and State Authority	Nil
11.	Structural Drawings of ROB's/RUBs	Contractor	CE/C (30 days)	Proof checking by Railway agency
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 (45 days)	
14.	Engineering Scale Plans (ESPs)	-	-	Tentative 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 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 GAD's & Plans	Contractor	CE/C or CE of Open Line and if require, State Authority (45 days)	Nil
25	Structural design of all multi storied quarters (Ty -II,Ty-	Contractor	CE/C (45 days)	Proof checking by Railway agency

	III, Ty IV), Store building, RPF Barrack and other Service buildings.			
26	MEP plans	Contractor	CE/C (30 days)	
27	Electrical wiring fixtures drawings & plans	Contractor	CEE/C (30 Days)	
28	Water supply design. Scheme and drawings for all quarters and service buildings	Contractor	CE/C (30 days)	
29.	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	Preparation	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 is 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 due and 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.

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

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 Messaging 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

- 12.** This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

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

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.

(ii) The address, telephone number and other details of the head office of the Bank as 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-IA

(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 any way release us from the liability under this Bond; and the Surety, hereby, waives any requirement for notice of any such change, addition or modification 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.

SBNNo:

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.

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.

(See Clause 17.2)

Form of Guarantee for Advance Payment

[.....],

East Coast Railway,
Rail Sadan
Chandrasekharapur,
Bhubaneswar-751017 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. (Rupeescrore) 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 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

^{\$}The Guarantee Amount should be equivalent to 110% of the value of the applicable installment.

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 Messaging System) and shall invariably send the advice of this Bank Guarantee to the following bank details –

* 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).

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

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 Clauses 10.1.4 and 17.3)

Contract Price Weightages

1.1 The Contract Price for this **this schedule of** Agreement is **Rs. ----- Cr. (Basic value for Sch.-G is Rs.9268291569/-)** It is assigned for different components of the Railway Project as follows:

Civil and track works	91.32 % of the Contract Price (of Schedule-G)
Electrification works	8.62% of the Contract Price (of Schedule-G)

1.2 Proportions of the Contract Price (for Schedule-G) for different stages of Construction of the Railway Project shall be as specified below:

1. Civil and track works 91.32 % of the Contract Price (of Schedule-G)

Item	Weightage in % to the Contract Price (Civil Works)		Stage for Payment	Percentage weightage	Payment Procedure
1	3	4	5	6	7
1. Preliminary works , design & Drawings	0.29		Geotechnical investigation, design and drawings of Formation, ROB's, Major & Minor bridges, station buildings, Service Buildings, FOB , ESP etc ,		
		1.1	On completion of Geotech investigation of formation,,Major bridges, ROB's, minor bridges Station Buildings, Service Buildings Staff Quarters, Platforms, and ESPs etc ,	30%	On completion of works
		1.2	On completion of GAD's of ROB's ,Major bridges, minor bridges Station Buildings, Service Buildings Staff Quarters, Platforms, and ESPs etc ,	10%	On completion of works
		1.3	On completion of Architectural drawings, structural design drawings of ROB's ,Major bridges, viaducrs, minor bridges Station Buildings, Service Buildings Staff Quarters, Platforms, etc ,	50%	Payment shall be done on completion of Structural design of ROB's @25%,Major bridges@10%, Minor bridges/RUB@40%, Service buildings, quarters, platforms, Shelters, FOBs@25%

Item	Weightage in % to the Contract Price (Civil Works)		Stage for Payment	Percentage weightage	Payment Procedure
		1.4	Miscellaneous items & Completion drawings of all structures.	10%	On completion of works
			Total	100%	
(2) Earth work in formation & Turfing.	25.85	2.1	Earthwork in embankment/cutting including compaction up to $H^*/4$ from ground level complete in all respects.	25%	For 2.1 to 2.4 (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 100 m. (b)*H = Height of formation from ground level minus blanketing thickness (c) *H = (for Cutting) Depth of formation from belowground level plus blanketing layer thickness.
		2.2	Earthwork in embankment/cutting including compaction from $H/4$ to $H/2$ from ground level complete in all respects.	25%	
		2.3	Earthwork in embankment/cutting including compaction from $H/2$ to $3H/4$ from ground level complete in all respects	18%	
		2.4	Earthwork in embankment/cutting including compaction from $3H/4$ level to H from ground level including Turfing complete in all respects.	18%	
		2.5	Turfing, Side drain, catch water drain, toe wall, boundary pillars, etc. in block section.	14%	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 100 m.
			Total	100%	

Item	Weightage in % to the Contract Price (Civil Works)		Stage for Payment	Percentage weightage	Payment Procedure
Blanketing	4.23	2.6	Preparation of subgrade, Blanketing, complete in all respect.	100%	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 100 m.
			Total	100%	
3.0 Major Bridges (12 nos)	6.53	3.1	Major Bridges -Sub-structure:		
		3.2	Completion of abutment/piers including bed blocks (without bearings).	30%	Unit of measurement is on pro rata basis on Completion of each Substructure of Major Bridge.
		3.3	Completion of the wing walls,return walls, toe wall, boulder packing, pitching in all respects	30%	Unit of measurement is on pro rata basis on Completion of each Major Bridge.
		3.4	Super-structure:		
		3.5	Completion of Super structure,CG, PSC slab, deck slab, expansion joint, bearings etc.	40%	Unit of measurement is on pro rata basis on Completion of each Span.
			Total	100%	
4.0 ROB's (25 No's)	18.84	4.1	Road Over Bridges (ROB s) - Composite Girder - 01 No.s		
		4.2	Completion of abutment/piers including bed blocks (without bearings)	2%	On Completion of work.
		4.3	Completion of the wing walls,return walls, toe wall, boulder packing, pitching, crash barriers, Road approaches with RE	2%	On Completion of work.

Item	Weightage in % to the Contract Price (Civil Works)		Stage for Payment	Percentage weightage	Payment Procedure
			wall, and road surfacing in all respects		
		4.4	Super-structure:		
		4.5	Completion of Super structure, CG, deck slab, expansion joint, bearings etc.	1%	On Completion of work.
		4.2	For RCC Box Bridges – 24No.s		
		4.2.1	Completion of RCC box and Inside drain.	40%	Unit of measurement is on pro rata basis on Completion of each ROB (24 No's)
		4.2.2	Completion of Wing walls, protection works , crash barriers, Road approaches with RE wall, and road surfacing complete in all respects	55%	Unit of measurement is on pro rata basis on Completion of each ROB (24 No's)
			Total	100%	
5.0 Minor Bridges with RUB's (142Nos)	14.00	5.1	On completion of each bridge in all respects	100.00%	Unit of measurement for payment is completion of each bridge on pro rata basis (142 Nos)@ 0.704% of Minor Bridge for each bridge.
			Total	100%	
6. Track Works	14.38		Track Works		

Item	Weightage in % to the Contract Price (Civil Works)		Stage for Payment	Percentage weightage	Payment Procedure
(71.114TKM)		6.1.	Supply of ballast and stacking	20%	Unit of measurement is cum for this item. 80% payment will be released after submission of indemnity bond. The unit of measurement of cum ballast is only 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 300 mm on loop line. Payment on supply of every 10,000 Cum and stacking, on pro rata basis. (Total quantity of Ballast supply : 2.04 Lakh cum)
		6.2.	Bed Ballast laying, compacting initial layer of 200 mm to facilitate mechanized track laying.	10.00%	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 100 m.
			Block section (excluding station yard limits)		
		6.3.	Supply of P-way materials for the track linking in between Mid section (Between staion yards) as per inventory as per approved track diagram	30.00%	Payment against supplies under these items shall be made for quantities as per the approved track structure, 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

Item	Weightage in % to the Contract Price (Civil Works)		Stage for Payment	Percentage weightage	Payment Procedure
					items shall not be counted for completion of Project milestone under schedule-I.
					[80%] payment shall be made on completion of supply and [20%] payment shall be made on completion of track laying work between two stations on pro rata basis with respect to total track kilometre (TKM) length. payment for supplies, to the extent of maximum [10%] of the total quantity involved in scope of work may be done.
		6.4.	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 [1660/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 including all posts and Boards .		

Item	Weightage in % to the Contract Price (Civil Works)		Stage for Payment	Percentage weightage	Payment Procedure
		6.4.1	Skelton linking without supplying and fixing switch expansion joints, glued joints, guard rails, check rails, supply and fixing all rail sleeper fittings etc. complete linkage of track	6%	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 100 m.
		6.4.2	Supplying and fixing switch expansion joints, glued joints, guard rails, check rails, supply and fixing all rail sleeper fittings etc. complete linkage of track including all posts and boards .	6%	Payment 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.
			Within Station yards limits (5 Yards)		
		6.5	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 [1660/km on main line and loop line], providing and laying points and crossings, switch expansion joints, glued joints, derailling switch in all lines in yards etc. complete to ensure continuous and complete linkage of track in the yard as per yard plan.		

Item	Weightage in % to the Contract Price (Civil Works)		Stage for Payment	Percentage weightage	Payment Procedure
		6.5.1	Skelton linking without providing and laying Thick web switches and WCMS Crossings, Improvised Switch Expansion Joints, glued joints, Derailing Switch in all lines, supply of new PSC sleepers, transportation and fixing of SH Rails, supply and fixing all rail sleeper fittings etc in yards complete to ensure continuous and complete linkage of track in the yard as per yard plan.	2%	Payment 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.
		6.5.2	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.	24%	Payment shall be made on completion of a yard on pro rata basis with reference to the yards.
					On supply of complete T/O sleepers sets payments of [17%] of item No. 6.5.2 will be released on prorata basis after taking indemnity bond. On supply of complete T/O switches ,Xings and fittings , payments of [30%] of item 6.5.2 will be released on prorata basis after taking indemnity bond.

Item	Weightage in % to the Contract Price (Civil Works)		Stage for Payment	Percentage weightage	Payment Procedure
		6.6.	Ballast laying to facilitate lifting of track, making of full ballast cushion and profile, distressing of long welded rails, machine tamping of track.	2%	On completion of complete ballast work.
			Total	100.00%	
7.) PF Shelter (3520Sqm)	0.43	7.1.	Completion of platform shelters in all respects including electrification and all other specified and incidental works.	100.00%	Unit measurement for this item is completion of each shelter (160 Sqm) and Payment will be done on pro rata basis.
8.0) Platform Works	2.90	8.1.	Completion of platforms including platform fencing/Wall, Surfacing of platform with VDC including passenger amenities as per yard diagram.	50.00%	Total Scope 8560 m of PF coping wall Unit measurement is Completion of 856m of PF coping wall @ 10.00% of 8.1 (PF coping From Coping edge to Tactile Tile end)
		8.2.	Surfacing of platform including filling of island and home Platforms with VDC, with laying of precast RCC coping blocks with tectile tiles as per approved drawing including all passenger amenitiesincluding signages.	50.00%	Total Scope 15539 Sqm of PF area.(Between Tactile Tiles and Tactile to Boundary wall) and (3400m PF Boundary wall) Unit of measurement is On Completion of 1554 Sqm 10.00% of 8.2 PF works (asper approved drawings)
			Total	100%	
Building Works					
(9.0) Staff Quarters(Total plinth area	5.70	9.1.	Construction of staff quarters complete in all respects including fixing doors, windows, sanitary, water supply works,		

Item	Weightage in % to the Contract Price (Civil Works)		Stage for Payment	Percentage weightage	Payment Procedure
18643.5 Sqm)			electrification and all other specified and incidental works.		
		9.1.1	After Completion frame structure and casting of roof slabs .	50.00%	Unit measurement for this item is on pro rata basis @ each 1864Sqm.
		9.1.2	On Completion of works including architectural finishing, water supply works, electrification and all other specified and incidental works and ready to occupy.	50.00%	Unit measurement for this item is on pro rata basis @ each 1864Sqm.
			Total	100.00%	
(10.0) Station Buildings& other service Buildings of (total plinth area of 7908 Sqm)	2.82	10	Construction of railway station buildings and service buildings as per clause 1.8.2 of Annex – I (Schedule-B) complete in all respects including fixing doors, windows, sanitary, water supply works, electrification and all other specified and incidental works.		
		10.1.1	After Completion of casting of roof slabs	50.00%	Unit measurement for this item is on pro rata basis @ each 791Sqm.
		10.1.2	On Completion of Balance works including architectural finishing and completion in all respect	50.00%	Unit measurement for this item is on pro rata basis @ each 791Sqm.
			Total	100.00%	

Item	Weightage in % to the Contract Price (Civil Works)		Stage for Payment	Percentage weightage	Payment Procedure
(11) Other Engineering works	1.61	11.1.	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.		
		11.2.	Internal Roads 10.5 km of Roadways (Carriage way 3.5m with 1m shouder on either side) and 0.408 km of Roadways (Carriage way 7m with 1m shouder on either side)	45.00%	Payment of Road cost wil be made on pro rata basis @ 25% of on Completion of 1/4 th of total area.
		11.3.	Compound wall with adequate protection and security arrangement for quarters etc.,	45.00%	Payment of 25% of wall cost on Completion of 1.125km of Compound wall (1500mm high wall 600mm high MS grill including 2100 mm high steel gates at every 100 metre)
		11.4.	Horticulture operations including 300mm earth filling, grassing, tree plantations/shrubs and plotted plants etc.	3.50%	Payment of Horticulture work wil be made on pro rata basis on Completion of every 5000 Sqm (Total -20000 Sqm)
		11.5.	Over Head Storage water tank and Water Supply System for service buildings.	6.50%	Payment of 25% of Water Supply cost after Completion Over Head storage of 75,000 (fifty thousand)Ltr.
					Balance 75% after completion of complete water supply (filtered and raw water) and all other specified and incidental works in all

Item	Weightage in % to the Contract Price (Civil Works)		Stage for Payment	Percentage weightage	Payment Procedure
					respect.
				100.00%	
(12) FOB works	1.50	12.1	Completion of FOB as per approved drawing in all respects		
		12.1.1	Completion of FOB as per approved drawing in all respects . (5 nos)	50.00%	On completion of works
		12.1.2	Completion of ramp as per approved drawing in all respects .(10 nos)	50.00%	On completion of works
			Total	100.00%	
(13) Goods & ballast Loading PF	0.69	13.1	Goods & ballast Loading PF as per clause 1.8.1 of Annex – I (Schedule-B)		
		13.1.1	Completion of Goods & ballast Loading PF at Malkangiri	75%	Complete payment wil be made after Completion of Goods & ballast Loading PF as per clause 1.8.1 of Annex – I (Schedule-B at Malkangiri.
		13.1.2	Completion of ballast Loading PF at Pongam	25%	Complete payment wil be made after Completion of ballast Loading PF as per clause 1.8.1 of Annex – I (Schedule-B at Pongam.
			Total	100%	
(14) PIT line with Shed	0.23	14.1	Completion of PIT line with Shed at Malkangiri	100%	On completion of works as per clause 1.8.2 of Annex – I (Schedule-B at Malkangiri.
			Total	100%	

Item	Weightage in % to the Contract Price (Civil Works)		Stage for Payment	Percentage weightage	Payment Procedure
Total	100.00%				

[**Railway Electrification Works**]- **8.66%** of the Contract Price (of Schedule-G)

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage	Payment Procedure
1	3	4	5	6
a) Overhead Equipment Work	[52.99%]	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)	[15.52%]	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

		only)	[28.68%]	purpose of payment
		1.3 Completion of Steel erection (Mast & Portal) & grouting with painting of location Numbers	[1.72%]	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 item 2.0 above shall not be counted for completion of Project milestone under schedule-I.
		1.4 Completion of erection of Bracket, Guy Rod, anticreep (Complete pre wiring activity), Height gauge & protection screen	[10.42%]	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,
		1.5 Supply of Contact & Catenary wire only		
		1.6 Completion of wiring along with erection of balance weight, dropping & clipping including antitheft charging	[27.31%]	For item No. 1.7 Stage payment will be released on

		1.7 Commissioning	[14.39%]	completion of work under Item no [2.2, 4.2],
			[1.96%]	
		Total	100%	
2.Switching Posts	[0.51%]	2.1 Completion of all works	[96.32%]	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.	[3.68%]	

		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	[0.37%]	4.1 Completion of all works including testing. 4.2 Commissioning	[99%] [1%]	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)	[26.62%]	5.1 Completion of all civil works for the TSS (Foundations, Cable trench, fencing, Baffle	[4.77%]	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

		wall,Ballast Spreading)		
		5.2 Completion of all supply and erection works of TSS except supply and erection of Transformers	[43.93%]	
		5.3 Supply and erection of transformers.	[48.83%]	
		5.4 Completion and Commissioning of TSS and charging at 25 KV.	[2.47%]	
		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	[***%]	6.1 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.
		6.2 Stringing of		

		conductors		
		6.3 Commissioning	[***%] [***%]	
		Total	100%	
7. Underground High Tension Cable Transmission Line	[***%]	7.1 Completion 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	[0.77%]	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	[00.00%] [90%] [10%] [00.00%]	Payment shall be made after completion of the work of each stage.
		Total	100%	
10.Various electrical general services works	[15.37%]	10.1 Completion and commissioning of various electrical general services. Sub-station for 4 Nos2x100kva of and		Payment shall be made after the completion and commissioning of works under this item of work. Note: Since all the above works are interlinked and hence all the above payments can be made on pro rata basis as

		2x250KVA, 2x500KVA	[20.31%]	approved by the Dy.CEE/C/VSKP or CEE/C-I/BBS.
		Quarters	[27.14%]	
		All Service buildings	[23.23%]	
		Station building		
		PF shelter/ FOB/CIRCULATING AREA	[24.16%]	
		Goomties		
			[5.16%]	

		Total	100%	
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)	[3.37%]	12.1Completion of work including testing 12.2Commissioning	[90%] [10%]	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	[***%]	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.

~~Annexure~~

Schedule G-1

Separate BOQ

for

Itemised Work

SCHEDULE–G1
Contract Price Weightages (For BOQ Items)

1. The Contract Price for this schedule (G1) of Agreement is **Rs.62.80** (**Basic value for Sch.-G is Rs.)**
2. Schedule G1 consists of four parts as under of which any or all schedules may be used as per the requirement. However, main schedule G1 is bifurcated as follows:
 - (a) **Schedule G1 –A: Execution of** Foundation work in Major Bridges & ROB (12Nos & 1 No ROB) i.e. piles, pile caps of Abutments and piers etc, not covered in Schedule -G above based on the requirement and instruction of Authority Engineer. (**Basic value** Rs 53.31 Cr.)
 - (b) **Schedule G1B : Execution of P-way works i.e.,** Flash Butt Welding of Joints etc. not covered in Schedule -G above based on the requirement and instruction of Authority Engineer. (**Basic value** Rs 4.49 Cr.)

Note; (This item will be operated if track linking is done by new 13m single rail)
 - (c) **Schedule G1C:** Execution of any other work not covered in Schedule G above (Schedule-G of EPC Agreement) and Schedule -G1A & G1B above, through items from ECoR USSOR-2021 & CPWD-DSR-2023 Items , as per work orders based on requirement and instruction of Authority Engineer (**Basic value** Rs 5.00 Cr)

**Note: (1) Rate should be quoted (% above/below/at par) for Schedule of G & G1, No
Separate rates should be quoted for Schedule G1A, G1B & G1C.**

b) Schedule G1

Sched ule	Description	Item	Value of Item/ Schedule in Rs.	Payment Procedure	PVC applicable
G1A	Execution of Foundation work in Major Bridges & ROB (12 No's & 1 No) i.e. piles, pile caps, of Abutments and piers etc,	latest version of USSOR- 2021	53,30,59,397.00	Payment shall be made on actual work done as per work done measured while submitting stage payment certificate.	Yes
G1B	Execution of P-way works i.e., Flash Butt Welding of Joints etc.	latest version of USSOR- 2021	4,49,43,817.40	Payment shall be made on actual work done as per work done measured while submitting stage payment certificate.	Yes
G1C	Execution of any other work not covered in Schedule G above (Schedule- G of EPC Agreement) and Schedule -G1A, G1B & G1C above,	Items not covered under Schedule G1-A but covered under USSOR- 2021 and CPWD- DSR-2023 and other NS items arises.	5,00,00,000.00	Payment shall be made on actual work done as per work done measured while submitting stage payment certificate.	
Total			62,80,04,214.40		

Note: 1) Before start of any sub-work(s) under Schedule G-1, Drawing, Method Statement, BOQ etc. shall be finalised and approved from Authority.

\$(2) Items covered under Schedule G-1 shall be deleted from Schedule-G)

^{\$}for guidance of the Authority and should be omitted from the draft EPC Agreement forming part of Bid Documents

S.NO	Item No	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
Schedule G1-A		Schedule G1A : Execution of Foundation work in Major Bridges & ROB (Br No 237) i.e. piles, pile caps, of Abutments and piers etc,				
	023010	Earth work in OPEN excavation in foundation of bridges, for placing of well curbs of all shapes and designs in all kinds of soil including taking out the excavated soil, levelling, ramming of bottom of excavation and trimming of sides, returning the soil in layers, consolidation, disposal of surplus soil within a lead of 300m, including all lift, dewatering, shoring and strutting complete as per technical specification and as directed by Engineer in charge.				
1	023011	In all types of soils	Cum.	17,169.00	291.20	49,99,612.80
2	023012	In Ordinary rock	Cum.	1,987.00	441.64	8,77,538.68
	021010	Exploratory drilling of boreholes down to required depth, drilling of 150mm dia. boreholes in all type of soils except hard rock & large boulders (boulder core more than 30cm) including refilling, reinstating surface and disposing off surplus material including use of mechanical rigs with power operated winches as well as percussion/chiselling tool for advancing through occasional seams of hard strata to				

S.NO	Item No	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		beemployed, where necessary in Dry area.				
3	021011	0m to 10m	Metre	130.00	1,747.12	2,27,125.60
4	021012	10m to 20m	Metre	60.00	2,030.15	1,21,809.00
	021050	Drilling of NX size borehole (75mm dia.) in all types of hard rock and collection of rock core samples from boreholes and preserving in boxes.				-
5	021051	0m to 10m	Metre	66.00	4,511.83	2,97,780.78
	022030	Providing and laying in position Plain cement concrete of specified Nominal Mix for miscellaneous works like side drains, foundation for OHE masts and other miscellaneous structures excluding the cost of Cement, centering and shuttering - All work up to plinth level :				-
6	022034	1:3:6 (1 Cement : 3 coarse sand (zone-III) : 6 graded stone aggregate 20 mm nominal size)	Cum.	821.00	3,807.13	31,25,653.73
7	022035	1:3:6 (1 Cement : 3 coarse sand (zone-III) : 6 graded stone aggregate 20 mm nominal size)	Cum.	19.00	3,508.54	66,662.26
8	022040	Providing and laying in position machine batched, machine mixed and machine vibrated Cement Concrete of specified grade as per approved Design Mix (mixed in Mobile Concrete Batching/Mixing	Cum.	9,942.00	3,777.08	3,75,51,729.36

S.NO	Item No	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Plantat site or RMC from approved plants) using 20mm graded crushedstone aggregate and coarse sand of approved quality in RCC raftfoundation & Pile cap including finishing, using Plasticiser in approvedproportions (as per IS:9103), to modify workability without impairingstrength and durability complete as per specifications and direction ofthe Engineer in charge.Note:1. Payment for cement, reinforcement and shuttering shall be madeextra under relevant item.2. Plasticiser shall invariably be used in approved proportion toincrease workability with minimum possible quantity of cement for allgrade of Design Mix Concrete unless it is specifically approved citingreasons for not using plasticiser at the stage of Mix Design and in thatcase deduction shall be made as per relevant item.				
	022080	Boring, providing and installation of bored cast in-situ ReinforcedCement Concrete piles of specified diameter and length below pile capof specified grade with Design Mix Cement Concrete, using 20mmgraded crushed stone aggregate and coarse sand of approved quality,to carry a safe working load not less than specified, concreting bymachine batching, machine mixing, scaffolding, using Admixture inapproved				

S.NO	Item No	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		proportion (as per IS:9103), placing with tremie pipe, chipping off of pile top to remove laitance concrete above cut off level etc., pumping and bailing out water, by percussion drilling using Direct Mud Circulation (DMC) or Bailor and Chisel technique by tripod and mechanical Winch machine, complete in all respect as per approved drawing, specification and direction of the Engineer in charge. Note: 1. Payment for only cement, reinforcement and permanent casing pipe (if any) shall be made extra. 2. Length of the pile for payment shall be measured up to the bottom of RCC pile cap. 3. Plasticiser shall invariably be used in approved proportion to increase workability with minimum possible quantity of cement for all grade of Design Mix Concrete unless it is specifically approved. Citing reasons for not using plasticiser at the stage of Mix Design and in that case deduction shall be made as per relevant item.				
9	022082	1200mm diameter	Meter.	5,570.00	6,530.77	3,63,76,388.90
	022090	Boring, providing and installation of bored cast in-situ Reinforced Cement Concrete piles using Hydraulic piling Rig of specified diameter and length below pile cap of specified grade with				-

S.NO	Item No	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Design Mix Cement Concrete, using 20mm graded crushed stone aggregate and coarse sand of approved quality, to carry a safe working load not less than specified, concreting by machine batching, machine mixing, scaffolding, using Admixture in approved proportion (as per IS:9103), placing with tremie pipe, chipping off of pile top to remove laitance concrete above cut off level etc., pumping and bailing out water complete in all respect as per approved drawing, specification and direction of the Engineer in charge. Note: 1. Payment for only cement, reinforcement shall be made extra. 2. Length of the pile for payment shall be measured up to the bottom of RCC pile Cap. 3. Plasticiser shall invariably be used in approved proportion to increase workability with minimum possible quantity of cement for all grade of Design Mix Concrete unless it is specifically approved citing reasons for not using plasticiser at the stage of Mix Design and in that case deduction shall be made as per relevant item.				
10	022092	1200mm diameter	Metre	5,115.00	10,029.78	5,13,02,324.70

S.NO	Item No	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
11	022100	Providing, fabricating and installing permanent casing pipe for bored piles for all diameters with specified thickness of steel plate including all labour, materials, tools & complete as per approved drawing & specifications complete in all respect as per the direction of Engineer in charge. Note: Payment shall be made as per the weight of circular plate of casing pipe only.	Mt.	634.00	1,08,148.95	6,85,66,434.30
	022110	Extra for chiselling in addition to boring of piles, if chiselling is required to be resorted to in hard rock or big stone boulders larger than 30cm, manually or by any other means.		-		-
12	022111	1200mm diameter pile	Metre	657.00	4,471.66	29,37,880.62
	025030	Centering and shuttering including strutting, propping etc. and removal of form for		-		-
13	025031	All types of bridge sub-structures, e.g. pier, abutment, wing wall, retaining wall, RCC box type foundations, Abutment cap, Pier Cap, Inspection Platform & Pedestal over Pier cap, Fender wall, Diaphragm wall etc. up to 5m above ground level	Sqm	4,972.00	665.63	33,09,512.36
14	025072	Ordinary Portland Cement 53 grade of approved brands/makes	MT	9,795.00	8,819.69	8,63,88,863.55
15	025082	Thermo-Mechanically Treated bars of grade Fe-500D or more	Kg	23,13,575.00	102.40	23,69,10,080.00

S.NO	Item No	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		of approved brands/makes.				
		Total of Schedule G1A:				53,30,59,397
Schedule G1B: Execution of P-way works i.e., Flash Butt Welding of Joints etc						
	093010	Flash Butt Welding of 90 UTS rails and finishing of weld to meet the prescribed tolerances and pass all stipulated tests, conforming to IR's Manual for Flash Butt Welding of Rails with latest amendment, using contractor's self-propelled rail cum road / Mobile FBW Plants, tools, equipments and consumables. Item also includes painting with anticorrosive paint as approved and marking of welded joints, pre straightening & post-straightening of panels and USFD testing of finished weld as directed by Engineer in-charge.				
	093012	60 Kg on cess	Each	10,940.00	4,108.21	4,49,43,817.40
		Total of Schedule G1B:				4,49,43,817.40

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. 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.
3. 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
4. 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 [210th(Two hundred and tenth)] 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 [420th (Four hundred and twetieth)] 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 40% (forty per cent) of the Contract Price.

4 Project Milestone-III

- 4.1 Project Milestone-III shall occur on the date falling on the [600th (six 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 913th (Nine Hundred Thirteenth) 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.

7 Physical Milestone.

In addition to Project Milestones as stipulated above in financial terms i.e, % of contract price, the contractor shall also be required to achieve physical milestones stipulated as tabulated below.

Recovery of damage for not achieving physical milestone shall become due upon non completion of each deadline as mentioned in table below.

However, in case where subsequent physical milestone, logically sequenced for completion of item/project component is achieved and the delay is contained in opinion of the Authority, Authority may release the damage imposed earlier.

A. Project initiation stage.

S. No	Physical Milestone No	Description of Physical Milestone	Deadline appointed date (D)+ Days	Damages per day after the deadline
1	MI-1	Deployment of contractor's authorized Representative (Project Director)	D+20	₹ Rs. 10,000/- days (Subject to maximum of ₹. 3,00,000/Month)
		Deployment of design director	D+20	₹ Rs. 7500/- days (Subject to maximum of ₹. 2,25,000/Month)
2	MI-2	Submission of Baseline resource based Project implementation schedule on prima vera (P-6 or latest version	D+30	₹ Rs. 7500/- days
		DBR/DBN including design quality plan, MTP, ITP etc.,	D+30	₹ Rs. 25,000/- days
		Environmental management plan	D+30	₹ Rs. 10,000/per day
		Method statements key item	D+30	₹ Rs. 10,000/ per statement
		Monthly cash flow forecast for the project	D+30	₹ Rs. 15,000/day
		Resource deployment plan (Men & Machinery)	D+30	₹ Rs. 10,000/ day
		Procurement plan in conformity with project implementation schedule (Civil, Electrical, S&T)	D+30	₹ Rs. 15,000/ day.
3	MI-3	Proposal to engage design consultants and GT agency with three alternatives of qualified, reputed and experienced design firms	D+30	₹ Rs. 25,000/day

B. Project planning stage

S. No	Physical Milestone No	Description of Physical Milestone	Deadline appointed date (D)+ Days	Damages per day after the deadline
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1	MP-1	Setting up project office, site laboratory	Project office – D+30 site lab D+45	₹ Rs. 10,000/- days
2	MP-2	Submission of utility survey & utility shifting plan	D+45days	₹ Rs. 15,000/ day
3	MP-3	Submission of ground levels, cross sections, and validation report of tender data including and L-section confirmation /modification	D+60days	₹ Rs. 15,000/ day
4	MP-4	Submission of duly proof checked drawings (including DBR/DBN) GADs for each type of bridges.	D+75days	₹ Rs. 10,000/ day
5	MP-5	Submission of conceptual plan for station and allied buildings and yard layout	D+75	₹ Rs. 10,000/ day
6	MP-6	Submission of GT, Hydrological & sub soil investigation report 50% of the length of section. Test report should include factual GT report, interpretation and recommendations (in compliance to latest IS code)	D+75 days	₹ Rs. 15,000/ day
7	MP-7	Submission of detailed sample design for each type of bridges,	D+90days	₹ Rs. 10,000/ day
8	MP-8	Submission of route control charts & signaling interlocking plan	D+90days	0.01% (Zero point zero one percent) of the contract price for each day of delay after the deadline.
9	MP-9	Submission formation design including slope protection	D+100 days	₹ Rs. 10,000/ day
10	MP-10	Submission of procurement plan & delivery schedule	D+100days	₹ Rs. 10,000/ day
11	MP-11	Submission of duly proof check detailed design of station buildings and allied buildings/structures.	D+120 days	₹ Rs. 10,000/ day
12	MP-12	Submission of schematic drawings-signal engineering	D+120days	₹ Rs. 10,000/ day
13	MP-13	Submission of schematic drawings-telecommunication engineering	D+120days	₹ Rs. 10,000/ day
14	MP-14	Submission of schematic drawings – Electrical (Traction)	D+120days	₹ Rs. 10,000/ day
15	MP-15	Submission of schematic drawings-electrical (General power supply drawings)	D+120 days	₹ Rs. 10,000/ day
16	MP-16	Submission of GT, Hydrological investigation & sub soil investigation report- 100% length of section, Test report should include factual GT report interpretations and recommendations (in compliance to latest IS code)	D+100 days	₹ Rs. 10,000/ day
17	MP-17	Submission of formation design including slope protection	D+120 days	₹ Rs. 10,000/ day
18	MP-18	Submission of duly proof –checked detailed design for all type of bridges in	D+150 days	₹ Rs. 10,000/ day

		section		
19	MP-19	Submission of duly proof-checked detailed design for all bridges and protection/misc.	D+185 days	₹ Rs. 10,000/ day

C. Project construction stage.

S. No	Physical Milestone No	Description of Physical Milestone	Deadline appointed date (D)+ Days	Damages per day after the deadline
1	MCn-1	Making arrangement of power, water at site	D+60	₹ Rs. 5,000/ day
2	MCn-2	Mobilization and erection of plants and equipment	D+75	₹ Rs. 5,000/ day
3	MCn-3	Complete utility shifting	D+120	₹ Rs. 5,000/ day
4	MCn-4	Site clearance and preparation of formation including all the functional station & yards (if any) of 50% of the project length	D+180	₹ Rs. 5,000/ day
5	MCn-5	Foundation of bridges ,(Major/ROB)	D+350	₹ Rs. 5,000/ day
	MCn-5.1	Foundation of bridges ,(RUB, Minor bridges)	D+400	₹ Rs. 5,000/ day
6	MCn-6	Station and allied service buildings- foundation	D+350	₹ Rs. 5,000/ day
7	MCn-7	Sub-structure of bridges	D+520	₹ Rs. 5,000/ day
8	MCn-8	S&T cable trenching 100% project length	FMI 2	₹ Rs. 5,000/ day
9	MCn-9	Procurement (P.way, OHE and S&T) in conformity to delivery schedule, and allowance of 15 days shall be made for transportation uncertainty	D+500	₹ Rs. 5,000/ day
10	MCn-10	Site clearance and preparation of formation, including all the functional station Stations & yards (if any) 100%	D+360	₹ Rs. 5,000/ day
11	MCn-11	Ballast spreading 50% of total block sections	D+550	₹ Rs. 5,000/ day
12	MCn-12	Station & allied building super structure	D+600	₹ Rs. 5,000/ day
13	MCn-13	Foundation of OHE Mast & cable laying	D+700	₹ Rs. 5,000/ day
14	MCn-14	Ballast spreading & sleeper laying - 100%	D+750	₹ Rs. 5,000/ day
15	MCn-15	Station and allied building finishing	D+750	₹ Rs. 5,000/ day
16	MCn-16	Bridge placement of bearing and Girder launching /Deck slab casting 100%	D+700	₹ Rs. 5,000/ day
17	MCn-17	Station & allied buildings external services & connectivity	D+800	₹ Rs. 5,000/ day
18	MCn-18	Mast Erection & bracket fixing	D+800	₹ Rs. 5,000/ day
19	MCn-19	Station & allied building – system & equipment	D+800	₹ Rs. 5,000/ day

20	Mcن-20	Tracking linking -100%	D+820	₹ Rs. 5,000/ day
21	Mcن-21	OHE wire fixing & cable laying -100%	D+840	₹ Rs. 5,000/ day
22	Mcن-22	Testing & commission	D+860	₹ Rs. 5,000/ day
23	Mcن-23	CRS inspection	D+880	₹ Rs. 5,000/ day
24	Mcن-24	Demobilization & site clearance	D+913	₹ Rs. 5,000/ day

7. 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.

- A. All provisions & paras (1 to 7) in this schedule-I have been enclosed in square parenthesis and may be modified by the tendering authority, if necessary as per specific project, before issuing the EPC agreement forming part of Bid documents.

The cumulative damages against physical milestones as mentioned in clause 6 of this schedule shall in any case remain limited to the overall limit of damages stipulated against project milestone damages at each stage or overall.

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 tests on materials such as Cement, Steel, Paint etc and finished surfaces of structures and components.
- 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 (kmto km ...) in the State ofin-..... 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 kmto 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

SIGNED, SEALED AND

AND DELIVERED

DELIVERED

For and on behalf of

For and on behalf of

CONTRACTOR by: AUTHORITY ENGINEER by:

(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 thesection (km to km) ofin 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 Agreementandtheauthorisation 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.

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 relevant Railway Codes and 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's Engineer thereon, shall be furnished by the Authority's 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
 - (vi) Any amount towards deduction of taxes at source under Applicable Laws.
- (vii) 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. 5.0 lakh
- 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 Deleted

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 CLAUSES²⁴

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)

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

²⁴This 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

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
- 36. Schedule-O : Provision of traffic blocks and power blocks