MUMBAI RAILWAY VIKAS CORPORATION LTD.

Balance General service Electrical works of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor

Request for Tender

International Open Competitive Tender

(ONE-ENVELOPE TENDERING PROCESS with e-Procurement)

Asian Infrastructure Investment Bank

June 2021

Tender Document for Procurement of Works

International Open Competitive Tender

(ONE-ENVELOPE TENDERING PROCESS with e-Procurement)

Procurement of:

"Balance General service Electrical works in connection with construction of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor."

(In Connection with Quadrupling of Panvel - Karjat on Central Railway)

Country: **India**

Employer: **Mumbai Railway Vikas Corporation Ltd.**

Name of Project: **Mumbai Urban Transport Project (MUTP) – III.**

Loan No.: **Under Process.**

Contract title:

Balance General service Electrical works in connection with construction of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor.

(**RFT No.** MRVC/W/EL/GS/PNVL-KJT/Balance works)

Tender No: MRVC/W/EL/GS/PNVL-KJT/Balance works

Issued on: **27/05/2026**

Standard Procurement Document

Summary

Specific Procurement Notice

Specific Procurement Notice - Request for Tender (RFT)

Tendering Document: Request for Tender (ONE-ENVELOPE TENDERING PROCESS)

PART 1 – TENDERING PROCEDURES

Section I - Instructions to Tenderers (ITT)

This Section provides relevant information to help Tenderers prepare their Tenders. It is based on a two-envelope tendering process when prequalification has not taken place. Information is also provided on the submission, opening and evaluation of Tenders and on the award of Contracts. **Section I contains provisions that are to be used without modification.**

Section II - Tender Data Sheet (TDS)

This Section includes provisions that are specific to each procurement and that supplement Section I, Instructions to Tenderers.

Section III - Evaluation and Qualification Criteria

This Section specifies the criteria to determine the Most Advantageous Tender.

Section IV - Tender Forms

This Section includes the forms for the Tender submission; Bill of Quantities; Schedules of Technical Proposal, including technical and financial qualifications, personnel, financial resources, and equipment; Tender Security and others to be completed and submitted by the Tenderers as part of its Tender.

Section V - Eligible Countries

This Section contains information regarding eligible countries.

Section VI - Prohibited Practices

This Section includes the Prohibited Practice provisions which apply to this tendering process.

PART 2 – WORKS REQUIREMENTS

Section VII -Works' Requirements

This Section contains the Specification, the Drawings, and supplementary information that describe the Works to be procured. The Works' Requirements shall also include the environmental, social (including sexual exploitation and abuse (SEA) and gender-based violence (GBV), health and safety (SHE) requirements to be satisfied by the Contractor in executing the Works.

PART 3 – CONDITIONS OF CONTRACT AND CONTRACT FORMS

Section VIII - General Conditions of Contract (GCC).

This Section contains the general clauses to be applied in all contracts.

Section IX - Particular Conditions of Contract (PCC).

This Section includes conditions of the contract, consisting of: Part A (Contract Data), Part B (Specific Provisions), Part C (Prohibited Practices) and Part D (Environmental, Health and Safety Reporting Metrics for Progress Reports). The contents of this Section supplement the General Conditions of Contract and shall be completed by the Employer.

Section X - Contract Forms

This Section contains the Letter of Acceptance, Contract Agreement and other relevant forms.

ACRONYMS

AIIB	Asian Infrastructure Investment Bank
CIF	Cost, Insurance and Freight
CORE	Central Organization for Railway Electrification
EDI	Electronic Data Interchange
EMU	Electrical Multiple Unit
ENAA	Engineering Advancement Association of India
EXW	Ex Works, or Ex Warehouse
FDR	Fixed Deposit Receipt
FIDIC	Federation International Des Ingenious Counsels (International Federation of Consulting Engineers)
FOB	Free On Board
FP	Feeding Post
IEC	International Electro Technical Commission
IDA	International Development Association
IS	Indian Specification
IR	Indian Railways
JV	Joint Venture
MRVC	Mumbai Railway Vikas Corporation
MUTP	Mumbai Urban Transport Project
OHE	Over Head Equipment
RDSO	Research Designs and Standards Organisation
SCADA	Supervisory Control and Data Acquisition
SFMS	Structure Financial Messaging System
SP	Sectioning Post
SSP	Sub Sectioning Post
RKM	Route Kilometre
TKM	Track Kilometre
T&P	Tools & Plants
TSS	Traction Sub Station
UNCITRAL	United Nations Commission on International Trade Law
UNDB	United Nations Development Business

Specific Procurement Notice (SPN)

Procurement of Works
(Without Prequalification)

(ONE-ENVELOPE TENDERING PROCESS)

Country:	**India**
Employer:	**Mumbai Railway Vikas Corporation Ltd.**
Project:	**Mumbai Urban Transport Project (MUTP)-III**
Loan No.:	**Under Process**
Contract title:	Balance General service Electrical works in connection with construction of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor.
Tender No:	MRVC/W/EL/GS/PNVL-KJT/Balance works
Issued on:	**27/05/2026**

1. The Government of India has applied for financing from Asian Infrastructure Investment Bank (AIIB) toward the cost of the **Mumbai Urban Transport Project (MUTP)-III** and intends to apply part of the proceeds toward payments under the contract for "**Balance General service Electrical works in connection with construction of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor".**

2. The Mumbai Railway Vikas Corporation (MRVC) Ltd. now invites sealed tenders from eligible Tenderers for "**Balance General service Electrical works in connection with construction of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor"** as detailed in the Table below.

S.No No	Name of the Work	Completion Period
1.	Balance General service Electrical works in connection with construction of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor	45 Days

3. Tendering will be conducted through International Open Competitive Tendering procedures (IOCT) as specified in the Bank's Procurement Instructions for Recipients (PIR) and is open to all eligible Tenderers as defined in the PIR.

4. Interested eligible Tenderers may obtain further information from Chief Manager (Project-Electrical), Mumbai Railway Vikas Corporation Ltd. (E-mail: cmelectrical@mrvc.gov.in) and inspect the Tender document during office hours from 10:00 to 17:00 hrs. at the address given below at Sr. No. 12.

5. The Tender Document in English is available online on https://eprocure.gov.in from **27-05-2026 to 18-06-2026** for interested eligible tenderers. Tenderers will be required to register on the website. The Tenderer would be responsible for ensuring that any addenda available on the website is also downloaded and incorporated. Tender document is also available for information on official website of MRVC www.mrvc.indianrailways.gov.in. However, Tenderer must submit the offer only on e-procurement website https://eprocure.gov.in.

6. Tenders must be delivered to the address below on or before 12.00 Hrs of 18-06-2026. Electronic tendering will be permitted. Late Tenders will be rejected. Tenders will be publicly opened in the presence of the Tenderers' designated representatives and anyone who chooses to attend at the address below.

7. All Tender must be accompanied by a Tender Security of the amount specified for the Work in the table below, drawn in favour of" Mumbai Railway Vikas Corporation Ltd." Tender security will have to be in any one of the forms as specified in the Tender document and shall have to be **valid for 45 days** beyond the validity of the Tender. (The original tender security documents in approved form shall be submitted as per the procedure described in paragraph 8 below).

8. The Tenderers are required to submit (a) original tender security in approved form, (b) original affidavit regarding correctness of information furnished with tender document and (c) Power of Attorney (POA) for Authorized Signatory, with Chief Manager (Project-Electrical), Mumbai Railway Vikas Corporation Limited, New Administrative Building, D N Road, CSMT, (opposite to Anjuman School) MAHARASHTRA 400001, India before the Tender opening deadline given above, either by registered post/speed post/courier or by hand in sealed cover, failing which such Tender will be declared non-responsive. The Employer, MRVC is not responsible for any delay in submission of the original document. Ensuring that these documents reach the concerned MRVC official in time is sole responsibility of the Tenderer.

9. A pre-tender meeting **shall not be held**.

10. Other details can be seen in the tender document. The Employer shall not be held liable for any delays due to system failure beyond its control. Even though the system will attempt to notify the Tenderers of any tender updates, the Employer shall not be liable for any information not received by the Tenderer. It is the Tenderers' responsibility to verify the website for the latest information related to this tender.

11. The address (es) referred to above is (are):

Chief Manager (Project-Electrical)

Mumbai Railway Vikas Corporation Limited
New Administrative Building, D N Road
CSMT, (opposite to Anjuman School) MAHARASHTRA 400001 , India.
Phone – 91 - 22 –22626252, Mob-7700938454 (Dy CEE).
Fax: - 91 – 22- 22096972
cmelectrical@mrvc.gov.in
www.mrvc.indianrailways.gov.in & https://eprocure.gov.in

TABLE

S.no No	Name of Work	Tender Security (₹)	Period of Completion
1	2	3	4
1	Balance General service Electrical works in connection with construction of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor**.** **(RFT No. MRVC/W/EL/GS/PNVL-KJT/Balance works)**	₹ 38,40,100/- (Rupees Thirty-Eight Lakhs Forty Thousand One Hundred only)	45 days

Bank details of MRVC account for depositing Tender Security:

a. Name of Beneficiary : Mumbai Railway Vikas Corporation Limited
b. A/C No. : 36038784315
c. IFSC Code : SBIN0001821
d. Name of Bank : State Bank of India
e. Name of Branch : Churchgate, Mumbai
f. MICR Code : 400002018
g. Type of Account : Current

International Open Competitive Tender (IOCT)

(ONE-ENVELOPE TENDERING PROCESS with e-Procurement)

Procurement of:

Balance General service Electrical works in connection with construction of station buildings, service buildings, new platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor.

Tender No: MRVC/W/EL/GS/PNVL-KJT/Balance works

Contract title:

Balance General service Electrical works in connection with construction of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor.

(**RFT No**. MRVC/W/EL/GS/PNVL-KJT/Balance works)

Project:	**Mumbai Urban Transport Project - III**
Loan No.:	**Under Process**
Employer:	**Mumbai Railway Vikas Corporation Ltd.**
Country:	**India**
Issued on:	27-05-2026

Tender Document

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PART 1 – Tendering Procedures

Section I - Instructions to Tenderers

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Section I - Instructions to Tenderers

A. General

1. Scope of Tender

1.1 In connection with the Specific Procurement Notice (SPN) indicated **in the Tender Data Sheet (TDS)**, the Employer, as **specified in the TDS**, issues this Tender Document for the provision of Works as specified in Section VII, Works' Requirements. The name, identification and number of lots (contracts) of this tender are **specified in the TDS.**

1.2Throughout this Tender Document:

(a) The term "in writing" means communicated in written form (e.g., by mail, e-mail, fax, including, if specified in the **TDS**, distributed or received through electronic procurement system used by the Employer) with proof of receipt.

(b) If the context so requires, "singular" means "plural' and vice versa.

(c) "Day" means calendar day, unless otherwise specified as a "Business Day." A Business Day is any day that is a working day of the Recipient. It excludes the Recipient's official public holidays.

(d) "SHE" means Environmental, Health and Safety.

(e) The word "tender" is synonymous with "bid" and "tenderer" with "bidder", and the words "tender documents" with "bidding documents".

2. Source of Funds

2.1 The Recipient **specified in the TDS** has received or has applied for financing (hereinafter called "funds") from the Asian Infrastructure Investment Bank (hereinafter called ("AIIB" or "the Bank") in an amount specified in the **TDS**, toward the project named in the **TDS**. The Recipient intends to apply a portion of the funds to eligible payments under the contract(s) for which this Tender Document is issued.

2.2 Payment by the Bank will be made only at the request of the Recipient and upon approval by the Bank, and will be subject, in all respects, to the terms and conditions of the Loan (or other financing) Agreement. The Loan (or other financing) Agreement prohibits a withdrawal from the loan account for the purpose of any payment to persons or entities, or for any import of goods, equipment, plant or materials, if such payment or import is prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United

Nations. No party other than the Recipient shall derive any rights from the Loan (or other financing) Agreement or have any claim to the proceeds of the Loan (or other financing).

3. Prohibited Practices

3.1 The Bank requires compliance with the Bank's Policy on Prohibited Practices as set forth in Section VI.

3.2 In further pursuance of this policy, Tenderers shall permit and shall cause their agents (whether declared or not), subcontractors, subconsultants, service providers, suppliers and their personnel, to permit the Bank to inspect all accounts, records and other documents relating to any prequalification process, tender submission, proposal submission and contract performance (in the case of award), and to have them audited by auditors appointed by the Bank.

4. Eligible Tenderers

4.1 A Tenderer may be a firm that is a private entity, a state-owned enterprise or institution subject to ITT 4.6 or any combination of such entities in the form of a Joint Venture (JV) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the entire Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any, and all the members of the JV during the Tendering process and, in the event the JV is awarded the Contract, during contract execution. Unless specified in the **TDS**, there is no limit on the number of members in a JV.

4.2 A Tenderer shall not have a conflict of interest. Any Tenderer found to have a conflict of interest shall be disqualified. A Tenderer may be considered to have a conflict of interest for the purpose of this Tendering process, if the Tenderer:

(a) directly or indirectly controls, is controlled by or is under common control with another Tenderer; or

(b) receives or has received any direct or indirect subsidy from another Tenderer; or

(c) has the same legal representative as another Tenderer; or

(d) has a relationship with another Tenderer, directly or through common third parties, that puts it in a position to influence the Tender of another Tenderer, or influence the decisions of the Employer regarding this Tendering process; or

(e) or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the Works that are the subject of the Tender; or

(f) or any of its affiliates has been hired (or is proposed to be hired) by the Employer or Recipient as Engineer for the Contract implementation; or

(g) would be providing goods, works or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the project specified in the ITT 2.1 that it provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm; or

(h) has a close business or family relationship with a professional staff of the Recipient (or of the project implementing agency, or of any other beneficiary of the Bank's financing, or of any other party representing or acting on behalf of the Recipient) who: (i) are directly or indirectly involved in the preparation of the Tender Document or specification of the Contract, and/or the Tender evaluation process of such Contract; or (ii) would be involved in the implementation or supervision of such Contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Bank throughout the Tendering process and execution of the Contract; or

(i) is an affiliate of the Recipient, or of a procurement agent engaged by the Recipient, unless the Recipient demonstrates to the satisfaction of the Bank that there is no significant degree of common ownership, influence or control between the Recipient on the one hand, and the Recipient's agent and the affiliate on the other.

4.3 A firm that is a Tenderer (either individually or as a JV member) shall not participate in more than one Tender, except for permitted alternative Tenders. Such participation shall result in the disqualification of all Tenders in which the firm is involved. However, this does not limit: (a) the inclusion of the same Subcontractor in more than one Tender for the same contract; or (b) the ability of one Tenderer to be a Subcontractor in another Tender for the same contract.

4.4 A Tenderer may have the nationality of any country, subject to the restrictions pursuant to ITT 4.8. A Tenderer shall be deemed to have the nationality of a country if the Tenderer is constituted, incorporated or registered in and operates in conformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or

equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed subcontractors or sub consultants for any part of the Contract including related Services.

4.5 A Tenderer that has been declared, and remains, as at the relevant date, ineligible pursuant to the Bank's Policy on Prohibited Practices as described in Section VI, shall be ineligible to be prequalified for, tender for, propose for, or be awarded a Bank-financed contract or benefit from a Bank-financed contract, financially or otherwise, during such period of time as the Bank shall have determined. The list of debarred firms and individuals is available at the electronic address specified in the **TDS**.

4.6 Tenderers that are state-owned enterprises or institutions in the Employer's Country may be eligible to compete and be awarded a Contract(s) only if they can establish, in a manner acceptable to the Bank, that they (i) are carrying out or are established for a business purpose, and are operating on a commercial basis; (ii) are financially and managerially autonomous; (iii) are not controlled by the government on day-to-day management; and (iv) are not under the supervision of the Employer or its procuring agency.

4.7 A Tenderer shall not be under suspension from Tendering by the Employer as the result of the operation of a Tender–Securing or Proposal-Securing Declaration.

4.8 Firms and individuals may be ineligible if so indicated in Section V and (a) as a matter of law or official regulations, the Recipient's country prohibits commercial relations with the firm or individual's country, provided that the Bank is satisfied that such exclusion does not preclude effective competition for the supply of goods or the contracting of works or services required; or (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Recipient's country prohibits any import of goods or contracting of works or services from the firm or individual's country, or any payments to any country, person or entity in that country. When the Works are implemented across jurisdictional boundaries (and more than one country is a Recipient, and is involved in the procurement), then exclusion of a firm or individual on the basis of ITT 4.8 (a) above by any country may be applied to that procurement across other

countries involved, if the Bank and the Recipients involved in the procurement agree.

4.9 A Tenderer shall provide such documentary evidence of eligibility satisfactory to the Employer, as the Employer shall reasonably request.

4.10 A firm that is under a sanction of debarment by the Recipient from being awarded a contract is eligible to participate in this procurement, unless the Bank, at the Recipient's request, is satisfied that the debarment (a) relates to fraud or corruption or other prohibited practices, and (b) followed a judicial or administrative proceeding that afforded the firm adequate due process.

5. Eligible Materials, Equipment and Services

5.1 The materials, equipment and services to be supplied under the Contract and financed by the Bank may have their origin in any country subject to the restrictions specified in Section V, Eligible Countries, and all expenditures under the Contract will not contravene such restrictions. At the Employer's request, Tenderers may be required to provide evidence of the origin of materials, equipment and services.

B. Contents of Tender Document

6. Sections of Tender Document

6.1 The Tender Document consists of Parts 1, 2 and 3, includes all the sections specified below, and should be read in conjunction with any Addenda issued in accordance with ITT 8.

PART 1 Tendering Procedures

- Section I - Instructions to Tenderers (ITT)
- Section II - Tender Data Sheet (TDS)
- Section III - Evaluation and Qualification Criteria
- Section IV - Tender Forms
- Section V - Eligible Countries
- Section VI - Prohibited Practices

PART 2 Works Requirements

- Section VII - Works' Requirements

PART 3 Conditions of Contract and Contract Forms

- Section VIII - General Conditions of Contract (GCC)
- Section IX - Particular Conditions of Contract (PCC)

- Section X - Contract Forms

6.2 The Specific Procurement Notice issued by the Employer is not part of the Tender Document.

6.3 Unless obtained directly from the Employer, the Employer is not responsible for the completeness of the Tender Document, responses to requests for clarification, the minutes of the pre-Tender meeting (if any), or Addenda to the Tender Document in accordance with ITT 8. In case of any contradiction, documents obtained directly from the Employer shall prevail.

6.4 The Tenderer is expected to examine all instructions, forms, terms and specifications in the Tender Document and to furnish with its Tender all information and documentation as is required by the Tender Document.

7. Clarification of Tender Document, Site Visit, Pre-Tender Meeting

7.1 A Tenderer requiring any clarification of the Tender Document shall contact the Employer in writing at the Employer's address **specified in the TDS** or raise its enquiries during the pre-Tender meeting if provided for in accordance with ITT 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received no later than fourteen (14) days prior to the deadline for submission of Tenders. The Employer shall forward copies of its response to all Tenderers who have acquired the Tender Document in accordance with ITT 6.3, including a description of the inquiry but without identifying its source. If so specified in the **TDS**, the Employer shall also promptly publish its response at the web page identified in the **TDS**. Should the clarification result in changes to the essential elements of the Tender Document, the Employer shall amend the Tender Document following the procedure under ITT 8 and ITT 22.2.

7.2 The Tenderer is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Tender and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Tenderer's own expense.

7.3 The Tenderer and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Tenderer, its personnel and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to

property, and any other loss, damage, costs and expenses incurred as a result of the inspection.

7.4 If so specified in the **TDS**, the Tenderer's designated representative is invited to attend a pre-Tender meeting and/or a Site of Works visit. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

7.5 The Tenderer is requested to submit any questions in writing, to reach the Employer not later than one week before the meeting.

7.6 Minutes of the pre-Tender meeting, if applicable, including the text of the questions asked by Tenderers, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Tenderers who have acquired the Tender Document in accordance with ITT 6.3. If so specified in the **TDS,** the Employer shall also promptly publish the Minutes of the pre-Tender meeting at the web page identified in the **TDS**. Any modification to the Tender Document that may become necessary as a result of the pre-Tender meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to ITT 8 and not through the minutes of the pre-Tender meeting. Nonattendance at the pre-Tender meeting will not be a cause for disqualification of a Tenderer.

8. Amendment of Tender Document

8.1 At any time prior to the deadline for submission of Tenders, the Employer may amend the Tender Document by issuing addenda.

8.2 Any addendum issued shall be part of the Tender Document and shall be communicated in writing to all who have obtained the Tender Document from the Employer in accordance with ITT 6.3. The Employer shall also promptly publish the addendum on the Employer's web page in accordance with ITT 7.1.

8.3 To give Tenderers reasonable time in which to take an addendum into account in preparing their Tenders, the Employer may, at its discretion, extend the deadline for the submission of Tenders, pursuant to ITT 22.2.

C. Preparation of Tenders

9. Cost of Tendering

9.1 The Tenderer shall bear all costs associated with the preparation and submission of its Tender, and the Employer shall not be responsible or liable for those costs, regardless of the conduct or outcome of the Tendering process.

10. Language of Tender

10.1 The Tender, as well as all correspondence and documents relating to the Tender exchanged by the Tenderer and the Employer, shall be written in the language specified in the **TDS**. Supporting documents and printed literature that are part of the Tender may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified in the **TDS**, in which case, for purposes of interpretation of the Tender, such translation shall govern.

11. Documents Comprising the Tender

11.1 The Tender shall comprise the following:

(a) **Letter of Tender**: prepared in accordance with ITT 12.

(b) **Schedules**: including priced Bill of Quantities, completed in accordance with ITT 12 and ITT 14.

(c) **Tender Security or Tender-Securing Declaration**: in accordance with ITT 19.1.

(d) **Alternative Tender**: if permissible, in accordance with ITT 13.

(e) **Authorization**: written confirmation authorizing the signatory of the Tender to commit the Tenderer, in accordance with ITT 20.3.

(f) **Qualifications**: documentary evidence in accordance with ITT 17 establishing the Tenderer's qualifications to perform the Contract if its Tender is accepted.

(g) **Conformity:** a technical proposal in accordance with ITT 16.

(h) Any other document required in the **TDS**.

11.2 In addition to the requirements under ITT 11.1, Tenders submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful Tender shall be signed by all members and submitted with the Tender, together with a copy of the proposed Agreement.

11.3 The Tenderer shall furnish in the Letter of Tender information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Tender.

12. Letter of Tender and Schedules

12.1 The Letter of Tender – Technical Part, the Letter of Tender – Financial Part and Schedules, including the Bill of Quantities, shall be prepared using the relevant form*s* furnished in Section IV, Tender Forms. The forms must be completed without any alterations to the text, and no

substitutes shall be accepted except as provided under ITT 20.3. All blank spaces shall be filled in with the information requested.

13. Alternative Tenders

13.1 Unless otherwise specified in the **TDS**, alternative Tenders shall not be considered.

13.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the **TDS**, and the method of evaluating different alternative times for completion will be described in Section III, Evaluation and Qualification Criteria.

13.3 Except as provided under ITT 13.4 below, Tenderers wishing to offer technical alternatives to the requirements of the Tender Document must first price the Employer's design as described in the Tender Document and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the Tenderer with the Most Advantageous Tender conforming to the basic technical requirements shall be considered by the Employer.

13.4 When specified in the **TDS**, Tenderers are permitted to submit alternative technical solutions for specified parts of the Works. Such parts will be identified in the **TDS** and described in Section VII, Works' Requirements. The method for their evaluation will be stipulated in Section III, Evaluation and Qualification Criteria.

14. Tender Prices and Discounts

14.1 The prices and discounts (including any price reduction) quoted by the Tenderer in the Letter of Tender and in the Bill of Quantities shall conform to the requirements specified below.

14.2 The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Tenderer shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Employer.

14.3 The price to be quoted in the Letter of Tender – Financial Part, in accordance with ITT 12.1, shall be the total price of the Tender, excluding any discounts offered.

14.4 The Tenderer shall quote any discounts and the methodology for their application in the Letter of Tender – Financial Part, in accordance with ITT 12.1.

14.5 Unless otherwise specified in the **TDS** and the Conditions of Contract, the rates and prices quoted by the Tenderer are subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract. In such a case, the Tenderer shall furnish the indices and weightings for the price adjustment formula in the Table of Adjustment Data in Section IV, Tender Forms, and the Employer may require the Tenderer to justify its proposed indices and weightings.

14.6 If so, specified in ITT 1.1, Tenders are being invited for individual lots (contracts)or for any combination of lots (packages). Tenderers wishing to offer discounts for the award of more than one Contract shall specify in their Tender the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITT 14.4, provided the Tenders for all lots (contracts) are opened at the same time. If, however, rated criteria are used in accordance with ITT 30.2, discounts on condition of award of more than one Contract shall not be used for Tender evaluation purpose.

14.7 All duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause, as of the date twenty-eight (28) days prior to the deadline for submission of Tenders, shall be included in the rates and prices and the total Tender Price submitted by the Tenderer.

15. Currencies of Tender and Payment

15.1 The currency (ies) of the Tender and the currency (ies) of payments shall be the same and shall be as specified in the **TDS.**

15.2 Tenderers may be required by the Employer to justify, to the Employer's satisfaction, their local and foreign currency requirements, and to substantiate that the amounts included in the unit rates and prices and shown in the Table of Adjustment Data in the Appendix to Tender in Section IV, Tender Forms, are reasonable, in which case a detailed breakdown of the foreign currency requirements shall be provided by Tenderers.

16. Documents Comprising the Technical Proposal

16.1 The Tenderer shall furnish a technical proposal in the Technical Part of the Tender including a statement of work methods, equipment, personnel, schedules and any other information as stipulated in Section IV, Tender Forms, in sufficient detail to demonstrate the adequacy of the Tenderer's proposal to meet the works' requirements and the completion time.

17. Documents Establishing the Eligibility and Qualifications of the Tenderer

17.1 To establish Tenderer's eligibility in accordance with ITT 4, Tenderers shall complete the Letter of Tender – Technical Part, included in Section IV, Tender Forms.

17.2 In accordance with Section III, Evaluation and Qualification Criteria, to establish its qualifications to perform the Contract, the Tenderer shall provide the information requested in the corresponding information sheets included in Section IV, Tender Forms.

17.3 If provisions for development of domestic industry (such as a margin of domestic preference) apply as specified in accordance with ITT 38.1, domestic Tenderers, individually or in joint ventures, applying for eligibility for domestic preference shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITT 38.1.

18. Period of Validity of Tenders

18.1. Tenders shall remain valid for the Tender Validity period specified in the **TDS**. The Tender Validity period starts from the date fixed for the Tender submission deadline (as prescribed by the Employer in accordance with ITT 22). A Tender valid for a shorter period shall be rejected by the Employer as nonresponsive.

18.2. In exceptional circumstances, prior to the expiration of the Tender validity period, the Employer may request Tenderers to extend the period of validity of their Tenders. The request and the responses shall be made in writing. If a Tender Security is requested in accordance with ITT 19, it shall also be extended for a corresponding period. A Tenderer may refuse the request without forfeiting its Tender security. A Tenderer granting the request shall not be required or permitted to modify its Tender, except as provided in ITT 18.3.

18.3. If the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial Tender validity period, the Contract price shall be determined as follows:

(a) in the case of fixed price contracts, the Contract price shall be the Tender price adjusted by the factor specified in the **TDS**.

(b) in the case of adjustable price contracts, no adjustment shall be made; or

(c) in any case, Tender evaluation shall be based on the Tender price without taking into consideration the applicable correction from those indicated above.

19. Tender Security

19.1 The Tenderer shall furnish as part of the Technical Part of its Tender, either a Tender Security or a Tender-Securing Declaration, as specified in the **TDS**, in original form and, in the case of a Tender Security, in the amount and currency, or in the case of a Tender-Securing Declaration, for the period of ineligibility, as **specified in the TDS**.

19.2 A Tender-Securing Declaration shall use the form included in Section IV, Tender Forms.

19.3 If a Tender Security is specified pursuant to ITT 19.1, the Tender Security shall be a demand guarantee in any of the following forms at the Tenderer's option:

(a) an unconditional guarantee issued by a bank,

(b) an irrevocable letter of credit,

(c) a cashier's or certified check or

(d) another security specified in the **TDS**,

from a reputable source from an eligible country. In the case of a bank guarantee, the Tender Security shall be submitted either using the Tender Security Form included in Section IV, Tender Forms, or in another substantially similar format approved by the Employer prior to Tender submission. The Tender Security shall be valid for twenty-eight (28) days beyond the original validity period of the Tender, or beyond any period of extension if requested under ITT 18.2.

19.4 If a Tender Security or Tender-Securing Declaration is specified pursuant to ITT 19.1, any Tender not accompanied by a substantially responsive Tender Security or Tender-Securing Declaration shall be rejected by the Employer as nonresponsive.

19.5 If a Tender Security is specified pursuant to ITT 19.1, the Tender Security of unsuccessful Tenderers shall be returned as promptly as possible upon the successful Tenderer's signing the Contract and furnishing the Performance Security pursuant to ITT 49.

19.6 The Tender Security of the successful Tenderer shall be returned as promptly as possible once the successful Tenderer has signed the Contract and furnished the required Performance Security.

19.7 The Tender Security may be forfeited, or the Tender-Securing Declaration executed:

(a) if a Tenderer withdraws its Tender during the period of Tender validity specified by the Tenderer on the Letter of Tender, or any extension thereto provided by the Tenderer; or

(b) if the successful Tenderer fails to:

(i) sign the Contract in accordance with ITT 47; or

(ii) furnish a Performance Security in accordance with ITT 48.

19.8 The Tender Security or the Tender-Securing Declaration of a JV shall be in the name of the JV that submits the Tender. If the JV has not been legally constituted into a legally enforceable JV at the time of Tendering, the Tender Security or the Tender-Securing Declaration shall be in the names of all future members as named in the letter of intent referred to in ITT 4.1 and ITT 11.5.

20. Format and Signing of Tender

20.1 The Tenderer shall prepare one original of the documents comprising the Tender as described in ITT 11 and clearly mark it "ORIGINAL." Alternative Tenders, if permitted in accordance with ITT 13, shall be clearly marked "ALTERNATIVE." In addition, the Tenderer shall submit copies of the Tender, in the number specified in the **TDS** and clearly mark them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.

20.2 Tenderers shall mark as "CONFIDENTIAL" all information in their Tenders which is confidential to their business. This may include proprietary information, trade secrets or commercial or financially sensitive information.

20.3 The original and all copies of the Tender shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Tenderer. This authorization shall consist of a written confirmation as specified in the **TDS** and shall be attached to the Tender. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Tender where entries or amendments have been made shall be signed or initialled by the person signing the Tender.

20.4 In case the Tenderer is a JV, the Tender shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.

20.5 Any amendments such as interlineation, erasures or overwriting shall be valid only if they are signed or initialled by the person signing the Tender.

D. Submission and opening of tenders

21. Sealing and Marking of Tenders

21.1 Tenderers may submit their Tenders by mail or by hand. If so specified in the **TDS**, Tenderers shall have the option of submitting their Tenders electronically. Procedures for submission, sealing and marking are as follows:

(a) Tenderers submitting Tenders by mail or by hand shall enclose the original and copies of the Tender, including Alternative Tenders if permitted in accordance with ITT 13, in separate sealed envelopes. The envelopes shall be duly marked as "ORIGINAL," "COPY," "ALTERNATIVE-ORIGINAL" and "ALTERNATIVE-COPY." These envelopes shall then be enclosed in one single package. The rest of the procedure shall be in accordance with ITT 21.2 and 21.3.

(b) Tenderers submitting Tenders electronically shall follow the electronic tender submission procedures specified in the **TDS**.

21.2 The inner and outer envelopes shall:

(a) bear the name and address of the Tenderer.

(b) be addressed to the Employer in accordance with ITT 22.1;

(c) bear the specific identification of this Tendering process specified in accordance with TDS 1.1; and

(d) bear the specific identification of this Tendering process specified in accordance with ITT 1.1.

21.3 If all envelopes are not sealed and marked as required, the *Employer* will assume no responsibility for the misplacement or premature opening of the Tender.

22. Deadline for Submission of Tenders

22.1 Tenders must be received by the Employer at the address and no later than the date and time **specified in the TDS**.

22.2 The Employer may, at its discretion, extend the deadline for the submission of Tenders by amending the Tender Document in accordance with ITT 8, in which case all rights and obligations of the Employer and Tenderers previously subject to the deadline shall thereafter be subject to the deadline as extended.

23. Late Tenders

23.1 The Employer shall not consider any Tender that arrives after the deadline for submission of Tenders, in accordance with ITT 22. Any

Tender received by the Employer after the deadline for submission of Tenders shall be declared late, rejected, and returned unopened to the Tenderer.

24. Withdrawal, Substitution and Modification of Tenders

24.1 A Tenderer may withdraw, substitute or modify its Tender after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITT 20.3 (except that withdrawal notices do not require copies). The corresponding substitution or modification of the Tender must accompany the respective written notice. All notices must be:

(a) prepared and submitted in accordance with ITT 20 and ITT 21 (except that withdrawals notices do not require copies), and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL," "SUBSTITUTION" and "MODIFICATION," and

(b) received by the Employer prior to the deadline prescribed for submission of Tenders, in accordance with ITT 22.

24.2 Tenders requested to be withdrawn in accordance with ITT 24.1 shall be returned unopened to the Tenderers.

24.3 No Tender may be withdrawn, substituted or modified in the interval between the deadline for submission of Tenders and the expiration of the period of Tender validity specified by the Tenderer on the Letter of Tender or any extension thereof.

25. Technical Part Opening

25.1 Except in the cases specified in ITT 23 and ITT 24.2, the Employer shall publicly open and read out in accordance with this ITT all Tenders received by the deadline, at the date, time and place specified in the **TDS**, in the presence of Tenderers' designated representatives and anyone who chooses to attend. Any specific electronic Tender opening procedures required if electronic Tendering is permitted in accordance with ITT 21.1, shall be as specified in the **TDS**.

25.2 First, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelope with the corresponding Tender shall not be opened but returned to the Tenderer. No Tender withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at Tender opening.

25.3 Next, envelopes marked "SUBSTITUTION" shall be opened and read out and exchanged with the corresponding Tender being substituted, and the substituted Tender shall not be opened, but returned to the

Tenderer. No Tender substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at Tender opening.

25.4 Next, envelopes marked "MODIFICATION" shall be opened and read out with the corresponding Tender. No Tender modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Tender opening.

25.5 Next, all remaining envelopes shall be opened one at a time, reading out: the name of the Tenderer and whether there is a modification; the total Tender Price, per lot (contract) if applicable, including any discounts and alternative Tenders; the presence or absence of a Tender Security or Tender-Securing Declaration, if required and any other details as the Employer may consider appropriate.

25.6 Only Tenders, alternative Tenders and discounts that are opened and read out at Tender opening shall be considered further for evaluation. The Letter of Tender and the Bill of Quantities are to be initialled by representatives of the Employer attending Tender opening in the manner specified in the **TDS**.

25.7 At the tender opening the Employer shall neither discuss the merits of any Tender nor reject any Tender (except for late Tenders, in accordance with ITT 23.1).

25.8 The Employer shall prepare a record of the Technical Part of Tender opening that shall include, as a minimum:

(a) the name of the Tenderer and whether there is a withdrawal, substitution or modification;

(b) the Tender Price, per lot (contract) if applicable, including any discounts;

(c) any alternative Tenders; and

(d) the presence or absence of a Tender Security or Tender-Securing Declaration, if one was required.

25.9 The Tenderers' representatives who are present shall be requested to sign the record. The omission of a Tenderer's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Tenderers who submitted Tenders in time and posted online when electronic Tendering is permitted.

E. Evaluation and Comparison of Tenders

26. Confidentiality

26.1 Information relating to the evaluation of Tenders and recommendation of contract award shall not be disclosed to Tenderers or any other persons not officially concerned with the Tendering process until information on Intention to Award the Contract is transmitted to all Tenderers in accordance with ITT 43.

26.2 Any attempt by a Tenderer to influence the Employer in the evaluation of the Tenders or Contract award decisions may result in the rejection of its Tender.

26.3 Notwithstanding ITT 26.2, from the time of Tender opening to the time of Contract award, if a Tenderer wishes to contact the Employer on any matter related to the Tendering process, it shall do so in writing.

27. Clarification of Tenders

27.1 To assist in the examination, evaluation and comparison of the Tenders, and qualification of the Tenderers, the Employer may, at its discretion, ask any Tenderer for a clarification of its Tender, allowing a reasonable time for response. Any clarification submitted by a Tenderer that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the Tender shall be sought, offered or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Tenders, in accordance with ITT 36.

27.2 If a Tenderer does not provide clarifications of its Tender by the date and time set in the Employer's request for clarification, its Tender may be rejected.

28. Deviations, Reservations and Omissions

28.1 During the evaluation of Tenders, the following definitions apply:

(a) "Deviation" is a departure from the requirements specified in the Tender Document.

(b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Tender Document.

(c) "Omission" is the failure to submit part or all of the information or documentation required in the Tender Document.

29. Determination of Responsiveness

29.1 The Employer's determination of a Tender's responsiveness is to be based on the contents of the Tender itself, as defined in ITT 11.

29.2 A substantially responsive Tender is one that meets the requirements of the Tender Document without material deviation, reservation or omission. A material deviation, reservation or omission is one that,

(a) if accepted, would:

(i) affect in any substantial way the scope, quality or performance of the Works specified in the Contract; or

(ii) limit in any substantial way, inconsistent with the Tender Document, the Employer's rights or the Tenderer's obligations under the proposed Contract; or

(b) if rectified, would unfairly affect the competitive position of other Tenderers presenting substantially responsive Tenders.

29.3 The Employer shall examine the technical aspects of the Tender submitted in accordance with ITT 16 and ITT 17, in particular, to confirm that all requirements of Section VII, Works' Requirements have been met without any material deviation, reservation or omission.

29.4 If a Tender is not substantially responsive to the requirements of the Tender Document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation or omission.

30. Nonmaterial Nonconformities

30.1 Provided that a Tender is substantially responsive, the Employer may waive any nonconformities in the Tender.

30.2 Provided that a Tender is substantially responsive, the Employer may request that the Tenderer submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the Tender related to documentation requirements. Requesting information or documentation on such nonconformities or omissions shall not be related to any aspect of the price of the Tender. Failure of the Tenderer to comply with the request may result in the rejection of its Tender.

30.3 Provided that a Tender is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Tender Price. To this effect, the Tender Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or nonconforming item or component in the manner specified in the **TDS**.

31. Correction of Arithmetical Errors

31.1 Provided that the Tender is substantially responsive, the Employer shall correct arithmetical errors on the following basis:

(a) if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;

(b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail, and the total shall be corrected; and

(c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

31.2 Tenderers shall be requested to accept correction of arithmetical errors. Failure to accept the correction in accordance with ITT 36.1, shall result in the rejection of the Tender.

32. Conversion to Single Currency

32.1 For evaluation and comparison purposes, the currency (ies) of the Tender shall be converted into a single currency **as specified in the TDS**.

33. Provision for Development of Domestic Industry

33.1 Unless otherwise specified in the **TDS**, provision for development of domestic industry (such as a margin of preference for domestic Tenderers[1]) shall not apply.

34. Subcontractors

34.1 Unless otherwise stated in the TDS, the Employer does not intend to execute any specific elements of the Works by sub contractors selected in advance by the Employer.

34.2 Tenderers may propose subcontracting up to the percentage of total value of contracts or the volume of works as specified in the TDS.

[1]An individual firm is considered a domestic Tenderer for purposes of the margin of preference if it is registered in the country of the Employer, has more than 50 percent ownership by nationals of the country of the Employer, and if it does not subcontract more than 10 percent of the contract price, excluding provisional sums, to foreign contractors. JVs are considered as domestic Tenderers and eligible for domestic preference only if the individual member firms are registered in the country of the Employer or have more than 50 percent ownership by nationals of the country of the Employer, and the JV shall be registered in the country of the Employer. The JV shall not subcontract more than 10 percent of the contract price, excluding provisional sums, to foreign firms. JVs between foreign and national firms will not be eligible for domestic preference.

Subcontractors proposed by the Tenderer shall be fully qualified for their parts of the Works.

34.3 The subcontractor's qualifications shall not be used by the Tenderer to qualify for the Works unless their specialized parts of the Works were previously designated by the Employer in the TDS as can be met by subcontractors referred to hereafter as "Specialized Subcontractors," in which case, the qualifications of the Specialized Subcontractors proposed by the Tenderer may be added to the qualifications of the Tenderer.

35. Evaluation of Tenders

Technical Evaluation

35.1 The Employer shall evaluate the Tenders using the criteria and methodologies listed in this ITT and Section III, Evaluation and Qualification Criteria. No other evaluation criteria or methodologies shall be permitted.

35.2 If specified in the TDS, the Employer's evaluation will be carried out by applying rated criteria that take into account technical factors, in addition to cost factors. An Evaluated Tender Score will be calculated for each responsive Tender using the formula specified in Section III, Evaluation and Qualification Criteria. The scores to be given to technical factors and sub-factors are specified in the TDS. The weights to be given to the cost and the total technical score are specified in the TDS.

Financial Evaluation

35.3 To evaluate a Tender, the Employer shall consider the following:

(a) the Tender price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities, but including Daywork items, where priced competitively;

(b) price adjustment for correction of arithmetic errors in accordance with ITT 31.1;

(c) price adjustment due to discounts offered in accordance with ITT 14.4;

(d) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITT 32;

(e) price adjustment due to quantifiable nonmaterial nonconformities in accordance with ITT 30.3; and (f) the additional evaluation factors

specified in the TDS and Section III, Evaluation and Qualification Criteria.

36. Comparison of Tenders

36.1 The Employer shall compare the evaluated costs of all substantially responsive Tenders established in accordance with ITT 35.3 to determine the Tender that has the lowest evaluated cost.

36.2 If ITT 35.2 is applicable, the Employer shall evaluate the technical score and financial score of each tender and determine the Tender with the highest combined technical and financial score in accordance with TDS ITT 35.2.

37. Abnormally Low-Priced Tenders

37.1 An Abnormally Low-Priced Tender is one where the Tender price, in combination with other elements of the Tender, appears so low that it raises material concerns as to the capability of the Tenderer in regard to the Tenderer's ability to perform the Contract for the offered Tender Price.

37.2 In the event of identification of a potentially Abnormally Low-Priced Tender, the Employer shall seek written clarifications from the Tenderer, including detailed price analyses of its Tender price in relation to the subject matter of the contract, scope, proposed methodology, schedule, allocation of risks and responsibilities and any other requirements of the Tender Document.

37.3 After examining the clarifications given and the detailed price analyses presented by the Tenderer, the Employer may as appropriate:

(a) accept the Tender, if the evidence provided satisfactorily accounts for the low tender price, in which case the Tender is not considered abnormally low; or

(b) accept the Tender, but require that the amount of the Performance Security be increased at the expense of the Tenderer to a level sufficient to protect the Employer against financial loss. The amount of the Performance Security shall generally be not more than 20 percent of the Contract Price; or

(c) reject the Tender, if the evidence provided does not satisfactorily account for the low tender price, and make a similar determination for the next-ranked Tender, if required.

38. Unbalanced or Front-Loaded Tenders

38.1 If the Tender that is evaluated as the Most Advantageous Tender is, in the Employer's opinion, seriously unbalanced or front loaded, the Employer may require the Tenderer to provide written clarifications. Clarifications may include detailed price analyses to demonstrate the consistency of the

Tender prices with the scope of works, proposed methodology, schedule and any other requirements of the Tender Document.

38.2 After the evaluation of the information and detailed price analyses presented by the Tenderer, the Employer may as appropriate:

(a) accept the Tender; or

(b) accept the Tender, but require that the total amount of the Performance Security be increased at the expense of the Tenderer to a level not exceeding 20 percent of the Contract Price; or

(c) reject the Tender, and make a similar determination for the next-ranked Tender.

39. Qualification of the Tenderer

39.1 The Employer shall determine to its satisfaction whether the eligible Tenderer that has submitted substantially responsive Tender, meets the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.

39.2 The determination shall be based upon an examination of the documentary evidence of the Tenderer's qualifications submitted by the Tenderer, pursuant to ITT 17. The determination shall not take into consideration the qualifications of other firms such as the Tenderer's subsidiaries, parent entities, affiliates, subcontractors (other than Specialized Subcontractors if permitted in ITT 34.3) or any other firm(s) different from the Tenderer.

39.3 An affirmative determination shall be a prerequisite for award of the Contract to the Tenderer. If a Tenderer does not meet the qualifying criteria specified in Section III, Evaluation and Qualification Criteria, its Tender shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation or omission.

40. Most Advantageous Tender

40.1 The Employer shall determine the Most Advantageous Tender. The Most Advantageous Tender is the Tender of the Tenderer that meets the Qualification Criteria and whose Tender has been determined to be substantially responsive to the Tender Documents and:

(a) when rated criteria are used, is the tender with the highest combined technical and financial score; or

(b) when rated criteria are not used, is the tender with the lowest evaluated cost.

41. Employer's Right to Accept

41.1 The Employer reserves the right to accept or reject any Tender and to annul the Tendering process and reject all Tenders at any time prior to Contract Award, without thereby incurring any liability to Tenderers.

Any Tender, and to Reject Any or All Tenders

In case of annulment, all Tenders submitted and specifically, Tender securities, shall be promptly returned to the Tenderers.

42. Standstill Period

42.1 The Contract shall not be awarded earlier than the expiry of the Standstill Period. The Standstill Period shall be ten (10) Business Days unless extended in accordance with ITT 48. The Standstill Period commences the day after the date the Employer has transmitted to each Tenderer the Notification of Intention to Award the Contract. Where only one Tender is submitted, or if this contract is in response to an emergency situation recognized by the Bank, the Standstill Period shall not apply.

43. Notification of Intention to Award

45.1 The Employer shall send to each Tenderer the Notification of Intention to Award the Contract to the successful Tenderer. The Notification of Intention to Award shall contain, at a minimum, the following information:

(a) the name and address of the Tenderer submitting the successful Tender;

(b) the Contract price of the successful Tender;

(c) the names of all Tenderers who submitted Tenders, and their Tender prices as readout, and as evaluated, and when rated criteria are used, the evaluated technical and financial scores, and the combined total scores;

(d) a statement of the reason(s) the Tender (of the unsuccessful Tenderer to whom the notification is addressed) was unsuccessful, unless the price or score information in (c) above already reveals the reason;

(e) the expiry date of the Standstill Period; and

(f) instructions on how to request a debriefing and/or submit a complaint during the Standstill Period.

F. Award of Contract

44. Award Criteria

44.1 Subject to ITT 43, the Employer shall award the Contract to the successful Tenderer. This is the Tenderer whose Tender has been determined to be the Most Advantageous Tender.

45. Notification of Award

45.1 Prior to the expiry of the Tender Validity Period and upon expiry of the Standstill Period specified in ITT 43.1 or any extension thereof, and, upon satisfactorily addressing any complaint that has been filed within

the Standstill Period, the Employer shall notify the successful Tenderer, in writing, that its Tender has been accepted. The notification of award (hereinafter and in the Conditions of Contract and Contract Forms called the "Letter of Acceptance") shall specify the sum that the Employer will pay the Contractor in consideration of the execution of the Contract (hereinafter and in the Conditions of Contract and Contract Forms called "the Contract Price").

45.2 Within ten (10) Business Days after the date of transmission of the Letter of Acceptance, the Employer shall publish the Contract Award Notice which shall contain, at a minimum, the following information:

(a) name and address of the Employer;

(b) name and reference number of the contract being awarded, and the procurement method used;

(c) names of all Tenderers that submitted Tenders, and their Tender prices as read out at Tender opening, and as evaluated, and when rated criteria are used, the evaluated tender scores;

(d) names of all Tenderers whose Tenders were rejected either as nonresponsive or as not meeting qualification criteria, or were not evaluated, with the reasons therefor;

(e) the name of the successful Tenderer, the final total contract price, the contract duration and a summary of its scope; and

(f) successful Tenderer's Beneficial Ownership Disclosure Form, if specified in ITT 49.1.

45.3 The Contract Award Notice shall be published on the Employer's website with free access if available, or in at least one newspaper of national circulation in the Employer's Country, or in the official gazette. The Employer shall also publish the contract award notice in United Nations Development Business online and AIIB website.

45.4 Until a formal Contract is prepared and executed, the Letter of Acceptance shall constitute a binding Contract.

46. Debriefing by the Employer

46.1 On receipt of the Employer's Notification of Intention to Award referred to in ITT 44.1, an unsuccessful Tenderer has three (3) Business Days to make a written request to the Employer for a debriefing. The Employer shall provide a debriefing to all unsuccessful Tenderers whose request is received within this deadline.

46.2 Where a request for debriefing is received within the deadline, the Employer shall provide a debriefing within five (5) Business Days, unless the Employer decides, for justifiable reasons, to provide the debriefing outside this timeframe. In that case, the Standstill Period shall automatically be extended until five (5) Business Days after such debriefing is provided. If more than one debriefing is so delayed, the Standstill Period shall not end earlier than five (5) Business Days after the last debriefing takes place. The Employer shall promptly inform, by the quickest means available, all Tenderers of the extended standstill period.

46.3 Where a request for debriefing is received by the Employer later than the three (3)-Business Day deadline, the Employer should provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of Contract Award Notice. Requests for debriefing received outside the three (3)-day deadline shall not lead to extension of the standstill period.

46.4 Debriefings of unsuccessful Tenderers may be done in writing or verbally. The Tenderer shall bear its own costs of attending such a debriefing meeting.

47. Signing of Contract

47.1 The Employer shall send to the successful Tenderer the Letter of Acceptance including the Contract Agreement, and, if specified in the **TDS**, a request to submit the Beneficial Ownership Disclosure Form providing additional information on its beneficial ownership. The Beneficial Ownership Disclosure Form, if so requested, shall be submitted within eight (8) Business Days of receiving this request.

47.2 The successful Tenderer shall sign, date and return to the Employer, the Contract Agreement within twenty-eight (28) days of its receipt.

48. Performance Security

48.1 Within twenty-eight (28) days of the receipt of the Letter of Acceptance from the Employer, the successful Tenderer shall furnish the Performance Security in accordance with the General Conditions of Contract, subject to ITT 40.3 (b) and ITT 41.2 (b), using for that purpose the Performance Security Form included in Section X, Contract Forms, or another form acceptable to the Employer.

48.2Failure of the successful Tenderer to submit the abovementioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender

Security. In that event, the Employer may award the Contract to the Tenderer offering the next Most Advantageous Tender.

49. Procurement-Related Complaint

49.1 The procedures for making a Procurement-Related Complaint are as specified in the **TDS**.

Section II-Tender Data Sheet (TDS)

The following specific data for the Works to be procured shall complement, supplement, or amend the provisions in the Instructions to Tenderers (ITT). Whenever there is a conflict, the provisions herein shall prevail over those in ITT.

[Being an e-procurement system as specified, the relevant parts of the TDS are modified accordingly to reflect the e-procurement process.]

A. General	
ITT 1.1	The reference number of the SPN/tender is: **MRVC/W/EL/GS/PNVL-KJT/Balance works** The Employer is***:*** **Mumbai Railway Vikas Corporation Ltd. (MRVC)** The name of the Tender is: "**Balance General service Electrical works in connection with construction of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor".**
ITT 1.3	**Add following clause as 1.3** **Electronic –Procurement System** The Employer shall use the following electronic-procurement system to manage this Tendering process: The e-Procurement System of India (https://eprocure.gov.in) and url link of the website is https://www.eprocure.gov.in/eprocure/app. The electronic-procurement system shall be used to manage the following aspects of the Tendering process: i. Downloading Tender document ii. Submission of Tender iii. Opening of Financial Tender iv. Issue of Amendment/ Corrigendum. ***v.*** Notification for Award of Tender
ITT 2.1	The Recipients is : Government of India. The employer, MRVC is Public Sector Undertaking (PSU) of Government of India. The Bank Loan amount: **Under process.** The name of the Project is: **Mumbai Urban Transport Project-III (MUTP-III).**
ITT 4.1 and ITT 4.3	Maximum number of members in the JV shall be**: 3 (Three)** In JV, one of the members of Joint venture (lead) shall have minimum **51%** of share in JV.
ITT 4.1	Add the following at the end of ITT 4.1: a. A statement to the effect that all members of the joint venture shall be jointly and severally liable for the execution of the entire Contract in accordance with the Contract terms, shall be included in the authorization nominating a Representative or member in charge, as well as in the Tender, and in the Agreement [in case of a successful Tender]. This authorization shall be evidenced by

	submitting a power of attorney signed by legally authorized signatories of all members. b. The joint venture agreement/ Letter of intent should precisely define the division of assignments to each member of JV and responsibilities between the JV Partners (Tenderer shall ensure that the assigned responsibilities are commensurate with the EQC requirement, failing which the Tender maybe rejected). All members of JV should have active participation in the execution during the currency of the contract. This should not be varied/ modified subsequently without prior approval of the Employer. c. The Representative shall be authorized to incur liabilities and receive instructions for and on behalf of any and all members of the joint venture and the entire execution of the contract, including payment, shall be done exclusively with the Representative. d. In order for a Joint Venture to qualify, each of its members must meet the criteria listed in this Section and all members together must meet the qualification in full. Failure to comply with this requirement will result in rejection of the joint venture's tender. e. In the event of any default by any member/(s) of Joint Venture, the other members shall accept the liability and execute the contract in full. f. No change in constitution or percentage share shall be permitted at any stage after the Tender submission, failing which the Tenderer shall be treated as non-responsive. g. Minimum percentage share of each JV member shall be 20 (twenty).
ITT 4.5	A list of debarred firms and individuals is available on the Bank's external website: https://www.aiib.org/en/about-aiib/who-we-are/ debarment-list/index.html
B. Contents of Tendering Document	
ITT 7.1	Replace ITT 7.1 with the following: "The electronic Tendering system **specified in the TDS** provides for online clarifications. A Tenderer requiring any clarification of the Tendering Document may notify the Employer online or raise its inquiries during the pre-Tender meeting if provided for in accordance with ITT 7.4. Clarifications requested through any other mode shall not be considered by the Employer. The Employer will respond to any request for clarification, provided that such request is received prior to the deadline for submission of Tender within a period **specified in the TDS**. Description of clarification sought and the response of the Employer shall be uploaded for information of all Tenderers without identifying the source of request for clarification. Should the clarification result in changes to the essential elements of the Tendering Document, the

	Employer shall amend the Tendering Document following the procedure under ITT 8 and ITT 22.2. It is the Tenderer's responsibility to check on the e-procurement system, for any addendum/ amendment/ corrigendum to the Tendering document.
ITT 7.4	A pre-tender meeting **shall not be taking place.** Site visit **shall not be** conducted by the Employer.
ITT 7.5	Replace ITT 7.5 with the following: "The Tenderer is requested, to submit any questions only through the e-procurement portal, before pre-tender conference. However, if any clarification still required by the Tenderer, it should be submitted, not later than the date specified on the e-procurement portal. Clarifications requested through any other mode shall not be considered by the Employer"
ITT 7.6	~~Replace the first sentence of ITT 7.6 with the following:~~ ~~"Minutes of the pre-Tender meeting, , including the text of the questions asked by Tenderers, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be uploaded on the e-procurement system for information of all tenderers."~~ ~~Web page: https://eprocure.gov.in~~ --**Not Applicable**
ITT 8.2	Replace ITT 8.2 with the following: "8.2. Any addendum issued shall be part of the Tender Document and shall be deemed to have been communicated to all Tenderers. The addenda will appear on the e-procurement system under "Latest Corrigendum". Email notification is also automatically sent to those Tenderers who have started working on the tender. The Employer shall not be liable for any information not received by the Tenderer. It is the Tenderers' responsibility to verify the website for the latest information related to this Tender".
C. Preparation of Tender	
ITT 10.1	The language of the Tender is: **English.** All correspondence exchange shall be in English language. Language for translation of supporting documents and printed literature is **English**.
ITT 11.1	Replace ITT 11.1 with the following: "*The Tender shall comprise in two Part, namely the "Technical Part" & "Financial Part (Bill of Quantity)". These two Parts shall be submitted simultaneously on E- Procurement Portal specified in clause 1.3."*

ITT 11.2 (d)	Replace ITT 11.2 (d) with the following: "Authorization: written confirmation authorizing the signatory of the Tender to commit the Tenderer, in accordance with ITT 20.3, and in accordance with ITT 20.4 in case of a JV;"
ITT 11.2 (h)	The Tenderer shall submit the following additional documents in its Tender: **Code of Conduct for Contractor's Personnel** The Tenderer shall submit its Code of Conduct that will apply to Contractor's Personnel (as defined in Sub-clause 1.1.17 of the GCC), to include management of and restrictions on personnel's behaviour with respect to host communities, and ensure compliance with its Environmental, Health and Safety (SHE) obligations under the contract. *[Note: Complete and include the risks to be addressed by the Code in accordance with Section VII-Works' Requirements, e.g., risks associated with: - labour influx, spread of communicable diseases, sexual harassment, gender-based violence, sexual exploitation and abuse, illicit behaviour and crime and* maintaining *a safe environment etc.]* In addition, the Tenderer shall detail how this Code of Conduct will be implemented. This will include how it will be introduced into conditions of employment/engagement, what training will be provided, how it will be monitored and how the Contractor proposes to deal with any breaches. The Contractor shall be required to implement the agreed Code of Conduct. **Management Strategies and Implementation Plans (MSIP) to manage the SHE risks** The Tenderer shall submit its Management Strategies and Implementation Plans (MSIP) to manage the following key Environmental, Health and Safety (SHE) risks. • Air, Water, Soil, Noise & Vibration Management Plan. • Commuters Management Plan. • Traffic Management Plan to ensure safety of local communities from construction traffic. • Asbestos Management Plan. • Gender-Based Violence (GBV) and Sexual Exploitation and Abuse/Assault (SEA) prevention and response action plan. • Construction Site Management Plan. • Labor Camp Management Plan. • Training plan.

	The Contractor shall be required to submit for approval and subsequently implement, the Contractor's Environment and Social Management Plan (C-ESMP), in accordance with the Particular Conditions of Contract (Part B) Sub-Clause 16.2, that includes the agreed Management Strategies and Implementation Plans described here. A **Labor Management Plan** should be prepared by the Tenderer to include general terms and conditions of employment, regulation of working hours, payment modalities, living conditions of the workers and a Grievance Redress Mechanism for resolution of labour-related conflicts.
ITT 13.1	Alternative Tenders **shall not be** considered.
ITT 13.2	Alternative times for completion **shall not be** permitted.
ITT 13.4	Alternative technical solutions shall be permitted for the following parts of the Works- **Nil**
ITT 14.5	The prices quoted by the Tenderer shall be subject to adjustment during the performance of the contract.
ITT 15.1	The price **shall be** quoted by the tenderer in: **Indian Rupees** The currency(ies) of the Tender and the payment currency(ies) shall be in accordance with Alternative **A** as described below: **Alternative A (Tenderers to quote entirely in local currency):** (a) The unit rates and the prices shall be quoted by the Tenderer in the Bill of Quantities, entirely in Indian Rupees (₹), and further referred to as "the local currency." A Tenderer expecting to incur expenditures in other currencies for inputs to the Works supplied from outside the Employer's Country (referred to as "the foreign currency requirements") shall indicate in the Appendix to Tender - Table C, the percentage(s) of the Tender Price (excluding Provisional Sums), needed by the Tenderer for the payment of such foreign currency requirements, limited to no more than three foreign currencies. The rates of exchange to be used by the Tenderer in arriving at the local currency equivalent and the percentage(s) mentioned in (a) above shall be specified by the Tenderer in the Appendix to Tender - Table C and shall apply for all payments under the Contract so that no exchange risk will be borne by the successful Tenderer

<table>
<tr><td>ITT 18.1</td><td>The Tender validity period shall be 60 days.</td></tr>
<tr><td>ITT 18.3 (a)</td><td>The Tender price shall be adjusted by the following factor(s): Nil (Being adjustable price contract)</td></tr>
<tr><td>ITT 19.1</td><td>A Tender Security shall be required. The amount of the Tender Security shall be under: -
<table>
<tr><th>S.No.</th><th>Amount in ₹</th></tr>
<tr><td>1.</td><td>₹ 38,40,100/- (Rupees Thirty-Eight Lakhs Forty Thousand One Hundred only)</td></tr>
</table></td></tr>
<tr><td>ITT 19.3</td><td>Replace the ITT 19.3 with the following:

If a Tender Security is specified pursuant to ITT 19.1, the Tender Security shall be submitted in any of the following forms at the Tenderer’s option:
Mode of submission of Tender Security:

(a) Tender Security for the tender may be submitted by the Tenderer in the form of a Bank Guarantee issued by a nationalized/schedule bank located in India in the form given in Section IV (Tender Forms) or Demand Draft or FDR or ECS payment of any Scheduled Bank or Nationalized Bank.

For Depositing the Tender Security, the Bank details of MRVC account for ECS payment through RTGS/NEFT is

i) Name of Beneficiary : Mumbai Railway Vikas Corporation Limited
ii) A/C No. : 36038784315
iii) IFSC Code : SBIN0001821
iv) Name of Bank : State Bank of India
v) Name of Branch : Churchgate, Mumbai
vi) MICR Code : 400002018
vii) Type of Account : Current

(b) A copy of these instruments towards Tender Security should be uploaded along with the tender on E-portal web site and the original instruments like Bank Guarantee/Demand Draft/FDR should be submitted before the opening of the Tender to MRVC office to the address mentioned in TDS either by registered post/speed post/ courier or by hand, failing which such Tender will be declared non-responsive. The employer, MRVC is not responsible for any delay in</td></tr>
</table>

	submission of the original document i.e. Bank Guarantee/Demand Draft/FDR. (c) The Tender Security shall be valid for forty-five (45) days beyond the original validity period of the Tender, or beyond any period of extension if requested under ITT 18.2.
ITT 20.1	In addition to the original of the Tender, the number of copies is **Nil.** Submission of original documents to be done according to ITT 21.4 specified below.
ITT 20.3	Read ITT 20.3 with the following: "The Tender shall be signed by a person duly authorized to sign on behalf of the Tenderer. The authorization shall be uploaded along with the Tender and shall consist of a written confirmation as specified in the ITT.
ITT 20.3	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of: (a)Legally valid Power of Attorney (along with Board resolution, if required) is required to demonstrate the authority of the signatory to sign the Tender. (b) In the case of Tender submitted by an existing or intended JV, if permitted as per ITT 4.1, the authorization shall be evidenced by a Power of Attorney signed by legally authorized signatories of all the members.
D. Submission and opening of Tender	
ITT 21	Replace ITT 21 with the following: "21.1. Detailed guidelines for viewing Tender and for online submission are given on the website. The Invitation for Tender under this Project is published on this website. Anyone can logon to this website and view the Invitation for Tender and can view the details of Works for which Tender are invited. However, Tenderer is required to have enrolment/registration in the website, and should have valid Digital Signature Certificate (DSC) **(Class of DSC required is : III)** in the form of smart card/e-token obtained from any authorised certifying agency of Government of India for class of DSC **specified in the ITT 21.1**. The Tenderer should register in the website using the relevant option available. Then the Digital Signature registration has to be done with the e-token, after logging into the website. The Tenderer can then login the website through the secured login by entering the password of the e-token & the user id/ password chosen during registration. After getting the Tender schedules, the Tenderer should go through them carefully and submit the specified documents, along with the Tender, otherwise the Tender will be rejected.

	21.2. The completed tender, both Technical and Financial Parts, comprising of documents indicated in ITT 11 and 12, including the Letter of Tender – Technical Part, Letter of Tender – Financial Part and filled-up Schedules including priced Bill of Quantities, should be uploaded on the e-procurement portal specified in ITT 1.2, along with scanned copies of requisite certificates as are mentioned in different sections in the tendering document and scanned copy of the tender security. [Note for Tenderers: For online submission of tenders, the tenderers shall fill up online, the forms that are available for online filling on the e-portal. The rest of the forms shall be downloaded by the tenderers and filled up. The filled-up pages shall then be scanned and uploaded on the e-procurement portal along with the scanned copies of the supporting documents.] 21.3. All the documents are required to be signed digitally by the tenderer. After electronic online tender submission, the system generates a unique tender identification number which is time stamped as per server time. This shall be treated as acknowledgement of tender submission." 21.4. **Submission of Original Documents:** The tenderers are required to separately submit (i) Original tender security in approved form. (ii) Original affidavit regarding correctness of information furnished. (iii) Power of Attorney (POA) for Authorized Signatory, The above document to be submitted in the MRVCL office specified in the ITT 21.4, before the Tender opening deadline, either by registered/speed post/courier or by hand, failing which such tenders will be declared non-responsive. Hard copy of rest of the tender or any other document is not to be submitted.
ITT 22.1	Replace ITT 22.1 with the following: "22.1 Tenders must be uploaded online not later than the date and time specified in the ITT 22.1. For submission of original documents, the Employer's address is: **Chief Manager (Project-Electrical))** Street Address: Mumbai Railway Vikas Corporation Limited New Administrative Building, D N Road CSMT, (opposite to Anjuman School) MAHARASHTRA 400001, City: Mumbai PIN/Postal Code: 400 020 Country: INDIA

	The deadline for Tender submission is: **Date: 18-06-2026** Time: ***12.00hrs*** Tenderers shall submit their Tender electronically only. Email, Telex, Cable or Facsimile Tender will be rejected."
ITT 24.1	Replace ITT 24.1 with the following: "24.1(a) Tenderers may modify their Tender by using appropriate option for Tender modification on the e-procurement portal, before the deadline for submission of Tender. For this the Tenderer need not make any additional payment towards the cost of Tender document. For Tender modification and consequential re-submission, the Tenderer is not required to withdraw his Tender submitted earlier. The last modified Tender submitted by the Tenderer within the Tender submission time shall be considered as the Tender. For this purpose, modification/ withdrawal by other means will not be accepted. In online system of Tender submission, the modification and consequential re-submission of Tender is allowed any number of times. A Tenderer may withdraw his Tender by using appropriate option for Tender withdrawal, before the deadline for submission of Tender, however, if the Tender is withdrawn, re-submission of the Tender is allowed. (b) Tenderer may revise their offer online till the deadline for uploading the tender
ITT 24.2	Replace ITT 24.2 with the following: "24.2 Tenders requested to be withdrawn in accordance with ITT Sub-Clause 24.1 shall not be opened." E-procurement portal will not allow to open the offer withdrawn.
ITT 25.1	Replace ITT 25.1 with the following: "25.1. (a) The Employer shall publicly open tender of all tenders received by the deadline at the date, time and place specified in the ITT 25.1 in the presence of Tenderers' designated representatives and anyone who chooses to attend, and this could also be viewed by the tenderers online. In the event of the specified date of the tender opening being declared a holiday for the Employer, the tenders shall be opened at the appointed time and location on the next working day."
ITT 25.1	(b) The online Tender opening shall take place at:

	Address Mumbai Railway Vikas Corporation Ltd. , New Administrative Building, D N Road CSMT, (opposite to Anjuman School) MAHARASHTRA 400001 City: Mumbai Country: India Date: **18/06/2026** Time:**15.00 hrs**
ITT 25.6	All pages of the Letter of Tender and priced Bill of Quantities shall be initiated by representatives of the Employer conducting Tender opening.
E. Evaluation and comparison of Tenders	
ITT 30.3	An item not listed in the priced Bill of Quantities shall be assumed to be not included in the Tender and price adjustment shall be applied. The adjustment shall be based on the highest price of the item or component as quoted in other substantially responsive Tenders. If the price of the item or component cannot be derived from the price of other substantially responsive Tenders, the Employer shall use its best estimate.
ITT 32.1	The currency that shall be used for Tender evaluation and comparison purposes to convert at the selling exchange rate all Tender prices expressed in various currencies into a single currency is: **Indian Rupees (₹)**
ITT 33.1	A margin of domestic purchase preference **shall not apply**.
ITT 34.1	At this time the Employer does not intend to execute certain specific parts of the Works by subcontractors selected in advance.
ITT 34.2	Not Applicable
ITT 34.3	Not Applicable
ITT 35.2 to ITT 35.3	Deleted.
F. Award of Contract	
ITT 47.1	The successful Tenderer shall not submit the Beneficial Ownership Disclosure Form.

ITT 49.1	The procedures for making a Procurement-Related Complaint are detailed in the Bank's Procurement Instructions for Recipients (Annex IV). If a Tenderer wishes to make a Procurement-Related Complaint, the Tenderer shall submit its complaint following these procedures, in Writing (by the quickest means available, such as by email or fax), to: **Chief Manager (Project-Electrical)** Mumbai Railway Vikas Corporation Limited, New Administrative Building, D N Road, CSMT, (opposite to Anjuman School), MAHARASHTRA 400001, Mumbai, Country: INDIA In summary, a Procurement-Related Complaint may challenge any of the following: **1.** the terms of the Tender Documents. **2.** the Employer's decision to award the contract.
ITT 50	Add new clause ITT 50 as following: ITT 50: Adjudicator The Adjudicator proposed by the Employer is: Shri G.R.Agarwal retired as Additional Member Electrical, Railway Board as Adjudicator under the Contract, at the daily fee **specified below**, plus reimbursable expenses (actual boarding, lodging, travel and other incidental expenses). If the Tenderer disagrees with this proposal, the Tenderer should so state in his Tender. If, in the Letter of Acceptance, the Employer does not agree on the appointment of the Adjudicator proposed by the Tenderer, the Employer will request the Appointing Authority designated in the Particular Conditions of Contract (PCC) pursuant to Clause 20.3 to appoint the Adjudicator. For payment of Adjudicator, MRVC guidelines on Arbitration and Adjudication as available on www.mrvc.indianrailways.gov.in shall apply. The Biodata of proposed adjudicator is enclosed as Annexure 1 to TDS.

Annexure 1 to TDS

Resume of Shri G.R. Agarwal

Retired as **Additional Member Electrical, Railway Board** in November 2016. Worked with Indian Railways for more than 35 years in policy formulation, planning and implementation of Railway Electrification Projects, Electric Rolling Stock, Transmission Lines, Open Access and Traction Tariff.

PROFESSIONAL EXPERIENCE

Jan 2016– Nov 2016	**Additional Member Electrical RAILWAY BOARD** ▪ Overall in-charge of Electrical and Railway Electrification directorates in Railway Board dealing with more than 55% freight and passenger traffic of Indian Railways on an Electrified network of more than 28000 route Km (60000 track Km) with a fleet of more than 5300 electric locomotives. ▪ Formulation of Policy and strategy for Railway Electrification on Indian Railways; Planning, sanctioning and execution of projects. Finalization of Mission Electrification for electrification of identified 22000 route Km of tracks. ▪ Strategic planning of electric locomotives production, procurement and operation. Planning of maintenance facilities for electric locomotives and Traction network. ▪ Strategic planning for reduction in traction bill including open access management. ▪ Acquisition and manufacturing of 12000 HP, 3 –ph electric locomotives under PPP model in collaboration with M/S Alstom at electric locomotive factory Madhepura. ▪ Acquisition and management of Latest technology related with electric locomotives and electric multiple units.
Aug 2015 – Jan 2016	**Secretary RAILWAY BOARD** ▪ Overall, In-charge of Railway Board. Monitoring key agenda of Hon'ble Minister of Railways and coordination with all stakeholders. ▪ Coordination with Chairman Railway Board, Railway Board members and General Managers in all matters of strategy, planning, execution, and monitoring. ▪ Establishment Officer for all Group A officers of all Railway Services in all service matters viz. postings, selections, promotions, disciplinary and appeal matters, court cases. Coordination with DOPT (Department of Personnel and Training) and ACC (Appointments Committee of Cabinet). ▪ Nodal officer for all parliamentary questions and parliament meetings related with IR. ▪ Conducting Railway Board meetings.
Jul 2014 – Jul 2015 / Nov 2011 – Jul 2014	**Chief Electrical Engineer Central Railway / South Central Railway** ▪ **Successfully commissioned an extremely complicated project of DC to AC conversion from Thane to CSTM in Mumbai suburban network in very tight timelines without affecting operations.**

	▪ Overall in-charge of electrical department, providing leadership to functional heads. ▪ Maintenance and operation of electric traction system comprising 5400 track Km on Central Railways/ 6500 track Km on South Central Railway. ▪ Maintenance and operation of more than 620 electric locomotives in Central Railway /590 in SC Railways, as also periodic overhauling (POH), re-cabling and assembly of 120 electric locomotives annually from all over Indian Railways. ▪ Maintenance and operation of more than 150 rakes of Electric multiple units for operating more than 1760 services on a daily basis on a very complex Central Railways' suburban network spanning approx. 300 Route Km. ▪ Planning and execution for up-gradation and creation of commensurate infrastructure for the maintenance of electric locomotives, electric multiple units and electric traction system in electric loco sheds, EMU sheds, OHE, PSI maintenance depots and remote control centre. ▪ Coordination with all stake holders for execution of Railway Electrification projects being executed in respective zonal railway. ▪ Managing electricity traction tariff, open access, coordination with electricity regulatory commissions.
Jul 2008 – Aug 2010	**Divisional Railway Manager, Jaipur North Western Railway** ▪ Responsible for overall business performance of Jaipur division. Overall in-charge of the division. Providing leadership to functional branch heads of the division. ▪ **Major track works (gauge conversion on Rewari-Phulera section and doubling on Rewari-Jaipur-Ajmer section) and major remodelling of Rewari and Phulera yards were commissioned during that period.** ▪ Unprecedented achievement on consolidation and improving non fare earnings (Advertisement earnings) and non- ticket window sales. ▪ Unprecedented improvement in passenger amenities.
Jan 1983 – Jun 2008 Aug 2010- Sep 2011	▪ Worked in various junior, middle and senior level positions at Northern Railway, Western Railway, Central railway, RDSO and Railway Board in the areas of design, maintenance and operation of electric locomotives and electric traction system and policy planning of Railway Electrification projects.

SUCCESS STORIES& AWARDS

Achievements	▪ Finalization of mission electrification for electrification of identified 22000 route Km for expeditious sanctioning of Railway Electrification projects on Indian Railways (Nov 2016) ▪ Involvement of other key partners viz Power Grid Corporation of India Ltd (PGCIL), Indian Railway Construction Organisation (IRCON) and (RITES) for the first time in execution of Railway Electrification projects (Nov 2016) ▪ Streamlined processes and expedited formation of promotional panels for all railway services in Railway Board (2015) ▪ Successfully commissioned an extremely complicated project of DC to AC conversion from Thane to CSTM in Mumbai suburban network of Central

	Railway in very tight timelines through steely resolve, rigorous monitoring and out of box solutions for complicated issues. (June 2015) ▪ Streamlined maintenance of 3-ph EMUs through finalization of long pending issue of appropriate outsourcing and creation of additional facilities in Central Railway, resulting into notable improvement in reliability (2014-2015) ▪ Successful trials, commissioning and introduction of first 3-ph EMUs with electrics of M/S Siemens on Western Railway in tight timelines (2007-08).
Awards	▪ Energy efficiency awards of Bureau of Energy Efficiency for successive 3 years (2012-13 to 2014-15) as Chief Elect Engineer in South Central Railway and Central Railway. ▪ General Manager Shield for best division in 2010 as Divisional Railway Manager, Jaipur. ▪ General Manager Award in 1997 as Sr Divisional Electric Engineer, Delhi in Northern Railway.
Trainings	▪ "Advanced Professional Programme in Public Administration" at The Indian institute of Public Administration, New Delhi (Sep 2000 – Mar 2001) ▪ "Maintenance of 3 PH EMUs" at Siemens Manufacturing Facilities, Germany (Dec 2007) ▪ "Maintenance of 3 PH Electric Locomotives" at ABB Manufacturing Facilities, Switzerland (Jan 2000) ▪ "Electric Locos (Maintenance & Repair)" at British Rail, Derby, UK (Jan'93 –Mar'93)
Other Professional Affiliation	▪ Project Assessor of International Project Management Award, German (2005 – 2007) ▪ Member, The Institution of Engineering and Technology

EDUCATIONAL QUALIFICATIONS

2003 – 2005 **Mar 2001**	Master of Science (Electrical Engineering) Master's Diploma in Public Administration	University of Applied Sciences, Darmstadt, Germany The Indian institute of Public Administration, New Delhi
Dec 2000	MBA (Finance)	Indira Gandhi National Open University
1974 – 1978	Bachelor of Engineering (Electrical)	University of Roorkee

Section III - Evaluation and Qualification Criteria

This section contains all the criteria that the Employer shall use to evaluate Tender and qualify Tenderers. No other factors, methods or criteria shall be used other than those specified in this Tender document. The Tenderer shall provide all the information requested in the forms included in Section IV, Tender Forms.

Wherever a Tenderer is required to state a monetary amount, Tenderers should indicate in Indian Rupees (₹) only.

Contents

1. Evaluation - Technical Part

2. Qualification Evaluation for Multiple Contracts

3. Qualification Criteria

4. Contractor's Representative and Key Personnel

5. Equipment

6. Evaluation - Financial Part

7. Combined Evaluation

1. Evaluation-Technical Part

1.1 Assessment of adequacy of Technical Proposal with Requirement- Not applicable

1.2 Alternative Completion Times: Not Applicable**.**

1.3 Alternative Technical Solutions for Specified parts of Works: Not Applicable.

1.4 Sustainable Procurement: Not Applicable.

1.5 Technical Proposal Scoring Methodology: Not Applicable.

2. Qualification Criteria- Not Applicable

4. Contractor's Representative and Key Personnel

Note:

1. The Tenderers participating will have to submit key personnel details for.

2. Insert in the following table, the minimum key specialists required to execute the contract, taking into account the nature, scope, complexity and risks of the contract.

The Tenderer must demonstrate that it will have a suitably qualified Contractor's Representative and suitably qualified (and in adequate numbers) Key Personnel, as described in the table below.

The Tenderer shall provide details of the Contractor's Representative and Key Personnel and such other Key Personnel that the Tenderer considers appropriate to perform the Contract, together with their academic qualifications and work experience. The Tenderer shall complete the relevant Forms PER-1 and PER-2 in Section IV, Tender Forms.

The Contractor shall require the Employer's consent to substitute or replace the Contractor's Representative (reference General Conditions of Contract Sub Clause 4.3) and any of the Key Personnel (reference the Particular Conditions of Contract Sub Clause 1.1.2.7).

Key Personnel

Item No.	Position/ specialization	Relevant academic qualifications	Min. years of relevant work experience	No. of personnel
1.	Project Manager (Electrical)	Bachelor's degree in electrical engineering	Minimum 7 years' relevant work experience. Preferable Experience of Railway/Metro.	1
2.	Site Engineer (Electrical)	Bachelor's degree/Diploma in electrical engineering	Minimum 3/5 years' relevant work experience. Preferable Experience of Railway/Metro.	2
3.	Environment, Health and Safety Engineer	Graduate in Civil or Environmental Engineering with preference in specialization and/or additional qualification in Occupational Health and Safety	Minimum 05 Years as Environment, Health, and Safety Engineer	1

The list is indicative and not exhaustive. Tenderer shall deploy required Key Personnel as per site condition, progress of work & speed of construction required and it will be entirely his responsibility to deploy appropriate & adequate key Personnel to meet various milestones & time schedules. This is subject to compliance of minimum requirement.

However, non-deployment of Project Manager within 30 days of Notice to Proceed will attract penalty as mentioned in table below.

The penalty for Non deployment of above positioned experts within 30 days of commencement of work will attract penalty as under: -

Item No.	Position/ specialization	Penalty Per Month or part thereof	Remark
1	Project Manager	₹ 1,00,000/-	Within 07 days of Notice to Proceed
2	Environment, Health and Safety Engineer	₹ 80,000/-	Within 07 days of Notice to Proceed

The list is indicative and not exhaustive. Tenderer shall deploy required Key Personnel as per site condition, progress of work & speed of construction required and it will be entirely his responsibility to deploy appropriate & adequate key Personnel to meet various milestones & time schedules.

The Tenderer must not have in his employment:

[i] the near relations (defined as first blood relations, and their spouses, of the Tenderer or the Tenderer's spouse) of persons of the following Government Departments.

- Mumbai Railway Vikas Corporation Ltd.
- Indian Railways

[ii] without Government permission, any person who retired as gazetted officer within the last one year

Note:

The Managerial and Technical competence of a contractor is largely related to the key personnel on site. The extent to which the Tenderer should demonstrate having staff with extensive experience should be limited to those requiring critical operational or technical skills. The criteria should therefore refer to a limited number of such key personnel, for instance, the project or Contract Manager and others working under the Project Manager who will be responsible for major components (e.g., specialized in Railway electrification work of General Service, Environmental, Health and Safety issues as required for each particular project as required for each particular project). Criteria of acceptability should be based on:

(a) a minimum number of years of experience in a similar position; and

(b) a minimum number of years of experience and/or number of comparable projects carried out in a specified number of preceding years

5 Equipment

Not Applicable

6. Evaluation- Financial Part.

6.1. Provision for Development of Domestic Industry (ITT 38):

In addition to the criteria listed in ITB 38.1 the following criteria shall apply: Purchase preference shall be given to local suppliers in the manner specified hereunder: Among all qualified bids, the lowest bid will be termed as L1. If L1 is from a local supplier, the contract will be awarded to L1. If L1 is not from a local supplier, the lowest bidder among the local suppliers will be invited to match the L1 price subject to local supplier's quoted price falling within the margin of purchase preference, and the contract shall be awarded to such local supplier subject to matching the L1 price. In case such lowest eligible local supplier fails to match the L1 price, the local supplier with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the local suppliers within the margin of purchase preference matches the L1 price, then the contract may be awarded to the L1 bidder. Information submitted by the bidder in the Local content form i.e. Form FIN – 3.5 shall be used as the basis to qualify local content requirement.

6.2. Alternative Completion Times: **Not Applicable.**

6.3 Alternative Technical Solutions for Specified Parts of Works: **Not Applicable**.

6.4 Sustainable Procurement: **Not Applicable.**

6.5 Other criteria: **Not Applicable.**

7. **Deleted.**

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Letter of Tender-Technical Part

INSTRUCTIONS TO TENDERERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE DOCUMENT

The Tenderer must prepare this Letter of Tender on stationery with its letterhead clearly showing the Tenderer's complete name and business address.

Note: All italicized text is to help Tenderers in preparing this form.

Date of this Tender submission: [*insert date (as day, month and year) of Tender submission*]
Tender No: **MRVC/W/EL/GS/PNVL-KJT/Balance works**
Alternative No: Not Applicable

To:
Chief Manager (Project-Electrical)
Mumbai Railway Vikas Corporation Ltd., New Administrative Building, D N Road
CSMT, (opposite to Anjuman School) MAHARASHTRA 400001

We, the undersigned, hereby submit our Tender, in two parts, namely: (a) the Technical Part; and (b) the Financial Part.

In submitting our Tender, we make the following declarations:

(a) **No reservations:** We have examined and have no reservations to the Tender document, including Addenda issued in accordance with Instructions to Tenderer's (ITT 8);

(b) **Eligibility**: We meet the eligibility requirements and have no conflict of interest in accordance with ITT 4;

(c) **Tender-Securing Declaration:** We have not been suspended nor declared ineligible by the Employer based on execution of a Tender-Securing Declaration or Proposal-Securing Declaration in the Employer's country in accordance with ITT 4.7;

(d) **Conformity**: We offer to execute in conformity with the Tender Document and in accordance with the implementation and completion specified in the construction schedule, the following Works: ***"Balance General service Electrical works in connection with construction of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor",***

(e) **Tender Validity Period**: Our Tender shall be valid for a period specified in ITT 18.1 (or as amended if applicable) from the date fixed for the Tender submission deadline specified in ITT 22.1 (or as amended if applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

(f) **Performance Security:** If our Tender is accepted, we commit to obtain a Performance Security in accordance with the Tendering document.

(g) **One Tender per Tenderer:** We are not participating, as a Tenderer, either individually or as a Joint Venture member, in more than one Tender in this tendering process, and meet the requirements of ITT 4.3, other than alternative Tenders submitted in accordance with ITT 13.

(h) **Suspension and Debarment**: We, along with any of our subcontractors, suppliers, consultants, manufacturers or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment or any ineligibility imposed or recognized by the Bank. Further, we are not ineligible under the Employer's Country laws or official regulations or pursuant to a decision of the United Nations Security Council.

(i) **State-owned enterprise or Institution:** [*select the appropriate option and delete the other*] [*We are not a state-owned enterprise or institution*] / [*We are a state-owned enterprise or institution but meet the requirements of ITT 4.6*];

(j) **Binding Contract**: We understand that this Tender, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed.

(k) **Employer not Bound to Accept:** We understand that you are not bound to accept the lowest evaluated cost Tender, the Most Advantageous Tender or any other Tender that you may receive; and

(l) **Prohibited Practices:** We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf engages in any type of Prohibited Practices.

(m) **Inspection and Audit**: We agree to permit the Bank or its representative to inspect our accounts and records and other documents relating to the tender submission and to have them audited by auditors appointed by the Bank**.**

(n) **Adjudicator:** I/We accept the appointment of [insert name proposed in Annexure 1 to TDS] as the Adjudicator

[or]

We do not accept the appointment of [insert name proposed in Annexure 1 to TDS] as the Adjudicator and propose instead that [insert name] be appointed as Adjudicator, whose daily fees and biographical data are attached.

(o) I/We hereby undertake to deploy the equipment consistent with the requirements stipulated in Para 5 of Section-III (EQC) to meet various milestones & time schedule, if our tender is accepted.

Name of the Tenderer: *[*insert complete name of person signing the Tender*].

Name of the person duly authorized to sign the Tender on behalf of the Tenderer: ** [*insert complete name of person duly authorized to sign the Tender*]

Title of the person signing the Tender: [*insert complete title of the person signing the Tender*]

Signature of the person named above: [*insert signature of person whose name and capacity are shown above*]

Date signed [*insert date of signing*] **day of** [*insert month*], [*insert year*]

*: In the case of the Tender submitted by joint venture specify the name of the Joint Venture as Tenderer.

**: Person signing the Tender shall have the power of attorney given by the Tenderer to be attached with the Tender

Appendix A to Technical Part: Technical Proposal

- Site Organization
- Method Statement
- Mobilization Schedule
- Construction Schedule
- SHE Management Strategies and Implementation Plans
- Code of Conduct (SHE)
- Others

Site Organization

[insert Site Organization information]

Method Statement

[insert Method Statement]

Mobilization Schedule

[insert Mobilization Schedule]

Construction Schedule

[insert Construction Schedule]

SHE Management Strategies and Implementation Plans

(SHE-MSIP)

The Tenderer shall submit comprehensive and concise Environmental, Health and Safety Management Strategies and Implementation Plans (SHE-MSIP) as required by ITT 11.2(h) of the Tender Data Sheet. These strategies and plans shall describe in detail the actions, materials, equipment, management processes etc. that will be implemented by the Contractor, and its subcontractors.

In developing these strategies and plans, the Tenderer shall have regard to the SHE provisions of the contract including those as may be more fully described in the Works' Requirements in Section VII.

Code of Conduct: Environmental, Health and Safety (SHE)

The Tenderer shall submit the Code of Conduct that will apply to the Contractor's employees and subcontractors as required by ITT 11.2 (h) of the Tender Data Sheet. The Code of Conduct shall ensure compliance with the SHE provisions of the contract, including those as may be more fully described in the Works' Requirements in Section VII.

In addition, the Tenderer shall submit an outline of how this Code of Conduct will be implemented. This will include how it will be introduced into conditions of employment/engagement, what training will be provided, how it will be monitored and how the Contractor proposes to deal with any breaches.

Others

Sub-contracting

Not Applicable

Others

Appendix B to Technical Part: Equipment

(Not Applicable)

Appendix C to Technical Part: Key Personnel

Form PER -1

Contractor' Representative and Key Personnel

Schedule

Tenderers should provide the names and details of the suitably qualified Key Personnel to perform the Contract. The data on their experience should be supplied using the Form PER-2 below for each candidate.

Contractor' Representative and Key Personnel

1.	**Title of position:**	
	Name of candidate:	
	Duration of appointment:	[*insert the whole period (start and end dates) for which this position will be engaged*]
	Time commitment: for this position:	[*insert the number of days/week/months/ that has been scheduled for this position*]
	Expected time schedule for this position:	[*insert the expected time schedule for this position (e.g. attach high level Gantt chart*]
2.	**Title of position:**	
	Name of candidate:	
	Duration of appointment:	[*insert the whole period (start and end dates) for which this position will be engaged*]
	Time commitment: for this position:	[*insert the number of days/week/months/ that has been scheduled for this position*]
	Expected time schedule for this position:	[*insert the expected time schedule for this position (e.g. attach high level Gantt chart*]

Form PER-2:

Resume and Declaration
Contractor's Representative & Key Personnel

Name of Tenderer

Position [*#1*]: [*title of position from Form PER-1*]		
Personnel information	**Name:**	**Date of birth:**
	Address:	**E-mail:**
	Professional qualifications:	
	Academic qualifications:	
	Language proficiency: *[language and levels of speaking, reading and writing skills]*	
Details		
	Address of employer:	
	Telephone:	**Contact (manager / personnel officer):**
	Fax:	
	Job title:	**Years with present employer:**

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

Project	Role	Duration of involvement	Relevant experience
[main project details]	*[role and responsibilities on the project]*	*[time in role]*	*[describe the experience relevant to this position]*

Declaration

I, the undersigned Key Personnel, certify that to the best of my knowledge and belief, the information contained in this Form PER-2 correctly describes myself, my qualifications and my experience.

I confirm that I am available as certified in the following table and throughout the expected time schedule for this position as provided in the Tender:

Commitment	Details
Commitment to duration of contract:	*[insert period (start and end dates) for which this Key Personnel is available to work on this contract]*
Time commitment:	*[insert the number of days/week/months/ that this Key Personnel will be engaged]*

I understand that any misrepresentation or omission in this Form may:

(a) be taken into consideration during Tender evaluation;

(b) result in my disqualification from participating in the Tender;

(c) result in my dismissal from the contract.

Name of Contractor's Representative or **Key Personnel: [*insert name*]**

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Tenderer:

Signature: _____

Date: (day month year): _____

Appendix D to Technical Part: Tenderer's Qualification

To establish its qualifications to perform the contract in accordance with Section III Evaluation and Qualification Criteria the Tenderer shall provide the information requested in the corresponding Information Sheets included hereunder.

Form ELI -1.1

Tenderer Information Form

Date: _____
Tender No.: -_____
Title Of Work:_____
Page _____of _____ pages

Tenderer's name
In case of Joint Venture (JV), name of each member:
Tenderer's actual or intended country of registration: *[indicate country of Constitution]*
Tenderer's actual or intended year of incorporation:
Tenderer's legal address [in country of registration]:
Tenderer's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of ☐ Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITT 4.4. ☐ In case of JV, letter of intent to form JV or JV agreement in accordance with ITT 4.1. ☐ In case of state-owned enterprise or institution, in accordance with ITT 4.6 documents establishing: • operation on a commercial basis, • financial and managerial autonomy, • day-to-day management not controlled by the government and • not under the supervision of the Employer or its procuring agency. 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.*[If required under TDS ITT 48.1, the successful Tenderer shall provide additional information on beneficial ownership, using the Beneficial Ownership Disclosure Form.]*

Form ELI -1.2

Tenderer's JV Information Form
(to be completed for each member of Tenderer's JV)
Date: _____
Tender No.: ----------
Title of Work: _____
Page_____ of _____ pages

Tenderer's JV name:
JV member's name:
JV member's country of registration:
JV member's year of constitution:
JV member's legal address in country of constitution:
JV member's authorized representative information Name: Address: Telephone/Fax numbers: E-mail address:
1. Attached are copies of original documents of ☐ Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITT 4.4. ☐ In case of a state-owned enterprise or institution, documents establishing operation on a commercial basis; financial and managerial autonomy; day-to-day management not controlled by the government; and not under the supervision of the Employer or its procuring agency, in accordance with ITT 4.6. 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership. [If required under TDS ITT 48.1, the successful Tenderer shall provide additional information on beneficial ownership for each JV member using the Beneficial Ownership Disclosure Form.]

Form ELI-1.2A

Specialized Subcontractor's Information Form

(to be completed for each Specialized Subcontractor)

Date: _____

RFT No.: ----------

Title of Work: _____
_____
_____.

Tenderer's legal name:

Specialized Subcontractor's legal name:
Specialized Subcontractor's country of registration:
Specialized Subcontractor's year of constitution:
Specialized Subcontractor's legal address in country of constitution:
Specialized Subcontractor's authorized representative information Name: Address: Telephone/Fax numbers: E-mail address:
Attached are copies of original documents of Articles of Incorporation (or equivalent documents of constitution or association) and/or registration documents of the legal entity named above, in accordance with ITT4.4. Authorization to represent the Specialized Subcontractor.

DETAILS OF PARTICIPATION IN THE JOINT VENTURE

PARTICIPATION DETAILS	FIRM 'A' (Lead Member)	FIRM 'B'	FIRM 'C'
Financial			
Name of the Banker(s)			
Planning			
Key Personnel			
Execution of Work(Give details on proposed contribution of each)			

Form ELI -3: Joint Venture Agreement

Joint Venture Agreement

[Ref. ITT Sub-Clause 4.1]

The Members of the Joint Venture shall provide Joint Venture Agreement for Joint Venture Participation in the name of M/s……of which includes at least the followings: -

(i) M/s ……. having its registered office at …… (hereinafter referred to as ……) acting as the Lead Member of the first part;

And

(ii) M/s ……. having its registered office at ……. (hereinafter referred to as `…….') in the capacity of a Joint Member of the other part;

And

(iii) M/s ……. having its registered office at ……. (hereinafter referred to as `…….') in the capacity of a Joint Member of the other part.

The expressions of (i) ……. (ii) …….. (iii) …… (names of JV Members) shall wherever the context admits, mean and include their respective legal representatives, successors-in-interest and assigns and shall collectively be referred to as "the Parties" and individually as "the Party"

WHEREAS:

Mumbai Railway Vikas Corporation Limited (MRVC) [hereinafter referred to as "Employer"] has invited tenders for …… "[Insert name of work] ……"

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. The following documents shall be deemed to form and be read and construed as an integral part of this JV agreement.
i) Invitation for Tender,
ii) Tender document,
iii) Any Addendum/ Corrigendum issued by Mumbai Railway Vikas Corporation Ltd.
iv) The Tender submitted on our behalf jointly by the Lead Member/ authorised representative.

2. The `Parties' have studied the documents and have agreed to participate in submitting a tender jointly in the name of----------.

3. M/s ……shall be the lead Member of the JV/for all intents and purpose and shall represent the Joint Venture in its dealing with the Employer. For the purpose of submission of tenders, the parties agree to nominate …….... as the Lead Member duly authorized to sign and submit all documents and subsequent clarifications, if any, to the Employer. However, M/s …… shall not submit any such tenders, clarifications or commitments before securing the written clearance of

the other Member which shall be expeditiously given by M/s……..……. and M/s……. to M/s…….

4. The 'Parties' have resolved that the distribution of share and responsibilities between the JV Members is as under: -

a) Lead Member Name…….and share ……...%;

b) Joint Venture Member Name…….and share ……. % ;

c) Joint Venture Member Name…….and share ……. % ;

5. JOINT AND SEVERAL RESPONSIBILITIES

The Parties undertake that they shall be jointly and severally liable to the Employer in the discharge of all the obligations and liabilities as per the contract with the Employer and for the performance of contract awarded to their JV

6. **ASSIGNMENT AND THIRD PARTIES**

The parties shall co-operate throughout the entire period of this Joint Venture Agreement on the basis of exclusivity and neither of the Parties shall make arrangement or enter into agreement either directly or indirectly with any other party or group of parties on matters relating to the Project except with prior written consent of the other party and the Employer.

7. **EXECUTIVE AUTHORITY**

The said Joint Venture through its authorized representative shall receive instructions from the Employer. The management structure for the project shall be prepared by mutual consultations to enable completion of project to quality requirements within permitted cost and time.

8. **PROPOSAL SUBMISSION**

Each Party shall bear its own cost and expenses for preparation and submission of the tender and all costs until conclusion of a contract with the Employer for the Project. Common expenses shall be shared by all the parties in the ratio of their actual participation.

9. **INDEMNITY**

Each party hereby agrees to indemnify the other party against its respective parts in case of breach/default of the respective party of the contract works of any liabilities sustained by the Joint Venture.

10. For the execution of the respective portions of works, the parties shall make their own arrangements to bring the required finance, plants and equipment, materials, manpower and other resources.

11. **DOCUMENTS AND CONFIDENTIALITY**

Each Party shall maintain in confidence and not use for any purpose related to the Project all commercial and technical information received or generated in the course of preparation and submission of the tender.

12. **ARBITRATION**

Any dispute, controversy or claim arising out of or relating to this Joint Venture agreement shall be settled in the first instance amicably between the parties. If an amicable settlement cannot be reached as above, it will be settled by JV in accordance with arbitral agreement mutually agreed by the parties. The venue of the arbitration shall be _____.

13. **VALIDITY**

This Joint Venture agreement shall remain in force till the occurrence of the earliest of any of the following, unless by mutual consent, the Parties agree in writing to extend the validity for a further period.

a. The Tender submitted by the Joint Venture is declared unsuccessful, or

b. Cancellation/ shelving of the Project by the Employer for any reasons prior to award of work

c. Execution of detailed JV agreement by the parties, setting out detailed terms after award of work by the Employer.

14. This Joint Venture agreement is drawn in …... number of copies with equal legal strength and status. One copy is held by M/s …… and the other by M/s. ..... and M/s. ..... and a copy submitted with the tender.

15. This Joint Venture agreement shall be construed under the laws of India.

16. **NOTICES BETWEEN JV MEMBERS**

Notices shall be given in writing by fax confirmed by registered mail or commercial courier to the following fax numbers and addresses:

Lead Member.	Other Member	Other Member
……..	……	……
……	……	……
(Name and Address)	(Name and Address)	(Name and Address)

IN WITNESS WHEREOF THE PARTIES, have executed this MOU the day, month and year first before written

M/s……	M/s……	M/s……
……..……	……	……
(Seal)	(Seal)	(Seal)

Witness

1……... (Name and Address)
2……... (Name and Address)

Form ELI-4.1: Power of Attorney (POA) for Submitting Tender

Power of Attorney (POA) for Submitting Tender

(for Single Entity/sole Tenderer only)

[Ref. ITT Sub-Clause 22.2]

POWER OF ATTORNEY

(To be executed on non-judicial stamp paper of the appropriate value in accordance with relevant stamp Act. The stamp paper to be in the name of the company who is issuing the Power of Attorney)

Know all men by these presents, we…...……. (name and address of the registered office) do hereby constitute, appoint and authorise Mr/Ms..……... (name and residential address) who is presently employed with us and holding the position of ……...as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our tender for the work of …… (insert name of works) including signing and submission of all documents and providing information/ responses to Mumbai Railway Vikas Corporation Ltd (MRVC), representing us in all matters before MRVC, and generally dealing with MRVC in all matters in connection with our tender for the said project.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us.

……. (Signature)
(Name, Title and address) of the **Person Accepting the POA.**

……. (Signature)
(Name, Title and address) of the **Person issuing the POA**

Notes:

i. The tenderer should submit the notarised Power of Attorney.

ii. The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.

iii. The tenderer should submit following additional document in support of the POA as case-to-case basis:

a) Proprietorship Affidavit in case of Proprietary Tenderer.

b) Partnership Deed in case of Partnership Firms.

c) Board Resolution in case of a Public/Private limited company/LLP.

d) Incorporation Certificate and Memorandum and Article of Association in case of a Public/Private limited company. e) Incorporation Certificate and Limited Liability Membership Agreement in case of Limited Liability Membership firms

Form ELI-4.2: Power of Attorney (POA) for Authorized Signatory of Joint Venture (JV) Members

Power of Attorney (POA) for Authorized Signatory of Joint Venture (JV) Members

(To be submitted by Tenderer' each JV member)

[Ref. ITT Sub-Clause 22.2]

POWER OF ATTORNEY*

(To be executed on non-judicial stamp paper of the appropriate value in accordance with relevant stamp Act. The stamp paper to be in the name of the company who is issuing the Power of Attorney)

Know all men by these presents, we…..……. do hereby constitute, appoint and authorise Mr/Ms. ……... who is presently employed with us and holding the position of ……...as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our tender for the work of …… (insert name of works) including signing and submission of all documents, withdrawal, substitution and modification of tender and providing information/ responses to Mumbai Railway Vikas Corporation Ltd, representing us in all matters, dealing with Mumbai Railway Vikas Corporation Ltd. in all matters in connection with our tender for the said project.
We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us.

Dated this the …… day of ……. 20..

(Signature of authorised Signatory in token of **Acceptance of POA**

……
(Signature and Name in Block letters of Signatory)
Seal of Company

Witness 1:	Witness 2:
Name:	Name:
Address:	Address:
Occupation:	Occupation:

*Notes:

i) To be executed by all the Members individually, in case of a Joint Venture.
ii) The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure

Form ELI-4.3: Power of Attorney (POA) to Lead Member and Authorized Representative of Joint Venture (JV)

Power of Attorney to Lead Member and Authorized Representative of Joint Venture (JV)

[Ref. ITT Sub-Clause 22.2]

POWER OF ATTORNEY

(To be executed on non-judicial stamp paper of the appropriate value in accordance with relevant stamp Act. The stamp paper to be in the name of the company who is issuing the Power of Attorney)

Whereas Mumbai Railway Vikas Corporation Ltd. has invited Tenders for the work of ……
on behalf of Mumbai Railway Vikas Corporation Limited [hereinafter referred to as "Employer"]
Whereas, the Members of the Joint Venture comprising
1. M/s. …,
2. M/s. …,
and
3. M/s. ……,
are interested in submission of tender for the work of …… (insert name of works) in accordance with the terms and conditions contained in the tender documents.

Whereas it is necessary for the Members of the Joint Venture to designate one of them as the Lead Member as the authorized representative, with all necessary power and authority to do, for and on behalf of the Joint Venture, all acts, deeds and things as may be necessary in connection with the Joint Venture's tender for the project.

NOW THIS POWER OF ATTORNEY WITNESSETH THAT:
We, M/s. …… (Lead Member), M/s_____ and M/s_____ hereby designate M/s. ……, being one of the Members of the Joint Venture, as the Lead Member of the Joint Venture and designate Mr/Ms. _____ being authorized representative of the Joint Venture, to do on behalf of the Joint Venture, all or any of the acts, deeds or things necessary or incidental to the Joint Venture's tender for the contract, including submission of tender, withdrawal, substitution and modification of tender, participating in conferences, responding to queries, submission of information/ documents and generally to represent the Joint Venture in all its dealings with the Employer or any other Government Agency or any person, in connection with the contract for the said work until culmination of the process of tendering till the contract agreement is entered into with the Mumbai Railway Vikas Corporation Limited and thereafter till the expiry of the contract agreement.

We hereby agree to ratify all acts, deeds and things lawfully done by Lead Member, our said attorney, pursuant to this power of attorney and that all acts' deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us/ Joint Venture.

Dated this the …… Day of ……. 20..…….

(Signature) (Signature) (Signature)

…… …… ……..

(Name in Block letters of all Executants with Seal of Company)

……. (Signature)

(Name, Title and address) of **the Person Accepting the POA**

Witness 1:
Name:
Address:
Occupation:

Witness 2:
Name:
Address:
Occupation:

Notes: 1. To be executed by all the Authorized POA holders of each Members of the JV. 2. The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure. 3. Authorized Representative of Tenderer's JV shall be from Lead Member of JV.

Form ELI-5: Affidavit For Submitting Tender

Affidavit To Be Submitted by Tenderer Along with the Tender

(To be executed in presence of Public Notary on non-judicial stamp paper of the appropriate value in accordance with relevant stamp Act. The stamp paper to be in the name of the tenderer)

I …….. **(Name and designation)** **…… appointed as the attorney/authorized signatory of the tenderer (including its constituents), M/s. _____ (hereinafter called the tenderer) for the purpose of the Tender for the work of _____ as per the tender No._____ of MRVC, do hereby solemnly affirm and state on behalf of the tenderer including its constituents as under:

1. I/We the Tenderer(s), am/are signing this document after carefully reading the contents.

2. I/We the Tenderer(s) also accept all the conditions of the tender and have submitted the Tender and self-attested documents in confirmation thereof.

3. I/We hereby declare that while submitting the tender, I/we have gone through the tender document and all the corrigendum issued on e-procurement website https://eprocure.gov.in.

4. That the tenderer or any of its constituents has not been Blacklisted/ banned for business dealings(i) for all Government Departments by Ministry of Commerce or (ii) by Ministry of Railways or (ii) by MRVC at any time and/or no such blacklisting is in force as on the deadline for submission of tenders.

*5 That none of the previous contracts of the tenderer or any of its constituents had been terminated/rescinded for Contractor's failure by Mumbai Railway Vikas Corporation Ltd. during the period of last 2 years before the deadline for submission of tenders.

(Add Proviso of Clause 4.4(b) (ITB suitably, if any Contract was so terminated).

*6 The tenderer or any of its constituents has not been imposed liquidated damages of 5% or more of contract value by MRVC due to delay in the implementation of any previous contract (either in the capacity of a single entity or as constituent of any other JV) within the period of last 2 years before the deadline for submission of tender [2 years shall be reckoned from the date on which imposed L.D. has exceeded 5% of the contract price] and there are no such accrued delay damages which has not been fully recovered before the deadline for submission of tenders on account of contractor's request for deferring recovery to maintain cash flow and MRVC has acceded to the same in the interest of the project and the work under the previous contract in question has been completed before the deadline for submission of tender, unless imposition of such delay damages has been set aside by the Competent Authority.

7. That the Tenderer or any of its constituents is neither Bankrupt/Insolvent nor is in the process of winding-up nor such a case is pending before any Court on the deadline of submission of the tender.

*8 That the name of the Tenderer or any of its constituents is not on the list of "Poor Performer" of MRVC as on the deadline for submission of tender.

9. I/ We declare that the tenderer or any of its constituents have not either changed their name or created a new business entity as covered by the definition of "Allied Firm" under para 1102 (iii) of chapter XI of Vigilance manual of Indian Railways with latest amendments and corrections (available on website of Indian Railways), consequent to having been banned business dealings for specified period which is not over or suspended business dealings or having been declared as poor performer.

10.#I/We declare and certify that balance sheets for last three financial years including that for the latest concluded financial year are being submitted.

OR

I/We declare and certify that balance sheet for the latest concluded financial year has not been finalized till date and that is why we are furnishing financial data for last three financial years ignoring the latest concluded financial year.

(# - Delete whichever is not applicable) **.

11. I/We declare and certify that we have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements.

12. I/We also understand that my/our offer will be evaluated based on the documents/credentials submitted along with the offer and same shall be binding upon me/us.

13. I/We understand that if the certificates regarding eligibility criteria submitted by us are found to be forged/false or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the Tender Security besides banning of business for five years On MRVC and entire Indian Railways. Further, I/we (insert name of the tenderer) ** _____ and all my/our constituents understand that my/our offer shall be summarily rejected.

14. I/We also understand that if the certificates submitted by us are found to be false/forged or incorrect at any time after the award of the contract, it will lead to termination of the contract, along with forfeiture of Tender Security, Performance security deposit besides any other action provided in the contract including banning of business for five years by MRVC.

15. I/We declare that the information and documents submitted along with the tender by us are correct and we are fully responsible for the correctness of the information and documents, submitted by us.

16. I/We understand that in case we cease to fulfil the requirements of qualifying and eligibility criteria at any time after opening of tenders and till finalization of tenders, it will be our bounden duty to inform the Employer of our changed status immediately and in case of our failure to do so, our tender shall be rejected, and tender security shall be forfeited. In case such failure comes to the notice of Employer at any time after award of the contract, it will lead to termination of the contract and forfeiture of Tender or Performance Security. We shall also be liable for Banning of Business dealings up to a period of five years.

17. I/We understand that if the contents of the affidavit are found to be false at any stage during tender evaluation, it will lead to rejection of our tender and forfeiture of the tender security. Further, we **[insert name of the tenderer] ****_____ and all our constituents understand that we shall be liable for banning of business dealings up to a period of five years.

18. I/We also understand that if the contents of the affidavit are found to be false at any time after the award of the contract it will lead to termination of the contract, forfeiture of Tender or Performance Security and Banning of Business dealings of the Tenderer and all its constituents for a period up to five years.

SEAL AND SIGNATURE OF THE TENDERER

Verification:

Verified on _____ day of _____ at _____ that the contents of the above-mentioned affidavit are true and correct and nothing material has been concealed there from.

SEAL AND SIGNATURE OF THE TENDERER

*Modify the contents wherever necessary, in terms of sub-clause 4.4 ITB.
** The contents in Italics are only for guidance purpose and details as appropriate, are to be filled in suitably by Tenderer.
Attestation before Magistrate/Public Notary

Form CON – 2

Historical Contract Non-Performance, Pending Litigation and Litigation History

Tenderer's Name: _____
Date: _____
JV members Name
Tender No.: _____
Title Of Work: _____
Page _____of _____pages

Non-Performed Contracts in accordance with Section III, Evaluation and Qualification Criteria			
☐ Contract non-performance did not occur since **1st April 2021** specified in Section III, Evaluation and Qualification Criteria, Sub-Factor 3.2.1. ☐ Contract(s) not performed since **1st April 2021** specified in Section III, Evaluation and Qualification Criteria, requirement 3.2.1			
Year	**Non-performed portion of contract**	**Contract Identification**	**Total Contract Amount in ₹**
[insert year]	*[insert amount and percentage]*	Contract Identification: *[indicate complete contract name/ number, and any other identification]* Name of Employer: *[insert full name]* Address of Employer: *[insert street/city/country]* Reason(s) for non-performance: *[indicate main reason(s)]*	*[insert amount]*
Pending Litigation, in accordance with Section III, Evaluation and Qualification Criteria			
☐ No pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 3.2.3. ☐ Pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 3.2.3 as indicated below.			

Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount in ₹
		Contract Identification: _____ Name of Employer: _____ Address of Employer: _____ Matter in dispute: _____ Party who initiated the dispute: ____ Status of dispute: _____	
		Contract Identification: Name of Employer: Address of Employer: Matter in dispute: Party who initiated the dispute: Status of dispute:	

Litigation History in accordance with Section III, Evaluation and Qualification Criteria

☐ No Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 3.2.4.

☐ Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 3.2.4 as indicated below.

Year of award	Outcome as percentage of Net Worth	Contract Identification	Total Contract Amount in ₹
[insert year]	*[insert percentage]*	Contract Identification: [indicate complete contract name, number, and any other identification] Name of Employer: *[insert full name]* Address of Employer: *[insert street/city/country]* Matter in dispute: *[indicate main issues in dispute]* Party who initiated the dispute: *[indicate "Employer" or "Contractor"]* Reason(s) for Litigation and award decision *[indicate main reason(s)]*	*[insert amount]*

Form CON – 3:

SHE Performance Declaration

Environmental, Health and Safety Performance Declaration

[The following table shall be filled in for the Tenderer, each member of a Joint Venture and each Specialized Subcontractor]

Tenderer's Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Member's or Specialized Subcontractor's Name: *[insert full name]*
Tender No. and Title: *[insert Tender number and title]*
Page *[insert page number]* of *[insert total number]* pages

Environmental, Health and Safety Performance Declaration in accordance with Section III, Qualification Criteria and Requirements			
☐ **No suspension or termination of contract**: An employer has not suspended or terminated a contract and/or called the performance security for a contract for reasons related to Environmental, Health or Safety (SHE) performance since the date specified in Section III, Qualification Criteria and Requirements, Sub-Factor 3.2.5. ☐ **Declaration of suspension or termination of contract**: The following contract(s) has/have been suspended or terminated and/or Performance Security called by an employer(s) for reasons related to Environmental, Health or Safety (SHE) performance since the date specified in Section III, Qualification Criteria and Requirements, Sub-Factor 3.2.5. Details are described below:			
Year	**Suspended or terminated portion of contract**	**Contract Identification**	**Total Contract Amount (₹)**
[insert year]	*[insert amount and percentage]*	Contract Identification: *[indicate complete contract name/ number and any other identification]* Name of Employer: *[insert full name]* Address of Employer: *[insert street/city/country]* Reason(s) for suspension or termination: *[indicate main reason(s)]*	*[insert amount]*
[insert year]	*[insert amount and percentage]*	Contract Identification: *[indicate complete contract name/ number, and any other identification]* Name of Employer: *[insert full name]*	*[insert amount]*

		Address of Employer: *[insert street/city/country]* Reason(s) for suspension or termination: *[indicate main reason(s)]*	
…	…	*[list all applicable contracts]*	…
Performance Security called by an employer(s) for reasons related to SHE performance			
Year	**Contract Identification**		**Total Contract Amount (₹)**
[insert year]	Contract Identification: *[indicate complete contract name/ number, and any other identification]* Name of Employer: *[insert full name]* Address of Employer: *[insert street/city/country]* Reason(s) for calling of performance security: *[indicate main reason(s)]*		*[insert amount]*

Form FIN – 3.3.1

Financial Situation and Performance

[Ref. ITT Sub-Clause 17.2 and Section III, Evaluation and Qualification Criteria, Sub-Clause 3.3.1 (iii)]

[The following table shall be filled in for the Tenderer or in case of JV, each member of a Joint Venture]

Tenderer's Name: _____
Date: _____
JV Member's Name_____
Tender No.: _____
Title of Work: _____
Page _____of _____pages

1. Financial data *(All amounts in Cr)*

Type of Financial information in (currency)	**Historic information for previous _____ *years,* _____ (Amount in currency, currency, exchange rate*, ₹ equivalent)**				
	Year 1	Year 2	Year 3	Year4	Year 5
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Total Equity/Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Working Capital (WC)					
Total Revenue (TR)					
Profits Before Taxes (PBT)					

* Refer to Notes: Exchange rate for Qualification Criteria, Section III, EQC

Note:

1. *In case, the Financial Year is the same as the Calendar Year, the financial data for the year 2021, 2022, 2023, 2024 & 2025 shall be furnished.*
2. *The Tenderer is not required to submit any document as documentary evidence along with the Tender Documents. All information furnished in this Form shall be certified by a Chartered Accountant/Company Auditor/Statutory Auditor.*

3. *The Form duly certified by a Chartered Accountant/Company Auditor/Statutory Auditor shall also be signed by Tenderer's Authorized representative.*
4. *The above documents shall reflect the financial situation of the legal entity or entities comprising the Tenderer and not the Tenderer's parent companies, subsidiaries, or affiliates.*

5. *In the event that the audited accounts for the latest concluded Financial Year are not available, the Tenderer shall furnish information pertaining to the last three financial years after ignoring the latest concluded financial year. In case, the Tenderer submits audited financial information for the last five or more years, only the figures for the latest five years shall be considered for evaluation.*

6. ***If the value of Net Worth is not submitted for any of the last five years, the Tender shall be considered nonresponsive and shall be summarily rejected.***

Tenderer's Authorized Representative

Signature: ……..

Date: ……..……..

Company stamp: ……..…..

Chartered Accountant/Company Auditor/Statutory Auditor

Certified that the information furnished above is correct as per the audited balance sheets of the entity.

Signature: ……..

Name:

Position:

Date:

Company:

Company stamp:

Membership No:

Address:

Contact No:

Email ID:

Form FIN – 3.3.2

Average Annual Contractual Turnover

Tenderer's Name: _____

JV Member's Name: _____

Date: _____

Tender No.: _____

Title of Work: _____

Page _____of _____pages

In case of a Joint Venture, each Joint Venture Partner must fill out this form separately and provide the Joint Venture Partner's name:

Joint Venture Partner: _____

Annual turnover data			
Year	**Amount Currency**	**Exchange Rate**	**USD Equivalent**
[indicate year]	*[insert amount and indicate currency]*		
Average Annual Construction Turnover *			

* See Section III, Evaluation and Qualification Criteria, Sub-Factor 3.3.2.

*Note: Authorized certificates from chartered accountant along with audited balance sheets are to be submitted.

Form FIN-3.3.3:

Sources of Finance for the subject contract (i.e._____)

[Ref. ITT Sub clause 17.2 and section III, Evaluation and qualification criteria, sub clause 3.3.1 (i)]

[The following table shall be filled in for the tenderer or in case of JV, each member of a joint venture]

Tender No.: _____
Tenderer's Name: _____
JV Member's Name_____

Page _____of _____pages

Tenderer should specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract.

(*All amounts in Cr*)

Financial Resources for tender_____		
No.	**Source of financing**	**Amount (₹ equivalent)**
1		
2		
3		
	Total Sources of Finance for Tender_____	

(i) The Tenderer is not required to submit any document as documentary evidence along with the Tender Documents. All information furnished in this Form shall be certified by a Chartered Accountant/Company Auditor/Statutory Auditor.
(ii) The Form duly certified by a Chartered Accountant/Company Auditor/Statutory Auditor shall also be signed by Tenderer's Authorized representative.
(iii) The above documents shall reflect the financial situation of the legal entity or entities comprising the Tenderer and not the Tenderer's parent companies, subsidiaries, or affiliates.

Tenderer's Authorized Representative

Signature: ……..

Date: ……..……..

Company stamp: ……..…..

Chartered Accountant/Company Auditor/Statutory Auditor

Certified that the information furnished above is correct.

Signature: ……..

Name:

Position:

Date:

Company:

Company stamp:

Membership No:

Address:

Contact No:

Email ID:

JOINT VENTURE

[Tenderer from India shall provide evidence of access to or availability of cash flow in the following format]

FORMAT FOR EVIDENCE OF ACCESS TO OR AVAILABILITY OF CASH FLOW

[To be given from a Nationalized or Scheduled Bank in India]

Clause3.1(ii)of Section III–Qualification Criteria

AVAILABILITY OF CASH FLOW (WORKING CAPITAL)

This is to certify that M/s._____is a reputed company with a good financial standing.

If the contract for the works, namely_____[funded by the Asian Infrastructure Investment Bank] is awarded to the above firm, we shall be able to provide overdraft/credit facilities to the extent of Rs.____To meet their capital requirements for executing the above contract.

--Sd.--

Name of Bank

Manager Senior Bank Manager

Address of the Bank

***Change the text as follows for Joint venture:**

This is to certify that M/s……..who has formed a JV with M/s. …….. and M/s. …….. for participating in this tender, is a reputed company with a good financial standing.

If the contract for the work, namely…….. [funded by The Asian Infrastructure Investment Bank]is awarded to the above Joint Venture, we shall be able to provide overdraft/credit facilities to the extent of Rs. …… to meet the working capital requirements for executing the above contract.

[This should be given by the JV members in proportion to their financial participation.]

Form EXP –3.4.1

General Contractual Experience

Tenderer's Name: _____
Date: _____
JV Member's Name_____
Tender No. and title: _____
Page _____of _____pages

Starting Year	Ending Year	Contract Identification	Role of Tenderer
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Employer: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Employer: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Employer: _____ Address: _____	

Form EXP –3.4.2(a)

Specific Construction and Contract Management Experience

Tenderer's Name: _____
Date: _____
JV Member's Name_____
Tender No. and title: _____
Page _____of _____pages

Similar Contract No.	Information			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Sub-contractor ☐
Total Contract Amount			*[insert total contract amount in Rs. equivalent in lakhs]*	
If member in a JV or sub-contractor, specify participation in total Contract amount				
Employer's Name:				
Address: Telephone/fax number E-mail:				
Description of the similarity in accordance with Sub-Factor 3.4.2(a) of Section III:				
1. Amount				
2. Physical size of required works items				
3. Complexity				
4. Methods/Technology				
5. Construction rate for key activities				
6. Other Characteristics				

*Note: Authorized employer's certificates or other certified documents from employer, showing specific experience with value of works, are to be submitted.

Appendix E to Technical Part: Tender Security.

Form of Demand Guarantee

Beneficiary: Mumbai Railway Vikas Corporation Limited

Tender No: *[Insert RFT No]*

Date:*[Insert date of issue]*

TENDER GUARANTEE No.:*[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its Tender (hereinafter called "the Tender") for the execution of _____ under Tender No. _____.

Furthermore, we understand that, according to the Beneficiary's conditions, Tenders must be supported by a Tender guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____) upon receipt by us of the Beneficiary's complying demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:

(a) has withdrawn its Tender during the period of Tender validity set forth in the Applicant's Letter of Tender ("the Tender Validity Period"), or any extension thereto provided by the Applicant; or

(b) having been notified of the acceptance of its Tender by the Beneficiary during the Tender Validity Period or any extension thereto provided by the Applicant, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the Performance Security in accordance with the Instructions to Tenderers ("ITT") of the Beneficiary's Tender Document.

This guarantee will expire: (a) if the Applicant is the successful Tenderer, upon our receipt of copies of the contract agreement signed by the Applicant and the Performance Security issued to the Beneficiary in relation to such contract agreement; or (b) if the Applicant is not the successful Tenderer, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Tendering process; or (ii)Forty-eight days (48)after the end of the Tender Validity Period.

Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758.

_____

[Signature]

Letter of Tender -Financial Part

(Letter of Tender-Financial Part and its annexure are to be submitted online along with the financial part of the Tender)

INSTRUCTIONS TO TENDERERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE DOCUMENT

The Tenderer must prepare this Letter of Tender on stationery with its letterhead clearly showing the Tenderer's complete name and business address.

Note: All italicized text in black font is to help Tenderers in preparing this form.

Date of this Tender submission: [*insert date (as day, month and year) of Tender submission*]

Tender No.: ----------

Alternative No. : Not Applicable

To:
Chief Manager (Project-Electrical)
Mumbai Railway Vikas Corporation Ltd.,
New Administrative Building, D N Road
CSMT, (opposite to Anjuman School) MAHARASHTRA 400001

We, the undersigned, hereby submit the second part of our Tender, the Tender Price and Bill of Quantities. This accompanies the Letter of Technical Part.

In submitting our Tender, we declare that:

(a) **Tender Validity Period**: Our Tender shall be valid for a period specified in TDS 18.1 (as amended if applicable) from the date fixed for the Tender submission deadline specified in TDS 22.1 (or as amended if applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(b) **Total Price**: The total price of our Tender, excluding any discounts offered in item (c) below is: [Insert one of the options below as appropriate]

[Option 1, in case of one lot:] Total price is: [*insert the total price of the Tender in words and figures, indicating the various amounts and the respective currencies*];

(c) **Discounts:** The discounts offered and the methodology for their application are:

(i) The discounts offered are: [*Specify in detail each discount offered*]

(ii) The exact method of calculations to determine the net price after application of discounts is shown below: [*Specify in detail the method that shall be used to apply the discounts*];

(d) **Commissions, gratuities and fees:** We have paid, or will pay the following commissions, gratuities, or fees with respect to the Tendering process or execution of the Contract: [*insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity*].

Name of Recipient	Address	Reason	Amount

(If none has been paid or is to be paid, indicate "none.")

Name of the Tenderer: *[*insert complete name of person signing the Tender*]

Name of the person duly authorized to sign the Tender on behalf of the Tenderer: ** [*insert complete name of person duly authorized to sign the Tender*]

Title of the person signing the Tender: [*insert complete title of the person signing the Tender*]

Signature of the person named above: [*insert signature of person whose name and capacity are shown above*]

Date signed [*insert date of signing*] **day of** [*insert month*], [*insert year*]

*: In the case of the Tender submitted by a Joint Venture specify the name of the Joint Venture as Tenderer.

** Person signing the Tender shall have the power of attorney given by the Tenderer. The power of attorney shall be attached with the letter of tender.

Form of Tender Security – Tender Bond

Not Applicable

Appendix A to Financial Part

Schedule of Cost Indexation:

Cost Indexation of price adjustment formulae corresponding to the different works involved is given in section IX- Particular Conditions of Contract of this document.

Schedule(s) of Adjustment Data

(Not Applicable)

Schedule of Payment Currencies

(Not Applicable)

Appendix B to Financial Part: Bill of Quantities

Bill of Quantities

Objectives

The objectives of the Bill of Quantities are:

(a) to provide sufficient information on the quantities of Works to be performed to enable Tender to be prepared efficiently and accurately; and

(b) when a Contract has been entered into, to provide a priced Bill of Quantities for use in the periodic valuation of Works executed.

(c) Bill of quantity shall be read in conjunction with Explanatory notes and technical specification.

(d) The rates and prices Tender in the priced Bill of Quantities shall, except in so far as it is otherwise provided under the Contract, include all Constructional Plant, labour, supervision, materials, loading/ unloading, transportation, erection, maintenance, insurance, incidental charges, profit, taxes/ duties (except GST which shall be paid at actuals on document evidence), together with all general risks, liabilities and obligations set out or implied in the contract.

(e) The whole cost of complying with the provisions of the contract shall be included in the Items provided in the priced Bill of Quantities, and where no items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of work.

In order to attain these objectives, Works should be itemized in the Bill of Quantities in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and contents of the Bill of Quantities should be as simple and brief as possible.

Section V -Eligible Countries

Eligibility for the Provision of Goods, Works, and Non-consulting Services in Bank-Financed Procurement

In reference to ITT 4.8 and ITT 5.1, for the information of the Tenderers, at the present time firms, goods and services from the following countries are excluded from this Tendering process:

Under ITT 4.8(a) and ITT 5.1 -**None**

Under ITT 4.8(b) and ITT 5.1 -**None**

Section VI - Prohibited Practices

(Section VI shall not be modified)

1. The Bank requires that the Recipient (and all other beneficiaries of the Bank financing), as well as tenderers, suppliers, contractors, concessionaires and consultants under Bank-financed contracts for the Project, observe the highest standard of transparency and integrity during the procurement, execution and implementation of such contracts.

2. Definitions. In pursuance of this policy, the Bank defines the terms set forth below as Prohibited Practices:

   a. "**Coercive practice**" means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
   b. **"Collusive practice"** means an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
   c. **"Corrupt practice"** means the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
   d. **"Fraudulent practice"** means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation.
   e. **"Misuse of resources"** means improper use of the Bank's resources, carried out either intentionally or through reckless disregard;
   f. **"Obstructive practice"** means any of the following practices: (i) deliberately, destroying, falsifying, altering or concealing of evidence material to a Bank investigation, (ii) making false statements to investigators in order to materially impede a Bank investigation into allegations of a Prohibited Practice; (iii) failing to comply with requests to provide information, documents or records in connection with a Bank investigation; (iv) threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to a Bank investigation or from pursuing the investigation; or (v) materially impeding the exercise of the Bank's contractual rights of audit or inspection or access to information.
   g. "**Theft**" means the misappropriation of property belonging to another party.

3. Any occurrence or suspected occurrence, of a Prohibited Practice in the procurement, award or implementation of a Bank-financed contract is dealt with in accordance with the provisions of the Bank's Policy on Prohibited Practices. Suppliers, contractors, service providers and consultants selected pursuant to the provisions of Section II and concessionaires selected pursuant to paragraph 14.3of the Bank's Procurement Instructions for Recipients, as well as the Recipient shall

fully cooperate with the Bank (or a co financier undertaking an investigation pursuant to paragraph 6.1 of the Bank's Procurement Instructions for Recipients) in any investigation into an alleged Prohibited Practice to be carried out pursuant to the Policy on Prohibited Practices, and permit the Bank or its representative (including such co-financier) to inspect such of their accounts and records as may be relevant for such investigation and to have such records and accounts audited by the auditors appointed by the Bank.

4. Provisions to this effect are included in the Legal Agreements and the procurement contracts with such entities.

5. If the Project is financed by a sovereign-backed loan, the Bank (or, where relevant, a co financier having undertaken an investigation pursuant to paragraph 6.1 of the Bank's Procurement Instructions for Recipients):

   (a)may take any of the following additional actions in connection with a Prohibited Practice under the Project:

   (i) reject a proposal for award if it determines that the Tenderer recommended for award, or any of its personnel, or its agents, or its sub consultants, subcontractors, service providers, suppliers or their employees, has, directly or indirectly, engaged in a prohibited practice in competing for the contract in question; and

   (ii) cancel the undisbursed portion of the loan allocated to a contract (and require reimbursement of the disbursed portion of the loan allocated to the contract) if it determines at any time that representatives of the Recipient or of a recipient of any part of the proceeds of the loan engaged in a prohibited practice during the procurement, administration or implementation of the contract in question; and

   (b) requires that a clause be included in tender documents and in contracts financed by the Bank loan, requiring tenderers, suppliers and contractors (and their subcontractors), agents, personnel, consultants, service providers or suppliers, to permit the Bank (and a co financier undertaking an investigation pursuant to paragraph 6.1 of the Bank's Procurement Instructions for Recipients) to inspect all accounts, records and other documents relating to the submission of tenders and contract performance, and to have them audited by auditors appointed by the Bank.

PART 2 –Works' Requirements

Section VII - Works' Requirements

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Specifications

The Scope of work includes provision and electrification of platforms, Foot over bridges, Elevated decks, interconnection between Foot over bridges, Staircase/ramp, improving entry/ exit, Skywalks, new service buildings such as Huts, station buildings, booking office, public amenities, Escalators, Elevators, Electrical panel rooms Booking office, ATVM, Food Courts, Circulating area, Road/ Street lighting, Parking lots, Solar Power panels, laying of cables, Modification to existing power supply arrangement, Power augmentation/ New power supply connection, Temporary supply arrangement & removal of infringement for construction activity etc. The scope also includes Coordination with Power distribution companies and state government for allotment of power.

Technical Specification

PARTICULAR SPECIFICATIONS- Balance General service Electrical works in connection with construction of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor

GENERAL SPECIFICATION FOR ELECTRICAL WORKS

SPECIFIC NATURE AND SCOPE OF THE PRESENT TENDER:

The objective of the proposal is to provide a improvement with holistic planning, which allows substantial increase of station's quality of service, in terms of comfort, facilities and pedestrian fluidity including following:

- Fast and efficient passenger flow: To deal with the level of traffic, existing difficulties in managing passengers' movement and dispersal.
- Safety and Security: To mend the decrepit structures and provide fire safety, in the station area.
- Maximum Passenger Convenience: To make stations equipped in terms of services, commercial facilities, amenities and waiting premises.
- Flexible Interiors: To take care of the fast construction, it is important to adapt the flexible/modular interiors, so that in a short span of time, facilities can be provided.
- It is planned to general service electrical works in New FOBs, elevated decks, interconnection between deck/FOBs, skywalk, construction of station buildings Service/ Utility buildings, etc., circulating area, provision of green space, improvement in general lighting and general electrical services, staff quarters, etc. for Panvel-Karjat suburban corridor.
- The work involves the removal, relocation, shifting of existing electrical installation, fittings to facilitate the construction works, General Electrification work, smart lighting, Solar Energy in newly constructed service building, structures under New suburban Railway corridor between Panvel- Karjat (Double Line) on Central Railway. Along the proposed Station Improvements works, there are several electrical installations i.e., LT overhead poles /cables, HT 11/22/33 KV overhead poles/ underground cables may fall in the infringement area of the proposed work. These electrical installations may belong to Power distribution authorities i.e., BEST, Adani, MSEDCL, Railways etc. which may infringe installations are required to be relocated as per the approved plan and scheme.
- The above list is preliminary and tentative. The successful Tenderer shall identify all electrical related infringements. The infringements and their location scheme shall be prepared, and approval of stake holder shall be taken. Necessary coordination with the respective agency shall be done by the successful Tenderer. MRVC officials shall extend necessary help in this exercise. Deposition of statutory supervision charges shall be done by MRVC to Power distribution authorities. However, co-ordination, follow up, filling up the necessary forms, complete the formalities, execution work

of relocation/ removal of complete infringement as per stakeholder's specification and requirement under the supervision/ inspection of MSEDCL stake holders shall be responsibility of the successful Tenderer. The area wise infringement plan and scheme shall be prepared for the approval of MRVC in coordination with Power distribution authorities and stake holder.

- The successful Tenderer shall also carry other electrical works, if any, in connection with the work of removal of infringement for the station improvement work.
- The work shall be executed as per the GCC, SCC, technical specifications, and explanatory notes as per the tender document.
- The broad scope of this work includes removal/shifting/relocation of infringement of electrical crossing/ fitting/ fans/ Equipment, power supply augmentation, laying of HT/LT cables/ Transmission lines, removal/shifting/diversion of HT/ LT transmission lines/ cable crossing of Railway supply / MSEDCL/Adani /Reliance/ BEST/TATA or others Local Power supply authorities' source to distribution and other electrical works in connection with the work. The scope will also include but not limited to modification in power distribution system Sub Stations from Railway supply /MSEDCL/ Adani/ Reliance/ BEST/ TATA/ Local Power supply authorities' source to control room /panel room / GS SS. This will also include electrification of various platforms/ FOBs/Subways, service buildings, surrounding areas, circulating areas, staff quarters etc. at various locations/stations.
- This chapter deals with technical details and specifications of the accessories that are to be used for this work. It is not the intention to specify completely herein all details and construction. However, the accessories to be supplied shall conform in all respects to high standards of engineering, design, workmanship and be capable of performing in continuous commercial operation in a manner acceptable to the Employer who will interpret the meaning of drawings and specification and shall have the power to reject any work on material which in his judgment is not full accordance therewith.
- The specification given below pertains to the entire electrical installations/ cable laying/equipment installation work to at Panel- Karjat Double Line on Mumbai suburban section of Central Railway in connection with the work of removal of infringement and General Electrical works for Station.

1.0 Special requirement of works:

The work is spread Panvel-Karjat double line in Mumbai Division between Panvel-Karjat section . Successful tenderer shall carryout survey of Station/locations/ sections, details of infringements, requirements, and methodology of execution of works in close co-ordination with power distribution authorities, work schedule, processing of various approvals for commissioning of installations including EIG, preparation of drawings for approval & as built drawings etc. as on date of issue of Letter of acceptance.

During the survey in any new/ additional/modification in infringement is noticed in the proposed layout, Successful tenderer shall carry out such additional work as per employer direction.

On submission of survey report, drawings, work plan and methodology etc, the employer shall convey approval within 60 days.

Disposal of released materials such as poles, conductors, cables, transformers, small steel parts etc.by Successful tenderer by their own labour and transport to designated place/ depot of power supply utility.

The Successful tenderer shall submit the following:

- Infringement of HT/LT transmission lines / cable crossing of Railway supply / MSEDCL / Adani / Reliance/ BEST/ TATA or others Local Power supply authorities of entire section.
- Detailed survey report of infringements, drawings, action plan location/ section/ installation wise.
- Methodology of execution of works including approvals for location/ section/ installation in PERT chart.
- Submission of pre-commission reports, sanctions and as built drawings.
- Approvals and EIG sanction

1.1 Point wiring is to be provided to all points in the rooms, passage, staircases, lobbies, toilet blocks, service building, quarters, and general areas. Besides all of the above, these tender covers providing outdoor lighting, earthing system and laying of cables.

1.2 To ensure satisfactory and reliable service, safety from all possible hazards from the use of electricity and to meet essential requirements and precautions regarding wiring of installations, code of practice for wiring as enumerated in IS:732-1989 or the latest amended shall be complied with.

1.3 Good workmanship is the essential requirement for the compliance with code of practice asper IS: 732-1989 or the latest amended, for electrical wiring installation.

1.4 The installation shall be carried out in conformity with requirement of the Indian Electricity Act of the year 2003 as latest amended and Indian Electricity Rules 1956 (Current edition 2005) or the latest amended, framed there-under and also the relevant Rules and Regulations of the Electric Supply Authority concerned.

1.5 All Equipment, fittings, accessories, materials, etc. to be procured for wiring the installations shall be of adequate rating and confirm to the relevant latest Indian Standard/ International /CPWD/ Power supply distribution authorities' specification. Details of approved makes of such materials and specification number, which are to be followed, are mentioned in this specification. These are for guidance only. Usage of material for which no approved make is mentioned, may be got approved from client or competent authority. The specifications indicated are minimum requirement and contactor should supply, erect and commission the equipment/ system according to latest edition of applicable IEC/IS standards. All material shall be got approved/ inspected by the client or client authorized representative before supply.

1.6 Before commencing of the work, the contractor shall submit electrical lay out diagram. The same has to be got approved from the Client/Site Engineer MRVC/PMC.

1.7 Inspection, Testing and Commissioning of Installation:

The contractor/ Electrical sub-contractor or his licensed authorized wire man shall be available at all times during the execution of work and shall attend & assist to the client for routine inspection.

On completion of wiring, the general inspection will be carried by the client / consignee site engineer /PMC and the contractor in order to verify whether the provisions of the rules explained in this specification have been complied with, accessories, fittings, wires, cables used are of adequate rating, approved make and specification and the quality of workmanship, contractor shall make changes as suggested by client/consignee.

On completion of wiring work, the following tests shall be carried out with contractor's tools and materials before installation is energized and commissioned.
(a) Insulation resistance
(b) Earth continuity
(c) Earth Resistance

On satisfactory completion of the work, joint inspection and attending to the defects and deficiencies pointed out, contractor shall furnish a completion certificate counter signed by a qualified electrical supervisor and counter signed by the contractor in the prescribed and approved form along with an "As erected Electrical Layout Plan".

1.8 Documentation of Works:

1.8.1 Site inspection register will be maintained by the Engineer-in-charge or his representative in which the contractor or his agent will be bound to sign day to day entries made by the Engineer-in-charge or his representative. The contractor is required to take note of the instructions given to him in site inspection register and should comply within a reasonable time. The contractor will also arrange to receive all the letters etc. issued to him at the site of work. The Contractor is deemed to have due and adequate notice of all the entries made in the Register by the Engineer in Charge or his Representative and failure on the part of the Contractor to counter sign the Register shall not exonerate the contractor from complying with the noting.

1.8.2 Contractor shall purchase at his own cost all the registers required at site for various purposes. All the registers required to be maintained at work sites for recording various measurements, daily activities or for other purposes, shall be authenticated by the Engineer-in-charge. Before making use of any register, Engineer-in-charge will authenticate the same by signing first and last page with his stamp. The Contractor shall ensure that all the pages have been machine numbered serially. The register(s) which have not been authenticated by Engineer-in-charge should not be used at site.

1.9 Priority of Documents and specifications:

1.9.1 The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents within the contract document shall be in accordance with the following sequence:

i) The Agreement for the works.
ii) The Letter of Acceptance.
iii) Particular Condition of Contract.
iv) General Conditions of Contract, including Appendices.
v) Technical Specifications.
vi) Drawings.
vii) Bill of Quantities (BOQ)&
viii) any other document listed in PCC.

1.9.2 If there are varying or conflicting provisions made in any documents forming part of the Contract or in the event of a conflicting view as to the interpretation of the contents thereof; the documents shall take priority in accordance with the list given in clause 1.9.1 above. When there is any conflict between the specifications given in this contract or specifications of any other body/Institution/ Authority as the case may be, the specifications given in this contract shall prevail over the other specifications. However, in case of any ambiguity, the decision of the Engineer-in-charge in this regard shall be final and binding.

1.10 Material Procurement:

After receiving of LOA, contractor has to submit quarterly work plan for entire work. The quantities of materials shall be operated as per site/work requirements after approval of Engineer-In-Charge. Before procuring or placing order for any materials, contractor has to submit details of technical specifications, drawing and make etc. for approval of Dy CEE/MRVC. Tenderer shall procure the material from the approved sources. The material shall confirm to laid down specifications. The contractor shall furnish requisite test certificates as per approved quality assurance plan/ inspection and testing plan.

1.11 Site Office for Railway:

The contractor should ensure that followings Equipment shall always be available in porta cabin provided:

1. Shock Treatment chart.
2. Stretcher – 2 Nos.
3. Fire extinguishers.
4. First Aid Box.
5. Rubber shoes, Gloves, Helmet and reflective jacket- 10 Nos.
6. Electrical toolbox.
7. Megger, Earth tester & other testing Equipment.
8. Multi-meter.
09. Metering Tape & other measuring equipment.
10. Any other item required as per safety norms & as directed by Engineer In charge.

1.12 Safety of Public

i) The Contractor shall be responsible to take all precautions to ensure the safety of the Public whether on Public or Railway property and shall post such look out men as may in the opinion of the Engineer be required to comply with regulations pertaining to the work.

ii) The Contractor shall provide effective barricading using G.I. corrugated sheets around foundation pits, trenches, erection sites, demolition sites etc., to prevent accidents and injuries to the public. He shall erect barricading duly leaving safe passage for the movement of the public as per the directions of Engineer.

iii) No payment will be made for providing such barricading and the rates quoted by the Contractor shall be inclusive of such safety measures.

1.13 Security Measures

i) Security arrangements for the work shall be in accordance with general requirements and the contractor shall conform to such requirements and shall be held responsible for the action or inaction on the part of his staff, employees and the staff and employees of his subcontractors.

ii) Contractors as well as Sub Contractor's employees and representatives shall wear identification Badges (cards), uniforms, helmets, gum boots and other safety / protection gadgets / accessories provided by the Contractor. Badges shall identify the Contractor and show the employee's name and number and shall be worn at all times while at site.

2.0 Miniature Circuit Breaker (MCB):

2.1 'C'/ 'D' curve series Miniature circuit breaker as per site requirement shall have minimum short circuit breaking capacity as indicated in the schedule of quantities. If breaking capacity is not specified, then it should not be lessthan10 kA.

2.2 Distribution Boards:

i) The complete board shall be OEM factory fabricated, assembled, wired and ready for installation at site and having two earthing terminals on side walls of the board shall be provided and shall be connected with main earthing using SWG copper wire.

ii) The board shall be of wall mounted / cubical type construction with powder coated paint finish.

iii) The board shall be complete with the following accessories:-

a) Copper bus bar(s).
b) Neutral link.
c) Common earth bar.
d) DIN bar for mounting MCBs.

The standard constructional features of manufacturer for Distribution Boards are acceptable. The same company DB's and MCB/RCBO/MCCB shall be used for batter fitment.

iv) Main and Sub-Distribution boards of IP 54 protection shall be of approved company make confirming to IS: 8828 or the latest amended suitable for single phase/ three phase230V/415V 50 HZ AC supply system. The board shall be of wall mounted/ Cubicle type construction with coated paint finish and TP /DP/SP MCB/RCBO/ MCCB shall be installed in DIN type channels. The same company Main and Sub-Distribution boards and TP/DP/SP RCBO/MCB shall be used for better fitment.

v) Distribution board shall be located as near as possible to the load centre. RCBO/MCCB and MCB's of adequate rating shall be provided on each circuit. There shall not be any break in continuity of the neutral circuit.

vi) Caution boards shall be providedasperIS2551orlatest amended.

3.0 LT Cables:

3.1 The specification covers the supply as per schedule of quantity, transportation to site, storing, multiple loading / unloading, installation / laying, testing and commissioning of various size of 1.1 kV grade XLPE insulated PVC sheathed, Extruded Aluminium / Coper stranded armoured conductor cable confirming to IS: 7098 part 1 with latest amendments on wall/cable duct/PVC pipe/in trench/ Cable trays as required with all the required accessories, terminating the cables in respective DBs / Switch boxes / Feeder pillar/MCB Bus ducting with clamps, termination/glands/lugs/joints and associated hardware etc. The cable shall be manufactured with triple extrusion process with CCV line technology.

3.2 The design, manufacture of performance of the cable should confirm to the latest applicable standards of Bureau of Indian Standards (IS: 1554,IS: 7098PartI or latest amended)

3.3 All cables except which are used for point wiring shall be XLPE and shall comply with the necessary requirements.

3.4 Different category of cable (C1, C2) be provided as per their applicability to the environment description given in the standard IS : 7098.

3.5 **Specifications for Installing L.T. Cables and Control Cables**:

3.5.1 Cable laying work shall be as per standard practice and conform to IS1255-1983 or the latest amended.

3.5.2 RCC/CI warning covers, RCC through & Cover, Cable identifying labels, CI cable route markers and CI Cable joint markers as per Railway specification & drawings.

3.5.3 Cables laid underground / In RCC pipes

The procedure stated as below, shall be followed. However, before laying all precautionary procedures shall be adopted by the Contractor.

After excavation of cable trench, 100 mm layer of cleaned earth, then cables, and then another100mm layer of cleaned earth with RCC covers shall be put perpendicular to the cable (width wise perpendicular). The entire excavation shall be refilled, levelled, and neatly closed. Cables passing roads, culverts, drainages etc. shall be laid through concrete pipes of NP-4 class of suitable diameters of 2.0 m length as per IS:458 with latest amendments, cable markers to be cemented inground indicating No. of cables, sizes, and sizes of pipe. All bends, entries through walls etc. shall be according to the maximum permissible bending limits as stated by the manufacturers. Each cable Entries through wall shall be separately entered and cable shall be protected by means of heavy-duty PVC pipes (8mm thick) and in case of smaller sizes (below 35 sq.mm.) by means of galvanized pipe of 'B' Class only. The entire finished work of excavation shall necessary mean levelling of ground and all excess debris/ earth to be disposed off. C.I. Cable route marker shall be provided at end of straight length of cable route and at every change of direction of the route. The sample of cable route markers shall be got approved from the Architect/ PMC/ consignee prior to installation.

3.5.4 **Cables fixed on walls/ columns/ ceiling**:

If cables are to be fixed on walls etc. then the same shall be done by using GI spacers and G.I. saddles using screws etc. Drilling on walls should be neatly done with electric drills and the cable fixed on walls should be done in one straight line avoiding any bends, sagging and kinks. All cables fixed on walls shall necessary be done following fire insurance and other Electricity guidelines. The maximum allow able distance between two cable supports shall be as under:

Cable Size	Horizontal	Vertical
Upto10sqmm	350 mm	450 mm
16sqmm-70sqmm	450 mm	500 mm

3.5.5 Cable route markers as per approved drawing shall be provided for identification of cables buried in the ground at suitable distance and pipe shall be embedded in the concrete block of about 250x250x250mm. When the cable is to be run/ laid on the RCC/ brick wall, it shall be supported on GI 'J' hooks with bolts nuts by drilling holes on wall. J hooks to be supported by two nos. anchor fasteners of 6 inches length with GI lock Patti at an interval of one meter. The cable shall be run inside the two RCC half round pipes of 150 mm. dia. duly clamped together by GI clamp fabricated from 50x10 mm GI flat.

3.5.6 Cable identification labels on noncorrosive or synthetic material of 1.5 mm thickness indicating size of cable, route shall be punched and clipped with the cable.

3.5.7 Galvanized hot dip galvanized Cable trays of sizes as per schedule of quantities shall be of doubled bend channel design unless otherwise stated. Cable trays shall be fabricated from minimum 1.6 mm thick perforated sheet steel and shall be complete with tees, elbows, risers, and all necessary hardware. Cable trays shall be erected in perfect level and plumb and shall comply with the

following:

Trays shall not have sharp edges, burrs, or projections injurious to cable insulation. Trays shall include fittings such as bends, risers etc. for changes in direction and elevation.

Trays shall be supported adequately at suitable distance from the building structure by means of painted/galvanized MS structural members secured to the structure by dash fasteners or by grouting. The entire cable tray system shall be rigid. Cost of support arrangement shall be included in the rates quoted for supply and installation of trays. Complete details of this support arrangement shall be showing shop drawings to be prepared by the Contractors and submitted for EMPLOYER's approval before execution.

Each run of cable tray shall be completed before laying of cables.

Cable trays shall be exposed and accessible.

3.6 **Cable Termination of Cables and Joints**:

i) For termination of cables of size 16 sq.mm. and above, suitable cable sockets / lugs of appropriate size and capacity shall be provided at terminal ends. This condition is applicable to single PVC insulated wires of16 sq.mm. and above also.
ii) Generally, Tubular sockets shall be used where grub screw/ clamp type fixing arrangement is available at the terminating end. Reducer / spade type sockets shall be used where bolt and nut arrangement are available at terminating end.
iii) The cable socket shall generally be fixed to the cable cores by crimping process.
iv) Irrespective of the size of the cable and the method of termination, the core end shall be cleaned and immediately covered with an oxide inhibiting/ corrosion inhibiting compound before termination.
v) The tail end wires shall be finished in an appropriate colour coded sleeve.
vi) Use bimetallic washer /strip wherever applicable.

3.7 The metal sheath, metal screen (if any) and armour of the cable should be efficiently bonded and earthed at both ends. All the metal pipes or conduits in which the cables have been installed should be efficiently bonded and earthed. Earthing and bonding shall be done as per IS: 3043 1987orthelatestamended.

3.8 On completion of work the contractor shall submit "As Erected" cable lay out plan showing the distance of cable joints, bends, etc. from the nearest electrical structure or any other landmark.

3.9 The contractor shall arrange for megger for insulation, continuity and earth testing before its commissioning or as required on site.

4.0 Point Wiring:

4.1 Scope:

The scope of this part comprises the supply of all material including wires, ceiling rose, holders, conduits etc. for point wiring as specified in the BOQ, delivery, storing, multiple

loading/ unloading of material, erection, testing and commissioning of electrical wiring installation.

i) **Conduit:** Conduit shall be Precision brand heavy duty PVC conduit ISI marked for Point wiring and in accordance with the requirement set out in the schedule. The minimum diameter of the conduit shall be 20mm.

ii) **Accessories:** The conduit accessories shall comply with the relevant IS specifications and shall be compatible to the conduit used. The cover of accessories for outdoor use shall be made watertight in an approved manner. Normal bends / elbows of approved make can be used. Junction boxes used for suspension of fittings shall be secured to the ceiling, clamps, or spacers as the case may be Manufacturers standard MS (Galvanized or painted) / HD Rigid fire-retardant PVC switch boxes shall be used where modular type switches are to be mounted. All the looping shall be done either in switches or in the fitting.

iii) Fixing of Conduit:

a) Where conduit is to be laid on surface of ceiling/wall/column, the same shall be fixed tothe structures by means of adequate numbers and appropriate size of GI saddles of minimum 18 gauge fixed on GI clamps or on GI spacers as specified and shall run throughout adjacent to either steel work, walls, or ceiling.

b) Where the conduits or cables pass through the flooring the same shall be passed through a galvanized/ MS painted/ Precision brand heavy duty uPVC conduit fixed in the flooring sothat conduits, cable, or wires can be renewed at any time without breaking the floor. The pipe shall extend 75mm above the flooring and shall be flush with ceiling surface on other side.

c) Where the conduits are to be laid in concealed manner, at the time of casting of slabs/columns the contractor shall lay the conduits with adequate number of deep junction boxes for easy and safe pulling of wires through them & also for installation of fittings, fans etc. Conduit drops to DBs, and switch boxes too shall be made concealed in wallsafter chasing the walls. The chases made by the contractor shall be made good to surrounding surface finish by the contractor and cost of the same is deemed to have been included in the rate.

4.2 Conduit capacity:

The maximum capacity of a conduit for drawing PVC insulated unsheathed multi strand copper conductor single core flame retardant (FLRS) class 2 cable shall be in accordance with electricity rules.

4.3 Ceiling Rose:

4.3.1 Ceiling rose should not embody fuse terminal as an integral part of it.

4.3.2 The lead wire shall be of nominal cross section area of not less than 2.5 sq.mm. PVC insulated unsheathed multi strand copper conductor single core flame retardant (FLRS) class2 cable of 1.1 kV grade confirming to IS: 694 or latest amended cover in flexible conduit shall be attached to the ceiling rose.

4.3.3 Ceiling rose confirming to IS: 3854/IS: 1293 or latest amended should be provided for all points such as fan, fixtures, Exhaust fan, heater, geyser etc.

4.4 Boards / Base blocks:

4.4.1 Suitable Company make Electro-plated MS / rigid PVC as specified in Bill of quantity switch boards shall be used for mounting modular type switches, plugs, socket & electronic regulators, etc. for conduit/ surface wiring.

4.4.2 Base blocks if provided for wall mounted fixtures shall be rounded and made of rigid PVC.

4.4.3 The chases made by the contractor shall be made good to surrounding surface finish by the contractor and cost of the same is deemed to have been included in the rate.

4.5 Point wiring (For light points, Fan, Exhaust Fan, sockets bell, Air circulators etc.):

The wiring shall be of tree system. Connectors should not be used without specific prior approval. Loop in on the phase side shall be at the switches. All ceiling roses shall be 3-plate type. Every Light, fan point, and socket point shall have individual control switch unless stated otherwise. Light points may be group controlled by one switch as shown on drawings or as directed at site by the Architects/Consultants/Engineer. Such a group will be called a set and will consist of one to up tosix light points. No joint in wiring (Phase, Neutral, Earth) shall be permitted. No bare conductor in Phase / Neutral will be allowed.

Earthing shall be provided for all points according to the specification of the tender. The number of points in any circuit shall not exceed 10 in any case (unless otherwise stated) with load notexceeding 800 watts.

a) The point wiring in conduit consists of wiring from the switch board in conduit with insulated earthing and its ancillary work such as bends, couplers, junction boxes, PVC insulated unsheathed multi strand copper conductor single core flame retardant (FLRS) class 2 cable of 1.1 kV grade confirming to IS: 694 or latest amended up to the fixed terminals of ceiling roses, connectors of fixtures, etc. via switch whenever called for. The ceiling rose shall be provided for fittings, fan, exhaust fan, etc. Switches, lamp holder, ceiling rose etc. shall be confirming to IS: 3854/IS: 1293 or latest amended.
b) For easy identification, wires with different colors shall be used (e.g. Red, Yellow and Blue - for Phases, Black for neutral and Green for Earth).
c) The PVC cables for phases, neutral and earth shall be PVC insulated unsheathed multi strand copper conductor single core flame retardant (FLRS) class 2 cable of 1.1 kV grade confirming to IS: 694 or latest amended and cross sectional area specified in the schedule of quantities.

4.6 Lighting fixtures:

General requirements:

4.6.1 All Lighting Fittings shall be complete with Fixtures, Lamps / tubes, driver for LED lights and all the accessories necessary for installation whether so

detailed under item description or not.

4.6.2 Fixtures shall be installed at mounting heights as instructed on site by the Architect/Consultants/ site Engineer/PMC.

4.6.3 The lead wire shall be of nominal cross section area of not less than 2.5 sq.mm. PVC insulated unsheathed multi strand copper conductor single core flame retardant (FLRS) class2 cable of 1.1 kV grade confirming to IS: 694 or latest amended cover in flexible conduit.

4.6.4 Fixtures and/or fixture outlet boxes shall be provided with hangers to adequately support thecomplete weight of the fixture.

4.6.5 Pendant fixtures within the same room area shall be installed plumb and at a uniform height from the finished floor. Adjustment of height shall be made during installation as per instructions of Architects/Consultants/ site Engineer/PMC.

4.6.6 Fixture shall be completely wired and constructed to comply with the "regulations" and "Standards" for Electric Lighting fixtures, unless otherwise specified. Fixtures shall bear manufacturer's name and factory inspection label unless otherwise approved. The fixtures shall be supplied along with manufacturers guarantee certificate.

4.6.7 Wiring within the fixture and for connection to the branch circuit wiring shall be not less than 2.5 sq. mm. copper for 250 Volt applications. Wire insulation shall suit the temperature conditions inside the fixture.

4.6.8 Detailed catalogue for all fixtures or, if so required by the Architects/Consultants/site Engineer/PMC, sample fixtures shall be submitted for approval to the Architect/Consultants/site Engineer/PMC before orders for the fixtures are placed.

4.6.9 Recessed fixtures shall be constructed so that all components are replaceable without removing housing from the ceiling.

- LED Lamps/tubes etc. shall be supplied and installed in all lighting fixtures furnished under this contract and cost is inclusive in the Bill of quantity.
- Cost of any modification in fall ceiling is included in Bill of quantity.
- LED Lamps/tubes/lights shall be of wattage and type as indicated in Bill of Quantity shown. Where not shown, the details shall be ascertained from Architect/Consultants/Engineer/PMC before procurement.
- Lamps/tubes/lights for permanent installation shall not be placed in he fixtures until so directed by the Architect/Consultants/Engineer/PMC and this shall be accomplished directlybefore the building portions are ready for occupation

4.7 Drivers/ Ballast for light fittings:

LED lighting fittings shall be with drivers and heat sink. The cost of LED fitting is inclusive of LED's lamps/ tubes and includes OEM's extended warranty of 3 years provided after warranty period of 2 years.

5.0 Ceiling fan:

5.1 Energy efficient 5 star and above prevailing at the time of supply confirming to IS: 374 or latest amended BLDC motor Ceiling fans of 1400mm/1200mm/600 sweeps of with noiseless 100W speed control of double module step electronic/remote regulator, capacitor, down rod, canopy, with three/four blades properly balanced, with two ball bearings to be provided. The suspensionrod shall be of adequate strength having no joint including OEM's extended warranty of 3 years provided after warranty period of 2 years

5.2 The lead wire shall be of nominal cross section area of not less than 2.5 sq.mm. PVC insulated unsheathed multi strand copper conductor single core flame retardant (FLRS) class 2 cable of 1.1 kV grade cover in flexible conduit.

5.3 Unless otherwise specified, the clearance between the bottom point of the ceiling fan and the room floor shall be not less than 2.4 m. The minimum clearance between the ceiling and the plane of the blade shall be not less than 300 mm.

5.4 12mm solid MS rod hooks in the roof shall be provided by the Electrical contractor for suspending the ceiling fans wherever required complete with accessories & safety device i. e. down rod, blades, canopies, rubber insulator, split pins & nut bolts having double lock nut with spring washers

6.0 20 Ft High Volume Low Speed Fans(HVLS)

The gearless PMSM motor HVLS fans shall be provided platforms, decks, concurrence etc. as per OEM installation guidelines under the supervision of OEM representative.

If the multi HVLS fans are provided at one location such as on platforms, decks, concurrence etc. The individual ON/OFF and speed control shall be at centralized place. Necessary panel/ equipment/ development of control system shall be developed by original manufacturer.

Contractor shall provide OEM's 3 years extended warranty for replacing any parts against defect after warranty period of 2 years

7.0 Specification Pumps:

7.1 General:

i) Unless otherwise specified in the tender specification, the equipment's shall be suitable for operating on Three/ Single phase, ± 10% volts, 50±3% Hz, earthed neutral 3 phase, 4 wire ACsystem.

ii) All components' accessories, raw material and finished parts used in the manufacture shall comply with relevant Indian Standards amended up to date. Where Indian

Standards do not exist, International Standards specification shall apply.

iii) Contractor shall provide warranty for replacing any parts against defect after warranty period of 2 years.

iv) Pumps shall be provided with Star-Delts starter, single phase preventer and dry run protection.

8.0 10HP Mono Pump Set:

Supply, installation, testing and commissioning of 2-stage 10 HP monoblock pump set comprising close-coupled centrifugal pump and TEFC squirrel cage induction motor mounted on common shaft, suitable for continuous duty operation on 415V, 3-phase, 50Hz AC supply. The pump casing and impeller shall be made of graded cast iron/bronze with stainless steel shaft, antifriction bearings and mechanical seal arrangement for efficient and leak-proof performance. The pump set shall be complete with rigid MS fabricated base frame, PCC/foundation arrangement, anti-vibration pads, coupling, foundation bolts, suction and delivery connections, valves, pressure gauge, internal wiring, earthing and all necessary accessories required for complete installation, testing and satisfactory operation.

9.0 SPECIFICATION OF LED LUMINAIRES

Standard Technical Requirements of LED Luminaries

SN	Description	Specification
A	**LEDs**	
1	Make	Nichia, Osram, Seoul, Philips Lumileds, Cree and Lednium with LM 80 Certification from NABL accredited.
2	Efficacy	> 100 Lumens/Watt (upto 45 Watt) @ 350mA drive current > 120 Lumens/Watt (above 45 Watt) @ 350mA drive current LEDs of higher power ratings, drive current greater than 350mA.
3	Type	SMD type
4	Life Span	>50,000hours depreciation >30 % after 50000 Hrs.
5	CRI	≥ 65
B	**Driver**	
1	Minimum Efficiency	85% (for driver power output rating ≤ 100W) 90% (for driver power output rating > 100W)
2	Power factor	≥ 0.90
3	Input Voltage	140V 50Hz AC with inbuilt cut-off 100V(Low) & 277(High)
4	Protection	Short Circuits protection, Open load protection, Surge Protection (min. 3kV)
C	**Luminaries**	
1	System Efficacy	80 lm/W (luminaire system wattage ≤ 45) 90 lm/W (luminaire system wattage > 45)

2	Secondary lens / optics	The luminaire must have secondary lens/optics. The material of lens should preferably be PMMA / Poly carbonate cover.
3	Color Temperature	5665±355K
4	Housing protection	For Indoor IP-20 & For Outdoor IP66 or as specified in Explanatory note. Test certificate of NABL accredited laboratory is to be submitted for the luminaire & impact resistance IK-05.
5	Temperature rise test	≤ 85°C
D	**Warranty**	Specific certification shall be submitted by the tenderer at the timeof tender from OEM that Luminaire are as per specification & arewarranted for five years from the date of commissioning or 72 months from the date of supply, whichever is earlier.
E	Test certificate from NABL accredited laboratory in support of IP protection, LED Driver safety as per IEC:61347-2-13/EN:61347-2-13/IS:15885-2-13 & LED Driver Performance as per IEC:62384/IS:16104, LED luminaire safety compliance as per IEC:60598-1 /IS:10322: Part 1, IEC: 60598-2-3/ IS: 10322: Part 5: Sec 3, LM 79/ IS: 16106 reports in respect of the luminaire from NABL accredited laboratory and LM 80/ IS:16105 report with TM21 extrapolation in support of the LM79 reported life in respect of the LED usedin the offered luminaire. The test certificate should cover / rating of the luminaries offered.	

10 Specification for Lighting Bus bar and Low Power Distribution (Bus bar trunking system):

10.1 Scope of Work:

The scope of the work covered by this tender is for:

i) Design, manufacture, supply at site, installation, testing, commissioning in all respect lighting bus bar trunking system to be provided at suburban Railway Station for semi outdoor application with all associated equipment's & complying with the technical specification

ii) Civil Engineering & other supporting engineering works as required & necessary will also have to be provided by the contractor/ manufacturer. The cost of all these works is included against the item in the BOQ.

iii) Installation certification from OEM before commissioning.

10.2 Design Service of the Works:

The Contractor shall be responsible for the design service of the Works and shall satisfy himself thatthe sizes, ratings, and quantities of equipment as specified herein meet the functional and operationalrequirements.

Documentation:

The documentation to be delivered by the Contractor shall include, but not be limited to, the following items:

- Construction and Installation Plan;
- Factory Acceptance Test Plan for equipment;
- Operation and Maintenance Manuals;

10.3 Brief System Description

The lighting bus bar trunking shall be air-insulated, fire resistant and conform to the CEI EN 60439- 1/2 standards. The conductors, shall be made of copper with a minimum purity of 99.9%, are insulated along their entire length by a self-extinguishing sheath.

The casing should be made from hot dipped galvanized sheet steel or in extruded anodized aluminium and forms a rigid outer structure, which also serves as the protective conductor (PE).

The standard degree of protection of Bus Duct/ Rising Main system shall be IP55 (according to CEI EN 60529). Due to the rigidity of the installed system (including straight lengths, end feed units, tee joints and flexible joints), the system should tolerate possible overloads on the system of 1.4 times higher than the nominal current for a period of up to 15 minutes. Some misalignment of the bus bar trunking runs or vibration within the line can be tolerated when subjected to high mechanical loads such as the suspension of heavy luminaries. The normal recommended fixing centres for the bus bar trunking is one meters.

Straight lengths: The standard bus bar lengths of 3 meters should have 6/3 plug-in-hole points at equal distance with accessibility of Bus Duct/ Rising Main System. Plugs may be inserted or removed whilst the bus bar is live.

The jointing arrangement shall be of Monobloc jointing system with double nut torque bolt for fast and reliable connection.

End feed units and centre feed units: End feeds shall be with IP55 protection can be of right and left orientation according to the route of the line and are supplied with cable clamps and terminals suitable for up to 25 mm2 cable.

End covers: End covers shall be fitted to the last element of the run to maintain the degree of protection.

Flexible joint: Flexible joint enables changes inthedirectionofarunupto180°.

Tap-off units: The tap-off units shall be phase selectable, can be supplied either fused or un-fused and have IP65 protection. Each tap off unit comes complete with terminals suitable for 2.5 mm2 cable. They are available up to ratings of 16Aun-fused or fused.

The tap-off units shall be mechanically locked and can be plugged in & out from live Bus bas bars. Tap off outlets shall be with safety shutters to prevent access to live bus bars when not in use.

11 Supply, Transportation, Laying, Testing, Commissioning of Cable:

11.1 Scope

This section deals with general information and criteria for supply, transporting, storing, laying, jointing, testing and commissioning of 33/22/11/6.6/2.2 kV, three core, Aluminium conductor of different sizes, cross linked polyethylene (XLPE) Extruded insulated cable. Cables used for supplying transformer, panels etc also for replacing infringing overhead lines/underground cables of Central Railway/ Western Railway. The cable shall be manufactured with triple extrusion process with CCV line technology

This will also include all associated works of other electrical infringement removal. The scope of work also includes design, casting foundations, fabrication, and erection of mast & Dwarf Mast Anchor (DMA) for erection of 4/2 pole gantry structures, termination of Arial lines.

11.2 Description of the system

The supply for General services sub-stations shall be taken from existing 33/22/11/2.2 kV power supply system.

11.3 XLPE Cable Specifications

11.3.1 The cables shall be of various grade sizes3 core ISI marked XLPE Extruded cables, stranded compact circular aluminium conductor confirming to IS 7098 or the latest amended.

11.3.2 The Cable shall be supplied in standard wooden drum containing cable length of as per IS specification. These drums should be taken away from the sight after laying of the cables by the contractor. The cables supplied by MRVC shall be collected from nominated area/depot within Mumbai suburban cost of which is included in the schedule of quantity item.

11.3.3 The Cable shall be transported and stored in safe custody at site as per the scope.

11.4 Cable Accessories

The straight through joint kits and indoor / outdoor terminations shall be of heat shrinkable type (Raychem/RPG, REPL XICON). The jointing kits shall be provided with water logging proof jackets and boots. The termination and straight joints shall be supplied in kit form. The kit shall include all insulating and sealing materials apart from conductor fittings and consumable items. Necessary devices required for termination and joints shall be provided. An installation instruction as well as a list of kit contents shall be included in the kit / package. Only sealed / packed / certified kits from Original Equipment Manufacturer (OEM) will have to be used after inspection by the Employer.

11.5 Designs & drawings:

11.5.1 Standards for drawing

All designs, legends, notes on drawings and schedules of materials shall be in English and shall be prepared in the metric system.

The contractor shall coordinate with Civil Contractor and check architectural, structural, drawings, etc. to avoid possible installation conflicts. The contractor shall review the layout drawings as per site conditions. The contractor has to submit the conduit layout plan for approval.

11.5.2 Contractor's detailed drawings

Contractor shall submit following drawings.

11.5.2.1 Cable Route Plan.

The cable route plans are tentative and there may be modification in the cable route as per site conditions. The Contractor shall follow this route generally. He shall carry out a detailed cable route survey and satisfy himself that the route is feasible. If there are obstructions in some portions of the route due to which the route is to be altered, the Contractor shall suggest alternate route for approval of the Employer. He shall prepare a dimensioned cable route plan in Auto-CAD with all details to a scale of 1:1000 indicating the distance of the route from existing permanent structure of Railway i.e., OHE Structure, building, etc and submit the same. Modified 'As erected' lay out plan indicating overhead line /cable route shall be submitted

11.5.2.2 Cable joint and termination drawings

Cable joint and termination drawings complete in all respects along with technical literature, test certificates etc shall be supplied. Drawings should be as per RDSO standard and to the scale and should indicate overall dimensions and components.

11.5.2.3 Any other drawing required during Design/Execution.

11.6 Installation of cable and its accessories

11.6.1 Scope

This section deals with the method of laying of cables and installation of cable accessories.

11.6.2 Inspection

All installation work shall be subject to inspection by the Employer to ensure that the work is done in accordance with specifications, approved designs and drawings and is of the best quality suitable for the purpose.

11.6.3 Measurement

All measurements for length of the cable and location of cable accessories shall be made with the aid of steel tape.

11.6.4 Cable accessories

The installation of cable accessories shall be carried out strictly in accordance with the instructions issued by the Manufacturer. Cable joints and terminations shall be done by experienced & qualified cable jointer approved by Manufacturers/ MSEDCL/Power supply authorities/Manufacturers.

11.6.5 Laying of the cable

i) For laying the cables the Contractor shall adopt the approved cable route plan. The cables shall be laid in RCC trunking in cable trench, in RCC NP-4 pipes, etc. as per BIS 1255 /1983orthe latest amended.

ii) The cable trenches shall be made for laying the cable by excavating the ground earth to required depth and width. Insulation resistance of cable on each drum before laying and after laying shall be taken and recorded to ensure that the cable is healthy. Cable ends shall be sealed to protect from entry of moisture each time when it is opened for test. RCC trunking before laying the cable the trench shall be got inspected by the Employer's representative. There may be some underground obstructions in the cable route. The contractor shall lay the Cable clear of such obstructions. Before laying the cable in the trench a bed of screened earth from the bottom of the trench, RCC trunking shall be laid. The cable shall be laid in the RCC trunking. Sufficient number of labour, rollers, drum pedestals and axle, cable stocking, etc shall be used to handle the cable of 250/500/1000-meter length. The cable shall be laid in the presence of representative of Employer and the Engineer of the Contractor. Screened earth shall be filled in the RCC trunking and trench up to a height of 100 mm over the top of the cable. Earth shall be refilled in the trench thereafter, so as to bring filled earth level to the surrounding earth level. The back filling shall be done in stages. For laying the cable under the ground, across the cement concreting / asphalted road, necessary permission shall be obtained by the contractor from the concerned authorities. After completion of the cable laying work, re-surfacing of the road with asphalt shall be done for the excavated portion of the road. Necessary groove shall be made by chiselling in the cement concrete foundation of the pole for laying underground cable along the pole. RCC covers shall be placed horizontally (across) in the excavated trench over the cable without spacing between two RCC covers.

iii) In case the cable trench crosses Railway track, then the cable shall be crossed through RCCNP-4 pipes provided with collar on one side and of minimum internal diameter of 200 mm dia and 2 meters in length. These pipes shall be provided at a depth of 1 meter from the formation level. The RCC NP-4 pipes shall be jointed properly slopping downwards from centre of track to outer end so as to make them waterproof. It is desirable to leave a pilot wire inside the RCC NP-4 pipes for drawing the cables through the pipe. The Power and/ or Traffic block if required shall be arranged by the Employer. The cable entry and exit shall be provided with a bell mouth or padding. Each cable crossing shall be indicated by two cast iron cable markers, one on either end of the crossing. Provisions given in latest Track Crossing Regulations issued by Ministry of Railways will be observed. Ballast removed shall be restored.

iv) In case the cable route passes through walls of substation / any building compound wall, then the cable shall be laid in RCC NP-4 pipe of 200 mm internal diameter provided in the wall and supported on both ends, if necessary. The RCC NP-4 pipe

shall be laid at a depth of 1.5meters from the ground level. After drawing the cables, both ends of RCC NP-4 pipe shall be sealed properly.

v) In case the cable route passes over a culvert, then the cable shall be laid inadequate number of RCC NP-4 pipes of internal dia. 200 mm. The RCC NP-4 pipes shall be jointed properly. These pipes shall be supported on an ISMC 400channel of suitable length and galvanized with zinc coating these channels shall be jointed together using galvanized batten plates as per BIS2062 & 800 or the latest amended fastened with 4 nos. of 16 mm dia. stainless steel bolts &nuts. The CONCRETE pipes will be fastened to the channel by GI clamps duly fabricated out of 50 x 10 mm GI flat. Both ends of the channel shall be embedded in cement concrete blocks over the top of the pier on the culvert.

vi) Proposed cable route shall get approved from MRVC/CR/WR division officers. The following shall be ensured:

a) When cable crosses the roads / footpaths the crossing shall be carried out with RCC NP-4pipes of 200 mm internal diameter and in conformity with BIS 1255 /1983 or the latest amended. The RCCNP-4 pipes shall be laid at a depth of 1.0 meters from the ground level.
b) The Contractor shall assist the Employer in getting the permission from the concerned authorities for laying the cables in the portion of road / footpath under the Municipal area or PWD land. He shall prepare the necessary application and drawings required in this connection for the signature of the Employer for submission to the authorities.
c) The Contractor shall coordinate with the civil authorities for the progress of the work.
d) Proper warning signal / lamps at night shall be provided by the Contractor along with power supply/ generator at such road crossings when the work is going on.
e) To maintain the site clean and to see that minimum possible inconvenience is caused to the public and to vehicular traffic, carrying out work like barricading the work area, providing warning signal at night, removal of earth from site, etc are mandatory and shall be the responsibility of the Contractor. Any failure on the part of the Contractor to do these works will be deemed a breach of contract. Any penalty imposed by road authority will be borne by the Contractor.
f) To arrange labour required, arranging machinery and other miscellaneous Equipment, water required for drilling as well as domestic use by labour, temporary accommodation, if any, required for labour etc., shall be the responsibility of the Contractor.
g) All requirements of Municipal / Road Development Authority / PWD / Traffic Police /Railways authority etc., have to be complied by the Contractor. Day to day liaison with them shall be arranged by the Contractor.
h) All problems / disputes, if any, in this regard shall be settled by the Contractor by mutual discussions. The Employer shall give assistance to the Contractor in these endeavours.
i) It shall be the responsibility of the Contractor to restore the roads / footpaths back to the original finish in coordination with the road / footpath owning authority after accomplishing the cable laying work at such locations.

vii) When a cable is to be run/ laid on the RCC wall or brick wall, it shall be with adequate

support. The work includes drilling of holes on RCC/ brick wall fixing of GI 'J' hooks with bolts nuts to support the cable at 1 meter interval. J hook sat an interval of one meter and to be supported by two nos anchor fasteners of 6 inches length with GI lock Patti. The cable shall be run inside the two RCC half round pipes of 150 mm. dia duly clamped together. By GI clamps fabricated from 50 x 10 mm GI flat. GI/ J hook arrangement shall be got approved from the purchaser

viii) While laying the cable, it should be ensured that the cable is not bent to a sharp radius. Minimum bending radius to be adopted shall be 15 times the outer dia. of the cable or as specifiedby the ISS.

ix) Cable joints / terminations (outdoor / straight through type) as per site condition shall be used. Care shall be taken to ensure that no joint comes in a road crossing, track crossing near pipe end or at the bend. When two or more cables are laid together, the joints are arranged to be staggered so as to reduce the width of trench and also to isolate the joints from each other and reduce the possibility of one joint failure affecting the other joints. Before joining the cables, insulation resistance test shall be conducted. After satisfactory results are obtained cable jointing and termination work should commence. The jointing of straight through joints and terminations shall be done by the manufacturer's authorized jointer only. The method of jointing shall be as per manufacturers instructions. In case during the course of test any joint proves faulty, the Contractor shall redo the work at his own cost. The cable joint markers asper approved drawing shall be provided at the location of joints.

x) Suitable locations for cable joints should be selected. As the width of the trench is limited, it may not be possible to provide extra cable length at the joint. However, at each of the joint, an extra length to the extent possible in inflate form of figure 'S' shall be provided.

xi) Cable identification labels made of non-corrosive metal or synthetic material indicating the 22/11/2.2 kV feeder number, year of laying etc., shall be fixed on the cable at a spacing of 30meters.

xii) Cable route markers as per approved drawing shall be provided on the cable route at a spacing of 30meters.

xiii) The metal sheath, metal screen (if any) and armour of cable should be efficiently bonded and earthed at both ends. All metal pipes or conduits in which the cables have been installed should be efficiently bonded and earthed. Earthing and bonding shall be done as per BIS 3043/ 1966 or the latest amended.

xiv) The released cable drums will be the property of the contractor and shall be removed from the premises.

xv) Both ends of the spare pipes shall be sealed.

xvi) Bellmouth/padding are provided at cable entry /exit.

xvii) It will be responsibility of the contractor to obtain clearance/ license/ NOC from various local authorities/ corporation for carrying out the work. However, the

purchaser will reimburse the official fees/ payment on submission of documentary proof of payment of such fees.

11.6.7 Micro tunnelling for cable Laying:

i) Micro tunnelling is a process that uses a remote-controlled Micro tunnel Boring machine combined with the pipe jacking technique to directly install product pipes under the ground in a single pass. The micro tunnelling permits accurate monitoring and adjusting of the alignment and level (either manually or automatically) as the excavation proceeds.

ii) The process of installing a pipeline by micro tunnelling and pipe jacking system comprises five parts:-

- **Micro tunnel boring machine (Shields):** It is mechanized, steerable mini boring machine (or shield) equipped with suitable cutter head in front to excavate small diameter tunnels under controlled conditions in which the tunnel face and ground water pressure are continuously balanced as the shield excavates and moves forward. The operation and steering of the shield are remotely controller with the aid of laser and or CCTV system.
- **Automated spoil removal system:** This system conveys the excavated spoil from the tunnel face to the ground surface for disposal. The spoil removal rate and the speed of the shield are fully or semi-automatically controlled in such a way to achieve minimal heave or settlement. There are three systems available for the conveyance of the spoil and they are slurry system, augur system, and vacuum system.
- **Jacking system:** The jacking system comprise high thrust hydraulic jacks mounted in a jacking frame capable of exerting and required jacking force against a purpose- built thrust wall to push the pipe and the shield forward through the ground. The jacking force is transferred evenly to the jacking pipe through a push ring connected to the pipe.
- **Guidance system to guide and tunnel excavation**: The guidance system comprises a laser beam device or a theodolite with laser beam attachment. The device is installed in the jacking shaft and the beam is set to the desired level, gradient and alignment. Some machines have photo sensitive cells on the target panel located at the rear of the shield which converts the laser position into digital data. The data are then electronically transmitted to the operator's control panel where digital readout of the location can be made. Some modern shields have built-in capabilities to use the digital data and automatically make necessary steering adjustments to guide the machine to the true alignment and level. The contractor shall submit complete details of the guidance system he proposes to use and shall incorporate appropriate check points and hold points in the Quality Assurance Manual that the shall implement in the contract. The laser torch or theodolite shall be firmly supported in the jacking pit so that it is independent of any movement that may take place during the micro tunnelling operation.
- **Remote control system:** All micro tunnelling system relies on remote-control capability. The control system monitors and controls the steering of the shield, spoil removal system (slurry or augur or vacuum), jacking system and guidance system. The system operation varies from totally manual to fully automate. The remote-control

system is usually housed in portable control cabin. The control cabin shall be located near to the jacking pit so that the operator can visually monitor the activities in the pit. Where it is not possible to locate the control cabin near to the pit due to space limitations, a CCTV camera system shall be set up in the pit to allow the operator to monitor the activities in the pit. For the manual operating system, the operator's skill is very crucial for a successful completion of the project. The operator shall monitor all the information and continuously feed into the control panel as necessary. He shall be alert at all times and shall observe the crew's activities and other site activities, evaluate the information and make appropriate operational decisions. The information relayed back to the operator shall be audible, tactile and visual as The MTBM shall have facility to transmit sounds and vibrations from the excavation face to the operators to enable him to make appropriate operational decisions. He shall monitor and keep record of line and grade of the machine, cutter head torque, jacking thrust, RPM, steering pressure, slurry flow rate, pressures of slurry system and rate of advancement. In full automated system, the machine acquires and evaluates the information and selects the operational steps for automatic steering of MTBM. The information collected shall be logged in a microprocess or to obtain a printout as necessary. The contractor shall incorporate check points and hold points for the guidance control system in the Quality Assurance System that he shall implement in the contract.

- **Supplementary systems:** The supplementary system required for micro tunnelling and pipejacking operation shall include Muck disposal system. Pipe lubrication system, Grouting system, Guide rails, Entrance and Exit installations.

iii) The Scope of work includes:-

- Supply of 160/250mm ODPE-80, PN-06 HDPE pipe as per IS4984-2016.
- Mobilization & demobilization of all equipment, consumables, personnel and work force etc as required to work site and back.
- Geotechnical profile and geotechnical reports of site
- Excavation & making of Thrust pit& Receiving pit.
- Due expertise, supervision over contractors' operation.
- Storage & security for contractor's equipment & personnel.
- Medical coverage & insurance for contract or personnel.
- Provision of JCB & Hydra for excavation of thrust pit & receiving pit.
- Providing proper shoring & shuttering to avoid collapsing of the pit if required
- Barricading & safety provisions of proper site activities.
- Laying of HDPE 250 MM ODPE-80, PN– 06 pipes by micro tunnelling.
- All permits and permissions from Central Railway Division as required for performing the work will be given by MRVC.

iv) The Permanent Works under this contract shall also include but not be limited to the following:

- Design, manufacture and supply of HDPE jacking pipes or other suitable pipes as approved by the Engineer of various diameters.
- Design, procurement, and installation of HDPEpipesNP-6. Approval will be

given by MRVC.

- TheinstallationscompleteofHDPEpipesNP-6 or other pipe including fittings or specials as specified and as approved by the Engineer in the following distinct fronts under the contract.
- Testing under supervision of the Railways & MRVC representative and handing over to the department upon successful testing.
- The constructions of complete all the manholes, special chambers, drop arrangements pipes, vent shafts etc.
- Ancillary and incidental works and all necessary works required to complete the work successfully and to entire satisfaction to the Engineer.
- Cable laying inside HDPE pipe.

v) General information on submittals:

To ensure compliance with the requirements of micro tunnelling, the contractor/ Agency shall make a number of submittals as described in the following clauses for approval. The contractor/Agency shall ensure that the submittals prepared are of good professional standard, comply with all the requirements specified and complete with all details and information to enable the Engineer to evaluate and approve the submission. It shall be clearly understood by the contractor that he shall not commence any work without the approval of the submittals by the Engineer.

- Method of construction
- Geotechnical profile and geotechnical reports along the pipeline route.
- Jacking pipes design.
- Micro tunnelling system
- Site layout
- Existing pipe levels ,location of shafts and new pipe line alignment
- Jacking and receiving shaft design
- Obtaining approval from authorities
- Buried services and obstructions
- Monitoring of ground settlement and upheaval
- Safety
- Quality assurance/ control plan
- Remedial measures to be adopted by the Contractor
- Experience and performance certificate for last five years

11.6.8 Special tools

Special tools and equipment required for laying of the cable, installation, testing and commissioning of cable & its accessories shall be made available and used by the Contractor at his cost.

Note:

a) Cable markers/ Cable Joint Markers/ Cable Identification Labels shall be provided as per extant rules at the time of refilling of the cable trenches. The price

includes their supply and erection cost.

b) If site condition does not permit excavation of envisaged size of cable trench, proportionate payment will be made as per actual excavation as approved by client. However maximum payment shall be as per the design even if the sizes are increased above the designed.

c) MRVC engineer shall clarify where use of chisel and hammer or blasting has been necessary.

11.7 Inspection and testing

11.7.1 Scope

This section deals with the inspection and testing of cables, cable accessories, laid cable and complete power supply arrangement.

11.7.2 General

In all cases where inspections and tests are required whether at the works of the contractor or of any sub-contractor's work or at laboratory or at site, the contractor shall provide free of charge all facilities such as labour, material, electricity, fuel, water, stores, test bed, tools, apparatus and instruments etc, as may be required to effectively carryout tests in accordance with the contract. A set of relevant approved drawings with the approved marking of the Employer, a copy of the specification to which the tests are to be carried out and copies of type test reports shall also be made available by the contractor to the Employer for reference during inspection and testing.

The Inspecting Authority shall be the Employer/PWD/MSEDCL or his authorized representative. In case prototype tests are to be carried out, then the inspecting authority shall be nominated by the Employer and assistance of RDSO may also be taken. The Employer shall advise the Contractor the specific inspecting authority each time.

The Employer or his authorized representative shall be allowed access at all working hours to all those areas in Contractor's workshop or sub-contractor's workshop where the materials covered by this contract are manufactured for purposes of inspection and to obtain information on the progress of work.

The tests at work shall include electrical and mechanical in accordance with the appropriate clauses of statutory regulation, relevant codes, standards and approved drawings / specifications to ensure that the materials being supplied fulfils the requirement of the specifications.

All instruments used for measuring performance parameters; instruments for precision dimension measurements shall have valid calibration certificates of national standards.

All equipment, fittings and accessories, material etc., selected for wiring installations/ cable laying/ equipment installation shall conform to the relevant & latest ISS and should be purchased from authorized dealers/ sub-dealers and the proof of purchased should be

submitted to client. All material shall be got inspected before supply through RITES/Client/PMC its authorized representatives. Inspection charges for items requiring RITES inspection will be paid directly to RITES by MRVC/PMC.

No material will be used with out prior inspection & approval of authorized representative of client.

11.7.3 Type-tests

The type test reports will have to be submitted by the tenderer.

11.7.4 Routine tests

Routine tests shall comprise of visual inspection of the item and all the routine tests as per the relevant specification. Employer reserves the right to witness routine test.

For joint and terminations visual inspection and check of the availability of all components in required quantities in each kit shall be carried by Employer's representative.

Visual inspection and dimensional check shall be carried out by the Employer on cable joint marker, cable route marker, cable identification label to ensure that they are as per the approved drawing.

11.7.5 Responsibility of contractor

All defects detected as a result of testing / inspection shall be rectified by the manufacturer at his own expense and shall be documented and corrected prior to shipment. If in the opinion of Employer, a repeat of the test is required after such rectification, this shall also be carried out at the expense of the Contractor.

No cable accessory shall be supplied until Employer has inspected the same to his satisfaction and accepted. However, such inspection and/or acceptance certificate shall not relieve the Contractor of his responsibility for furnishing the cable accessories conforming to the requirements of the contract nor prejudice any claim, right or privilege which the Employer may have because of the use of defective or unsatisfactory items. Should the Employer waive the right to inspect any item, such waiver shall be obtained by the Contractor from the Employer in writing and such a waiver shall not relieve the Contractor in anyway from his obligation under the contract.

11.7.6 Inspection of erection work

All erection work will be subject to inspection by the Employer or his representative to ensure that the work is done in accordance with the specification and approved drawing.

11.7.7 Inspection and tests of completely laid cable

General

As soon as the work is completed and ready for inspection and testing, the Contractor shall advise the Employer in writing. Tests will be carried out by the Employer jointly

with the Contractor. Testing Equipment and staff required for the tests shall be provided by the Contractor free of charge. The equipment indicated below shall form apart of the Equipment being provided by the Contractor for carrying out the tests.

i) 2500 V motorised insulation resistance tester (meggar) for HT cables and 500V megger for LT cables
ii) Resistance Bridge.
iii) Capacitance Bridge.
iv) High voltage testing kit.

The contractor shall take full responsibility for these tests inter alia his other responsibilities.

Specific Tests for the facility as a whole:

The following specific tests shall be conducted on a completed cable installation as per BIS 1255 or the latest amended before commissioning the cable.

i) Visual Inspection and Continuity Test

Visual inspection shall include check for satisfactory workmanship and bonding. Continuity Test shall be carried out on the cable to ensure that the cable is continuous.

ii) Insulation Resistance

The test for insulation resistance of the cable as a whole with the metal screen connected to earth shall be measured by a portable resistance measuring bridge.

iii) Conductor Resistance (DC)

The resistance of conductor shall be measured by a suitable bridge.

iv) Capacitance

The capacitance is measured between the conductor and screen using a capacitance bridge.

v) High Voltage Test

Cable shall be subjected to DC high voltage test. The leakage current shall be measured and recorded. The cable must be discharged on completion of DC High Voltage Test and the cable shall be kept earthed until it is put into service. The cost of arranging equipment for test and conducting the test shall be borne by the contractor.

11.8 Commissioning

11.8.1 Clearances

Before commissioning of a cable/ Substation it is necessary to obtain:

11.8.1.1 Clearance from EIG (Railways)/MSEDCL/PWD

11.8.1.2 (EIG stands for Electrical Inspector to Government)

The EIG for Railways is the Chief Electrical Engineer of the particular Zonal Railway.

The successful tenderer shall prepare and submit an application from the Employer to the above authorities with necessary data / drawings / certificates and obtain the clearance certificate. It is the responsibility of the Contractor to obtain the clearances from the concerned authorities for commissioning the cable. The Contractor will be guided by the Employer in respect of the procedure to be followed by him in this connection.

11.8.2 Commissioning procedure.

The cable/Sub Station shall be ready for commissioning once all the inspection/tests conducted are satisfactory and the clearance from EIG (Railways)/MSEDCL/PWD is obtained before commissioning.

12.0 Technical Specification for Diesel Generator Sets:

12.1 Intent of Specification

This specification covers the supply, installation, testing and commissioning of Diesel Gen-Sets, complete in all respects with all equipment, fitting and accessories for efficient and trouble-free operation as specified hereunder.

12.2 Scope of Work

General Scope of work shall include supply, installation, testing and commissioning of the following:

a) Silent Diesel Generator Set complete with all accessories, an Alternator directly coupled to the engine through flexible/ rigid coupling complete with all accessories for starting, regulation and control, soundproof, weatherproof enclosure, base frame, foundation bolts etc. interconnecting piping and accessories, power and control cable glands and lugs. DG Set shall meet the requirements of environmental protection rules, 1986 as laid down by Ministry of Environmental & Forest read with GSR 371(E) dated 17.05.2002, GSR 520 (E) dated 01.07.2003 & GSR 448{E) dated 12.07.2004, vide GSR 804(E.) dated 3-Nov-2022, amended up to date, in respect of "emission norms" for the engine and in respect of "noise norms" for DG sets. All turbocharged engines shall conform to IS:13018/1990{reaffirmed2005) and IS:10,000 series or the latest amended.

b) Diesel Local control panel (AMF Panel) including control cables, power cables between DG alternator, local control panel and main LT Panel.

c) Equipment necessary for engine cooling system, Radiator, Fan, valves, interconnecting pipes etc.

d) Equipment necessary for one day storage of fuel and distribution like day oil tank inter connecting piping, valves, level gauge etc.

e) Flexible connections and residential type silencer of exhaust system, including thermal lagging on exhaust piping.

f) Batteries with wooden battery stand and battery charging equipment, including their connections as necessary.

g) Anti Vibration Mountings, etc.

h) Preparing all related shop drawings for approval from client and statutory bodies.

i) Obtaining approval of the installation of Diesel Generators by the Electrical Inspector and Pollution Control bodies and any other statutory bodies. (As required)

j) Civil works like DG Set foundations, chasing, grouting etc. is included in the scope.

k) Carrying out performance and guarantee test as per clause 1.9

12.3 Codes And Standards

12.3.1 The equipment furnish under this specification shall conform to the following latest standard or the latest amended, except where modified or supplemented by this specification:

BS:5514	:	Specification for reciprocating internal combustion Engine.
BS:5000	:	Rotating electrical machines of particular type or for particular applications.
IS:1239	:	Mild steel tubes and fittings.(Part-I& II)
IS:1651	:	Stationary cells and batteries lead acid type (with tubular positive plates).
IS:9224	:	Specification of low voltage fuses, General Purpose.
IS:4540	:	Mono-crystal line semi-conductor rectifier assemblies and equipment.
IS:4722	:	Rotating electrical machines
IS:1248	:	Specification for electrical indicating instruments.
IS:10000	:	Methods of tests for internal combustion engines.
IS:10002	:	Specifications for performance requirements for constant Speed compression ignition (Diesel) engine for general Purposes (above 20 KW).
IS:2147	:	Degree of protection provided by enclosure for low voltage switchgear and control gear.
IS:1600	:	Code for type testing of constant speed IC engines for General purposes.
IS:1601	:	Performance of constant speed IC engines for general purposes.
ASME Power	:	Internal Combustion engines.
ISO8528 part10	:	Sound level
Test Code PTC-17	:	Codes of Diesel Engine Manufacturer's Association U.S.A.

12.3.2 Installation

The installation work shall conform to Indian Electricity act and Indian Electricity Rules as amended upto the date of installation on floor or truck/ van etc.

12.3.3 Period of Operation/ Duty Cycle

The sets are intended to supply power only during an emergency for essential services and may be idle for long periods except for periodic routine tests once in a week. When there is a total failure of main power supply, the sets shall be required to operate continuously at full load for a period which at times may exceed even 24 hours.

12.4 Engine

The turbocharged Diesel Engine shall be water cooled, electric start developing required BHP at1500 RPM with class A-2 or better governing to deliver specified continuous KVA output at 0.8 Power Factor Lag at NTP conditions. The Diesel engine should be capable of providing 10% overload for one hour in every 12 hours continuous running at full load. The turbocharged Diesel engine shall conform to IS:13018/1990 (reaffirmed2005) and IS:10,000 series or the latest amended. Specific fuel consumption (SFC) shall be as per IS specification.

The Turbocharged Diesel engine shall be complete with the following accessories:

(a) Fuel tank with air breather, drain plug with capacity for 8 hours of continuous running at full load or 990 litres capacity, whichever is lesser.
(b) Engine instrument panel consisting of starting switch with key, lube oil temperature and pressure gauges, RPM indicator and hour meter with additional feature of auto start/ remote start and auto stop.
(c) Safety control to shutdown the engine in the event of over speed, low lube oil pressure and high engine water temperature.
(d) Exhaust silencer residential type.
(e) 12V or 24V starting system complete charging alternator or dynamo and cut out.
(f) Lead Acid/ semi-maintenance free batteries of suitable ratings with connecting cables. The batteries shall conform to relevant IS. The batteries shall be supplied fully filled and first charged ready to use.
(g) The battery shall be provided with good quality teakwood stand painted with acid proof black paint with min 3mm thick rubber mat be low the battery.

For each battery system following accessories shall be provided:

1. PVC Funnel -1 No.
2. Small PVC mugs with handle -2 Nos.
3. Hydrometer syringe type with float calibrated (not with zero markings only) with one spare float.
4. Centre zero voltmeter good quality with 3V-0-3V scale.
5. PVC Jerry - can white colour with tested quality distilled water, with can clearly marked with engraved PVC inscription plate “Distilled Water”.
6. One tin of petroleum jelly(500gms)

(h) Anti-Vibration mountings for complete DG set in case of flexible

coupling and for turbocharged engine in case of direct coupling.
The fuel level should be indicated with the help of fuel gauge meter.

(j) There should be provision for filling the fuel from outside (as in case of automobiles) with locking arrangement.

12.5 Alternator

The alternator shall be self excited and self regulated of specified KVA rating in three phase at 415Volts, 50 Hz, 1500 RPM & 0.8 PF and shall conform to IS: 13364 (Part 2) /1992 (reaffirmed 2008). The alternator shall be of brushless type only with VG-2 Grade of voltage regulation. The alternators shall be screen protected, drip proof with IP-21 or better degree of protection as per IS: 4691/85 (reaffirmed 2004) or the latest amended. The alternator should be suitable to take unbalanced load asper IS: 13364 (Part-2)/1992(reaffirmed 2008) or the latest amended.

The alternator shall comply with the following specifications:

Rating	-	100/125/250KVA (Shall be capable of 10% over loading at the rated speed for one hour of 12 hours continuous running).
Voltage	-	415 V
Speed	-	1500 RPM
Frequency	-	50Hz.
P.F.	-	0.8lag
Enclosure	-	IP:23
Insulation	-	Minimum ‘F’
Excitation	-	Self excited, self regulated with brushless system and static voltage control unit suitably compounded for voltage and current to maintain terminal voltage constant at ± 5% at all load for p.f. not less than 0.8.
Terminal Box-		Cable box suitable for incoming PVC cable size

12.6 Silent Type (Acoustic) Enclosure

The DG Set shall be mounted in a sheet metal fabricated enclosure for reducing the noise level and to serve as weather proof housing. The Generator Set shall be a integral part of acoustic enclosure made of multi-fold sheet channels and ISMC sections. Enclosure shall be modular in construction and provided with doors for meeting service requirements and lockable handles.

The Acoustic enclosure should consist of following:

(a) The enclosure should be fabricated out of CRCA sheet of minimum 1.6 mm thick.
(b) The sheet metal components should be suitably pre-treated and should be powder coated to have long life of enclosure.
(c) The battery should be accommodated in a separate tray in the enclosure.
(d) There should be provision of drain plugs for draining lube oil and diesel.
(e) The doors should be casketed with quality gaskets to avoid leakage of sound.
(f) The door handle should be lockable type.
(g) Soundproofing of enclosures should be done with high quality rock wool /

mineral wool/ foam/ fibre glass wool.

(h) The rock, mineral, fiberglass wool is further covered with fiberglass cloth and perforated powder coated sheet.

(i) A special residential silencer should be provided along with the enclosure to control exhaust noise.

(j) Specially designed louvers should be provided to control sound at air entry to the container and exit from the container.

(k) It should have Type approval certificate and also COP certificate (if applicable) from certification agencies mentioning MOEF notification No.371(E) dated 17.05.2002 or as amended and applicable at the time of supply.

(l) Ambient temperature limit inside the canopy should be specified.

(m) There shall be provision for emergency STOP from outside the enclosure.

(n) Acoustic Enclosure shall conform to pollution noise norms stipulated in notification GSR371(E)dated 17.05.2002, amended up to date.

12.7 AMF Panel

AMF control panel shall be able to start up the DG set and transfer the load to DG set on the Mains failure without requiring any human intervention. Similarly on restoration of the Mains supply it shall be able to transfer the load to Mains supply and switch off the DG Set automatically.

The AMF control panel shall be fabricated from steel sheet of 2.0 mm thickness minimum duly pre treated and aesthetically finished. The control panel shall be totally enclosed, dust and vermin proof, floor mounted type with degree of protection IP-53 as per IS/IEC: 60947(part-1)/2004.

The AMF control panel shall consists of following instruments of which any of the items can be supplied in a combined relay/meter also.

(a) Micro process or based N~Frelay.

(b) AC voltmeter(s) of class 1.5 accuracy, 0-500 volts with selectors witch. Separate voltmeter shall be provided for Mains and Alternator.

(c) AC Ammeter(s) of class 1.5 accuracy and of suitable range, with selector switch.

(d) Mode selector switch for setting the panel on any one position such as off or auto or manual or test.

(e) Engine ON-OFF switch (push button type).

(f) HRC fuses of suitable ratings.

(g) Rectangular Aluminium bus bars (l No. for each phase, neutral and earthing terminal) of adequate rating duly colour coded with head shrinkable PVC sleeves.

(h) Two nos. power contactor (one for Mains and one for generator) up to 360 KVA & EDO breaker for DG sets above 360 KVA, ACB will be complete with O/L, U/V release, short circuit protection.

(i) Under voltage relay for mains.

(j) Three attempt engine start/ engine cranking relay.

(k) On delay timer for load changeover.

(l) On delay timer for engine shutoff.

(m) Pilot lamps three nos. in case of three phase DG sets.

(n) Battery charger complete with voltage regulator, float or booster selector switch, ON-OFF switch, Voltmeter and Ammeter for charging the battery from Mains.

This will be in addition to the battery charging alternator fitted on the engine.

(0) Instruments and control fuses 06 (Six) nos. power fuses of suitable rating.

(p) Five nos. indicating lamps to indicate Mains Low Voltage, Load On Mains, DG Set running, Load on set and Battery charger ON.

(q) Audio Visual alarm for Low Lubricating Oil Pressure, High water temperature, Start failure and DGO/L.

(r) Over current relay protection.

12.7.1 General

12.7.1.1 The AMF panel shall be sheet steel enclosed and shall be dust, weather and vermin proof providing a degree of protection of IP-53. Sheet steel used shall be cold rolled and at least 2.0mm thick and properly braced and stiffened.

12.7.1.2 AMF panel shall be provided with hidden hinged door(s) with pad locking arrangement and suitable brackets /channels shall be provided for floor mounting.

12.7.1.3 All doors, removable covers and plates shall be gasketed all around with neoprene gaskets. All accessible live connections shall be shrouded, and it shall be possible to change individual switches, fuses, MCCB Switch out danger of contact with live metal.

12.7.1.4 All live parts shall be provided with at least phase to phase and phase to earth clearances in air of 32 mm and 26 mm respectively.

12.7.1.5 Adequate interior cabling space and suitable removable cable gland plate shall be provided. Necessary number of cable glands shall be supplied and fitted on to this gland plate. Cable glands shall be screwed on type and made of brass.

12.7.1.6 Two number of earthing terminals shall be provided.

12.7.1.7 All sheet steel work shall be degreased, pickled, and powder coated.

12.8 Tests

12.8.1 Supplier/ Manufacturer shall provide the testing facilities for the following tests in their works at the time of inspection to authorized Inspecting Engineer.

(1) The testing of diesel generating sets of all ratings hall be done with a load of 0.8pf lag.

(2) The sample size shall be 100% of the offered quantity of DG sets for conducting acceptance tests.

(3) The facility for checking of alignment of DG set before subjecting to load test for which tolerance is 0.01 mm in case of flexible coupled DG set and not applicable for direct coupled.

(4) Voltage regulation test at 0.8pf lag.

(5) Full load test for 4 hours at rated KW at 0.8 pf lag.

(6) After 4 hours full load test, 10% overload test shall be conducted for one hour at 0.8 pf lag. DG set should be capable of running at full-load test for one hour, after the

overload test. The parameters should meet the requirements at full load, conducted after the over-load test.

(7) High voltage test at 1.6KV for one minute after the load test.

(8) Insulation resistance test.

(9) Checking for the trouble free starting and oil leakage.

(10) High voltage and insulation resistance tests should be conducted on alternator as well as control panel after the load test.

(11) The control panel will be checked for functional requirements and completeness as per specification.

(12) Vibration test: Vibration below AVM's should not exceed 100 microns.

12.8.2 Supplier/ Manufacturer shall also provide following documents to authorized Inspecting Engineer at the time of inspection.

(1) DG Sets manufacturers shall furnish invoices and OEM's test certificates for turbocharged engine/alternators used, at the time of inspection from the original manufacturer. The Invoice should have been billed directly to DG sets manufacturer. Original will be shown to the visiting inspector for verification during inspection.

(2) Valid Calibration certificates of all the testing meters from any Govt. Lab.

(3) Complete & satisfactory Type test certificate (TTC) for turbocharged engines, alternators complete with enclosure to be used by them for EACH rating of DG sets clearly identifying make, model and ratings of the DG sets tested to the concerned authorized Inspecting Engineer at the time of pre dispatch inspection. The TTC of three phase alternators shall cover unbalanced load test as per cl.24 of IS: 13364 (part 2)/1992 (reaffirmed 2008) as applicable or the latest amended. The TTC shall be from any Govt. Lab. Type testing witnessed by the representative of concerned DQA at the firm's premises shall also be acceptable.

(4) Type approval certificate for "emission norms" certification agency as per notification No. GSR371(E) dated 17.05.2002 or the latest amended for engine from date.

(5) Type approval certificate of DG set for "noise norms" with turbo engine model combination from certification agency.

(6) Type test certificate from any Govt Lab for IP-53 degree of protection for manual as well as AMF panel

(7) Routine Test certificate of engine, alternator and control panel under supply.

(8) DG Sets should be self –contained units supplied with the acoustic enclosure. Therefore, supplier shall have to furnish the foundation details along with the DG Set to facilitate the process of installation & erection of DG set.

(9) While dispatching the DG Sets to the consignee, the supplier shall issue letters to respected Engine /alternator manufacturer whose engine /alternator have been used in their DG Set supplied, informing them about the consignee's details including

Name, Location so as to take care of the maintenance requirement in future at consignee's end.

Simultaneously, Consignees will also be informed about the above details of service centre i.e., Name, mailing address, e-mail address, telephone Nos. and name of the contact person etc. of the turbo engine/alternator manufacturer who may be contacted for obtaining the service support & due maintenance. This requirement is in addition to the contractual obligation of the DG Set suppliers.

12.8.3 Supplier/ Manufacturer shall confirm that DG set shall meet the requirements of Environmental (Protection) rules1986 as laid down by Ministry of Environment and Forest read with GSR 371(E) dated 17.05.2002, GSR 520(E)dated 01.07.2003 and GSR448(E) dated 12.07.2004, vide GSR 804(E.) dated 3-Nov-2022 in respect of emission norms for engine & noise norms for DG Sets. The latest amendments to above GSRs shall be applicable.

12.8.4 DG set shall also meet all the other statutory requirements as notified by the Government from time to time. Tenderers shall give complete details in this regard for each item quoted.

12.9 Erection, Testing, Commissioning and Performance & Guarantee Tests/ Procedure at Site

The responsibility for installing and commissioning of DG sets shall be that of the Supplier/ Manufacturer/ Contactor.

The scope of installation and commissioning shall be as follows:

1. Foundation:

Foundation shall be of PCC type with the ratio of 4:2:1. The length and breadth of the foundation shall be 300 mm more from the respective length and breadth of the DG set. The height of the foundation shall be 400 mm i.e. 200 mm below and 200 mm above the ground level.

2. Cable:

Armoured PVC sheathed Aluminium cable and its necessary laying and termination shall be done by firm. For 3-phase DG sets, 4 core or higher core cables shall be used. The current rating of the cables shall be as per table attached. Total length of the cable shall be within 20 meters for DG sets with manual control panel and within 40 meters for DG sets with AMF control panel.

3. Earthing:

Building suitable earthing station and necessary connections shall be done by firm. In case of 3phase DG sets, the total number of earthing pits/stations shall be 4 i.e. 2 for neutral and 2 for body-earthing. In case of single phase DG sets, the total number of earthing station shall be 2 and it shall be used for body-earthing. The consignee should choose installation site in such a way that the earthing stations can be made within 20 meters of the DG set. Earthing station shall be typically built as per prevalent standard practices.

4. Installation of Fuel tank, battery charging, and battery connection.
5. Supply and installation of a change-over of suitable rating for DG set with AMF control panel.
6. Unloading and placement of DG set on foundation.
7. First fill of lube oil and all filters shall be provided by the firm. The firm shall also provide 50 litres of Diesel for DG sets of rating upto 125 KVA
8. The consumable provided by the firm cover the trial run of DG set as well. The firm shall conduct trial run of the DG set with the available electrical load at site. The trial run shall be for ONE hour. The available electrical load shall be less than or equal to the rated capacity of the DG set.
9. Exhaust piping, extra civil work, distribution board shall be provided by the consignee/ user.
10. Note: Necessary approvals, if any, shall be obtained by the consignees and the cost of obtaining is included in the item
11. Firm shall declare SFC
12. Commissioning checks and test recommended by the manufacturer shall be conducted by contractor at site at his own cost.

13.0 List of Approved Manufacturers/ Accepted Brands of Major Equipment/ Fitting/ Accessories/ Cables/ Luminaries

Sr. No.	Description of Item	Manufacturer's Name
1	Drinking Water cooler	BlueStar, Voltas, Fedders Llyods, Usha (Shriram), Eureka Forbes(Aqua guard)
2	Luminaries & Lamps	Bajaj, Crompton Greaves, Philips, Havells, Jaquar, Surya, Wattera
3	Cables - Copper/AL XLPE insulated (HT/LT)	Fort Gloster, KEI, Polycab, TORRENT, Havells, RPG, Universal, Finolex, Kenter, Ravin, Rotoplast.
4	ACB/MCCB/MCB/RCBO /ELCB/ATS	L&T, Siemens, Legrand, GE, CGL, HAVELLS, ABB, Goldmedal.
5	PVC Pipes	Voles, Ashoka, Precision or Modi, Falcon, Astral, Anchor.
6	GI Pipes	Tata, Zenith, Jindal, Prakash, BEC, VIMCO.
7	FRP Cable Looping Boxes	Sintex, Ercon, Bravo, Hensel.
8	Air conditioners (Window/ Split type)	Voltas, Carrier, Fedder Lloyds, Samsung, Hitachi, LG, Panasonic, Daikin, Mitsubishi, Ogeneral.
9	CT, PT, Voltmeter, Ammeter, Energy Meter	Automatic Electric, CGL, L&T, MECO, IMP, Jaipur Meter, Motwani, Ruttonsha, Hitachi, Havells, Nippen, Megger, Secure.

Sr. No.	Description of Item	Manufacturer's Name
	(Flush mounting type)	
10.	Electronic Energy meter	L&T,MECO, Siemens, Jaipur Meter, Enercon, Schneider, ABB, Secure, HPL
11.	Water Heater/Geyser	Venus, Bajaj, Sphere hot, Recold, Almonard, Crompton Greaves, USHA.
12.	Copper/AL Cable – PVC/ZHFR insulated	CCI, Fort Gloster, Indian Cables ,NICCO, Finolex, Polycab, Universal, TORRENT, Havell's, Standard, KEI, Kenter.
13.	Fuses/HRC fuses and fuse holder	Siemens, L&T, GE Power Control, ABB,CGL, Havells, Indoasian.
14.	TPN Switches complete with HRC fuse(FSU)	Siemens, L&T, GE Power Control, ABB, BCH, CGL, Havells, Legrand
15.	Ceiling fan/ Bracket fan/ Exhaust fans /Air Circulator /Padestal Fan	Bajaj, CGL, Orient, Havell's, Anchor, Almonard, Polycab, Atomberg
16.	Ceiling fan 5step two module electronic regulator	Rider, Anchor, Philips, Leader, Havells, Usha Legrand, Roma, Indoasian (Elvira), Elleys (Hi-Fi).
17.	H.T. Panel	Alsthom, Siemens, ABB, Schnieder Electric, CGL, Kirloskar, Tricolite, Legrand, Hindustan Electrics
18.	Distribution Boards	Anchor, ABB, Tricolite, Havell's, L&T, Legrand, Hensel.
19.	Heat shrinkable end terminations, Straight through joints	Raychem, RPG, XICON brand of CCI(REPL), M-Seal of Mahindra Engg. & Chem,3M
20.	PVC conduit and other accessories	Precision, Modi Gold, Hensel, Anchor, BEC.
21.	Cable sockets(Lugs)	Dowells, Jainson, Mho,Universal, Comet.
22.	Brass Glands	Siemens, Comet, Dowel.
23.	Modular switch, DP Switch, universal plug socket with safety shutter, 3pin/5 pin of 6 Amps / 16 Amps fuse cutout, ceiling rose, holders –flush mounting/ Modular type, Piano switch made out of non-ignitable moulded insulating material	Precision, Anchor, Roma, Legrand, L&T, Polycab, Indoasian (Elvira), Elleys (Hi-Fi), Kolors, Gold metal, Almanac.
24.	Modular Socket with MCB	Roma, Anchor, Legrand, L&T, Kolors, Anchor, Almanac, Gold metal.
25.	PVC Casing and Caping	Presto Plast, Asian, Precision, Modi, Volex
26.	Power& distribution Transformers	BHEL, ABB, GEC, Siemens, CGL, Kirloskar, Tesla, Ames Impex Electricals Pvt, Kotsons, RDSO approved make.

Sr. No.	Description of Item	Manufacturer's Name
27.	Pump Motor set	Kirloskar Brothers, CGL ,Siemens, KSB pumps, Mother& Platt
28.	Motor Starter	L&T, Kirloskar, Havells, GE, Siemens, CGL, BCH, Havells, Legrand
29.	High Mast	Bajaj, Philips, CGL, Valmont, Surya Trans rail.
30.	Maintenance free/ Standard Lead Acid Batteries	Amar Raja, Exide, Panasonic ,Hitachi, Enertech, RDSO approved make.
31.	UPS	Su-Kam, Emerson(Siemens), Numeric Power System Ltd., Luminous Power Technologies Pvt. Ltd., RDSO approved make
32.	Flex / Venyl/ Poly carbonate solid sheets for Glow Sign Boards	3M,Bayer,Tilara,Metamark,Avery
33.	Auto/Manual changeover Switch	L&T, Havells, GEC, Indo Asian, Siemens, KayCee, Seton, Switchon
34.	(a) DG Engine	Cummins, Cater pillar, Greaves cotton, Crompton, Perkins, Tata, Mahindra.
	(b)Alternator	Crompton, KEC, KEL, Stamford, Mahindra
	(C)Batteries	Exide, Tata Green, Amron, Amco ,Tudor, Cummins-Pulse lite, Prestolite and Standard Furukuwa
35.	Solar Panel Unit	Tata Power, Su-Kam, Waaree.
36.	Make of LED	Nichia, Philips, Lumi leds, Avago, Seoul Semiconductor, Osram ,CREE, Bridgelux(U.S.A)
37.	GI Cable Trays	Omkar Gratings, Sharda Gratings, Elcon Cable trays, Bravo Cable Trays, Sankalp Engg (P) ltd.
38.	Bus Duct	C& S, Legrand, EAE Electric, Ajmera Electro tech LLP.
39.	Maintenance Free Earth	JMV, Dehn, True Power Ltd, Erico, Signet Engineers.
40.	LED Glow Sign Boards	Signage & Graphics, Prolite, Penaflex,LG,3M, Illumination.

NOTE:-

a. Above brands are for guidance only and the Employer reserves the rights to select any other equivalent brand. The tenderer shall submit the details of documents for supply of material/equipment to public mass transport authority/ public authority/CPWD in last five years and have proven performance certificate.

b. The specifications indicated are minimum requirement only. The contractor should supply, erect and commission the Equipment/ system according to latest editions of IEC and IS Standards.

c. Bill of quantity, tender drawings and specification are complimentary to each

other. However, in case of conflict, the order in which they will be interpreted is Bill of quantity, tender drawings and Specification.

***

Sample Bill of Quantities[2]

(Local Currency ₹)

This BOQ given under is for reference purpose and for complete description of items. Do not quote rates in this BOQ. **Rates shall be quoted in excel file with Tender online.** As there is limitation for number words in one cell of excel, complete description is not given in excel file.

BOQ items should be read in conjunction with explanatory notes in "work Requirement". Bill of quantity, tender drawings and specification are complimentary to each other. However, in case of conflict, the order in which they will be interpreted is Bill of quantity, tender drawings and Specification

The amount in words is automatically populated by the e-procurement system, where the e-procurement system supports such functionality; and

The total amount is automatically calculated by the e-procurement system, from unit rates and quantities, where the e-procurement system supports such functionality.

Rates of item to be quoted shall be exclusive of GST (Goods and Services Tax).

Item Rate BOQ

Tender Inviting Authority: MUMBAI RAILWAY VIKAS CORPORATION LTD.

Name of Work:

"Balance General service Electrical works in connection with construction of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor"

RFT No: - MRVC/W/EL/GS/PNVL-KJT/Balance works.

NOTE :

A. Tenderers are advised to go through the explanatory notes enclosed in this Tender before quoting the rates in this schedule.

B. All rates offered by the Tenderers shall be exclusive of GST (Goods & Services Tax). Comparative statement generated by web site after opening of price Tender online will have totals as under :-

1. Total without Tax

As rates are exclusive of GST, figures in both columns will be same. Please note that both totals will be considered as Total without GST.

C. Rates to be quoted in Excel sheet only.

Balance General service Electrical works in connection with construction of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor. RFT No:- MRVC/W/EL/GS/PNVL-KJT/Balance works.

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
1	Supplying all materials including wires, multiple loading/ unloading, storing, handling, fixing, laying, wiring and testing of One light, ceiling/ exhaust/ bracket fan/call bell point controlled by one 6 A modular flush type switch in PVC conduit / flexible conduit with joints bends etc. and run from switch board to light/ fan/ exhaust fan/bracket fan etc. including all material required for fixing arrangement on Angular/vertical holder/PVC blocks/clamps in concealed/conduit/capping casing starting from the switch board to the point terminated in ceiling rose with earth connection as detailed below, flush type MS Boxes of required modules, electronic fan regulator/ bell (Supply cost of fan regulator/ bell is not covered in this item but erection & commissioning on switch board is included), together with wiring accessories such as 6A modular flush type switches in manufacturer's boxes of suitable sizes with wrap around front plates, modular doorbell push button near entrance in separate flash type MS boxes including circuit wiring with 2 x 2.5 sq.mm 1100 volts grade PVC insulated unsheathed multi strand copper conductor single core flame retardant (FRLS) class 2 wire along with one run of 2.5 sq.mm PVC insulated (green colour) stranded FRLS class 2 earth wire complete as per IS: 694/ IS 3043 with latest amended with earthing of fixtures, sockets, ceiling roses and boxes PVC bushes for conduits ends, screws, complete in all respects as per standard specifications. The phase & Neutral wires may be terminated in a ceiling rose near the location of fan/ fitting.				
1.1	Supply	1500.00	Nos.		

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
2	Supplying all materials, multiple loading/ unloading, storing, handling, laying, testing & commissioning and wiring for 250 volts single phase and neutral 16 amps switch & universal socket outlet with 2x4 + 1x2.5 sq.mm. 1100 volts PVC insulated unsheathed multi strand copper conductor single core flame retardant (FRLS) class 2 wire as per IS: 694/ IS 3043 with latest amended with latest amendment from distribution boards, in concealed heavy duty PVC conduit, conduit accessories including providing and fixing of 6/16 amps switch & universal sockets with safety shutter of modular type (with manufacturer MS boxes & wrap around front plates) of approved make and design & earthing the third pin of the socket outlet with 2.5 Sq.mm PVC insulated copper stranded conductor FRLS wire (one socket outlet shall be connected with one circuit from MCB DB). The cost of wiring other switch boards and outdoor lights from DB will be paid under this item on flat rate basis. Looping amongst switch Board will not be paid separately. (Supply, Erection & Commissioning)		.		
2.1	Supply	300.00	Nos.		

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
3	Supply of all material, multiple loading/ unloading, storing, handling, installation, testing & commissioning of following sizes bus duct trucking system with minimum 2 nos. Center / end feed unit and after that 1 no. Center/ end feed as per site requirement for every 100 meter or part there off with ELCB, straight lengths 3 mtrs with 3 outlets (One outlet per meter), end covers, 16A tap off box, Plug in boxes, 10A DP selection plugs suitable with glass fuse (10% extra glass fuses), 1 no. flexible bends/joint as per site requirement for every 50 meters or part there off, connectors, ceiling bracket holder, suspension clamp, nut, bolts, flexible lead wires, all bracket, suspension hook, snap clamp etc. All suspension accessories shall be either Galvanized or powder coated. The cost shall also include manufacturers extended warranty for 3 years after warranty of 2 years for replacing part against any defects.				
3.1	Supply of 40A (4+2) conductors, 3ph, 4 wire	2950.00	Mtrs.		
3.2	Supply of 25A (3+1) conductors, 3ph, 4 wire	4010.00	Mtrs.		
4	Supply of all material, multiple loading/ unloading, storing, storing, handling, Wiring, installation, testing & commissioning from Junction box/ Plug in Box/ Tap of box of bus trunking system to Light/Fan points with 2x2.5+1x2.5 sq.mm 1100 grade PVC insulated unsheathed multi strand copper conductor single core flame retardant (FRLS) Class 2 wire as per IS: 694/ IS 3043 on surface/ PVC conduit / flexible conduit with joints bends as required to complete the wiring including all material required for fixing arrangement. (Supply, Erection & Commissioning)				
4.1	Supply	1800.00	Nos.		

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
5	Supplying, multiple loading/ unloading, storing of following sizes ISI marked FRLS aluminium conductor, cross linked, HR PVC Inner sheath Extruded polyethylene. XLPE insulated. HR PVC outer sheathed, armoured with galvanised round steel wire/steel strip, suitable for rated voltage 1.1 kV grade with thermoplastic inner sheath and confirming to IS 7098 (Part I) 1988 with latest amendment of following sizes:				
5.1	4 core 300 sq. mm. Al. Cable (Supply)	500.00	Mtrs.		
6	Laying of 160mm OD PE-80 PN-6 HDPE pipe in all type of soil including hard rock by micro tunnelling for lying underground cable across track below 3Mtrs from the ground level. (Supply, Erection & Commissioning)				
6.1	Erection	700.00	Mtrs		
7	Extra for Supply, multiple loading/ unloading, storing. placing, fixing and laying of following sizes RCC NP-4 class concrete pipe as per IS: 458 with latest amendment under roads, pathway, tracks (With or without power block) etc. and collar jointed with cement mortar (Two Half round, if provided, will be considered as one full pipe) as per site requirement				
7.1	100/150 mm diameter 2.0 m (Supply, Erection & Commissioning)	900.00	Nos.		
8	Supply, placing and grouting of cable route markers at 30 M spacing, at bends, ends and joints (Supply, Erection & Commissioning)	100.00	Nos.		
9	Supply erection testing and commissioning of copper pipe size 1 1/8 &7/8 of 16 SWG gauge				
9.1	a) Supply	350.00	Mtrs.		

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
10	Supply of High Ambient & High Sensible Cooling unit (2+2TR, 1 PH) Variable set point, 43 Deg Ambient	10.00	Nos.		
11	Supply, multiple loading/ unloading, storing of 250A 4P MCCB Microprocessor release breaking capacity 50 kA- 2Nos. as incoming, Automatic Changeover Switch: 250A with inbuilt Time delay, primary protection against single phasing, over voltage- 1 No. Busbar: 250A Outgoing: 125A 4P MCCB breaking capacity 36 kA each thermal magnetic release- 5 Nos. 16-63A 4P MCCB breaking capacity 16 kA each thermal magnetic release- 6 Nos, 6A-32A 4P MCB breaking capacity 10 kA - 4 Nos., 6A-32A DP MCB breaking capacity 10 kA - 18 Nos. 32A Power connector and timer for lighting load -8 Nos.				
11.1	a) Supply	3.00	Nos.		
12	Supply, multiple loading/ unloading, storing, installation/ erection, testing & commissioning of various sizes HDGI Channel, Angles, Flats as per power supply utility's Specification. (Channel100x50x6mm=9.2Kgs/m, Channel75x40x6mm=7.1Kgs/m, Angle50x50x6mm=4.1Kgs/m, Flat50x10mm=4.0Kgs/m, Flat50x6mm=2.5Kgs/m, Flat25x3mm=0.6Kgs/m)				
12.1	a)Supply	18.00	MT		
12.2	b)Erection	16.00	MT.		
13	Supply, multiple loading/ unloading, storing, installation/ erection, testing & commissioning of Danger Board 11kV/22 KV/33kV along with fixing arrangement including nuts, check nuts, washers necessary hardware etc., as per power supply utility's Specification. (Erection)				
13.1	a)Supply	32.00	Nos.		
13.2	b)Erection	32.00	Nos.		

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
14	Supply , erection, testing and commissioning of 150 Sq mm single Core PVC Cu. Cable				
14.1	a)Supply	120.00	Mtrs.		
14.2	b)Erection	120.00	Mtrs.		
15	Supply & erection of end termination kit/ brass compression gland & Ring Type Cu. Lugs For 150 Sq mm single Core PVC Cu. Cable of 1.1 kV grade.				
15.1	a) Supply	60.00	Nos.		
15.2	b) Erection & Commissioning	60.00	Nos.		
16	Supply , erection, testing and commissioning of Floor Panel Incomer: 100A 4P MCCB 2 Nos. Outgoing: 63A 4P MCB 3 Nos. & 63 2P MCB 3 Nos.				
16.1	a) Supply	8.00	Set		
16.2	b) Erection & Commissioning	8.00	Set		
17	Supply , erection, testing and commissioning of Emergency Panel Incomer: 200A 4P MCCB 1 No. Outgoing: 100A 4P MCCB 6 Nos. & 250A busbar 1 No.				
17.1	a) Supply	2.00	Set		
17.2	b) Erection & Commissioning	2.00	Set		
18	Supply , erection, testing and commissioning of Main circuit wiring with One line PVC Conduit & 2 x 6.0 sqmm 1100 volts grade PVC insulated unsheathed multi strand copper conductor single core flame retardant (FRLS) wire along with one run of 1 X 6.0 sq.mm PVC insulated (green colour) stranded FRLS earth wire complete				
18.1	a) Supply	4000.00	Mtrs.		

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
18.2	b) Erection	4000.00	Mtrs.		
19	Supply , erection, testing and commissioning of Main circuit wiring with two-line PVC Conduit & 4 x 6.0 sqmm 1100 volts grade PVC insulated unsheathed multi strand copper conductor single core flame retardant (FRLS) wire along with one run of 2X6.0 sq.mm PVC insulated (green colour) stranded FRLS earth wire complete				
19.1	a) Supply	1200.00	Mtrs.		
19.2	b) Erection	1200.00	Mtrs.		
20	Supply , erection, testing and commissioning of Main circuit wiring with two-line PVC Conduit & PVC Conduit & 2 x 10.0 sqmm 1100 volts grade PVC insulated unsheathed multi strand copper conductor single core flame retardant (FRLS) wire along with one run of 1 X 6.0 sq.mm PVC insulated (green colour) stranded FRLS earth wire complete				
20.1	a) Supply	1500.00	Mtrs.		
20.2	b) Erection	1500.00	Mtrs.		
21	Supply , erection, testing and commissioning of Main circuit wiring with two-line PVC Conduit & 4 x 10.0 sqmm 1100 volts grade PVC insulated unsheathed multi strand copper conductor single core flame retardant (FRLS) wire along with one run of 2X6.0 sq.mm PVC insulated (green colour) stranded FRLS earth wire complete				
21.1	a) Supply	600.00	Mtrs.		
21.2	b) Erection	600.00	Mtrs.		

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
22	Supply & Stringing of ACSR DOG conductor, connecting to the 11/22kv overhead line and commissioning of the line.				
22.1	a) Supply	240.00	Mtrs.		
22.2	b) Erection	240.00	Mtrs.		
23	Supply & erection of strain hardware for ACSR DOG/WOLF conductor				
23.1	a) Supply	33.00	Set		
23.2	b) Erection	33.00	Set		
24	Supply, erection of 22kv pin insulator including pin and nut bolt, check nuts, etc.				
24.1	a) Supply	75.00	Set		
24.2	b) Erection	75.00	Set		
25	Supply, erection of 22kv,45KN, disc insulator to from strings for 22/33kv line anchoring.				
25.1	a) Supply	33.00	Set		
25.2	b) Erection	33.00	Set		
26	Supply & erection of 22 KV lightning arrestor				
26.1	a) Supply	24.00	Nos.		
26.2	b) Erection	24.00	Nos.		
27	Supply of material and raising of 11/22kv 300/240 Sq.mm XLPE Cable on H pole structures/mast and erection with fastener and permali cleat of suitable size with bolt and clamping arrangement.				
27.1	a) Supply	112.00	Mtrs.		
27.2	b) Erection	112.00	Mtrs.		
28	Supply & erection of wooden cleats with fasteners				

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
28.1	a) Supply	40.00	Nos.		
28.2	b) Erection & Commissioning	40.00	Nos.		
29	Supply, erection of 22kv 3 phase AB switch 200A capacity along with GOD operating assembly inclusive insulator & flexible jumpers.				
29.1	a) Supply	6.00	Set		
29.2	b) Erection	6.00	Set		
30	Supply & erection of Indoor Touch Proof cable end termination for 22 KV 3core, 95-300 Sq.mm, XLPE cable				
30.1	a) Supply	15.00	Set		
30.2	b) Erection	15.00	Set		
31	Supply, transportation, multiple loading/unloading, storing, installation, testing and commissioning of following capacity Silent Green Diesel Generator Set 3 phase 415 volts 50 cycle per second complete with air cooled turbo charged Diesel Engine, Alternator with AMF panel. The cost shall include all accessories such as fixing clamps, saddles, gland, gland plate, GI nut, bolt, hardware material lugs, washers, clamps, connection to main supply system, rectification/ modification civil work to existing foundation/ Pedestal etc. required for fixing/ installation.				
31.1	250KVA (Supply)	2.00	Nos.		
31.2	125KVA (Supply)	3.00	Nos.		

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
32	Supply, transportation, multiple loading/unloading, storing, installation, testing and commissioning of factory built and assembled three phase following capacity auto changeover power panel for signalling supply in single phase 25kV AC 50Hz traction system, . General arrangement & scheme to be in line with RDSO specification with latest amendments and as approved by Engineer in charge. The cost shall includes all accessories such as fixing clamps, saddles, gland, gland plate, GI nut, bolt, hardware material/painted MS angle, channel/ bracket, lugs, washers, clamps etc. required for fixing/ installation.				
	300A auto changeover power panel (CLS) (Suitable for 50/100 KVA AT)				
32.1	a) Supply	2.00	Nos.		
32.2	b) Erection	2.00	Nos.		
33	Supply, multiple loading/ unloading, storing, installation, testing & commissioning of gearless PMSM motor following HVLS fans with regulator, roof mounting type complete with MS brackets suitable for operation with 230 V, 50 Hz. The location for fixing shall as per direction of site in charge. The cost includes all fixing accessories/guy wires/ turn buckles material/painted MS angle, channel for bracket as per roof design, welding/ GI nut, bolt, hardware required for fixing, including cable/wires from regulator to fan connection, scaffolding for installation etc. for mounting of HVLS fans. Make of HVLS fan shall be got approved before supply. The cost shall also include manufacturers extended warranty for 2 years after warranty of 3 years for replacing part against any defects. HVLS fans size (20 ft.) ceiling Mounted , Diameter 20 feet dia / 5 AERO BLADES/ Speed 68 RPM Variable speed/ Sound <48db / Max power 1.1 KW, 1 Phase 230 V /				

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
	Weight 126 Kg/ intelligent controlled Safety cable for blades & Guy ropes & suitable down rod.				
33.1	a) Supply	30.00	Nos.		
33.2	b) Erection	30.00	Nos.		
34	Supply, multiple loading/ unloading, storing, installation, testing & commissioning of following sizes 1 phase 24" (600mm) BLDC wall Mounted Fan Power-130W RPM-1300 With swing W-11.5kg. With 3Speed control , db-60 filly Metallic , Smoke proof indoor type motor exhaust fan with louver wall mounting type complete				
34.1	Erection	200.00	Nos.		
34.2	b) Erection	200.00	Nos.		
35	Supply, transportation, multiple loading/unloading, storing, installation, testing and commissioning of Decorative Pole With four Arm Bracket 6 Mtrs Long Make Jaquar/Bajaj				
35.1	a) Supply	72.00	Nos.		
35.2	b) Erection	72.00	Nos.		
36	Supply, transportation, multiple loading/unloading, storing, installation, testing and commissioning of Decorative LED Light Fitting 150W Make Jaquar/Bajaj				
36.1	a) Supply	588.00	Nos.		
36.2	b) Erection	588.00	Nos.		
37	Supply, transportation, multiple loading/unloading, storing, installation, testing and commissioning of Singler Arm Bracket on wall for LED Light Fitting 150W Make Jaquar/Bajaj				

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
37.1	a) Supply	300.00	Nos.		
37.2	b) Erection	300.00	Nos.		
38	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of Fibre/PVC /MS junction box (cable pulling Box 250 MM x 300 mm x 60mm)				
38.1	a) Supply	90.00	Nos.		
38.2	b) Erection	90.00	Nos.		
39	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning on Water purifier 100 LPH				
39.1	a) Supply	4.00	Nos.		
39.2	b) Erection	4.00	Nos.		
40	Supply & installation of 25mm Thickness Mocrocellular closed cell elastomeric Nitrile Rubber insulation (under deck insulation)				
40.1	a) Supply	10000.00	Sq.Ft		
40.2	b) Erection	10000.00	Sq.Ft		
41	Supply installation, testing and commissioning of Controller/Timer				
41.1	a) Supply	35.00	Nos.		
41.2	b) Erection	35.00	Nos.		
42	Supply, transportation, multiple loading/unloading, storing & Erection of 5 HP Vacuum pump				
42.1	a) Supply	4.00	Nos.		
42.2	b) Erection	4.00	Nos.		
43	Breaking of foundation up to 200mm below track formation				
43.1	Erection	160.00	Cum		

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
44	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of condensing unit of 22 HP VRF the system shall comprise of Outdoor units with Air- cooled condenser suitable for operation at ambient temperature up to 56 deg. centigrade delivering rated capacity at 43 deg without duration, complete with compressor, condenser, condenser fan as per Railway's requirement. (supply & Erection)				
44.1	a) Supply	2.00	Nos.		
44.2	b) Erection	2.00	Nos.		
45	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of floor/Ceiling mounted type Air High Static Type Air Handling unit having sheet metal sectionalized cabinet type having inner skin 24(0.6mm) gauge plain sheet and outer skin 24(0.6mm) gauge thick preprinted sheet. AHU double skin 25mm thick construction fabricated from Aluminium extruded section frame structure. Prefilter Section with flange type washable Prefilter of 10-micron EU4 grade. DX type cooling coil section with 4/6 row deep DX coil. Drain pans in SS 304, Blower section with DIDW type blower with suitable static pressure. Limit Switch & arine light in fan section. complete unit shall be suitable for tonnage of (CFM as per design and Temp & RH to be maintain as per ISHTRAE). (d) 6800 CFM AHU/12TR.				
45.1	a) Supply	2.00	Nos.		
45.2	b) Erection	2.00	Nos.		

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
46	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of 1.9 ton capacity inverter Split AC, with Minimum Energy Efficiency Ratio 4.5 inverter technology split air Conditioner of approved make with Copper Coiling, including connecting Copper piping with insulation & insulated drain piping, & 2.5sq.mm x 3 core copper cable for indoor to outdoor & supply cable. The cost also included required length of connecting copper pipe , drainpipe 3 core copper cable and outdoor condenser 'L' type stand/ painted bracket/cage if required as per site condition with all accessories/ GI nut, bolt, hardware, material required for fixing, HD PVC/ Flexible pipe etc. The cost shall also include manufacturer's warranty of 2 years for replacing part against any defects.				
46.1	a) Supply	41.00	Nos.		
46.2	b) Erection & Commissioning	41.00	Nos.		
47	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of LINEAR PIXEL FLEX TOP BEND 14W/MTR RGBW(W=3000K) 16X16MM IP67 10MTR DC24V DMX512				
47.1	a) Supply	154.00	Roll		
47.2	b) Erection & Commissioning	154.00	Roll		
48	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of ALUMINIUM ANODIZED RIGID PROFILE W16XH17				
48.1	a) Supply	1540.00	Mtr.		
48.2	b) Erection & Commissioning	1540.00	Mtr.		
49	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of 200W MEAN WELL POWER SUPPLY				

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
49.1	a) Supply	160.00	Nos.		
49.2	b) Erection & Commissioning	160.00	Nos.		
50	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of Spot light 15W with hood , CCT 3000K , CRI >80 , SDCM <5 , Efficacy : >80 lm/W , IP 66 , IK06 , Beam angle - 12deg , AC 220V , Control : On off FLORENTINA PROJECTOR SPOT ROUND 15W AC 830 12DEG. IP66 ON-OFF WITH HOOD				
50.1	a) Supply	24.00	Mtr.		
50.2	b) Erection & Commissioning	24.00	Mtr.		
51	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of Interconnection cable 3 pin 1Mtr/ starter cable				
51.1	a) Supply	24.00	Nos.		
51.2	b) Erection & Commissioning	24.00	Nos.		
52	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of Main Controller				
52.1	a) Supply	2.00	Nos.		
52.2	b) Erection & Commissioning	2.00	Nos.		
53	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of 8 Port Sub controller				
53.1	a) Supply	12.00	Nos.		
53.2	b) Erection & Commissioning	12.00	Nos.		
54	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of 4 channel DMX Splitter				

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
54.1	a) Supply	12.00	Nos.		
54.2	b) Erection & Commissioning	12.00	Nos.		
55	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of XLR connector (M)				
55.1	a) Supply	48.00	Nos.		
55.2	b) Erection & Commissioning	48.00	Nos.		
56	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of XLR connector (F)				
56.1	a) Supply	12.00	Nos.		
56.2	b) Erection & Commissioning	12.00	Nos.		
57	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of Programming Charges				
57.1	a) Supply	2.00	job.		
58	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of 4C × 4 SQ.MM copper flexible cable				
58.1	a) Supply	800.00	Mtrs.		
58.2	a) Erection	800.00	Mtrs.		
59	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of 3C×2.5 SQ.MM copper flexible cable		.		
59.1	a) Supply	1400.00	Mtrs.		
59.2	b) Erection	1400.00	Mtrs.		
60	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of 2C×2.5 SQ.MM copper flexible cable				

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
60.1	a) Supply	900.00	Mtrs.		
60.2	b) Erection	900.00	Mtrs.		
61	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of Belden 9842 DMX cable				
61.1	a) Supply	1400.00	Mtrs		
61.2	b) Erection	1400.00	Mtrs		
62	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of 25 mm PVC conduit with accessories				
62.1	a) Supply	4000.00	Mtrs		
62.2	b) Erection	4000.00	Mtrs		
63	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of 25mm /32 mm flexible pipe				
63.1	a) Supply	200.00	Mtrs		
63.2	b) Erection	200.00	Mtrs		
64	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of Distribution Box with terminals suitable for 3 phase supply and with all accessories etc.				
64.1	a) Supply	12.00	Nos.		

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
64.2	b) Erection	12.00	Nos.		
65	Design, Supply, Installation, Testing & Commissioning of Facade Panel shall be made out of CRCA sheet steel outdoor type, floor mounted, free standing, totally enclosed, extensible type, air insulated type for use on 415 Volts, 3 phase				
65.1	a) Supply	2.00	Nos.		
65.2	b) Erection	2.00	Nos.		
66	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of Weather-proof junction boxes with accessories for components like MCB ,din rail ,connectors, drivers, decoders, splitters etc.				
66.1	a) Supply	80.00	Nos.		
66.2	b) Erection	80.00	Nos.		
67	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of 1C×4sq.mm Earthing wire with all required accessories				
67.1	a) Supply	800.00	Mtrs.		
67.2	b) Erection	800.00	Mtrs.		
68	Supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of Protective cage for spotlights				
68.1	a) Supply	24.00	Nos.		

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
68.2	b) Erection	24.00	Nos.		
69	Provision of Gandola/Man lifter				
69.1	a) Erection & Commissioning	2.00	job.		
70	Supply, erection, testing and commissioning of 200 Watts LED Highboy light luminaries complete with fixing arrangements.				
70.1	a) Supply	450.00	Nos.		
70.2	b) Erection & Commissioning	450.00	Nos.		
71	Design, manufacture, Supply, Erection & Installation of wall/ hanging/ floor mounting/ pole mounting type LED illuminated sign/direction boards in Openable full parabolic (E3 & E5), Openable half parabolic (E4), full elliptical (E1), half elliptical (E2), four sided elliptical (E6) shape as per specific station requirement (as per "Signages at CSMT & "Guidelines on Standard Signages at Stations on Indian Railways, 2023 or latest"). The LED glow sign beard shall have uniform illumination with 4-6 W/ sq. ft and with brightness more than ambient light, average 1400 lux on white display sheet surface. The text / graphics matter visibility shall be 360° for Four-Sided Cubical Elliptical & not less than 160° for other types. The frame structure shall be anodised extruded aluminium profiles. Hollow aluminium anodised extruded extendable heat sink having 3 internal fins per side and dovetailed flat corners, with LED ribbon lights, shall be centrally push fitted on moulded nylon brackets designed to hold it at 0° and 45° orientations, to emit light in 360° with multiple reflection. The display sheet shall be high impact resistant Optical Bright Opal White UV protected polycarbonate sheet of 1.8mm to 3mm thickness with 40% -60% translucency. The approved colour text/graphics matter shall be printed/plotter cut on translucent polymeric calendared vinyl of 80-micron thickness and shall be firmly pasted on display sheets. The signage shall have the integral adjustable mounting arrangements with sturdy structural frame. ACP cover on the back side for half parabolic and half elliptical signage. Moulded UV protected polycarbonate end caps of minimum 2 mm wall thickness for size up to 24" and SS 1.2 mm thick end caps for sizes above 24" shall				

Sl. No.	Item Description	Quantity	Units	Unit Rate (Rs)	Total Amount (Rs)
	be provided. Mandatory Signage (Toilets & Drinking Water) shall be manufactured using hidden fitting and equipped with Cue Beam				
71.1	a) Supply	1000.00	sq.ft		
71.2	b) Erection & Commissioning	1000.00	sq.ft		
72	Supply of Digital earth tester stake less and stake measurement meter along with accessories.				
72.1	a) Supply	1.00	Nos.		
73	Supply, erection, testing and commissioning of LT 4-way feeder pillar with 630 A MCCB as incoming and 3 nos. 400 A HRC fuse base with fuse link, etc. complete with base frame, etc.				
73.1	a) Supply	4.00	Nos.		
73.2	b) Erection & Commissioning	4.00	Nos.		
74	Supply, erection, testing and commissioning of 2 stage 10 HP monoblock pump set complete with foundation, base frame, etc.				
74.1	a) Supply	2.00	Set		
74.2	b) Erection & Commissioning	2.00	Set		
75	Supply, erection, testing and commissioning of FASD starter panel board for 10 HP pump set				
75.1	a) Supply	2.00	Nos.		
75.2	b) Erection & Commissioning	2.00	Nos.		
Total in Figures					

Note : Rate to be quoted without GST.

EXPLANATORY NOTES OF ELECTRICAL ITEMS FOR BILL OF QUANTITIES

SCOPE OF WORK:

The specification given below pertains to the entire electrical installation work to be carried out for General Service Electrical Works in connection with construction of Station buildings, service buildings, New Platforms, New FOBs, Staff quarters, Tower wagon shed, OHE Depot, Extension of existing platforms, existing FOBs and dismantling of existing structures at various stations between Panvel (Including) and yet to be constructed Karjat Suburban station (including) on Central Railway. The Detailed scope of this work includes:

1) Supply of cables, transportation to site, temporary storage, laying, cutting, jointing, diversion & commissioning of 33kV/22kV/11kV/ 2.2kV /1.1kV grade cables & transmission lines laid underground / over the ground, crossings, on platform, below the tracks, Foot over Bridge (FOB)/ subways/ skywalks, from the railway supply /MSEDCL / Reliance / BEST / TATA / Local Power supply authorities' source to Traction Substations/ General service Substation/ Electric room and LT panel to various installations.
2) Preparation of existing and proposed HT/LT cable / transmission line route plan, supply, transportation, laying, jointing, testing &commissioning of cables.
3) Electrification of platforms, Decks, FOBs, Pathways, service buildings, circulating area etc.
4) Supply and provision of independent earthing system for transformers, HT/LT panel, Feeder, earth stations etc. as per the provision of relevant latest specification & IE rules.
5) Supply of pumps, suitable starters, panels, provision of earthing for supply of water from Overhead tank / underground tank and connecting to suction and delivery system.
6) Dismantling & shifting of released material to nominated sites/ depots with contractor own labour and transportation.
7) Temporary shifting & modification to existing power supply network, fittings, fans, electrical Equipment etc. infringing civil construction work under the project/contract.
8) Supply, erection, testing and commissioning of transformers, HT/LT panels of latest relevant specification.
9) Temporary lighting arrangement during night for engineering /Electrical working with contractor light fittings and labour.
10) Supplies of materials as per approved brands/ manufacturers indicated in technical specification and are for guidance only. However, employer reserves the rights to select any other equivalent brand. The contractor shall submit the details of documents for supply of material/ equipment to public mass transport authority/ public authority /CPWD in last five years and have proven performance certificate.
11) The cable route for HT/LT cables if available with Railways shall be provided purely as guidance to the tenderer/ contractor. After awarding contract, the contractor has to survey the entire area where the HT/LT cables / transmission lines are to be laid along with client's engineers/ Railway representatives to assess the actual quantum of work, prepare his own constructional drawings/plans and submit the same for approval before the commencement of any work.

EXPLANATORY NOTES–

1. Explanatory notes for various items of work are given below in this chapter.

a) The basic quantities of components and materials required to make up a unit of work for selected items are indicated and for guidance only. In estimating the prices for various items of work, provision for loss and wastage in transit and erection should be provided for over and above the basic quantities of components and materials required to make up a unit of work (Assembly), indicated herein, except where otherwise specified for materials supplied by the Client.

b) In the explanatory notes given in this section, the term "bimetallic connection" is mean to cover any connection between a copper conductor and an Aluminium conductor. The clamps used for such connections shall be made of a suitable Aluminium alloy or copper alloy and the copper / Aluminium conductor shall be wrapped with a bimetallic (Aluminium/copper) strip to prevent direct contact between Aluminium and copper.

Special notes for measurements are included in this section under various items wherever necessary. Reconciliation of released materials shall be as follows:

All the released materials shall be properly recorded under joint signature of Client's & contractor's Engineer. The contractor is responsible for proper handling and safe storing till the final disposal of the released material. The released material shall be disposed of in the contractor's transport and manpower up to the venue of disposal which will be advised in due course. Employer would be advise the nominated place /store for handing over the released material. The location would be within the MMR (Mumbai Metropolitan region) area. The transportation cost and loading / unloading is included in the schedule of quantities.

i) In the case of wires / conductors / cables / transmission lines etc. the prices for erection shall include any assembly work to be done in the Contractor depot prior to erection at site, such as cleats, brackets etc. to the shapes and sizes required. All MS members shall be painted with two coats of red oxide and final coat of enamel paint as per site requirement and final coat of enamel coat at site after erection. The cost of such work, MS member including wastage is deemed to have been included in the scope of schedule item of BOQ until or otherwise specified.

ii) The whole work shall be carried out as per latest RDSO/CORE/CEE/Sr DEE's Central Railway drawings, specifications / Power supply distribution authorities' specification and as per instructions of ENGINEER- IN- CHARGE / Site Supervisor and their decision is final. And all the components given in drawings/ specifications of assembly / sub assembly / fittings / GAD etc. are deemed to have been included in the scope of schedule item of BOQ until or otherwise specified.

iii) An acceptable storage facility for the equipment and materials (Railway Supply & Contractor supply both) of all kinds intended for use in carrying out the works for incorporation into the works shall be made available, if available. The required area for temporary storage will be provided free of cost from Railway, if available and

not binding on employer.

iv) The contractor/ Electrical sub-contractor or his licensed authorized wireman shall be available at all times during the execution of work and shall attend & assist to the client for routine inspection/ construction work and will work on instruction of project engineer.

v) Warranty / Guarantee certificate to be submitted to MRVC before accepting / claiming commissioning amount.

vi) All equipment / item wherever applicable operating manuals to Provided before accepting / claiming commissioning amount.

vii) Supplier challan to be submitted with supply of item with contractor challan.

viii) All material to be inspected before installation.

Item no.1: Wiring and Sub main wiring in conduit / Capping casing

Item no. 1.1: Supplying all materials including wires, multiple loading / unloading, storing, handling, fixing, laying, wiring and testing of one light, ceiling / exhaust / bracket fan /call bell on Angular / vertical holder / PVC blocks / clamps in concealed/ capping casing starting from the switch board to the point terminated in ceiling rose with earth connection as detailed below, flush type MS Boxes of required modules, electronic fan regulator/ bell (Supply cost of fan regulator/ bell is not covered in this item but erection & commissioning on switch board is included), together with wiring accessories such as 6A modular flush type switches in manufacturer's boxes of suitable sizes with wrap around front plates, modular doorbell push button near entrance in separate flash type MS boxes including circuit wiring with 2 x 2.5 sq.mm 1100 volts grade PVC insulated unsheathed multi strand copper conductor single core flame retardant (FRLS) class 2 wire along with one run of 2.5 sq.mm PVC insulated (green colour) stranded FRLS class 2 earth wire complete as per IS: 694/ IS 3043 with latest amended with earthing of fixtures, sockets, ceiling roses and boxes PVC bushes for conduits ends, screws, complete in all respects as per standard specifications. The phase & Neutral wires may be terminated in a ceiling rose near the location of fan/ fitting. The wiring includes the submain wiring of 4 sq.mm. Wiring from DB to 6/16 A universal Socket with safety shutter on separate switch board only will be considered as full point. Additional 6/16 A universal Socket with safety shutter on same switch board shall be considered as half point. Wiring from switch board to light/ fan / exhaust fan/ bracket fan etc. shall be in PVC conduit / flexible conduit with joints bends, capping casing as required to complete the wiring including all material required for fixing arrangement wherever required cost of which is included in this item. The cost also includes making surface as original after inserting pipes in wall / ceiling etc.

Item no. A3: The price shall include the cost of supplying all materials including wires, multiple loading / unloading, storing, handling, laying, testing & commissioning and wiring for 250 volts single phase and neutral 15/16 amps SP switch & 6 pin universal modular socket outlet with 2x4+ 1x2.5 sq.mm. 1100 volts PVC insulated unsheathed multi strand copper conductor single core flame retardant (FRLS) class 2 wire as per IS: 694 with latest amendment from distribution boards, in concealed Precision brand heavy duty uPVC conduit, conduit accessories including providing and fixing of 15/16

amps switch & universal modular sockets with safety shutter (with manufacturer MS boxes & wrap around front plates) of approved make and design & earthing the third pin of the socket outlet 2.5 Sq.mm earth wire (one socket outlet shall be connected with one circuit from MCB DB). The cost of wiring to other switch boards and outdoor lights from DB will be paid under this item on flat rate basis. Looping amongst switch Board will not be paid separately. The cost also includes making surface as original after inserting pipes in wall / ceiling, etc.

Itemno. 3: Bus duct trunking system

The price shall include the Supply of all material, multiple loading / unloading, storing, handling, installation, testing & commissioning of bus duct trunking system of 40A (4+2)/25A (3+1) conductors, 3ph, 4 wire with all required accessories such as minimum 2 nos. Centre / end feed unit and additionally 1 no. Centre/ end feed as per site requirement for every 100 meter or part there off with ELCB bus duct supplied, straight lengths 3 mtrs with 3 outlets (One outlet per meter), end covers, 16A tap off box, Plug in boxes with covers, DP selection plugs suitable for 10A/16A glass fuse (10% extra glass fuses), 1 no. flexible bends / joint as per site requirement for every 50 meters or part there off bus duct supplied for joining two different alignments of busduct trunking, connectors, ceiling bracket holder, suspension clamp, nut, bolts, flexible lead wires, all bracket, suspension hook, snap clamp etc. to complete the installation, the cost of which is included in the item. All suspension accessories shall be either Galvanized, or powder coated required for installation is included in this item. The cost shall also include manufacturers extended warranty for 3 years after warranty of 2 years for replacing part against any defects. These items are required to installed on platform, FOB, staircase, etc.

The cost also includes the installation inspection & certification from OEM before commissioning.

Item no. 4: Wiring from Junction box/ Plug in Box/ Tap of box of bus trunking system to Light / Fanpoints

The price shall include the Supply of all material, multiple loading/unloading, storing, handling, Wiring, installation, testing & commissioning from Junction box/ Plug in Box/Tap of box of bus trunking system to Light/Fan points with 2x2.5 sq.mm PVC insulated unsheathed multi strand copper conductor single core flame retardant (FRLS) class 2 wire as per IS:694 with latest amendment wire plus earth wire of 2.5 sq.mm in surface PVC conduit / flexible conduit with joints bends as required to complete the wiring including all material required for fixing arrangement. The PVC conduit / flexible conduit shall be run aesthetically, and cost of all material required for completing the wiring for fixing arrangement wherever required is included in this item including PVC conduit/ flexible conduit.

Item no. 5: LT Cable Works

Item no. 5.1 : Supply of various sizes of 1.1 kV grade XLPE Aluminium Cables

The price shall include the cost of Supplying, multiple loading/unloading, storing various sizes 1.1 kV grade ISI marked cable cross linked, Inner sheath Extruded polyethylene XLPE insulated, PVC outer sheathed as per IS:5831/1984 or the latest amended (Reaffirmed 2006), armoured with galvanized round steel/ strip as per IS: 8130/1984 or the latest amended (Reaffirmed 2006) with Aluminium cable / conductor suitable for rated voltage at 1.1 kV grade and confirming to IS 7098 (Part -I) 1988 or the latest amended (Reaffirmed 2005) in drums confirming to IS:10418/1982 (reaffirmed2006) with thermoplastic inner sheath. The cable should confirm to latest amended IS specification. The cable shall be manufactured with triple extrusion process with CCV line technology.

The cables shall be tested at each stage like, initially on receipt, jointing and commissioning before burial. The price shall also include all testing stated in the relevant specification, HV testing of cable. After every stage HV testing, the ends of the cable shall be properly sealed with heat shrinkable cap. Arranging equipment for HV testing is the sole responsibility of the contractor and the cost included in the item.

The cost shall also include manufacturer's warranty of 2 years for replacing the cable against any manufacturing defects.

The payment shall be released on submission of Inspection report of inspecting authority as per approved QAP and test reports.

NOTES FOR CABLE LAYING:

1) In Mumbai suburban section, there is a maze of power cables of M/s BEST, M/s RELIANCE, M/s TATA, power supply distribution authorities, Railways own HT/LT and Signalling & Telecommunication Cables network of Central Railway. The underground construction activities are therefore fraught with serious consequences if not carried out with due care. Contractors are, therefore required to carry out the underground excavation work, etc. with utmost care. In case, a cable is hit because of the construction work under this contract, the contractor shall be required to make good / repair at his own cost. All expenses direct / indirect financial implications on account of such failure will be on contractor account.
2) The price also include for track/ road/ platform etc. be restored to the original condition after laying the pipes/cables such as back refilling, ramming, removing and disposal of surplus excavate material out of Railways boundaries. The price shall includes the cost of restoring ballast back to original conditions and disposing off the extra earth /muck or working under power /traffic block during night or day. All surfaces / ballast shall be restored to original.
3) If site condition does not permit excavation of envisaged size of cable trench proportionate payment will be made as per actual excavation as approved by client. However maximum actual payment shall be as per the schedule of quantities even if the sizes of trench are more than specified.
4) Whenever there is crossing of cable under roads / tracks/ culvert etc., cables shall be laid in full/half round RCC/GI pipes through out such length. If cable is supported on wall two half round pipes shall be used. Two half round will be considered as one full

length pipe for the purpose of payment. Every 1m length pipe shall be suitably supported as per size of cable.

5) Cable laid in trenches shall be covered by RCC warming covers.
6) Cost of drilling, supply and erection of GI strip / angle, J hooks, bolts and clamps are included in the cost of erection on flat rate basis wherever required.

Item no. 6: Laying of PE-80 PN-6 HDPE pipe in all type of soil including hard rock by microtunneling

The price shall include the cost of excavation and laying of cable 3 M below formation level for laying HT/LT cable by inserting 160/250 mm PE-80 PN-6 HDPE pipe in all type of soil including the rock, hard soil, platform, concrete, under track (with or without power block), on asphalted road/RCC/Basalt Rock, etc. by micro tunnelling as required for cable laying and described in technical specification. Arrangement of any equipment required for excavation is the responsibility of contractor and cost is included in this item. The Dia and depth of micro tunnelling shall be as per relevant IS or with latest amended/ site conditions for cable laying as per schedule of quantities / or as per direction of site engineer. The price also includes for material required to restored to the original condition track/ road/ platform etc. be after laying the pipes/cables such as back refilling, ramming, removing and disposal of surplus excavate material out of Railways boundaries. The cost of transportation for disposal of excavate material is included in the item. The price shall include the cost of restoring ballast back to original conditions and disposing off the extra earth / muck or working under power /traffic block during night or day. All surfaces / ballast shall be restored to original.

Item no. 7 : RCC NP-4 pipes size 100 / 150 / 200 mm dia. (Each 2.00 Mtr. Long)

The price shall include supply, multiple loading/ unloading , storing, placing, fixing and laying of 100 / 150 / 200 mm diameter 2.0 m long RCC Hume pipe as per latest IS specification with collars jointed with cement mortar and making good the same complete as required. The pipe shall be buried such that top of the pipe shall be 1000 mm below ground level / track formation level. Whenever there is crossing of other cable / roads /tracks/ culvert etc. cables shall be laid in full round RCC pipes through out such length. If cable is supported on wall two half round pipes will be used. Two half round will be considered as one full length pipe for the purpose of payment. Every 2m length pipe shall be suitably supported with two heavy duty clamps / supports GI strip / angle, J hooks, bolts / anchor fastener.

NOTE: Cost of drilling, supply and erection of GI strip/angle, J hooks, bolts GI strip/ angle, J hooks, bolts anchor fastener and heavy duty clamps are included in the cost of erection on flat rate basis wherever required.

After laying of RCC pipe, excavated trench shall be made to the original level similar to the existing road surface. After laying the cables through pipe on the structure, the gap between cables and pipe shall be covered with wooden bushing. The wooden cleats provided on the structure for fixing HT cable shall be painted.

Item no. 8: Cable route markers at 30 M spacing and at bends, ends andjoints.

The price shall include supply, placing and grouting of cast iron cable route markers per approved drawing at 30 M spacing at bends, ends with cement concrete foundation as per direction of engineer-in-charge. The cost of preparing cable marker by the contractor is included in the item.

Item no. 9: Copper pipe:

Supply erection testing and commissioning of copper pipe size 1 1/8 &7/8 of 16 SWG gauge.

Item no. 10: High Ambient & High sensible space maker cooling unit (2+2 TR, 1 PH) Variable set point 43 Deg Ambient

The price shall include cost of Supplying all materials, multiple loading /unloading, storing, handling, installation, testing & commissioning of High Ambient &High sensible space maker cooling unit (2+2 TR , 1 PH) Variable set point 43 Deg Ambient, erection of copper pipe with insulation 5/8 & 3/8 copper pipe 5/8 & 3/8 insulation sliver black, 3 core cable 2.5 Sq. mm copper with flexible cable with normal costing, Erection of 25 mm PVC Drain pipe, fabrication of IDU- ODU Stand with civil work along with commissioning of Kit.

Item no. 11: Panel Boards

The price shall include the cost of Design, fabrication, Supply, multiple loading/ unloading, storing, installation, fixing, testing & commissioning of free standing/ wall mounted on painted stand/ frame Panel/ Distribution Boards/ Feeder Pillar/ Timer Panel having approved RCBO/MCCB/MCB mounted on Din rail, ATS, High conductivity copper Bus bars, Neutral Bus bars rated to carry 100% of phase current, 2 nos. of earth terminals, phase separation barriers as per schedule of quantity. Panel fabricator should be ISO certified or having certificate from CPRI for panel built in their works with all testing facilities as per relevant specification. The Internal wiring shall be with PVC insulated unsheathed multi strand copper conductor single core (FRLS) cable of 1.1 kV grade confirming to IS: 694 or latest amended of not less than 2.5 sq.mm size. The connection shall be made with proper size of pin type crimping sockets, glands and knockouts as per requirements and size of cable used, The cost also includes the supply & fixing of suitable Painted MS stand minimum 1 feet above ground level including foundation/ grouting. Design of panel, material and electrical equipment shall be got approved by consignee before supply. Guaranteed Technical Particulars (GTP) and Quality Assurance Plan (QAP) of approved Panel/ ATS/TPN/Distribution Boards shall be submitted for approval before inspection & bulk supply of materials.

Item no. 12 : HDGI Channel, Angles, Flats

The price shall include the cost of Supply, multiple loading/ unloading, storing, installation / erection, testing & commissioning of various sizes HDGI Channel, Angles, Flats as per power supply utility's Specification. The cost includes the nuts,

check nuts, washers necessary hardware etc., for fixing various electrical equipment, Channel, angles.

Channel 100x50x6mm	9.2Kgs/
Channel 75x40x6mm	7.1Kgs/
Angle 50x50x6mm	4.1Kgs/
Flat 50x10mm	4.0Kgs/
Flat 50x6mm	2.5Kgs/
Flat 25x3mm	0.6Kgs/

Item no. 13: Danger Board

The price shall include the cost of Supply, multiple loading/ unloading, storing, Installation / erection, testing & commissioning of Danger Board 11kV/22 KV/33kV along with fixing arrangement including nuts, check nuts, washers necessary hardware etc., as per power supply utility's Specification. Price shall be inclusive of Sales tax, Excise duty, Freight etc. Boards shall require to be installed on a steel structure/Rail post/wall of a building therefore mode of erection shall be as per requirement of the site. Message to be written on all Boards shall be done in 3 languages Marathi, Hindi, English

Item no. 14: 150 Sq mm single core PVC Cu cable

The price shall cover supply, laying, testing and commissioning of 150 Sq.mm single core PVC insulated, PVC sheathed, stranded copper conductor cable , 1100V grade, conforming to IS 694/IS 1554 complete with glands, lugs and termination.

Item no. 15: Kit/brass compression gland &Ring type Cu. Lugs

The price shall cover supply and fixing of heavy-duty compression brass cable gland and copper ring type cable lug suitable for 1C x 150 Sq. mm PVC insulated copper conductor LT cable, complete with brass -check nut, earth tag, PVC shroud, washers and all accessories required for termination.

Item no. 16: Floor panel

The price shall cover supply, erection and commissioning of floor panel suitable for 415V, 3 phase, 4 wire AC supply complete with copper busbar, internal wiring, earthing and accessories as gland plate, danger notice and powder coated painting.

Item no. 17: Emergency panel

The price shall cover transportation, supply, erection of emergency panel fabricated out of CRCA sheet steel, dust and vermin proof, suitable for 415V, 3 phase, 4 wire , 50 Hz AC supply, complete with copper busbars of suitable capacity, interconnections, gland plate, earthing terminals, danger notice plate, powder coated painting and all standard accessories. The price shall cover the cost of all other accessories required for erection and commissioning of the same.

Item no. 18-21: Wiring for circuit/submain wiring along with earth wire

Wiring for circuit/submain wiring along with earth wire with the following sizes i.e. 2x6 sq.mm + 1x6 sq. mm earth wire, 4x6 sq.mm + 2x6 sq. mm earth wire , 2x10 sq.mm + 1x6 sq. mm earth wire , 4x10 sq.mm + 2x6 sq. mm earth wire of PVC insulated unsheathed multi stranded copper conductor, single core cable flame retardant (FRLS) in surface/recessed medium class PVC conduit as required.

Item no. 22: ACSR DOG conductor connection to overhead line

The price shall cover transportation , supply, stringing and tensioning of ACSR DOG conductor to 11/22 kV overhead line with binding, jointing, jumpering. The price shall cover the cost for erection and commissioning of the same.

Item no. 23: Strain hardware -ACSR DOG/WOLF conductor.

The price shall cover transportation, supply, erection, of strain hardware for ACSR DOG/WOLF conductor, required for shifting/dismantling of 22kV transmission line of MSEB at various location in the section. The required material shall be Railway / MSEB's approved make as per site requirement. The price shall also cover the cost of all other accessories required for erection and commissioning the same.

Item no. 24: 22kV pin insulator

The price shall cover transportation, supply, erection, of 11/22/33kv pin insulator including pin and nut bolt, check nuts, etc.

Item no. 25: 22kV/11kV, 45 KN disc insulator

The price shall cover transportation, supply, erection , of 11/22/33kV, 45 KN, disc insulator to from strings for 11/22/33 kV line anchoring. The insulator shall be as per MSEB's approved make only. The price shall also cover the cost of all other accessories required for erection and commissioning of the same.

Item no. 26: Lightning arrester 22kV

The price shall cover transportation supply, erection of lightning arresters 22kV HT supply with mounting arrangement as per MSEB specification. The required lightning arrester for 22kV HT.

Item no. 27: 11/22kV 300/240 Sq.mm XLPE Cable on H pole structures

The price shall cover transportation, supply of materials and raising of 11/22 kV, 240/300 sq mm XLPE cable on H pole structures/mast and erection anchor fastener & parmali cleat of suitable size with bolt & clamping arrangement. The price shall cover supply of parmali cleat (as required for each cable), their fastener, clamps, nut bolt washer etc, for holding the cable.

Item no. 28: Wooden Parmali wooden cleats as per suitable rating

The price shall cover supply and installation of wooden parmali wooden cleats with fasteners as per suitable rating.

Item no. 29: 22kV 3 phase AB switch 200A

The price shall cover transportation, supply, erection of 22kV 3 phase AB switch 200A capacity along with GOD operating assembly inclusive insulator & flexible jumpers. The price shall also cover the cost of all other accessories required for erection and commissioning the same.

Item no. 30: Indoor Touch Proof Cable

The price shall cover transportation, supply of heat shrinkable indoor touch proof type cable suitable for 11/ 22kV, 3 core, 300 sq mm XLPE insulated power cable, complete with stress control tube, anti-tracking tube, sealing materials. The price shall also cover cost of earthing accessories and all necessary materials required for safe and satisfactory termination suitable for indoor application.

Item no. 31 : Diesel generating set

Item no. 31.1 & 31.2: Silent Green Diesel Generator Set

The price shall include the cost of Supply, multiple loading/unloading erection, testing and commissioning of various capacity (125/250 kVA) as per schedule of quantity Silent Green Diesel Generator Set 3 phase 415 volts 50 cycle per second, 1500 RPM, engine complying with the requirements of IS:13018/1990 (reaffirmed 2005) or the latest amended and IS:10000 series or latest amended, directly coupled to Green AC generator set with 12/24 volt batteries of compatible capacity. The alternator shall be self-excited, self-regulated, brushless, meeting the requirement of IS:13364 (Part2) /1992 (reaffirmed 2008) or the latest amended, 3 phase 415 volts 50 cycle and shall be provided with static excitation unit and AMF (Auto Mains Failure) control panel. Alternator insulation shall withstand tropical conditions and including one day fuel tank. DG set shall be designed to meet Exhaust & Sound emission norms as per latest amendment of MOEF/ CPCB-IV/latest. The price also includes the cost of the Diesel Generator Set to be provided in a soundproof and weatherproof enclosure by the manufacturer. Adequate arrangements shall be made for ventilation including openings for inflow of radiator inlet air and discharge of radiator outlet air so as to avoid any hot pockets around the Engine. The cost shall also include enclosure shall have doors for maintenance with specially designed hinges and servicing and lockable handles.
The brand/ make should be got approved by MRVC Competent authority/ Engineer before supply. The cost shall also include manufacturer's warranty of 2 years for replacing equipment against any manufacturing defects.

Guaranteed Technical Particulars (GTP) and Quality Assurance Plan (QAP) of approved fixture shall be submitted for approval before inspection & bulk supply of material.

The cost also includes pre-commissioning tests as per technical specification carried out before commissioning of DG sets in presence of OEM representative.
The payment shall be released on submission of Inspection report of inspecting authority as per approved QAP and test reports.

Item no. 32: Auto Change Over Panel (300A)

The price shall include the cost of Supply, transportation, multiple loading/unloading, storing, installation, testing and commissioning of three phase various capacity auto changeover power panel for signalling supply in single phase 25kV AC 50Hz traction system, . General arrangement & scheme to be in line with RDSO specification with latest amendments and as approved by Engineer in charge. The cost shall include all accessories such as fixing clamps, saddles, gland, gland plate, GI nut, bolt, hardware material/painted MS angle, channel/ bracket, lugs, washers, clamps etc. required for fixing/ installation. The brand/ make should be got approved by MRVC Competent authority/ Engineer before supply. Guaranteed Technical Particulars (GTP) and Quality Assurance Plan (QAP) of approved fixture shall be submitted for approval before inspection & bulk supply of material. The cost also includes pre-commissioning tests as per technical specification carried out before commissioning of transformers is presence of OEM representative. The payment shall be released on submission of Inspection report of inspecting authority as per approved QAP and test reports.

Item no. 33: HVLS Fan (20 ft)

The price shall cover cost of supply, loading, transportation and unloading to site, erection, testing and commissioning of single phase, 50 Hz, 230 V, gearless HVLS fan complete with structural support, GI channel, clamp, nut bolts, wiring / cabling, suitable capacity of voltage stabilizer, down rod of suitable length & strength etc. complete with all accessories for fixing arrangement as per site requirements. The price shall also cover the cost of supply, erection and termination of 4 core 6 sq. mm copper PVC armored cable from distribution board to HVLS fan. The cost shall also include manufacturers extended warranty for 2 years after warranty of 3 years for replacing part against any defects from the date of commissioning.

Item no. 34: Air circulator (BLDC) wall mounted 24" sweep fan

The price shall cover the cost of supply, loading, transportation and unloading to site, erection, testing and commissioning of heavy duty 3 blade 24 inch sweep BLDC Air circulator with inbuilt oscillation mechanism, copper Wound BLDC motor, air delivery min. 270 mm, speed 1300-1400 rpm (min), with speed regulator, with protection of over voltage, short circuit & blocked blade protection, with vertical tilting adjustment, SS wire guard/fan guard & fixing arrangement to work on 230±10% Volt, wall/pole mounted type with base plate, GI clamps, nut & bolts complete with connection with existing nearby power supply. The fan shall be confirming to IS 2997/1964 or latest. The cost shall also cover the wiring from existing nearby power supply point to air circulators by 1.5 sq.mm flexible cable of 3 core PVC insulated multistrands copper conductor with suitable size flexible PVC conduit and fixing arrangement as per site condition. Each fan should be provided with 10 A DP MCB with metal enclosure for

individual controls. The air circulator fan shall have the warranty for a period of three years. The contractor shall submit original Guarantee certificates of offered fan from Manufacturers. The contractor shall submit test report from Govt Lab/NABL/ILAC as per IS 2997/1964 with latest amendments.

Item no. 35: Decorative pole with four arm brackets

The price shall cover transportation, supply, installation of 6 meters long decorative platform lighting pole made of hot dip galvanised GI tubular confirming to IS 1239 with base plate FE250 confirming to IS 2062 and four arm bracket arrangement suitable for mounting of LED luminaries, complete with foundation bolts, pole cap, junction box, internal wiring, earthing provision, necessary hardware and accessories manufactured for outdoor lighting application.

Item no. 36: Decorative LED light fitting 150W

The price shall cover transportation, supply , installation of decorative LED light fitting of 150W capacity suitable for 230V AC supply, pressure die cast aluminium housing with high efficiency LED module, toughened glass diffuser, IP65 protection, energy efficient driver with surge protection , suitable for mounting on decorative pole/four arm bracket, complete with all fixing accessories, hardware and wiring connections for outdoor lighting applications. These fixtures are to be installed on decorative four arm bracket pole with all necessary accessories such as angular pipe, clamps, nut, bolts and internal wiring of suitable sizes of copper FRLS wire. The cost shall also include manufacturers extended warranty for 3 years after warranty of 2 years for replacing complete assembly/part against any defects.

Item no. 37: Single Arm Bracket on wall for LED light fitting

The price shall cover transportation, supply , installation and fixing of single arm wall mounting bracket suitable for 150W LED light fitting, fabricated from GI pipe with necessary clamps, base plate, nuts, bolts and anti-corrosive paint/hot dip galvanizing, complete with all fixing accessories for outdoor lighting applications.

Item no. 38: Fibre/PVC /MS junction box

The price shall cover transportation, supply and fixing of weather proof junction box made of fibre/PVC/ Mild Steel(MS) construction, suitable for outdoor electrical installations, complete with hinged cover ,gasket, terminal strip, cable entry glands, mounting arrangement, earthing terminal (for MS box) , nuts, bolts and all accessories required for safe termination and cable jointing.

Item no. 39: 100 LPH water purifier

The price shall cover transportation, supply , installation and commissioning of 100 LPH capacity water purifier system having Front body SS304 grade & rest in pre coated steel suitable for purification of drinking water, comprising multi-stage filtration with sediment filter, activated carbon filter, RO membrane, UV/UF purification system, SS/PVC storage tank, booster pump, pressure gauges, flow meter, inlet/outlet piping, valves, fittings and all necessary accessories having two outlet Tap.

The cost shall also include manufacturer's warranty of 1 years for replacing complete assembly/part against any defects

Item no. 40: microcellular closed cell elastomeric Nitrile rubber insulation

The price shall cover transportation, supply , installation and commissioning of 25mm thick microcellular closed cell elastomeric nitrile rubber under deck insulation in sheet form for VRF air conditioning system installed in Railway RRI/Relay Room, having closed cell structure with fire retardant, anti-condensation, thermal and acoustic insulation properties, suitable for maintaining controlled temperature and humidity for signalling equipment ,complete with approved adhesive, vapour barrier sealing, aluminium/GI support framework and all fixing accessories.

Item no 41: Controller/Timer panel

The price shall cover cost of supply, loading, transportation and unloading of material at site, erection, fixing, testing and commissioning of AC controller's timer energy saving device, operated on 230 V 50 Hz AC power supply complete with wall mounting (or as per site condition) metal body enclosure. The AC controller device shall be suitable for controlling of 02 nos. 2.0 TR split / window AC unit with temperature based digital LCD Display, delay time, temperature calibration, low temperature alarm, automatic override, 2 nos. 30 Amps heavy duty relay output for ACs load, Auto / Manual facility, potential free contact for high temperature alarm, temperature sensing range (0°C - 55°C), auto programmable and intelligent microcontroller based technology system as per Railway's requirement. The price shall also cover the cost of cabling / wiring from DB to timer by suitable size of cable as per standard and timer to individual AC unit by 3 core 2.5 sq. mm multistrands copper conductor flexible cable with suitable size of PVC conduit / casing caping and fixing arrangement as per site condition.

Item no. 42: 5HP Vacuum pump

Supply, storing, erection, testing and commissioning of 5 HP vacuum pump set suitable for Railway general service applications, consisting of heavy duty rotary type vacuum pump directly coupled with TEFC squirrel cage induction motor suitable for 415V, 3 phase, 50 Hz AC supply, mounted on rigid fabricated MS base frame with anti-vibration pads, complete with suction and discharge manifolds, isolation valves, non-return valve, flexible connection, vacuum gauge, pressure gauge, oil lubrication arrangement, coupling guard, starter/control panel, cabling, earthing and all accessories required for satisfactory operation.

The pump body shall be of close-grained cast-iron construction with dynamically balanced rotating parts, hardened steel shaft and suitable bearings for continuous duty operation. Motor shall be of high efficiency continuous rating with Class-F insulation and IP55 protection.

The complete installation shall include foundation bolts, grouting, alignment, internal wiring, testing and commissioning, suitable for continuous Railway service conditions and conforming to relevant IS/IEC standards.

Item no. 43: Breaking of foundation

The price shall cover breaking of cement concrete foundations up to 200 mm below track formation for dismantling of steel structures or otherwise and clearing the site as per instruction of consignee.

Item no 44:VRF

Supply , Lifting Shifting, Erection, Installation, Testing and Commissioning of 22 HP Outdoor Units of VRF system with Air-cooled condenser suitable for operation at ambient temperature up to 56°C, high pressure Scroll Compressors with hermetic motor, assembled and wired in a single package complete, starting controls, safety controls, operating controls and with full feature microcomputer based controller with programming/diagnosis facility. One/All Compressors shall be invertor type based on manufacturer's technology. The system should deliver rated capacity at ambient up to 43°C DB.

The price shall cover the cost of Supply, unloading, shifting positioning, erection, testing & commissioning of the above fully factory assembled VRF/VRV Outdoor Unit (ODU) compiling minimum Type –IV Standards. The unit shall be complete with the following specifications: M S stands, Vibration Isolator Rubber Pads, Cowl piece for hot air exhaust if required, necessary pressure testing, flushing, vacuuming, refrigerant/oil charging cost should be included in the rate a) 22 HP outdoor units with modular type having vertical hot air discharge. b) Cooling capacity not less than 211200 BTU/Hr c) Hermetically sealed scroll DC inverter driven compressors, both Compressors to be 100% controlled by Inverter Technology. Microprocessor based starter/ control panel with suitable rain protection covers. d) Built in oil separator, accumulator & oil receiver, suitable for longer piping length up to 1000 meter suitable to work on 3 phase 415 volts 50Hz AC supply, complete with necessary R410A Refrigerant Gas Charging as per the site condition for satisfactory operation of entire system, complete with testing for leakages as per OEM Specification / Check list. e) Air cooled condenser coil-Square shaped heat exchanger to increase heat transfer area, high COP & lower power consumption with fan, motor and starter. Air cooled condenser fan motor should be Brushless DC type. Controls comprising of HP / LP cutout, cooling thermostats etc. constructed from powder coated sheet metal housing ODU mounted on Provided MS Powder coated Base frame with anti-vibration mounts as per site condition.

Item no 45: Air High static type Air handling unit

The price shall include the cost of supplying all materials, multiple loading/ unloading, storing, handling, installation, testing & commissioning of floor/Ceiling mounted type Air High Static Type Air Handling unit having sheet metal sectionalized cabinet type having inner skin 24(0.6mm) gauge plain sheet and outer skin 24(0.6mm) gauge thick preprinted sheet. AHU double skin 25mm thick construction fabricated from Aluminium extruded section frame structure. Prefilter Section with flange type washable Prefilter of 10-micron EU4 grade. DX type cooling coil section with 4/6 row deep DX coil. Drain pans in SS 304, Blower section with DIDW type blower with

suitable static pressure. Limit Switch & marine light in fan section. complete unit shall be suitable for tonnage of (CFM as per design and Temp & RH to be maintain as per ISHTRAE). (d) 6800 CFM AHU/12TR.

Item no. 46: 1.9 Ton inverter split AC

The price shall include the cost of Supplying all materials, multiple loading/unloading, storing, installation, fixing, testing & commissioning of 1.9 ton Minimum Energy Efficiency Ratio 4.5 inverter technology split air Conditioner of approved make with Copper Coiling, including connecting Copper piping with thermal insulation & insulated drain piping, core cutting & 2.5sq.mm x 3 core multistranded FRLS copper cable for indoor to outdoor & supply cable. The cost also included required length of connecting copper pipe anti corrosion treated with sleeve, drainpipe 3 core copper cable and outdoor condenser 'L' type stand/ painted bracket/cage if required as per site condition with all accessories/ GI nut, bolt, hardware, material required for fixing, HD PVC/ Flexible pipe etc. The cost shall also include manufacturer's warranty of 2 years for replacing part against any defects.

The cost also included supply & erection of the following material: a) 3C X 2.5sq.mm. Copper multistranded FRLS cable- up to10 Meters. b) Suitable size connecting copper pipe anti corrosion treated with sleeve- up to10 Meters c) Drainpipe- up to10 Meters d) Outdoor condenser 'L' type stand/ painted enclosure as per site

Facade lighting

Item no 47:

Supply, installation, testing and commissioning of Linear Pixel Flex Top Bend LED lighting system suitable for façade, architectural and decorative Railway lighting applications, having power consumption 14 W per metre, RGBW programmable colour configuration, cross section size 16 mm × 16 mm, minimum IP67 protection, flexible silicone encapsulated top bend construction suitable for vertical bending applications and operation on 24V DC supply.

The Linear Pixel Flex shall be manufactured using high brightness SMD LEDs mounted on flexible PCB with individually addressable pixel control arrangement compatible with DMX512/programmable lighting controller system for dynamic colour changing, chasing and animation effects. The housing shall be made of UV resistant, flame retardant, anti-yellowing silicone material with fully diffused dot-free illumination suitable for indoor and outdoor installation.
The fixture shall have factory sealed IP67 construction with weatherproof end caps, suitable for continuous outdoor operation . The strip shall be capable of top bending/vertical bending for curved architectural profiles, signage, façade edges and contour lighting applications.
The work shall include suitable constant voltage LED driver/power supply unit, DMX decoder/controller, signal amplifier wherever required, mounting clips/channels, aluminium profile/support arrangement, waterproof connectors, interconnecting FRLS

copper cabling, junction boxes, fixing hardware and all accessories required for complete installation.

Item no 48 anodized rigid profile

Supply of aluminium anodized rigid profile of size 16 mm (W) × 17 mm (H) suitable for mounting/supporting LED strip, pixel flex or architectural lighting fixtures, manufactured from extruded aluminium section with anodized finish for corrosion resistance and heat dissipation, complete with end caps, diffuser/cover wherever required, fixing clips, mounting hardware and all accessories suitable for indoor/outdoor Railway decorative lighting applications.

Item no :49 200W Mean well power supply

Supply of 200 W Mean Well make LED power supply/SMPS suitable for operation on 230V AC input and regulated DC output suitable for LED lighting applications, having high efficiency, overload/short circuit/over voltage protection, aluminium metal enclosure with adequate ventilation, IP rated construction wherever required, complete with terminal connections and mounting arrangement, conforming to relevant IEC/IS standards for Railway decorative and architectural lighting applications.

Item no 50: Spotlight 15W

Supply of Florentina make round LED projector spotlight, 15 W capacity, AC operated suitable for 230V, 50 Hz supply, colour temperature 3000K (Warm White – 830), narrow beam angle 12° (12DRH), suitable for precise architectural highlighting and façade illumination in Railway installations.
The luminaire shall be of robust construction with die-cast aluminium housing with high thermal conductivity for effective heat dissipation, finished with corrosion resistant powder coating suitable for outdoor service conditions. The optical system shall consist of high efficiency LED chip array with precision reflector lens system providing uniform focused beam output with minimal glare. For the 15W Florentina LED projector spotlight (Railway specification), these parameters are typically added as:
Efficacy (Luminous efficacy):≥ 80 lm/W (minimum as per high quality outdoor LED fittings),CRI (Colour Rendering Index): ≥ 80 and SDCM (Standard Deviation of Colour Matching):≤ 5, IP-66 ON-OFF with Hood.

Item no 51: 3 pin interconnection

Supply and fixing of 3 pin interconnection/starter cable of 1 metre length suitable for LED lighting fixtures, drivers, controllers and starter/power supply connections, consisting of multi-strand annealed copper conductor with PVC insulation and outer sheath, flexible type, flame retardant and suitable for indoor/outdoor applications.
The cable shall comprise 3 cores of suitable size with colour coded insulation, rated for operation on 230V AC/DC working voltage, having high conductivity copper conductors for low voltage drop and reliable signal/power transmission. Outer sheath shall be UV resistant, moisture resistant and suitable for continuous service conditions.

The cable shall be complete with factory fitted moulded/waterproof connectors at both ends suitable for quick plug-in connection with LED drivers/controllers/lighting fixtures. Connector housing shall be made of fire-retardant engineering plastic with nickel plated/brass contacts ensuring secure electrical continuity and protection against loose contact.

Item no 52: Main controller:

Supply, installation, testing and commissioning of main lighting/controller unit suitable for control and synchronization of RGB/RGBW façade, architectural and decorative lighting system in Railway applications, complete with programmable master controller, DMX512/Art-Net signal processing unit, Ethernet/USB communication interface, memory storage, synchronization module, output drivers and control software for dynamic lighting effects, colour changing, dimming, chasing and animation control.
The controller shall be housed in heavy gauge powder coated CRCA sheet steel/aluminium enclosure with dust and vermin proof construction suitable for indoor installation. The unit shall comprise industrial grade PCB with microprocessor-based architecture, short circuit and overload protection, auto reset function, surge protection and status indication LEDs.
The controller shall support multiple programmable zones/universes and shall be compatible with linear pixel flex, LED façade lighting, spot lights, wall washers and DMX addressable fixtures .
The unit shall operate on 230V AC input supply with suitable SMPS/power supply arrangement and shall include terminal connectors, communication ports, signal isolators, mounting accessories, internal wiring and all hardware required for complete installation.

Item no 53: Port sub controller

Supply of 8 port sub controller shall be microprocessor based industrial grade unit capable of controlling minimum 8 independent output ports/universes for operation of linear pixel flex, LED pixel modules, wall washers, spot lights and other programmable lighting fixtures. The controller shall support dynamic lighting effects such as dimming, colour changing, chasing, animation and synchronized scene operation.
The housing/enclosure shall be fabricated from heavy gauge powder coated CRCA sheet steel/aluminium with dust and vermin proof construction suitable for indoor panel mounting/wall mounting applications. Enclosure shall be provided with ventilation arrangement, DIN rail/base mounting provision, cable entry arrangement, terminal connectors and locking arrangement wherever required.
The internal circuitry shall consist of industrial grade PCB with high speed processor, signal amplification circuitry, communication module, memory storage, input/output isolation and auto addressing capability. The controller shall include communication interfaces such as Ethernet/RJ45/RS485/USB as applicable for integration with main lighting controller and centralized lighting management system.
Each output port shall be protected against short circuit, overload and surge conditions with status indication LEDs for power, signal and fault monitoring. The unit shall

support stable high speed data transmission with minimum signal loss over long distance Railway façade lighting networks.
The controller shall operate on 230V AC input supply through inbuilt/external SMPS power supply arrangement and shall include power terminals, earthing terminal, fuse/MCB protection and all internal wiring required for safe operation.

Item no 54: 4 Channel DMX Splitter

Supply, installation, testing and commissioning of 4-channel DMX splitter suitable for DMX-512 lighting control system, having 1 No. DMX input and 4 Nos. optically isolated DMX outputs with signal regeneration, amplification and distribution facility, complete with industrial-grade FR4 PCB, RS-485 communication interface, high-speed opto-isolation, inbuilt SMPS power supply, surge and short-circuit protection, LED status indications, 3-pin/5-pin XLR connectors, galvanic isolation between input and outputs, powder-coated CRCA/metallic enclosure, mounting accessories, internal FRLS copper wiring, earthing, hardware and all necessary accessories as required for complete installation and satisfactory operation. Suitable for operation on 230V AC, 50Hz supply.

Item no 55 XLR Connector-Male:

Supply, installation, testing and commissioning of XLR male (M) connector suitable for DMX-512 and professional audio signal applications, comprising rugged die-cast zinc alloy/metallic housing with nickel-plated or powder-coated surface finish for mechanical strength, corrosion resistance and long service life. The connector shall consist of precision-machined protruding male pins made of high-conductivity brass/phosphor bronze material with nickel or gold plating ensuring excellent electrical conductivity, low signal loss and reliable contact performance. The internal insulation assembly shall be made from flame-retardant high-impact thermoplastic material with accurate pin positioning and high dielectric strength. Connector shall be available in 3-pin or 5-pin configuration suitable for balanced data transmission systems. The assembly shall include cable clamping arrangement, strain relief mechanism, rubber gland, locking system and shield continuity provision for secure cable retention and protection against mechanical stress. The connector shall be suitable for solder/crimp type terminations and compatible with standard shielded DMX communication cable. Complete with internal FRLS copper wiring, ferruling, mounting hardware, testing and commissioning for satisfactory performance

Item no 56 XLR Connector- Female:

Supply, installation, testing and commissioning of XLR female (F) connector suitable for DMX-512 and professional audio signal applications, comprising heavy-duty die-cast zinc alloy/metallic body with corrosion-resistant nickel or black powder-coated finish, designed for rugged industrial and stage lighting applications. The connector shall consist of recessed female socket contacts made of high-conductivity phosphor bronze/brass material with nickel or gold plating for low contact resistance, reliable signal transmission and corrosion protection. The insulating carrier shall be manufactured from high-grade flame-retardant thermoplastic material providing

excellent dielectric strength and mechanical durability. Connector shall be provided with 3-pin or 5-pin configuration as per DMX standard, complete with precision-moulded contact alignment arrangement, cable strain relief clamp, rubber bush, locking latch mechanism and shield termination facility for secure and vibration-resistant connection. The connector shall support solder/crimp type cable termination and shall be compatible with shielded twisted pair DMX cable. Complete with internal FRLS insulated copper termination, ferruling, mounting accessories, testing and commissioning for proper operation.

Item no .57 Programming charges

The price shall include for configuration, addressing, integration, scene setting, scheduling, DMX mapping, functional testing and complete operation of lighting/control system, including software setup, controller programming, system synchronization, trial run and all necessary tools, accessories and technical support as required for satisfactory performance/output.

Item no. 58-60: Supply of various sizes of 1.1 kV grade Copper flexible cables

The price shall include the cost of Supplying, multiple loading / unloading, storing of various sizes 1.1 kV grade ISI marked FR-LSH insulated flexible copper cables as per IS 694 or the latest amended. The cable should confirm to latest amended IS specification. The price shall also include all testing stated in the relevant specification. Different category of cable (C1-C2) shall be provided as per their applicability to the environment description given in the Standard IS: 7098.

Item no 61: DMX cable

Supply, installation, testing and commissioning of Belden 9842 DMX communication cable comprising 2 pair shielded twisted pair stranded tinned copper conductors with polyethylene/PVC insulation, overall aluminium foil/polyester shield with tinned copper drain wire, FRLS/PVC outer sheath, suitable for RS-485 and DMX-512 signal transmission applications, complete with laying, dressing, termination, ferruling, testing and all necessary accessories for reliable and interference-free communication performance.

Item no 62: PVC conduit

Supply, installation, testing and commissioning of 25 mm PVC conduit pipe made of heavy-duty rigid PVC, FRLS, moisture and corrosion resistant, suitable for cable routing and wiring protection applications, complete with bends, couplers, junction boxes, saddles, inspection boxes, adaptors, bushings, clamps, fixing hardware and all necessary accessories, including laying, fixing, testing and commissioning for complete installation and satisfactory operation.

Item no 63: Flexible pipe

Supply, installation, testing and commissioning of 25 mm / 32 mm flexible conduit pipe made of heavy-duty PVC material, flame-retardant, moisture and corrosion

resistant, suitable for cable protection and wiring applications, complete with laying, bending, saddles, couplers, bends, junction accessories, fixing hardware, testing and all necessary materials for complete installation and satisfactory operation.

Item no. 64: Distribution Box as per site requirements.

The price shall include the cost of Design, fabrication, Supply, multiple loading/ unloading, storing, installation, fixing, testing & commissioning of free standing/ wall mounted on painted stand/ frame Distribution Boards having approved RCBO/MCCB/MCB mounted on Din rail, ATS, High conductivity copper Bus bars, Neutral Bus bars rated to carry 100% of phase current, 2 nos. of earth terminals, phase separation barriers as per schedule of quantity. Panel fabricator should be ISO certified or having certificate from CPRI for panel built in their works with all testing facilities as per relevant specification. The Internal wiring shall be with PVC insulated unsheathed multi strand copper conductor single core (FRLS) cable of 1.1 kV grade confirming to IS: 694 or latest amended of not less than 2.5 sq.mm size. The connection shall be made with proper size of pin type crimping sockets, glands and knockouts as per requirements and size of cable used, the cost also includes the supply & fixing of suitable Painted MS stand minimum 1 feet above ground level including foundation/ grouting. Design of panel, material and electrical equipment shall be got approved by consignee before supply. Guaranteed Technical Particulars (GTP) and Quality Assurance Plan (QAP) of approved Distribution Boards shall be submitted for approval before inspection & bulk supply of material.

Item no. 65: Façade Panel

Supply, installation, testing and commissioning of façade lighting control panel made of heavy-duty CRCA sheet steel, outdoor type, floor mounted, free standing, totally enclosed, extensible and air insulated construction, suitable for operation on 415V, 3-phase, 50Hz AC supply, fabricated from minimum 1.6/2.0 mm thick CRCA sheet with rigid welded construction and weather-resistant powder-coated finish. The panel shall be dust, moisture and vermin proof with gasketed doors, canopy, locking arrangement and adequate ventilation. The panel shall comprise copper busbars with heat shrink insulation, MCCB/MCB incomer and outgoing feeders, contactors, relays, timers/controllers, neutral link, earth bar, terminal blocks, LED indications, selector switches and complete internal FRLS copper wiring with ferruled terminations. Panel shall include removable gland plates, cable alleys, base frame/channel, earthing arrangement and all mounting accessories suitable for outdoor façade lighting applications, complete with testing and commissioning for satisfactory operation

Item no 66: weather proof junction box

Supply, installation, testing and commissioning of weatherproof junction box made of heavy-duty FRP/Polycarbonate/CRCA sheet steel construction with IP65/IP66 protection, suitable for outdoor electrical.

Item no 67: Earthing wire

Supply, installation, testing and commissioning of 1C x 4 sq.mm earthing wire comprising multi-strand annealed high-conductivity copper conductor with green PVC/FRLS insulation, suitable for grounding and bonding applications, complete with laying, dressing, termination, lugs, ferruling, saddles, clamps, hardware, testing and all necessary accessories for complete earthing installation and satisfactory operation.

Item no 68: Protective cage

Supply, installation, testing and commissioning of protective cage for spotlights fabricated from heavy-duty GI wire mesh and steel frame construction with powder-coated/hot dip galvanized corrosion-resistant finish, suitable for protection of spotlights against mechanical damage, vandalism and accidental impact. The cage shall be designed with adequate ventilation for heat dissipation and provision for easy maintenance and fixture accessibility, complete with mounting brackets, clamps, nuts, bolts, fastening hardware and all necessary accessories for secure installation and satisfactory operation.

Item no. 69: Man lifter

Provision of gondola/man lifter suitable for façade lighting and maintenance works, comprising motorized/manual suspended platform/aerial lifting arrangement with high-strength steel/aluminium working platform, safety harness attachment points, wire rope suspension system, control panel, emergency stop facility, overload protection, braking system and all necessary safety devices. The equipment shall be suitable for safe lifting of manpower, tools and materials for installation and maintenance activities at height, complete with operating accessories, testing, certification and commissioning as required.

Item no. 70: 200 Watts LED High Bay light luminaries.

The price shall cover cost of supply, loading, transportation and unloading to site, erection, testing and commissioning of 200 Watt LED High bay light fitting with high lumen LED, secondary lens optics, IP65, IK06, efficacy 120 lm/W including suitable potted constant current driver with built in surge protection internal 4kV and external 4kV, under voltage, short circuit, reveres polarity, over temperature protection. The housing shall be made of powder coated pressure die cast aluminium with heat resistant protective complete with all accessories with I-bolt, GI bracket/clamp made of min. 3mm thick GI strip, stainless steel hardware like screw, washer, nut bolts etc. as per site condition. Luminaire shall have name of the manufacturer embossed on the luminaire. The cost shall also cover the wiring from ceiling rose / junction box / overhead wire to luminaries by 1.5 sq.mm cable of 3 core PVC insulated multistrands copper conductor with suitable size of flexible heavy duty PVC conduit with PVC gland and fixing arrangement with SS hardware i.e. clamps, brackets, nut-bolts etc.

Item no. 71: LED signange board.

Design, manufacture, Supply, Erection & Installation of wall/ hanging/ floor mounting/ pole mounting type LED illuminated sign/direction boards in Openable full parabolic (E3 & E5), Openable half parabolic (E4), full elliptical (E1), half elliptical (E2), four sided elliptical (E6) shape as per specific station requirement (as per "Signages at CSMT & "Guidelines on Standard Signages at Stations on Indian Railways, 2023 or latest"). The LED glow sign beard shall have uniform illumination with 4-6 W/ sq. ft and with brightness more than ambient light, average 1400 lux on white display sheet surface. The text / graphics matter visibility shall be 360° for Four-Sided Cubical Elliptical & not less than 160° for other types. The frame structure shall be anodised extruded aluminium profiles. Hollow aluminium anodised extruded extendable heat sink having 3 internal fins per side and dovetailed flat corners, with LED ribbon lights, shall be centrally push fitted on moulded nylon brackets designed to hold it at 0° and 45° orientations, to emit light in 360° with multiple reflection. The display sheet shall be high impact resistant Optical Bright Opal White UV protected polycarbonate sheet of 1.8mm to 3mm thickness with 40% -60% translucency. The approved colour text/graphics matter shall be printed/plotter cut on translucent polymeric calendared vinyl of 80-micron thickness and shall be firmly pasted on display sheets. The signage shall have the integral adjustable mounting arrangements with sturdy structural frame. ACP cover on the back side for half parabolic and half elliptical signage. Moulded UV protected polycarbonate end caps of minimum 2 mm wall thickness for size up to 24" and SS 1.2 mm thick end caps for sizes above 24" shall be provided. Mandatory Signage (Toilets & Drinking Water) shall be manufactured using hidden fitting and equipped with Cue Beam

Item no 72: Earth tester:

Scope

- Supply installation & Commissioning of Digital Earth Tester
- Resistance using auxiliary electrodes,
- Earth resistance using auxiliary electrodes and clamp (for measurements of multiple earth pit
- Resistance measurement using two clamp method
- Ground resistivity (Wenner method),
- Measurement of continuity of equipotential bondings and protective conductors (Meeting the requirements of IEC 60364-6-61:2000 section 6.12.2) with auto-zero function-

Additionally:

- Measurement of resistance of auxiliary electrodes,
- Measurement of interference voltage,
- Measurement of interference frequency,
- Measurement in the presence of interference voltage in power network with frequency 50Hz
- Selection of maximum measuring voltage (25 V and 50 V)
- Introducing the distance between the electrodes for the resistivity in meters (m).

- Memory of 100 measurements
- Calibration of clamp used,
- Real time clock (RTC),
- Data transmission to the computer (USB, wireless),
- Indication of battery state.

Electric security:

- Type of insulation: double, according to EN 61010-1 and IEC 61557
- Measurement category: CAT IV 300 V acc. to EN 61010-1
- Protection class acc. to EN 60529: IP54

Rated operational conditions:

- Operation temperature: -10...+50°C
- Storage temperature: -20...+70°C
- Humidity: 20...80%

Other technical data:

- LCD display: Graphic, back lighted
- Interface: USB, wireless
- Number of measurements carried out of set of batteries: > 500
- Measurement of interference voltage up to 100Volt
- signaling overvoltage 24 V or 40 V rms
- measurement for DC and AC 45...65 Hz,
- Measurement of earth resistance (method 3-and 4-pole)
- Measurement range to IEC61557-5:0, 30 0... 19, 9 KΩ
- Measurement current: under short circuit >200 mA,
- Voltage on open terminals: selectable <25 V AC or <50 V AC,
- Frequency of measurement current: 125 (for networks 50 Hz) or 150 Hz (for 60 Hz),
- Measurement of ground resistivity on display.
- Protection Class IP 54
- Measurement category CAT IV 300V acc. to EN 61010-1

Item no. 73: LT 4 way feeder pillar.

Supply, installation, testing and commissioning of LT 4-way feeder pillar fabricated from heavy-duty CRCA sheet steel with outdoor type, floor-mounted, free-standing, totally enclosed, dust and vermin-proof construction having weather-resistant powder-coated finish, suitable for operation on 415V, 3-phase, 50Hz AC supply. The feeder pillar shall be provided with 630A TPN MCCB incomer with adjustable thermal magnetic protection and 3 Nos. 400A HRC fuse base and kit kat fuses, outgoing feeders complete with copper busbar arrangement, neutral link, earth bar, cable alley, removable gland plate, hinged lockable doors, internal FRLS copper wiring, danger notice plate, insulation shrouding, mounting hardware and earthing arrangement. Complete with all accessories, testing and commissioning for satisfactory operation.

Item no 74: Monoblock pump set

Supply, installation, testing and commissioning of 2-stage 10 HP monoblock pump set comprising close-coupled centrifugal pump and TEFC squirrel cage induction motor

mounted on common shaft, suitable for continuous duty operation on 415V, 3-phase, 50Hz AC supply. The pump casing and impeller shall be made of graded cast iron/bronze with stainless steel shaft, antifriction bearings and mechanical seal arrangement for efficient and leak-proof performance. The pump set shall be complete with rigid MS fabricated base frame, PCC/foundation arrangement, anti-vibration pads, coupling, foundation bolts, suction and delivery connections, valves, pressure gauge, internal wiring, earthing and all necessary accessories required for complete installation, testing and satisfactory operation.

Item no: 75: FASD starter:

Supply, installation, testing and commissioning of FASD starter panel board suitable for 10 HP pump set, fabricated from heavy-duty CRCA sheet steel with powder-coated finish, dust and vermin-proof construction, suitable for operation on 415V, 3-phase, 50Hz AC supply. The panel shall comprise DOL/Star-Delta starter arrangement with MCCB/MCB incomer, contactors, thermal overload relay, single phasing preventer, auto/manual selector switch, push buttons, indication lamps, control transformer, timer, terminal blocks, copper busbars, neutral link and earth bar complete with internal FRLS copper wiring, cable termination arrangement, gland plate, earthing and all necessary control and protection accessories for safe starting, operation and protection of 10 HP pump motor, complete with testing and commissioning for satisfactory performance.

Safety, Health and Environmental requirements

Please refer Volume II.

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PART 3 – Conditions of Contract and Contract Forms

Section VIII - General Conditions of Contract

[Notes for General and Particular Conditions of Contract]

[The Conditions of Contract have been prepared for an ad measurement (unit price or unit rate) type of contract and cannot be used without major modifications for other types of contracts.

The standard text of the General Conditions must remain intact. Any amendments and additions to the General Conditions, specific to the contract in hand, should be introduced in the Particular Conditions. A number of such Particular Conditions, applicable to the above Conditions of Contract, are included in Section IX.

The Particular Conditions (PC) complement the General Conditions (GC) to specify data and contractual requirements linked to the special circumstances of the country, the Employer, the Engineer, the sector, the overall project, and the Works.

Part A, the Contract Data of the PC, includes data to complement GC in a manner similar to the way in which the Tender Data Sheet complements the Instructions to Tenderers. Part B, the Specific Provisions of the PC, consists of a set of sample provisions for use by the Employer in preparing the PC specific to the country and the Project. ***PC provisions take precedence over those in the GC****.*

Mumbai Railway Vikas Corporation Ltd

"Balance General service Electrical works in connection with construction of station buildings, service buildings, New platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor. "

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General Conditions of Contract

1. General Provisions

1.1 Definitions

In the Conditions of Contract ("these Conditions"), which include Particular Conditions, Parts A and B, and these General Conditions, the following words and expressions shall have the meanings stated. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.

1.1.1 The Contract

1.1.1.1 "Contract" means the Contract Agreement, the Letter of Acceptance, the Letter of Tender, these Conditions, the Specification, the Drawings, the Schedules, and the further documents (if any) which are listed in the Contract Agreement or in the Letter of Acceptance.

1.1.1.2 "Contract Agreement" means the contract agreement referred to in Sub-Clause 1.6 [Contract Agreement].

1.1.1.3 "Letter of Acceptance" means the letter of formal acceptance, signed by the Employer, of the Letter of Tender, including any annexed memoranda comprising agreements between and signed by both Parties. If there is no such letter of acceptance, the expression "Letter of Acceptance" means the Contract Agreement and the date of issuing or receiving the Letter of Acceptance means the date of signing the Contract Agreement.

1.1.1.4 "Letter of Tender" means the document entitled letter of tender or letter of tender, which was completed by the Contractor and includes the signed offer to the Employer for the Works.

1.1.1.5 "Specification" means the document entitled specification, as included in the Contract, and any additions and modifications to the specification in accordance with the Contract. Such document specifies the Works.

1.1.1.6 "Drawings" means the drawings of the Works, as included in the Contract, and any additional and modified drawings issued by

(or on behalf of) the Employer in accordance with the Contract.

1.1.1.7 "Schedules" means the document(s) entitled schedules, completed by the Contractor and submitted with the Letter of Tender, as included in the Contract. Such document may include the Bill of Quantities, data, lists, and schedules of rates and/or prices.

1.1.1.8 "Tender" means the Letter of Tender and all other documents which the Contractor submitted with the Letter of Tender, as included in the Contract.

1.1.1.9 "Bill of Quantities", "Daywork Schedule" and "Schedule of Payment Currencies" mean the documents so named (if any) which are comprised in the Schedules.

1.1.1.10 "Contract Data" means the pages completed by the Employer entitled contract data which constitute Part A of the Particular Conditions.

1.1.2 Parties and Persons

1.1.2.1 "Party" means the Employer or the Contractor, as the context requires.

1.1.2.2 "Employer" means the person named as employer in the Contract Data and the legal successors in title to this person.

1.1.2.3 "Contractor" means the person(s) named as contractor in the Letter of Tender accepted by the Employer and the legal successors in title to this person(s).

1.1.2.4 "Engineer" means the person appointed by the Employer to act as the Engineer for the purposes of the Contract and named in the Contract Data, or other person appointed from time to time by the Employer and notified to the Contractor under Sub-Clause 3.4 [Replacement of the Engineer].

1.1.2.5 "Contractor's Representative" means the person named by the Contractor in the Contract or appointed from time to time by the Contractor under Sub-Clause 4.3 [Contractor's Representative], who acts on behalf of the Contractor.

1.1.2.6 "Employer's Personnel" means the Engineer, the assistants referred to in Sub-Clause 3.2 [Delegation by the Engineer] and all other

staff, labour and other employees of the Engineer and of the Employer; and any other personnel notified to the Contractor, by the Employer or the Engineer, as Employer's Personnel.

1.1.2.7 "Contractor's Personnel" means the Contractor's Representative and all personnel whom the Contractor utilises on Site, who may include the staff, labour and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.

1.1.2.8 "Subcontractor" means any person named in the Contract as a subcontractor, or any person appointed as a subcontractor, for a part of the Works; and the legal successors in title to each of these persons.

1.1.2.9 "DB" means the person or three persons appointed under Sub-Clause 20.2 [Appointment of the Dispute Board] or Sub-Clause 20.3 [Failure to Agree on the Composition of the Dispute Board]

1.1.2.10 "FIDIC" means the Fédération Internationale des Ingénieurs-Conseils, the international federation of consulting engineers.

1.1.2.11 "Bank" means the financing institution (if any) named in the Contract Data.

1.1.2.12 "Borrower" means the person (if any) named as the borrower in the Contract Data.

1.1.3 Dates, Tests, Periods and Completion

1.1.3.1 "Base Date" means the date 28 days prior to the latest date for submission of the Tender.

1.1.3.2 "Commencement Date" means the date notified under Sub-Clause 8.1 [Commencement of Works].

1.1.3.3 "Time for Completion" means the time for completing the Works or a Section (as the case may be) under Sub-Clause 8.2 [Time for Completion], as stated in the Contract Data (with any extension under Sub-Clause 8.4 [Extension of Time for Completion]), calculated from the Commencement Date.

1.1.3.4 "Tests on Completion" means the tests which are specified in the Contract or agreed by both

Parties or instructed as a Variation, and which are carried out under Clause 9 [Tests on Completion] before the Works or a Section (as the case may be) are taken over by the Employer.

1.1.3.5 "Taking-Over Certificate" means a certificate issued under Clause 10 [Employer's Taking Over].

1.1.3.6 "Tests after Completion" means the tests (if any) which are specified in the Contract and which are carried out in accordance with the Specification after the Works or a Section (as the case may be) are taken over by the Employer.

1.1.3.7 "Defects Notification Period" means the period for notifying defects in the Works or a Section (as the case may be) under Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects], which extends over 365 days except if otherwise stated in the Contract Data (with any extension under Sub-Clause 11.3 [Extension of Defects Notification Period]), calculated from the date on which the Works or Section is completed as certified under Sub-Clause 10.1 [Taking Over of the Works and Sections].

1.1.3.8 "Performance Certificate" means the certificate issued under Sub-Clause 11.9 [Performance Certificate].

1.1.3.9 "Day" means a calendar day and "year" means 365 days.

1.1.4 Money and Payments

1.1.4.1 "Accepted Contract Amount" means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects.

1.1.4.2 "Contract Price" means the price defined in Sub-Clause 14.1 [The Contract Price] and includes adjustments in accordance with the Contract.

1.1.4.3 "Cost" means all expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.

1.1.4.4 "Final Payment Certificate" means the payment certificate issued under Sub-Clause 14.13 [Issue of Final Payment Certificate].

1.1.4.5 "Final Statement" means the statement defined in Sub-Clause 14.11 [Application for Final Payment Certificate].

1.1.4.6 "Foreign Currency" means a currency in which part (or all) of the Contract Price is payable, but not the Local Currency.

1.1.4.7 "Interim Payment Certificate" means a payment certificate issued under Clause 14 [Contract Price and Payment], other than the Final Payment Certificate.

1.1.4.8 "Local Currency" means the currency of the Country.

1.1.4.9 "Payment Certificate" means a payment certificate issued under Clause 14 [Contract Price and Payment].

1.1.4.10 "Provisional Sum" means a sum (if any) which is specified in the Contract as a provisional sum, for the execution of any part of the Works or for the supply of Plant, Materials or services under Sub-Clause 13.5 [Provisional Sums].

1.1.4.11 "Retention Money" means the accumulated retention moneys which the Employer retains under Sub-Clause 14.3 [Application for Interim Payment Certificates] and pays under Sub-Clause 14.9 [Payment of Retention Money].

1.1.4.12 "Statement" means a statement submitted by the Contractor as part of an application, under Clause 14 [Contract Price and Payment], for a payment certificate.

1.1.5 Works and Goods

1.1.5.1 "Contractor's Equipment" means all apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor's Equipment excludes Temporary Works, Employer's Equipment (if any), Plant, Materials and any other things intended to form or forming part of the Permanent Works.

1.1.5.2 "Goods" means Contractor's Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.

1.1.5.3 "Materials" means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works, including the supply-only materials (if any) to be supplied by the Contractor under the Contract.

1.1.5.4 "Permanent Works" means the permanent works to be executed by the Contractor under the Contract.

1.1.5.5 "Plant" means the apparatus, machinery and other equipment intended to form or forming part of the Permanent Works, including vehicles purchased for the Employer and relating to the construction or operation of the Works.

1.1.5.6 "Section" means a part of the Works specified in the Contract Data as a Section (if any).1.1.5.7 "Temporary Works" means all temporary works of every kind (other than Contractor's Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.

1.1.5.8 "Works" mean the Permanent Works and the Temporary Works, or either of them as appropriate.

1.1.6 Other Definitions

1.1.6.1 "Contractor's Documents" means the calculations, computer programs and other software, drawings, manuals, models and other documents of a technical nature (if any) supplied by the Contractor under the Contract.

1.1.6.2 "Country" means the country in which the Site (or most of it) is located, where the Permanent Works are to be executed.

1.1.6.3 "Employer's Equipment" means the apparatus, machinery and vehicles (if any) made available by the Employer for the use of the Contractor in the execution of the Works, as stated in the Specification; but does not include Plant which has not been taken over by the Employer.

1.1.6.4 "Force Majeure" is defined in Clause 19 [Force Majeure].

1.1.6.5 "Laws" means all national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority.

1.1.6.6 "Performance Security" means the security (or securities, if any) under Sub-Clause 4.2 [Performance Security].

1.1.6.7 "Site" means the places where the Permanent Works are to be executed, including storage and working areas, and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as forming part of the Site.

1.1.6.8 "Unforeseeable" means not reasonably foreseeable by an experienced contractor by the Base Date.

1.1.6.9 "Variation" means any change to the Works, which is instructed or approved as a variation under Clause 13 [Variations and Adjustments].

1.1.6.10 "Notice of Dissatisfaction" means the notice given by either Party to the other under Sub-Clause 20.4 [Obtaining Dispute Board's Decision] indicating its dissatisfaction and intention to commence arbitration.

1.2 Interpretation

In the Contract, except where the context requires otherwise:

(a) words indicating one gender include all genders.

(b) words indicating the singular also include the plural and words indicating the plural also include the singular.

(c) provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing.

(d) "written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record; and

(e) the word "tender" is synonymous with "bid" and "tenderer" with "bidder" and the words "tender documents" with "bidding documents."

The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.

In these Conditions, provisions including the expression "Cost plus profit" require this profit to be one-twentieth (5%) of this Cost unless otherwise indicated in the Contract Data.

1.3 Communications

Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices, requests and discharges, these communications shall be:

(a) in writing and delivered by hand (against receipt), sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as stated in the Contract Data; and

(b) delivered, sent or transmitted to the address for the recipient's communications as stated in the Contract Data. However:

(i) if the recipient gives notice of another address, communications shall thereafter be delivered; accordingly, and

(ii) if the recipient has not stated otherwise when requesting an approval or consent, it may be sent to the address from which the request was issued.

Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed. When a certificate is issued to a Party, the certifier shall send a copy to the other Party. When a notice is issued to a Party, by the other Party or the Engineer, a copy shall be sent to the Engineer or the other Party, as the case may be.

1.4 Law and Language

The Contract shall be governed by the law of the country or other jurisdiction stated in the Contract Data.

The ruling language of the Contract shall be that stated in the Contract Data.

The language for communications shall be that stated in the Contract Data. If no language is stated there, the language for communications shall be the ruling language of the Contract.

1.5 Priority of Documents

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

(a) the Contract Agreement (if any),

(b) the Letter of Acceptance,

(c) the Letter of Tender,

(d) the Particular Conditions – Part A,

(e) the Particular Conditions – Part B

(f) these General Conditions

(g) the Specification,

(h) the Drawings, and

(i) the Schedules and any other documents forming part of the Contract.

If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

1.6 Contract Agreement

The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance, unless the Particular Conditions establish otherwise. The Contract Agreement shall be based upon the form annexed to the Particular Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.

1.7 Assignment

Neither Party shall assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, either Party:

(a) may assign the whole or any part with the prior agreement of the other Party, at the sole discretion of such other Party, and

(b) may, as security in favour of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.

1.8 Care and Supply of Documents

The Specification and Drawings shall be in the custody and care of the Employer. Unless otherwise stated in the Contract, two copies of the Contract and of each subsequent Drawing shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.

Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Employer. Unless otherwise stated in the Contract, the Contractor shall supply to the

Engineer six copies of each of the Contractor's Documents.

The Contractor shall keep on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Employer's Personnel shall have the right of access to all these documents at all reasonable times.

If a Party becomes aware of an error or defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.

1.9 Delayed Drawings or Instructions

The Contractor shall give notice to the Engineer whenever the Works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable. The notice shall include details of the necessary drawing or instruction, details of why and by when it should be issued, and the nature and amount of the delay or disruption likely to be suffered if it is late.

If the Contractor suffers delay and/or incurs Cost as a result of a failure of the Engineer to issue the notified drawing or instruction within a time which is reasonable and is specified in the notice with supporting details, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, plus profit, which shall be included in the Contract Price.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

However, if and to the extent that the Engineer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

1.10 Employer's Use of Contractor's Documents

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 the Contract) to give to the Employer 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 the Contract, including replacements of any computers supplied by the Contractor.

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 Employer for purposes other than those permitted under this Sub-Clause.

1.11 Contractor's Use of Employer's Documents

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

1.12 Confidential Details

The Contractor's and the Employer's Personnel shall disclose all such confidential and other information as may be reasonably required in order to verify compliance with the Contract and allow its proper implementation.

Each of them shall treat the details of the Contract as private and confidential, except to the extent necessary

to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.

1.13 Compliance with Laws

The Contractor shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the Particular Conditions:

(a) the Employer shall have obtained (or shall obtain) the planning, zoning, building permit or similar permission for the Permanent Works, and any other permissions described in the Specification as having been (or to be) obtained by the Employer; and the Employer shall indemnify and hold the Contractor harmless against and from the consequences of any failure to do so; and

(b) the Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the Laws in relation to the execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Employer harmless against and from the consequences of any failure to do so, unless the Contractor is impeded to accomplish these actions and shows evidence of its diligence.

Joint and Several Liability

If the Contractor constitutes (under applicable Laws) a joint venture, consortium or other unincorporated grouping of two or more persons:

(a) these persons shall be deemed to be jointly and severally liable to the Employer for the performance of the Contract.

(b) these persons shall notify the Employer of their leader who shall have authority to bind the Contractor and each of these persons; and

(c) the Contractor shall not alter its composition or legal status without the prior consent of the Employer.

1.15 Inspections and Audit by the Bank

Pursuant to paragraph 2.2 e. of Appendix B to the General Conditions, the Contractor shall permit and shall cause its subcontractors and subconsultants to permit, the Bank and/or persons appointed by the Bank to inspect the Site and/or the accounts and records

relating to the procurement process, selection and/or contract execution, and to have such accounts and records audited by auditors appointed by the Bank if requested by the Bank. The Contractor's and its Subcontractors' and subconsultants' attention is drawn to Sub-Clause 15.6 (Prohibited Practices) which provides, inter alia, that acts intended to materially impede the exercise of the Bank's inspection and audit rights constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Bank's prevailing sanctions procedures).]

2. The Employer

2.1 Right of Access to the Site

The Employer shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the Contract Data. The right and possession may not be exclusive to the Contractor. If, under the Contract, the Employer is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Employer shall do so in the time and manner stated in the Specification. However, the Employer may withhold any such right or possession until the Performance Security has been received.

If no such time is stated in the Contract Data, the Employer shall give the Contractor right of access to, and possession of, the Site within such times as required to enable the Contractor to proceed without disruption in accordance with the programme submitted under Sub-Clause 8.3 [Programme].

If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Employer to give any such right or possession within such time, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

However, if and to the extent that the Employer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

2.2 Permits, Licences or Approvals

The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to obtain properly:

(a) copies of the Laws of the Country which are relevant to the Contract but are not readily available, and

(b) any permits, licences or approvals required by the Laws of the Country:

(i) which the Contractor is required to obtain under Sub-Clause 1.13 [Compliance with Laws],

(ii) for the delivery of Goods, including clearance through customs, and

(iii) for the export of Contractor's Equipment when it is removed from the Site.

2.3 Employer's Personnel

The Employer shall be responsible for ensuring that the Employer's Personnel and the Employer's other contractors on the Site:

(a) co-operate with the Contractor's efforts under Sub-Clause 4.6 [Co-operation], and

(b) take actions similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) of Sub-Clause 4.8 [Safety Procedures] and under Sub-Clause 4.18 [Protection of the Environment].

2.4 Employer's Financial Arrangements

The Employer shall submit, before the Commencement Date and thereafter within 28 days after receiving any request from the Contractor, reasonable evidence that financial arrangements have been made and are being maintained which will enable the Employer to pay the Contract Price punctually (as estimated at that time) in accordance with Clause 14 [Contract Price and Payment]. Before the Employer makes any material change to his financial arrangements, the Employer shall give notice to the Contractor with detailed particulars.

In addition, if the Bank has notified to the Borrower that the Bank has suspended disbursements under its loan, which finances in whole or in part the execution of the Works, the Employer shall give notice of such suspension to the Contractor with detailed particulars, including the date of such notification, with a copy to the Engineer, within 7 days of the Borrower having received the suspension notification from the Bank. If alternative funds will be available in appropriate currencies to the Employer to continue making payments to the Contractor beyond a date 60 days after the date of Bank notification of the suspension, the Employer shall provide reasonable evidence in his notice of the extent to which such funds will be available.

2.5 Employer's Claims

If the Employer considers himself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Notification Period, the Employer or the Engineer shall give notice and particulars to the Contractor. However, notice is not required for payments due under Sub-Clause 4.19 [Electricity, Water and Gas], under Sub-Clause 4.20 [Employer's Equipment and Free-Issue Materials], or for other services requested by the Contractor.

The notice shall be given as soon as practicable and no longer than 28 days after the Employer became aware, or should have become aware, of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Notification Period shall be given before the expiry of such period.

The particulars shall specify the Clause or other basis of the claim and shall include substantiation of the amount and/or extension to which the Employer considers himself to be entitled in connection with the Contract. The Engineer shall then proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the amount (if any) which the Employer is entitled to be paid by the Contractor, and/or (ii) the extension (if any) of the Defects Notification Period in accordance with Sub-Clause 11.3 [Extension of Defects Notification Period].

This amount may be included as a deduction in the Contract Price and Payment Certificates. The Employer shall only be entitled to set off against or make any deduction from an amount certified in a Payment

Certificate, or to otherwise claim against the Contractor, in accordance with this Sub-Clause.

3. The Engineer

3.1 Engineer's Duties and Authority

The Employer shall appoint the Engineer who shall carry out the duties assigned to him in the Contract. The Engineer's staff shall include suitably qualified engineers and other professionals who are competent to carry out these duties.

The Engineer shall have no authority to amend the Contract.

The Engineer may exercise the authority attributable to the Engineer as specified in or necessarily to be implied from the Contract. If the Engineer is required to obtain the approval of the Employer before exercising a specified authority, the requirements shall be as stated in the Particular Conditions. The Employer shall promptly inform the Contractor of any change to the authority attributed to the Engineer.

However, whenever the Engineer exercises a specified authority for which the Employer's approval is required, then (for the purposes of the Contract) the Employer shall be deemed to have given approval.

Except as otherwise stated in these Conditions:

(a) whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Engineer shall be deemed to act for the Employer.

(b) the Engineer has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract.

(c) any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by the Engineer (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances; and

(d) any act by the Engineer in response to a Contractor's request except as otherwise expressly specified shall be notified in writing to the Contractor within 28 days of receipt.

The following provisions shall apply:

The Engineer shall obtain the specific approval of the Employer before taking action under the-following Sub-Clauses of these Conditions:

(a) Sub-Clause 4.12: agreeing or determining an extension of time and/or additional cost.

(b) Sub-Clause 13.1: instructing a Variation, except,

(i) in an emergency situation as determined by the Engineer, or

(ii) if such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the Contract Data.

(c) Sub-Clause 13.3: Approving a proposal for Variation submitted by the Contractor in accordance with Sub Clause 13.1 or 13.2.

(d) Sub-Clause 13.4: Specifying the amount payable in each of the applicable currencies

Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Engineer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 13 and shall notify the Contractor accordingly, with a copy to the Employer.

3.2 Delegation by the Engineer

The Engineer may from time to time assign duties and delegate authority to assistants and may also revoke such assignment or delegation. These assistants may include a resident engineer, and/or independent inspectors appointed to inspect and/or test items of Plant and/or Materials. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both Parties. However, unless otherwise agreed by both Parties, the Engineer shall not delegate the authority to determine any matter in accordance with Sub-Clause 3.5 [Determinations].

Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorised to

issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Engineer. However:

(a) any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Engineer to reject the work, Plant or Materials.

(b) if the Contractor questions any determination or instruction of an assistant, the Contractor may refer the matter to the Engineer, who shall promptly confirm, reverse or vary the determination or instruction.

3.3 Instructions of the Engineer

The Engineer may issue to the Contractor (at any time) instructions and additional or modified Drawings which may be necessary for the execution of the Works and the remedying of any defects, all in accordance with the Contract. The Contractor shall only take instructions from the Engineer, or from an assistant to whom the appropriate authority has been delegated under this Clause. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

The Contractor shall comply with the instructions given by the Engineer or delegated assistant, on any matter related to the Contract. Whenever practicable, their instructions shall be given in writing. If the Engineer or a delegated assistant:

(a) gives an oral instruction,

(b) receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within two working days after giving the instruction, and

(c) does not reply by issuing a written rejection and/or instruction within two working days after receiving the confirmation,

then the confirmation shall constitute the written instruction of the Engineer or delegated assistant (as the case may be).

3.4 Replacement of the Engineer

If the Employer intends to replace the Engineer, the Employer shall, not less than 21 days before the intended date of replacement, give notice to the Contractor of the name, address and relevant experience of the intended

replacement Engineer. If the Contractor considers the intended replacement Engineer to be unsuitable, he has the right to raise objection against him by notice to the Employer, with supporting particulars, and the Employer shall give full and fair consideration to this objection.

3.5 Determinations

Whenever these Conditions provide that the Engineer shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter, the Engineer shall consult with each Party in an endeavour to reach agreement. If agreement is not achieved, the Engineer shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.

The Engineer shall give notice to both Parties of each agreement or determination, with supporting particulars, within 28 days from the receipt of the corresponding claim or request except when otherwise specified. Each Party shall give effect to each agreement or determination unless and until revised under Clause 20 [Claims, Disputes and Arbitration].

4. The Contractor

4.1 Contractor's General Obligations

The Contractor shall design (to the extent specified in the Contract), execute and complete the Works in accordance with the Contract and with the Engineer's instructions, and shall remedy any defects in the Works.

The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.

All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country as defined by the Bank.

The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction. Except to the extent specified in the Contract, the Contractor (i) shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of Plant and Materials as is required for the item to be in accordance with the Contract, and (ii) shall not otherwise be responsible for the design or specification of the Permanent Works.

The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the

Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer.

If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Particular Conditions:

(a) the Contractor shall submit to the Engineer the Contractor's Documents for this part in accordance with the procedures specified in the Contract.

(b) these Contractor's Documents shall be in accordance with the Specification and Drawings, shall be written in the language for communications defined in Sub-Clause 1.4 [Law and Language], and shall include additional information required by the Engineer to add to the Drawings for co-ordination of each Party's designs.

(c) the Contractor shall be responsible for this part and it shall, when the Works are completed, be fit for such purposes for which the part is intended as are specified in the Contract; and

(d) prior to the commencement of the Tests on Completion, the Contractor shall submit to the Engineer the "as-built" documents and, if applicable, operation and maintenance manuals in accordance with the Specification and in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair this part of the Works. Such part shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until these documents and manuals have been submitted to the Engineer.

4.2 Performance Security

The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the amount stated in the Contract Data and denominated in the currency (ies) of the Contract or in a freely convertible currency acceptable to the Employer. If an amount is not stated in the Contract Data, this Sub-Clause shall not apply.

The Contractor shall deliver the Performance Security to the Employer within 28 days after receiving the Letter of Acceptance and shall send a copy to the Engineer. The Performance Security shall be issued by a reputable bank or financial institution selected by the Contractor and shall be in the form annexed to the Particular Conditions,

as stipulated by the Employer in the Contract Data, or in another form approved by the Employer.

The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.

The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is entitled under the Contract.

The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Employer was not entitled to make the claim.

The Employer shall return the Performance Security to the Contractor within 21 days after receiving a copy of the Performance Certificate.

Without limitation to the provisions of the rest of this Sub-Clause, whenever the Engineer determines an addition or a reduction to the Contract Price as a result of a change in cost and/or legislation, or as a result of a Variation, amounting to more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor shall at the Engineer's request promptly increase, or may decrease, as the case may be, the value of the Performance Security in that currency by an equal percentage.

4.3 Contractor's Representative

The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract.

Unless the Contractor's Representative is named in the Contract, the Contractor shall, prior to the Commencement Date, submit to the Engineer for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked in terms of Sub-Clause 6.9 [Contractor's Personnel], or if the appointed person fails to act as Contractor's Representative, the Contractor shall

similarly submit the name and particulars of another suitable person for such appointment.

The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Contractor's Representative or appoint a replacement.

The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Engineer's prior consent, and the Engineer shall be notified accordingly.

The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [Instructions of the Engineer].

The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Engineer has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.

The Contractor's Representative shall be fluent in the language for communications defined in Sub-Clause 1.4 [Law and Language]. If the Contractor's Representative's delegates are not fluent in the said language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.

4.4 Subcontractors

The Contractor shall not subcontract the whole of the Works.

The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Unless otherwise stated in the Particular Conditions:

(a) the Contractor shall not be required to obtain consent to suppliers solely of Materials, or to a subcontract for which the Subcontractor is named in the Contract.

(b) the prior consent of the Engineer shall be obtained to other proposed Subcontractors.

(c) the Contractor shall give the Engineer not less than 28 days' notice of the intended date of the

commencement of each Subcontractor's work, and of the commencement of such work on the Site, and

(d) each subcontract shall include provisions which would entitle the Employer to require the subcontract to be assigned to the Employer under Sub-Clause 4.5 [Assignment of Benefit of Subcontract] (if or when applicable) or in the event of termination under Sub-Clause 15.2 [Termination by Employer].

The Contractor shall ensure that the requirements imposed on the Contractor by Sub-Clause 1.12 [Confidential Details] apply equally to each Subcontractor.

Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from the Country to be appointed as Subcontractors.

4.5 Assignment of Benefit of Subcontract

If a Subcontractor's obligations extend beyond the expiry date of the relevant Defects Notification Period and the Engineer, prior to this date, instructs the Contractor to assign the benefit of such obligations to the Employer, then the Contractor shall do so. Unless otherwise stated in the assignment, the Contractor shall have no liability to the Employer for the work carried out by the Subcontractor after the assignment takes effect.

4.6 Co-operation

The Contractor shall, as specified in the Contract or as instructed by the Engineer, allow appropriate opportunities for carrying out work to:

(a) the Employer's Personnel,

(b) any other contractors employed by the Employer, and

(c) the personnel of any legally constituted public authorities,

who may be employed in the execution on or near the Site of any work not included in the Contract.

Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.

If, under the Contract, the Employer is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents

to the Engineer in the time and manner stated in the Specification.

4.7 Setting Out

The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contract or notified by the Engineer. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.

The Employer shall be responsible for any errors in these specified or notified items of reference, but the Contractor shall use reasonable efforts to verify their accuracy before they are used.

If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/or Cost, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent the error could not reasonably have been discovered, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this e.

4.8 Safety Procedures

The Contractor shall:

(a) comply with all applicable safety regulations,

(b) take care for the safety of all persons entitled to be on the Site,

(c) use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons,

(d) provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 10 [Employer's Taking Over], and

(e) provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for

the use and protection of the public and of owners and occupiers of adjacent land.

4.9 Quality Assurance

The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Engineer shall be entitled to audit any aspect of the system.

Details of all procedures and compliance documents shall be submitted to the Engineer for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Engineer, evidence of the prior approval by the Contractor himself shall be apparent on the document itself.

Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.

4.10 Site Data

The Employer shall have made available to the Contractor for his information, prior to the Base Date, all relevant data in the Employer's possession on sub-surface and hydrological conditions at the Site, including environmental aspects. The Employer shall similarly make available to the Contractor all such data which come into the Employer's possession after the Base Date. The Contractor shall be responsible for interpreting all such data.

To the extent which was practicable (taking account of cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Tender as to all relevant matters, including (without limitation):

(a) the form and nature of the Site, including sub-surface conditions,

(b) the hydrological and climatic conditions,

(c) the extent and nature of the work and Goods necessary for the execution and completion of the Works and the remedying of any defects,

(d) the Laws, procedures and labour practices of the Country, and

(e) the Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water and other services.

4.11 Sufficiency of the Accepted Contract Amount

The Contractor shall be deemed to:

(a) have satisfied himself as to the correctness and sufficiency of the Accepted Contract Amount, and

(b) have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters referred to in Sub-Clause 4.10 [Site Data].

Unless otherwise stated in the Contract, the Accepted Contract Amount covers all the Contractor's obligations under the Contract (including those under Provisional Sums, if any) and all things necessary for the proper execution and completion of the Works and the remedying of any defects.

4.12 Unforeseeable Physical Conditions

In this Sub-Clause, "physical conditions" means natural physical conditions and man-made and other physical obstructions and pollutants, which the Contractor encounters at the Site when executing the Works, including sub-surface and hydrological conditions but excluding climatic conditions.

If the Contractor encounters adverse physical conditions which he considers to have been Unforeseeable, the Contractor shall give notice to the Engineer as soon as practicable.

This notice shall describe the physical conditions, so that they can be inspected by the Engineer, and shall set out the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the Engineer may give. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor shall be entitled subject to notice under Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, which shall be included in the Contract Price.

Upon receiving such notice and inspecting and/or investigating these physical conditions, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent these physical conditions were Unforeseeable, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

However, before additional Cost is finally agreed or determined under sub-paragraph (ii), the Engineer may also review whether other physical conditions in similar parts of the Works (if any) were more favourable than could reasonably have been foreseen when the Contractor submitted the Tender. If and to the extent that these more favourable conditions were encountered, the Engineer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the reductions in Cost which were due to these conditions, which may be included (as deductions) in the Contract Price and Payment Certificates. However, the net effect of all adjustments under sub-paragraph (b) and all these reductions, for all the physical conditions encountered in similar parts of the Works, shall not result in a net reduction in the Contract Price.

The Engineer shall take account of any evidence of the physical conditions foreseen by the Contractor when submitting the Tender, which shall be made available by the Contractor, but shall not be bound by the Contractor's interpretation of any such evidence.

4.13 Rights of Way and Facilities

Unless otherwise specified in the Contract the Employer shall provide effective access to and possession of the Site including special and/or temporary rights-of-way which are necessary for the Works. The Contractor shall obtain, at his risk and cost, any additional rights of way or facilities outside the Site which he may require for the purposes of the Works.

4.14 Avoidance of Interference

The Contractor shall not interfere unnecessarily or improperly with:

(a) the convenience of the public, or

(b) the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Employer or of others.

The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and

expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

4.15 Access Route

The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site at Base Date. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.

Except as otherwise stated in these Conditions:

(a) the Contractor shall (as between the Parties) be responsible for any maintenance which may be required for his use of access routes.

(b) the Contractor shall provide all necessary signs or directions along access routes and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions.

(c) the Employer shall not be responsible for any claims which may arise from the use or otherwise of any access route.

(d) the Employer does not guarantee the suitability or availability of particular access routes; and

(e) Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.

4.16 Transport of Goods

Unless otherwise stated in the Particular Conditions:

(a) the Contractor shall give the Engineer not less than 21 days' notice of the date on which any Plant or a major item of other Goods will be delivered to the Site.

(b) the Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other things required for the Works; and

(c) the Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the transport of Goods and shall negotiate and pay all claims arising from their transport.

4.17 Contractor's Equipment

The Contractor shall be responsible for all Contractor's Equipment. When brought on to the Site, Contractor's

Equipment shall be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any major items of Contractor's Equipment without the consent of the Engineer. However, consent shall not be required for vehicles transporting Goods or Contractor's Personnel off Site.

4.18 Protection of the Environment

The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.

The Contractor shall ensure that emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values stated in the Specification or prescribed by applicable Laws.

4.19 Electricity, Water and Gas

The Contractor shall, except as stated below, be responsible for the provision of all power, water and other services he may require for his construction activities and to the extent defined in the Specifications, for the tests.

The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details and prices are given in the Specification. The Contractor shall, at his risk and cost, provide any apparatus necessary for his use of these services and for measuring the quantities consumed.

The quantities consumed and the amounts due (at these prices) for such services shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.

4.20 Employer's Equipment and Free-Issue Materials

The Employer shall make the Employer's Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements and prices stated in the Specification. Unless otherwise stated in the Specification:

(a) the Employer shall be responsible for the Employer's Equipment, except that

(b) the Contractor shall be responsible for each item of Employer's Equipment whilst any of the Contractor's Personnel is operating it, driving it, directing it or in possession or control of it.

The appropriate quantities and the amounts due (at such stated prices) for the use of Employer's Equipment shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.

The Employer shall supply, free of charge, the "free-issue materials" (if any) in accordance with the details stated in the Specification. The Employer shall, at his risk and cost, provide these materials at the time and place specified in the Contract. The Contractor shall then visually inspect them and shall promptly give notice to the Engineer of any shortage, defect or default in these materials. Unless otherwise agreed by both Parties, the Employer shall immediately rectify the notified shortage, defect or default.

After this visual inspection, the free-issue materials shall come under the care, custody and control of the Contractor. The Contractor's obligations of inspection, care, custody and control shall not relieve the Employer of liability for any shortage, defect or default not apparent from a visual inspection.

4.21 Progress Reports

Unless otherwise stated in the Particular Conditions, monthly progress reports shall be prepared by the Contractor and submitted to the Engineer in six copies. The first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 days after the last day of the period to which it relates.

Reporting shall continue until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

Each report shall include:

(a) charts and detailed descriptions of progress, including each stage of design (if any), Contractor's Documents, procurement, manufacture, delivery to Site, construction, erection and testing; and including these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),

(b) photographs showing the status of manufacture and of progress on the Site.

(c) for the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of:

(i) commencement of manufacture,

(ii) Contractor's inspections,

(iii) tests, and

(iv) shipment and arrival at the Site.

(d) the details described in Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment].

(e) copies of quality assurance documents, test results and certificates of Materials.

(f) list of notices given under Sub-Clause 2.5 [Employer's Claims] and notices given under Sub-Clause 20.1 [Contractor's Claims].

(g) safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and

(h) comparisons of actual and planned progress, with details of any events or circumstances which may jeopardise the completion in accordance with the Contract, and the measures being (or to be) adopted to overcome delays.

4.22 Security of the Site

Unless otherwise stated in the Particular Conditions:

(a) the Contractor shall be responsible for keeping unauthorised persons off the Site, and

(b) authorised persons shall be limited to the Contractor's Personnel and the Employer's Personnel; and to any other personnel notified to the Contractor, by the Employer or the Engineer, as authorised personnel of the Employer's other contractors on the Site.

4.23 Contractor's Operations on Site

The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed by the Engineer as additional working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to keep them off adjacent land.

During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction and

shall store or dispose of any Contractor's Equipment or surplus materials. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.

Upon the issue of a Taking-Over Certificate, the Contractor shall clear away and remove, from that part of the Site and Works to which the Taking-Over Certificate refers, all Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave that part of the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Defects Notification Period, such Goods as are required for the Contractor to fulfil obligations under the Contract.

4.24 Fossils

All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Employer. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.

The Contractor shall, upon discovery of any such finding, promptly give notice to the Engineer, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, which shall be included in the Contract Price.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

5. Nominated Subcontractors

5.1 Definition of "nominated Subcontractor"

In the Contract, "nominated Subcontractor" means a Subcontractor:

(a) who is stated in the Contract as being a nominated Subcontractor, or

(b) whom the Engineer, under Clause 13 [Variations and Adjustments], instructs the Contractor to employ as a Subcontractor subject to Sub-Clause 5.2 [Objection to Notification].

5.2 Objection to Nomination

The Contractor shall not be under any obligation to employ a nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Engineer as soon as practicable, with supporting particulars. An objection shall be deemed reasonable if it arises from (among other things) any of the following matters, unless the Employer agrees in writing to indemnify the Contractor against and from the consequences of the matter:

(a) there are reasons to believe that the Subcontractor does not have sufficient competence, resources or financial strength.

(b) the nominated Subcontractor does not accept to indemnify the Contractor against and from any negligence or misuse of Goods by the nominated Subcontractor, his agents and employees; or

(c) the nominated Subcontractor does not accept to enter into a subcontract which specifies that, for the subcontracted work (including design, if any), the nominated Subcontractor shall:

(i) undertake to the Contractor such obligations and liabilities as will enable the Contractor to discharge his obligations and liabilities under the Contract.

(ii) indemnify the Contractor against and from all obligations and liabilities arising under or in connection with the Contract and from the consequences of any failure by the Subcontractor to perform these obligations or to fulfil these liabilities, and

(iii) be paid only if and when the Contractor has received from the Employer payments for sums due under the Subcontract referred to under Sub-Clause 5.3 [Payment to nominated Subcontractors].

5.3 Payments to nominated Subcontractors

The Contractor shall pay to the nominated Subcontractor the amounts shown on the nominated Subcontractor's invoices approved by the Contractor which the Engineer certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with sub-paragraph (b) of

Sub-Clause 13.5 [Provisional Sums], except as stated in Sub-Clause 5.4 [Evidence of Payments].

5.4 Evidence of Payments

Before issuing a Payment Certificate which includes an amount payable to a nominated Subcontractor, the Engineer may request the Contractor to supply reasonable evidence that the nominated Subcontractor has received all amounts due in accordance with previous Payment Certificates, less applicable deductions for retention or otherwise. Unless the Contractor:

(a) submits this reasonable evidence to the Engineer, or

(b)

(i) satisfies the Engineer in writing that the Contractor is reasonably entitled to withhold or refuse to pay these amounts, and

(ii) submits to the Engineer reasonable evidence that the nominated Subcontractor has been notified of the Contractor's entitlement,

then the Employer may (at his sole discretion) pay, direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above. The Contractor shall then repay, to the Employer, the amount which the nominated Subcontractor was directly paid by the Employer.

6. Staff and Labour

6.1 Engagement of Staff and Labour

Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all staff and labour, local or otherwise, and for their payment, feeding, transport, and, when appropriate, housing.

The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience from sources within the Country.

6.2 Rates of Wages and Conditions of Labour

The Contractor shall pay rates of wages, and observe conditions of labour, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by

employers whose trade or industry is similar to that of the Contractor.

The Contractor shall inform the Contractor's Personnel about their liability to pay personal income taxes in the Country in respect of such of their salaries, wages, allowances and any benefits as are subject to tax under the Laws of the Country for the time being in force, and the Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such Laws.

6.3 Persons in the Service of Employer

The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer's Personnel.

6.4 Labour Laws

The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.

The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.

6.5 Working Hours

No work shall be carried out on the Site on locally recognised days of rest, or outside the normal working hours stated in the Contract Data, unless:

(a) otherwise stated in the Contract,

(b) the Engineer gives consent, or

(c) the work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer.

6.6 Facilities for Staff and Labour

Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Employer's Personnel as stated in the Specification.

The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

6.7 Health and Safety

The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local

health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Employer's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

The Contractor shall send, to the Engineer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Engineer may reasonably require.

HIV-AIDS Prevention. The Contractor shall conduct an HIV-AIDS awareness programme via an approved service provider and shall undertake such other measures as are specified in this Contract to reduce the risk of the transfer of the HIV virus between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist affected individuals.

The Contractor shall throughout the contract (including the Defects Notification Period): (i) conduct Information, Education and Communication (IEC) campaigns, at least every other month, addressed to all the Site staff and labour (including all the Contractor's employees, all Subcontractors and any other Contractor's or Employer's personnel employees, and all truck drivers and crew making deliveries to Site for construction activities) and to the immediate local communities, concerning the risks, dangers and impact, and appropriate avoidance behaviour with respect to, of Sexually Transmitted Diseases (STD) - or Sexually Transmitted Infections (STI) in general and HIV/AIDS in particular; (ii) provide male or female condoms for all Site staff and labour as appropriate; and (iii) provide for STI and HIV/AIDS screening, diagnosis, counselling and referral to a dedicated national STI and HIV/AIDS

programme, (unless otherwise agreed) of all Site staff and labour.

The Contractor shall include in the programme to be submitted for the execution of the Works under Sub-Clause 8.3 an alleviation programme for Site staff and labour and their families in respect of Sexually Transmitted Infections (STI) and Sexually Transmitted Diseases (STD) including HIV/AIDS. The STI, STD and HIV/AIDS alleviation programme shall indicate when, how and at what cost the Contractor plans to satisfy the requirements of this Sub-Clause and the related specification. For each component, the programme shall detail the resources to be provided or utilised and any related sub-contracting proposed. The programme shall also include provision of a detailed cost estimate with supporting documentation. Payment to the Contractor for preparation and implementation this programme shall not exceed the Provisional Sum dedicated for this purpose.

6.8 Contractor's Superintendence

Throughout the execution of the Works, and as long thereafter as is necessary to fulfil the Contractor's obligations, the Contractor shall provide all necessary superintendence to plan, arrange, direct, manage, inspect and test the work.

Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications (defined in Sub-Clause 1.4 [Law and Language]) and of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.

6.9 Contractor's Personnel

The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Engineer may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative if applicable, who:

(a) persists in any misconduct or lack of care,

(b) carries out duties incompetently or negligently,

(c) fails to conform with any provisions of the Contract,

(d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment, or

(e) based on reasonable evidence, is determined to have engaged in Prohibited Practices during the execution of the Works.

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

6.10 Records of Contractor's Personnel and Equipment

The Contractor shall submit, to the Engineer, details showing the number of each class of Contractor's Personnel and of each type of Contractor's Equipment on the Site. Details shall be submitted each calendar month, in a form approved by the Engineer, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

6.11 Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site.

6.12 Foreign Personnel

The Contractor may bring into the Country any foreign personnel who are necessary for the execution of the Works to the extent allowed by the applicable Laws. The Contractor shall ensure that these personnel are provided with the required residence visas and work permits. The Employer will, if requested by the Contractor, use his best endeavours in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national or government permission required for bringing in the Contractor's personnel.

The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.

6.13 Supply of Foodstuffs

The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor's Personnel for the purposes of or in connection with the Contract.

6.14 Supply of Water

The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.

6.15 Measures against Insect and Pest Nuisance

The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.

6.16 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereof by Contractor's Personnel.

6.17 Arms and Ammunition

The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.

6.18 Festivals and Religious Customs

The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.

6.19 Funeral Arrangements

The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of his local employees who may die while engaged upon the Works.

6.20 Prohibition of Forced or Compulsory Labour

The Contractor shall not employ forced labour, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labour, such as indentured labour, bonded labour or similar labour-contracting arrangements.

6.21 Prohibition of Harmful Child Labour

The Contractor shall not employ children in a manner that is economically exploitative, or is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. Where the relevant labour laws of the Country have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work.

6.22 Employment Records of Workers

The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by

the Contractor under Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment].

6.23 Workers' Organisations

In countries where the relevant labour laws recognise workers' rights to form and to join workers' organisations of their choosing without interference and to bargain collectively, the Contractor shall comply with such laws. Where the relevant labour laws substantially restrict workers' organisations, the Contractor shall enable alternative means for the Contractor's Personnel to express their grievances and protect their rights regarding working conditions and terms of employment. In either case described above, and where the relevant labour laws are silent, the Contractor shall not discourage the Contractor's Personnel from forming or joining workers' organisations of their choosing or from bargaining collectively and shall not discriminate or retaliate against the Contractor's Personnel who participate, or seek to participate, in such organisations and bargain collectively. The Contractor shall engage with such workers' representatives. Workers' organisations are expected to fairly represent the workers in the workforce.

6.24 Non-Discrimination and Equal Opportunity

The Contractor shall not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment relationship on the principle of equal opportunity and fair treatment and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment or retirement, and discipline. In countries where the relevant labour laws provide for non-discrimination in employment, the Contractor shall comply with such laws. When the relevant labour laws are silent on non-discrimination in employment, the Contractor shall meet this Sub-Clause's requirements. Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination.

7. Plant, Materials and Workmanship

7.1 Manner of Execution

The Contractor shall carry out the manufacture of Plant, the production andmanufacture of Materials, and all other execution of the Works:

(a) in the manner (if any) specified in the Contract,

(b) in a proper workmanlike and careful manner, in accordance with recognised good practice, and

(c) with properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract.

7.2 Samples

The Contractor shall submit the following samples of Materials, and relevant information, to the Engineer for consent prior to using the Materials in or for the Works:

(a) manufacturer's standard samples of Materials and samples specified in the Contract, all at the Contractor's cost, and

(b) additional samples instructed by the Engineer as a Variation.

Each sample shall be labelled as to origin and intended use in the Works.

7.3 Inspection

The Employer's Personnel shall at all reasonable times:

(a) have full access to all parts of the Site and to all places from which natural Materials are being obtained, and

(b) during production, manufacture and construction (at the Site and elsewhere), be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of manufacture of Plant and production and manufacture of Materials.

The Contractor shall give the Employer's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.

The Contractor shall give notice to the Engineer whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The Engineer shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Engineer does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the

Engineer, uncover the work and thereafter reinstate and make good, all at the Contractor's cost.

7.4 Testing

This Sub-Clause shall apply to all tests specified in the Contract, other than the Tests after Completion (if any).

Except as otherwise specified in the Contract, the Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the Works.

The Engineer may, under Clause 13 [Variations and Adjustments], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.

The Engineer shall give the Contractor not less than 24 hours' notice of the Engineer's intention to attend the tests. If the Engineer does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Engineer, and the tests shall then be deemed to have been made in the Engineer's presence.

If the Contractor suffers delay and/or incurs Cost from complying with these instructions or as a result of a delay for which the Employer is responsible, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

The Contractor shall promptly forward to the Engineer duly certified reports of the tests. When the specified tests have been passed, the Engineer shall endorse the Contractor's test certificate, or issue a certificate to him,

to that effect. If the Engineer has not attended the tests, he shall be deemed to have accepted the readings as accurate.

7.5 Rejection

If, as a result of an examination, inspection, measurement or testing, any Plant, Materials or workmanship is found to be defective or otherwise not in accordance with the Contract, the Engineer may reject the Plant, Materials 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 Contract.

If the Engineer requires this Plant, Materials or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Employer to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay these costs to the Employer.

7.6 Remedial Work

Notwithstanding any previous test or certification, the Engineer may instruct the Contractor to:

(a) remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,

(b) remove and re-execute any other work which is not in accordance with the Contract, and

(c) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise.

The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is specified under sub-paragraph (c).

If the Contractor fails to comply with the instruction, the Employer shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay to the Employer all costs arising from this failure.

7.7 Ownership of Plant and Materials

Except as otherwise provided in the Contract, each item of Plant and Materials shall, to the extent consistent with the Laws of the Country, become the property of the Employer at whichever is the earlier of the following times, free from liens and other encumbrances:

(a) when it is incorporated in the Works.

(b) when the Contractor is paid the corresponding value of the Plant and Materials under Sub-Clause 8.10 [Payment for Plant and Materials in Event of Suspension].

7.8 Royalties

Unless otherwise stated in the Specification, the Contractor shall pay all royalties, rents and other payments for:

(a) natural Materials obtained from outside the Site, and

(b) the disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal areas within the Site are specified in the Contract.

8. Commencement, Delays and Suspension

8.1 Commencement of Works

Except as otherwise specified in the Particular Conditions of Contract, the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Engineer's notification recording the agreement of both Parties on such fulfilment and instructing to commence the Work is received by the Contractor:

(a) signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of the Country.

(b) delivery to the Contractor of reasonable evidence of the Employer's financial arrangements (under Sub-Clause 2.4 [Employer's Financial Arrangements]).

(c) except if otherwise specified in the Contract Data, effective access to and possession of the Site given to the Contractor together with such permission(s) under (a) of Sub-Clause 1.13 [Compliance with Laws] as required for the commencement of the Works

(d) receipt by the Contractor of the Advance Payment under Sub-Clause 14.2 [Advance Payment] provided that the corresponding bank guarantee has been delivered by the Contractor.

If the said Engineer's instruction is not received by the Contractor within 180 days from his receipt of the Letter

of Acceptance, the Contractor shall be entitled to terminate the Contract under Sub-Clause 16.2 [Termination by Contractor].

The Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date and shall then proceed with the Works with due expedition and without delay.

8.2 Time for Completion

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

(a) achieving the passing of the Tests on Completion, and

(b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections].

8.3 Programme

The Contractor shall submit a detailed time programme to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1 [Commencement of Works]. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor's obligations. Each programme shall include:

(a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing,

(b) each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),

(c) the sequence and timing of inspections and tests specified in the Contract, and

(d) a supporting report which includes:

(i) a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and

(ii) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of

Contractor's Equipment, required on the Site for each major stage.

Unless the Engineer, within 21 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Employer's Personnel shall be entitled to rely upon the programme when planning their activities.

The Contractor shall promptly give notice to the Engineer of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works. The Engineer may require the Contractor to submit an estimate of the anticipated effect of the future event or circumstances, and/or a proposal under Sub-Clause 13.3 [Variation Procedure].

If, at any time, the Engineer gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Engineer in accordance with this Sub-Clause.

8.4 Extension of Time for Completion

The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over of the Works and Sections] is or will be delayed by any of the following causes:

(a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [Variation Procedure]) or other substantial change in the quantity of an item of work included in the Contract,

(b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions,

(c) exceptionally adverse climatic conditions,

(d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions, or

(e) any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors.

If the Contractor considers himself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Engineer in accordance with Sub-Clause 20.1 [Contractor's Claims]. When determining each extension of time under Sub-Clause 20.1, the Engineer shall review previous determinations and may increase, but shall not decrease, the total extension of time.

8.5 Delays Caused by Authorities

If the following conditions apply, namely:

(a) the Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in the Country,

(b) these authorities delay or disrupt the Contractor's work, and

(c) the delay or disruption was Unforeseeable,

then this delay or disruption will be considered as a cause of delay under sub-paragraph (b) of Sub-Clause 8.4 [Extension of Time for Completion].

8.6 Rate of Progress

If, at any time:

(a) actual progress is too slow to complete within the Time for Completion, and/or

(b) progress has fallen (or will fall) behind the current programme under Sub-Clause 8.3 [Programme],

other than as a result of a cause listed in Sub-Clause 8.4 [Extension of Time for Completion], then the Engineer may instruct the Contractor to submit, under Sub-Clause 8.3 [Programme], a revised programme and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.

Unless the Engineer notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or Goods, at the risk and cost of the Contractor. If these revised methods cause the Employer to incur additional costs, the Contractor shall subject to notice under Sub-Clause 2.5 [Employer's Claims] pay these costs to the Employer, in addition to delay damages (if any) under Sub-Clause 8.7 below.

Additional costs of revised methods including acceleration measures, instructed by the Engineer to reduce delays resulting from causes listed under Sub-Clause 8.4 [Extension of Time for Completion] shall be

paid by the Employer, without generating, however, any other additional payment benefit to the Contractor.

8.7 Delay Damages

If the Contractor fails to comply with Sub-Clause 8.2 [Time for Completion], the Contractor shall subject to notice under Sub-Clause 2.5 [Employer's Claims] pay delay damages to the Employer for this default. These delay damages shall be the sum stated in the Contract Data, which shall be paid for every day which shall elapse between the relevant Time for Completion and the date stated in the Taking-Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the Contract Data.

These delay damages shall be the only damages due from the Contractor for such default, other than in the event of termination under Sub-Clause 15.2 [Termination by Employer] prior to completion of the Works. These damages shall not relieve the Contractor from his obligation to complete the Works, or from any other duties, obligations or responsibilities which he may have under the Contract.

8.8 Suspension of Work

The Engineer may at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.

The Engineer may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following Sub-Clauses 8.9, 8.10 and 8.11 shall not apply.

8.9 Consequences of Suspension

If the Contractor suffers delay and/or incurs Cost from complying with the Engineer's instructions under Sub-Clause 8.8 [Suspension of Work] and/or from resuming the work, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure in accordance with Sub-Clause 8.8 [Suspension of Work].

8.10 Payment for Plant and Materials in Event of Suspension

The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/or Materials which have not been delivered to Site, if:

(a) the work on Plant or delivery of Plant and/or Materials has been suspended for more than 28 days, and

(b) the Contractor has marked the Plant and/or Materials as the Employer's property in accordance with the Engineer's instructions.

8.11 Prolonged Suspension

If the suspension under Sub-Clause 8.8 [Suspension of Work] has continued for more than 84 days, the Contractor may request the Engineer's permission to proceed. If the Engineer does not give permission within 28 days after being requested to do so, the Contractor may, by giving notice to the Engineer, treat the suspension as an omission under Clause 13 [Variations and Adjustments] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice of termination under Sub-Clause 16.2 [Termination by Contractor].

8.12 Resumption of Work

After the permission or instruction to proceed is given, the Contractor and the Engineer shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant or Materials, which has occurred during the suspension after receiving from the Engineer an instruction to this effect under Clause 13 [Variations and Adjustments].

9. Tests on Completion

9.1 Contractor's Obligations

The Contractor shall carry out the Tests on Completion in accordance with this Clause and Sub-Clause 7.4 [Testing], after providing the documents in accordance with sub-paragraph (d) of Sub-Clause 4.1 [Contractor's General Obligations].

The Contractor shall give to the Engineer not less than 21 days' notice of the date after which the Contractor will

be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carried out within 14 days after this date, on such day or days as the Engineer shall instruct.

In considering the results of the Tests on Completion, the Engineer shall make allowances for the effect of any use of the Works by the Employer on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed any Tests on Completion, the Contractor shall submit a certified report of the results of these Tests to the Engineer.

9.2 Delayed Tests

If the Tests on Completion are being unduly delayed by the Employer, Sub-Clause 7.4 [Testing] (fifth paragraph) and/or Sub-Clause 10.3 [Interference with Tests on Completion] shall be applicable.

If the Tests on Completion are being unduly delayed by the Contractor, the Engineer may by notice require the Contractor to carry out the Tests within 21 days after receiving the notice. The Contractor shall carry out the Tests on such day or days within that period as the Contractor may fix and of which he shall give notice to the Engineer.

If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Employer's Personnel may proceed with the Tests at the risk and cost of the Contractor. The Tests on Completion shall then be deemed to have been carried out in the presence of the Contractor and the results of the Tests shall be accepted as accurate.

9.3 Retesting

If the Works, or a Section, fail to pass the Tests on Completion, Sub-Clause 7.5 [Rejection] shall apply, and the Engineer or the Contractor may require the failed Tests, and Tests on Completion on any related work, to be repeated under the same terms and conditions.

9.4 Failure to Pass Tests on Completion

If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [Retesting], the Engineer shall be entitled to:

(a) order further repetition of Tests on Completion under Sub-Clause 9.3.

(b) if the failure deprives the Employer of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Employer shall have the same remedies as are

provided in sub-paragraph (c) of Sub-Clause 11.4 [Failure to Remedy Defects]; or

(c) issue a Taking-Over Certificate, if the Employer so requests.

In the event of sub-paragraph (c), the Contractor shall proceed in accordance with all other obligations under the Contract, and the Contract Price shall be reduced by such amount as shall be appropriate to cover the reduced value to the Employer as a result of this failure. Unless the relevant reduction for this failure is stated (or its method of calculation is defined) in the Contract, the Employer may require the reduction to be (i) agreed by both Parties (in full satisfaction of this failure only) and paid before this Taking-Over Certificate is issued, or (ii) determined and paid under Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations].

10. Employer's Taking Over

10.1 Taking Over of the Works and Sections

Except as stated in Sub-Clause 9.4 [Failure to Pass Tests on Completion], the Works shall be taken over by the Employer when (i) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.2 [Time for Completion] and except as allowed in sub-paragraph (a) below, and (ii) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.

The Contractor may apply by notice to the Engineer for a Taking-Over Certificate not earlier than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.

The Engineer shall, within 28 days after receiving the Contractor's application:

(a) issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or

(b) reject the application, giving reasons and specifying the work required to be done by the Contractor to

enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.

If the Engineer fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 28 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.

10.2 Taking Over of Parts of the Works

The Engineer may, at the sole discretion of the Employer, issue a Taking-Over Certificate for any part of the Permanent Works.

The Employer shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Engineer has issued a Taking-Over Certificate for this part. However, if the Employer does use any part of the Works before the Taking-Over Certificate is issued:

(a) the part which is used shall be deemed to have been taken over as from the date on which it is used,

(b) the Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Employer, and

(c) if requested by the Contractor, the Engineer shall issue a Taking-Over Certificate for this part.

After the Engineer has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Notification Period.

If the Contractor incurs Cost as a result of the Employer taking over and/or using a part of the Works, other than such use as is specified in the Contract or agreed by the Contractor, the Contractor shall (i) give notice to the Engineer and (ii) be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to payment of any such Cost plus profit, which shall be included in the Contract Price. After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this Cost and profit.

If a Taking-Over Certificate has been issued for a part of the Works (other than a Section), the delay damages thereafter for completion of the remainder of the Works

shall be reduced. Similarly, the delay damages for the remainder of the Section (if any) in which this part is included shall also be reduced. For any period of delay after the date stated in this Taking-Over Certificate, the proportional reduction in these delay damages shall be calculated as the proportion which the value of the part so certified bears to the value of the Works or Section (as the case may be) as a whole. The Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these proportions. The provisions of this paragraph shall only apply to the daily rate of delay damages under Sub-Clause 8.7 [Delay Damages] and shall not affect the maximum amount of these damages.

10.3 Interference with Tests on Completion

If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Employer is responsible, the Employer shall be deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed.

The Engineer shall then issue a Taking-Over Certificate accordingly, and the Contractor shall carry out the Tests on Completion as soon as practicable, before the expiry date of the Defects Notification Period. The Engineer shall require the Tests on Completion to be carried out by giving 14 days' notice and in accordance with the relevant provisions of the Contract.

If the Contractor suffers delay and/or incurs Cost as a result of this delay in carrying out the Tests on Completion, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

10.4 Surfaces Requiring Reinstatement

Except as otherwise stated in a Taking-Over Certificate, a certificate for a Section or part of the Works shall not be deemed to certify completion of any ground or other surfaces requiring reinstatement.

11. Defects Liability

11.1 Completion of Outstanding Work and Remedying Defects

In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:

(a) complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Engineer, and

(b) execute all work required to remedy defects or damage, as may be notified by (or on behalf of) the Employer on or before the expiry date of the Defects Notification Period for the Works or Section (as the case may be).

If a defect appears or damage occurs, the Contractor shall be notified accordingly, by (or on behalf of) the Employer.

11.2 Cost of Remedying Defects

All work referred to in sub-paragraph (b) of Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:

(a) any design for which the Contractor is responsible,

(b) Plant, Materials or workmanship not being in accordance with the Contract, or

(c) failure by the Contractor to comply with any other obligation.

If and to the extent that such work is attributable to any other cause, the Contractor shall be notified promptly by (or on behalf of) the Employer, and Sub-Clause 13.3 [Variation Procedure] shall apply.

11.3 Extension of Defects Notification Period

The Employer shall be entitled subject to Sub-Clause 2.5 [Employer's Claims] to an extension of the Defects Notification Period for the Works or a Section if and to the extent that the Works, Section or a major item of Plant (as the case may be, and after taking over) cannot be used for the purposes for which they are intended by reason of a defect or by reason of damage attributable to the Contractor. However, a Defects Notification Period shall not be extended by more than two years.

If delivery and/or erection of Plant and/or Materials was suspended under Sub-Clause 8.8 [Suspension of Work] or Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work], the Contractor's obligations under this Clause

shall not apply to any defects or damage occurring more than two years after the Defects Notification Period for the Plant and/or Materials would otherwise have expired.

11.4 Failure to Remedy Defects

If the Contractor fails to remedy any defect or damage within a reasonable time, a date may be fixed by (or on behalf of) the Employer, on or by which the defect or damage is to be remedied. The Contractor shall be given reasonable notice of this date.

If the Contractor fails to remedy the defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Employer may (at his option):

(a) carry out the work himself or by others, in a reasonable manner and at the Contractor's cost, but the Contractor shall have no responsibility for this work; and the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay to the Employer the costs reasonably incurred by the Employer in remedying the defect or damage.

(b) require the Engineer to agree or determine a reasonable reduction in the Contract Price in accordance with Sub-Clause 3.5 [Determinations]; or

(c) if the defect or damage deprives the Employer of substantially the whole benefit of the Works or any major part of the Works, terminate the Contract as a whole, or in respect of such major part which cannot be put to the intended use. Without prejudice to any other rights, under the Contract or otherwise, the Employer shall then be entitled to recover all sums paid for the Works or for such part (as the case may be), plus financing costs and the cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.

11.5 Removal of Defective Work

If the defect or damage cannot be remedied expeditiously on the Site and the Employer gives consent, the Contractor may remove from the Site for the purposes of repair such items of Plant as are defective or damaged. This consent may require the Contractor to increase the amount of the Performance Security by the full replacement cost of these items, or to provide other appropriate security.

11.6 Further Tests

If the work of remedying of any defect or damage may affect the performance of the Works, the Engineer may require the repetition of any of the tests described in the

Contract. The requirement shall be made by notice within 28 days after the defect or damage is remedied.

These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under Sub-Clause 11.2 [Cost of Remedying Defects], for the cost of the remedial work.

11.7 Right of Access

Until the Performance Certificate has been issued, the Contractor shall have such right of access to the Works as is reasonably required in order to comply with this Clause, except as may be inconsistent with the Employer's reasonable security restrictions.

11.8 Contractor to Search

The Contractor shall, if required by the Engineer, search for the cause of any defect, under the direction of the Engineer. Unless the defect is to be remedied at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Cost of the search plus profit shall be agreed or determined by the Engineer in accordance with Sub-Clause 3.5 [Determinations] and shall be included in the Contract Price.

11.9 Performance Certificate

Performance of the Contractor's obligations shall not be considered to have been completed until the Engineer has issued the Performance Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract.

The Engineer shall issue the Performance Certificate within 28 days after the latest of the expiry dates of the Defects Notification Periods, or as soon thereafter as the Contractor has supplied all the Contractor's Documents and completed and tested all the Works, including remedying any defects. A copy of the Performance Certificate shall be issued to the Employer.

Only the Performance Certificate shall be deemed to constitute acceptance of the Works.

11.10 Unfulfilled Obligations

After the Performance Certificate has been issued, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.

11.11 Clearance of Site

Upon receiving the Performance Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.

If all these items have not been removed within 28 days after receipt by the Contractor of the Performance Certificate, the Employer may sell or otherwise dispose of any remaining items. The Employer shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.

Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the Employer's costs, the Contractor shall pay the outstanding balance to the Employer.

12. Measurement and Evaluation

12.1 Works to be Measured

The Works shall be measured, and valued for payment, in accordance with this Clause. The Contractor shall show in each application under Sub-Clauses 14.3 [Application for Interim Payment Certificates], 14.10 [Statement on Completion] and 14.11 [Application for Final Payment Certificate] the quantities and other particulars detailing the amounts which he considers to be entitled under the Contract.

Whenever the Engineer requires any part of the Works to be measured, reasonable notice shall be given to the Contractor's Representative, who shall:

(a) promptly either attend or send another qualified representative to assist the Engineer in making the measurement, and

(b) supply any particulars requested by the Engineer.

If the Contractor fails to attend or send a representative, the measurement made by (or on behalf of) the Engineer shall be accepted as accurate.

Except as otherwise stated in the Contract, wherever any Permanent Works are to be measured from records, these shall be prepared by the Engineer. The Contractor shall, as and when requested, attend to examine and agree the records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend, the records shall be accepted as accurate.

If the Contractor examines and disagrees the records, and/or does not sign them as agreed, then the Contractor shall give notice to the Engineer of the respects in which the records are asserted to be inaccurate. After receiving this notice, the Engineer shall review the records and either confirm or vary them and certify the payment of the undisputed part. If the Contractor does not so give

notice to the Engineer within 14 days after being requested to examine the records, they shall be accepted as accurate.

12.2 Method of Measurement

Except as otherwise stated in the Contract and notwithstanding local practice:

(a) measurement shall be made of the net actual quantity of each item of the Permanent Works, and

(b) the method of measurement shall be in accordance with the Bill of Quantities or other applicable Schedules.

12.3 Evaluation

Except as otherwise stated in the Contract, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the Contract Price by evaluating each item of work, applying the measurement agreed or determined in accordance with the above Sub-Clauses 12.1 and 12.2 and the appropriate rate or price for the item.

For each item of work, the appropriate rate or price for the item shall be the rate or price specified for such item in the Contract or, if there is no such item, specified for similar work.

Any item of work included in the Bill of Quantities for which no rate or price was specified shall be considered as included in other rates and prices in the Bill of Quantities and will not be paid for separately.

However, a new rate or price shall be appropriate for an item of work if:

(a) (i) the measured quantity of the item is changed by more than 25% from the quantity of this item in the Bill of Quantities or other Schedule,

(ii) this change in quantity multiplied by such specified rate for this item exceeds 0.25% of the Accepted Contract Amount,

(iii) this change in quantity directly changes the Cost per unit quantity of this item by more than 1%, and

(iv) this item is not specified in the Contract as a "fixed rate item".

or

(b) (i) the work is instructed under Clause 13 [Variations and Adjustments],

(ii) no rate or price is specified in the Contract for this item, and

(iii) no specified rate or price is appropriate because the item of work is not of similar character, or is not executed under similar conditions, as any item in the Contract.

Each new rate or price shall be derived from any relevant rates or prices in the Contract, with reasonable adjustments to take account of the matters described in sub-paragraph (a) and/or (b), as applicable. If no rates or prices are relevant for the derivation of a new rate or price, it shall be derived from the reasonable Cost of executing the work, together with profit, taking account of any other relevant matters.

Until such time as an appropriate rate or price is agreed or determined, the Engineer shall determine a provisional rate or price for the purposes of Interim Payment Certificates as soon as the concerned work commences.

12.4 Omissions

Whenever the omission of any work forms part (or all) of a Variation, the value of which has not been agreed, if:

(a) the Contractor will incur (or has incurred) cost which, if the work had not been omitted, would have been deemed to be covered by a sum forming part of the Accepted Contract Amount.

(b) the omission of the work will result (or has resulted) in this sum not forming part of the Contract Price; and

(c) this cost is not deemed to be included in the evaluation of any substituted work.

then the Contractor shall give notice to the Engineer accordingly, with supporting particulars. Upon receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this cost, which shall be included in the Contract Price.

13. Variations and Adjustments

13.1 Right to Vary

Variations may be initiated by the Engineer at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal.

The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Engineer stating (with supporting particulars) that (i)

the Contractor cannot readily obtain the Goods required for the Variation, or (ii) such Variation triggers a substantial change in the sequence or progress of the Works. Upon receiving this notice, the Engineer shall cancel, confirm or vary the instruction.

Each Variation may include:

(a) changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation),

(c) changes to the quality and other characteristics of any item of work,

(d) changes to the levels, positions and/or dimensions of any part of the Works,

(d) omission of any work unless it is to be carried out by others,

(e) any additional work, Plant, Materials or services necessary for the Permanent Works, including any associated Tests on Completion, boreholes and other testing and exploratory work, or

(f) changes to the sequence or timing of the execution of the Works.

The Contractor shall not make any alteration and/or modification of the Permanent Works, unless and until the Engineer instructs or approves a Variation.

13.2 Value Engineering

The Contractor may, at any time, submit to the Engineer a written proposal which (in the Contractor's opinion) will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Employer of executing, maintaining or operating the Works, (iii) improve the efficiency or value to the Employer of the completed Works, or (iv) otherwise be of benefit to the Employer.

The proposal shall be prepared at the cost of the Contractor and shall include the items listed in Sub-Clause 13.3 [Variation Procedure].

If a proposal, which is approved by the Engineer, includes a change in the design of part of the Permanent Works, then unless otherwise agreed by both Parties:

(a) the Contractor shall design this part,

(b) sub-paragraphs (a) to (d) of Sub-Clause 4.1 [Contractor's General Obligations] shall apply, and

(c) if this change results in a reduction in the contract value of this part, the Engineer shall proceed in

accordance with Sub-Clause 3.5 [Determinations] to agree or determine a fee, which shall be included in the Contract Price. This fee shall be half (50%) of the difference between the following amounts:

(i) such reduction in contract value, resulting from the change, excluding adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost], and

(ii) the reduction (if any) in the value to the Employer of the varied works, taking account of any reductions in quality, anticipated life or operational efficiencies.

However, if amount (i) is less than amount (ii), there shall not be a fee.

13.3 Variation Procedure

If the Engineer requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:

(a) a description of the proposed work to be performed and a programme for its execution,

(b) the Contractor's proposal for any necessary modifications to the programme according to Sub-Clause 8.3 [Programme] and to the Time for Completion, and

(c) the Contractor's proposal for evaluation of the Variation.

The Engineer shall, as soon as practicable after receiving such proposal (under Sub-Clause 13.2 [Value Engineering] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response.

Each instruction to execute a Variation, with any requirements for the recording of Costs, shall be issued by the Engineer to the Contractor, who shall acknowledge receipt.

Each Variation shall be evaluated in accordance with Clause 12 [Measurement and Evaluation], unless the Engineer instructs or approves otherwise in accordance with this Clause.

13.4 Payment in Applicable Currencies

If the Contract provides for payment of the Contract Price in more than one currency, then whenever an adjustment is agreed, approved or determined as stated above, the

amount payable in each of the applicable currencies shall be specified. For this purpose, reference shall be made to the actual or expected currency proportions of the Cost of the varied work, and to the proportions of various currencies specified for payment of the Contract Price.

13.5 Provisional Sums

Each Provisional Sum shall only be used, in whole or in part, in accordance with the Engineer's instructions, and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Engineer shall have instructed. For each Provisional Sum, the Engineer may instruct:

(a) work to be executed (including Plant, Materials or services to be supplied) by the Contractor and valued under Sub-Clause 13.3 [Variation Procedure]; and/or

(b) Plant, Materials or services to be purchased by the Contractor, from a nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]) or otherwise; and for which there shall be included in the Contract Price:

(i) the actual amounts paid (or due to be paid) by the Contractor, and

(ii) a sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate (if any) stated in the appropriate Schedule. If there is no such rate, the percentage rate stated in the Contract Data shall be applied.

The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

13.6 Daywork

For work of a minor or incidental nature, the Engineer may instruct that a Variation shall be executed on a daywork basis. The work shall then be valued in accordance with the Daywork Schedule included in the Contract, and the following procedure shall apply. If a Daywork Schedule is not included in the Contract, this Sub-Clause shall not apply.

Before ordering Goods for the work, the Contractor shall submit quotations to the Engineer. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.

Except for any items for which the Daywork Schedule specifies that payment is not due, the Contractor shall deliver each day to the Engineer accurate statements in duplicate which shall include the following details of the resources used in executing the previous day's work:

(a) the names, occupations and time of Contractor's Personnel,

(b) the identification, type and time of Contractor's Equipment and Temporary Works, and

(c) the quantities and types of Plant and Materials used.

One copy of each statement will, if correct, or when agreed, be signed by the Engineer and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Engineer, prior to their inclusion in the next Statement under Sub-Clause 14.3 [Application for Interim Payment Certificates].

13.7 Adjustments for Changes in Legislation

The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of the Country (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.

If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay has already been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the

table of adjustment data in accordance with the provisions of Sub-Clause 13.8 [Adjustments for Changes in Cost].

13.8 Adjustments for Changes in Cost

In this Sub-Clause, "table of adjustment data" means the completed table of adjustment data for local and foreign currencies included in the Schedules. If there is no such table of adjustment data, this Sub-Clause shall not apply.

If this Sub-Clause applies, the amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labour, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.

The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

Pn = a + b Ln/ Lo + c En/Eo + d Mn/Mo + ... where:

"Pn" is the adjustment multiplier to be applied to the estimated contract value in the relevant currency of the work carried out in period "n", this period being a month unless otherwise stated in the Contract Data.

"a" is a fixed coefficient, stated in the relevant table of adjustment data, representing the non-adjustable portion in contractual payments.

"b", "c", "d", … are coefficients representing the estimated proportion of each cost element related to the execution of the Works, as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, equipment and materials.

"Ln", "En", "Mn", … are the current cost indices or reference prices for period "n", expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date 49 days prior to the last day of the period (to which the particular Payment Certificate relates); and

"Lo", "Eo", "Mo", … are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.

The cost indices or reference prices stated in the table of adjustment data shall be used. If their source is in doubt, it shall be determined by the Engineer. For this purpose, reference shall be made to the values of the indices at stated dates (quoted in the fourth and fifth columns respectively of the table) for the purposes of clarification of the source, although these dates (and thus these values) may not correspond to the base cost indices.

In cases where the "currency of index" is not the relevant currency of payment, each index shall be converted into the relevant currency of payment at the selling rate, established by the central bank of the Country, of this relevant currency on the above date for which the index is required to be applicable.

Until such time as each current cost index is available, the Engineer shall determine a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.

If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price, whichever is more favourable to the Employer.

The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations.

14. Contract Price and Payment

14.1 The Contract Price

Unless otherwise stated in the Particular Conditions:

(a) the Contract Price shall be agreed or determined under Sub-Clause 12.3 [Evaluation] and be subject to adjustments in accordance with the Contract.

(b) the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of

these costs except as stated in Sub-Clause 13.7 [Adjustments for Changes in Legislation].

(c) any quantities which may be set out in the Bill of Quantities or other Schedule are estimated quantities and are not to be taken as the actual and correct quantities:

(i) of the Works which the Contractor is required to execute, or

(ii) for the purposes of Clause 12 [Measurement and Evaluation]; and

(d) the Contractor shall submit to the Engineer, within 28 days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules. The Engineer may take account of the breakdown when preparing Payment Certificates but shall not be bound by it.

Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts therefor, imported by the Contractor for the sole purpose of executing the Contract shall be exempt from the payment of import duties and taxes upon importation.

14.2 Advance Payment

The Employer shall make an advance payment, as an interest-free loan for mobilisation and cash flow support, when the Contractor submits a guarantee in accordance with this Sub-Clause. The total advance payment, the number and timing of instalments (if more than one), and the applicable currencies and proportions, shall be as stated in the Contract Data.

Unless and until the Employer receives this guarantee, or if the total advance payment is not stated in the Contract Data, this Sub-Clause shall not apply.

The Engineer shall deliver to the Employer and to the Contractor an Interim Payment Certificate for the advance payment or its first instalment after receiving a Statement (under Sub-Clause 14.3 [Application for Interim Payment Certificates]) and after the Employer receives (i) the Performance Security in accordance with Sub-Clause 4.2 [Performance Security] and (ii) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by a reputable bank or financial institution selected by the Contractor and shall be in the form annexed to the Particular Conditions or in another form approved by the Employer.

The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been

repaid, but its amount shall be progressively reduced by the amount repaid by the Contractor as indicated in the Payment Certificates. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advance payment has been repaid.

Unless stated otherwise in the Contract Data, the advance payment shall be repaid through percentage deductions from the interim payments determined by the Engineer in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates], as follows:

(a) deductions shall commence in the next interim Payment Certificate following that in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds 30 percent (30%) of the Accepted Contract Amount Less Provisional Sums; and

(b) deductions shall be made at the amortisation rate stated in the Contract Data of the amount of each Interim Payment Certificate (excluding the advance payment and deductions for its repayments as well as deductions for retention money) in the currencies and proportions of the advance payment until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the time when 90 percent (90%) of the Accepted Contract Amount less Provisional Sums has been certified for payment.

If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Clause 15 [Termination by Employer], Clause 16 [Suspension and Termination by Contractor] or Clause 19 [Force Majeure] (as the case may be), the whole of the balance then outstanding shall immediately become due and in case of termination under Clause 15 [Termination by Employer], except for Sub-Clause 15.5 [Employer's Entitlement to Termination for Convenience], payable by the Contractor to the Employer.

14.3 Application for Interim Payment Certificates

The Contractor shall submit a Statement in six copies to the Engineer after the end of each month, in a form approved by the Engineer, showing in detail the amounts to which the Contractor considers himself to be entitled, together with supporting documents which shall include the report on the progress during this month in accordance with Sub-Clause 4.21 [Progress Reports].

The Statement shall include the following items, as applicable, which shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:

(a) the estimated contract value of the Works executed and the Contractor's Documents produced up to the end of the month (including Variations but excluding items described in sub-paragraphs (b) to (g) below).

(b) any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost].

(c) any amount to be deducted for retention, calculated by applying the percentage of retention stated in the Contract Data to the total of the above amounts, until the amount so retained by the Employer reaches the limit of Retention Money (if any) stated in the Contract Data.

(d) any amounts to be added for the advance payment and (if more than one instalment) and to be deducted for its repayments in accordance with Sub-Clause 14.2 [Advance Payment].

(e) any amounts to be added and deducted for Plant and Materials in accordance with Sub-Clause 14.5 [Plant and Materials intended for the Works].

(f) any other additions or deductions which may have become due under the Contract or otherwise, including those under Clause 20 [Claims, Disputes and Arbitration]; and

(g) the deduction of amounts certified in all previous Payment Certificates.

14.4 Schedule of Payments

If the Contract includes a schedule of payments specifying the instalments in which the Contract Price will be paid, then unless otherwise stated in this schedule:

(a) the instalments quoted in this schedule of payments shall be the estimated contract values for the purposes of sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates].

(b) Sub-Clause 14.5 [Plant and Materials intended for the Works] shall not apply; and

(c) if these instalments are not defined by reference to the actual progress achieved in executing the Works,

and if actual progress is found to be less or more than that on which this schedule of payments was based, then the Engineer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine revised instalments, which shall take account of the extent to which progress is less or more than that on which the instalments were previously based.

If the Contract does not include a schedule of payments, the Contractor shall submit non-binding estimates of the payments which he expects to become due during each quarterly period. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at quarterly intervals, until the Taking-Over Certificate has been issued for the Works.

14.5 Plant and Materials intended for the Works

If this Sub-Clause applies, Interim Payment Certificates shall include, under sub-paragraph (e) of Sub-Clause 14.3, (i) an amount for Plant and Materials which have been sent to the Site for incorporation in the Permanent Works, and (ii) a reduction when the contract value of such Plant and Materials is included as part of the Permanent Works under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates].

If the lists referred to in sub-paragraphs (b)(i) or (c)(i) below are not included in the Schedules, this Sub-Clause shall not apply.

The Engineer shall determine and certify each addition if the following conditions are satisfied:

(a) the Contractor has:

(i) kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection, and

(ii) submitted a statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence.

and either:

(b) the relevant Plant and Materials:

(i) are those listed in the Schedules for payment when shipped,

(ii) have been shipped to the Country, en route to the Site, in accordance with the Contract; and

(iii) are described in a clean shipped bill of lading or other evidence of shipment, which has been submitted to the Engineer together with evidence of payment of freight and insurance, any other documents reasonably required, and a bank guarantee in a form and issued by an entity approved by the Employer in amounts and currencies equal to the amount due under this Sub-Clause: this guarantee may be in a similar form to the form referred to in Sub-Clause 14.2 [Advance Payment] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration;

or

(c) the relevant Plant and Materials:

(i) are those listed in the Schedules for payment when delivered to the Site, and

(ii) have been delivered to and are properly stored on the Site, are protected against loss, damage or deterioration, and appear to be in accordance with the Contract.

The additional amount to be certified shall be the equivalent of eighty percent (80%) of the Engineer's determination of the cost of the Plant and Materials (including delivery to Site), taking account of the documents mentioned in this Sub-Clause and of the contract value of the Plant and Materials.

The currencies for this additional amount shall be the same as those in which payment will become due when the contract value is included under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates]. At that time, the Payment Certificate shall include the applicable reduction which shall be equivalent to, and in the same currencies and proportions as, this additional amount for the relevant Plant and Materials.

14.6 Issue of Interim Payment Certificates

No amount will be certified or paid until the Employer has received and approved the Performance Security. Thereafter, the Engineer shall, within 28 days after receiving a Statement and supporting documents, deliver to the Employer and to the Contractor an Interim Payment Certificate which shall state the amount which the Engineer fairly determines to be due, with all

supporting particulars for any reduction or withholding made by the Engineer on the Statement if any.

However, prior to issuing the Taking-Over Certificate for the Works, the Engineer shall not be bound to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be less than the minimum amount of Interim Payment Certificates (if any) stated in the Contract Data. In this event, the Engineer shall give notice to the Contractor accordingly.

An Interim Payment Certificate shall not be withheld for any other reason, although:

(a) if anything supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or

(b) if the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and had been so notified by the Engineer, the value of this work or obligation may be withheld until the work or obligation has been performed.

The Engineer may in any Payment Certificate make any correction or modification that should properly be made to any previous Payment Certificate. A Payment Certificate shall not be deemed to indicate the Engineer's acceptance, approval, consent or satisfaction.

14.7 Payment

The Employer shall pay to the Contractor:

(a) the first instalment of the advance payment within 42 days after issuing the Letter of Acceptance or within 21 days after receiving the documents in accordance with Sub-Clause 4.2 [Performance Security] and Sub-Clause 14.2 [Advance Payment], whichever is later.

(b) the amount certified in each Interim Payment Certificate within 56 days after the Engineer receives the Statement and supporting documents; or, at a time when the Bank's loan or credit (from which part of the payments to the Contractor is being made) is suspended, the amount shown on any statement submitted by the Contractor within 14 days after such statement is submitted, any discrepancy being rectified in the next payment to the Contractor; and

(c) the amount certified in the Final Payment Certificate within 56 days after the Employer receives this Payment Certificate; or, at a time when the Bank's

loan or credit (from which part of the payments to the Contractor is being made) is suspended, the undisputed amount shown in the Final Statement within 56 days after the date of notification of the suspension in accordance with Sub-Clause 16.2 [Termination by Contractor].

Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (for this currency) specified in the Contract.

14.8 Delayed Payment

If the Contractor does not receive payment in accordance with Sub-Clause 14.7 [Payment], the Contractor shall be entitled to receive financing charges compounded monthly on the amount unpaid during the period of delay. This period shall be deemed to commence on the date for payment specified in Sub-Clause 14.7 [Payment], irrespective (in the case of its sub-paragraph (b)) of the date on which any Interim Payment Certificate is issued.

Unless otherwise stated in the Particular Conditions, these financing charges shall be calculated at the annual rate of three percentage points above the discount rate of the central bank in the country of the currency of payment, or if not available, the interbank offered rate, and shall be paid in such currency.

The Contractor shall be entitled to this payment without formal notice or certification, and without prejudice to any other right or remedy.

14.9 Payment of Retention Money

When the Taking-Over Certificate has been issued for the Works, the first half of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate is issued for a Section or part of the Works, a proportion of the Retention Money shall be certified and paid. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section or part, by the estimated final Contract Price.

Promptly after the latest of the expiry dates of the Defects Notification Periods, the outstanding balance of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate was issued for a Section, a proportion of the second half of the Retention Money shall be certified and paid promptly after the expiry date of the Defects Notification Period for the Section. This proportion shall be half (50%) of the proportion calculated by dividing the

estimated contract value of the Section by the estimated final Contract Price.

However, if any work remains to be executed under Clause 11 [Defects Liability], the Engineer shall be entitled to withhold certification of the estimated cost of this work until it has been executed.

When calculating these proportions, no account shall be taken of any adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost].

Unless otherwise stated in the Particular Conditions, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a guarantee, in the form annexed to the Particular Conditions or in another form approved by the Employer and issued by a reputable bank or financial institution selected by the Contractor, for the second half of the Retention Money. The Contractor shall ensure that the guarantee is in the amounts and currencies of the second half of the Retention Money and is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects, as specified for the Performance Security in Sub-Clause 4.2. On receipt by the Employer of the required guarantee, the Engineer shall certify and the Employer shall pay the second half of the Retention Money. The release of the second half of the Retention Money against a guarantee shall then be in lieu of the release under the second paragraph of this Sub-Clause. The Employer shall return the guarantee to the Contractor within 21 days after receiving a copy of the Performance Certificate.

If the Performance Security required under Sub-Clause 4.2 is in the form of a demand guarantee, and the amount guaranteed under it when the Taking-Over Certificate is issued is more than half of the Retention Money, then the Retention Money guarantee will not be required. If the amount guaranteed under the Performance Security when the Taking-Over Certificate is issued is less than half of the Retention Money, the Retention Money guarantee will only be required for the difference between half of the Retention Money and the amount guaranteed under the Performance Security.

14.10 Statement at Completion

Within 84 days after receiving the Taking-Over Certificate for the Works, the Contractor shall submit to the Engineer six copies of a Statement at completion with

supporting documents, in accordance with Sub-Clause 14.3 [Application for Interim Payment Certificates], showing:

(a) the value of all work done in accordance with the Contract up to the date stated in the Taking-Over Certificate for the Works,

(b) any further sums which the Contractor considers to be due, and

(c) an estimate of any other amounts which the Contractor considers will become due to him under the Contract. Estimated amounts shall be shown separately in this Statement at completion.

The Engineer shall then certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates].

14.11 Application for Final Payment Certificate

Within 56 days after receiving the Performance Certificate, the Contractor shall submit, to the Engineer, six copies of a draft final statement with supporting documents showing in detail in a form approved by the Engineer:

(a) the value of all work done in accordance with the Contract, and

(b) any further sums which the Contractor considers to be due to him under the Contract or otherwise.

If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonably require within 28 days from receipt of said draft and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Engineer the final statement as agreed. This agreed statement is referred to in these Conditions as the "Final Statement".

However, if following discussions between the Engineer and the Contractor and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Engineer shall deliver to the Employer (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement. Thereafter, if the dispute is finally resolved under Sub-Clause 20.4 [Obtaining Dispute Board's Decision] or Sub-Clause 20.5 [Amicable Settlement], the Contractor shall then prepare and submit to the Employer (with a copy to the Engineer) a Final Statement.

14.12 Discharge

When submitting the Final Statement, the Contractor shall submit a discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the Contractor under or in connection with the Contract. This discharge may state that it becomes effective when the Contractor has received the Performance Security and the outstanding balance of this total, in which event the discharge shall be effective on such date.

14.13 Issue of Final Payment Certificate

Within 28 days after receiving the Final Statement and discharge in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Engineer shall deliver to the Employer and to the Contractor, the Final Payment Certificate which shall state:

(a) the amount which he fairly determines is finally due, and

(b) after giving credit to the Employer for all amounts previously paid by the Employer and for all sums to which the Employer is entitled, the balance (if any) due from the Employer to the Contractor or from the Contractor to the Employer, as the case may be.

If the Contractor has not applied for a Final Payment Certificate in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Engineer shall request the Contractor to do so. If the Contractor fails to submit an application within a period of 28 days, the Engineer shall issue the Final Payment Certificate for such amount as he fairly determines to be due.

14.14 Cessation of Employer's Liability

The Employer shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it:

(a) in the Final Statement and also

(b) (except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub-Clause 14.10 [Statement at Completion].

However, this Sub-Clause shall not limit the Employer's liability under his indemnification obligations, or the Employer's liability in any case of fraud, deliberate default or reckless misconduct by the Employer.

14.15 Currencies of Payment

The Contract Price shall be paid in the currency or currencies named in the Schedule of Payment Currencies. If more than one currency is so named, payments shall be made as follows:

(a) if the Accepted Contract Amount was expressed in Local Currency only:

(i) the proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as stated in the Schedule of Payment Currencies, except as otherwise agreed by both Parties.

(ii) payments and deductions under Sub-Clause 13.5 [Provisional Sums] and Sub-Clause 13.7 [Adjustments for Changes in Legislation] shall be made in the applicable currencies and proportions; and

(iii) other payments and deductions under sub-paragraphs (a) to (d) of Sub-Clause 14.3 [Application for Interim Payment Certificates] shall be made in the currencies and proportions specified in sub-paragraph (a)(i) above.

(b) payment of the damages specified in the Contract Data, shall be made in the currencies and proportions specified in the Schedule of Payment Currencies.

(c) other payments to the Employer by the Contractor shall be made in the currency in which the sum was expended by the Employer, or in such currency as may be agreed by both Parties.

(d) if any amount payable by the Contractor to the Employer in a particular currency exceeds the sum payable by the Employer to the Contractor in that currency, the Employer may recover the balance of this amount from the sums otherwise payable to the Contractor in other currencies; and

(e) if no rates of exchange are stated in the Schedule of Payment Currencies, they shall be those prevailing on the Base Date and determined by the central bank of the Country.

15. Termination by Employer

15.1 Notice to Correct

If the Contractor fails to carry out any obligation under the Contract, the Engineer may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.

15.2 Termination by Employer

The Employer shall be entitled to terminate the Contract if the Contractor:

(a) fails to comply with Sub-Clause 4.2 [Performance Security] or with a notice under Sub-Clause 15.1 [Notice to Correct],

(b) abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract,

(c) without reasonable excuse fails:

(i) to proceed with the Works in accordance with Clause 8 [Commencement, Delays and Suspension], or

(ii) to comply with a notice issued under Sub-Clause 7.5 [Rejection] or Sub-Clause 7.6 [Remedial Work], within 28 days after receiving it,

(d) subcontracts the whole of the Works or assigns the Contract without the required agreement,

(e) becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events, or

(f) gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an inducement or reward:

(i) for doing or forbearing to do any action in relation to the Contract, or

(ii) for showing or forbearing to show favour or disfavour to any person in relation to the Contract,

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

(g) based on reasonable evidence, has engaged in Prohibited Practices as defined in paragraph 2.2 of the Appendix B to these General Conditions, in competing for or in executing the Contract.

In any of these events or circumstances, the Employer may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of sub-paragraph (e) or (f) or (g), the Employer may by notice terminate the Contract immediately.

The Employer's election to terminate the Contract shall not prejudice any other rights of the Employer, under the Contract or otherwise.

The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for him, to the Engineer. However, the Contractor shall use his best efforts to comply immediately with any reasonable instructions included in the notice (i) for the assignment of any subcontract, and (ii) for the protection of life or property or for the safety of the Works.

After termination, the Employer may complete the Works and/or arrange for any other entities to do so. The Employer and these entities may then use any Goods, Contractor's Documents and other design documents made by or on behalf of the Contractor.

The Employer shall then give notice that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Employer, these items may be sold by the Employer in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

15.3 Valuation at Date of Termination

As soon as practicable after a notice of termination under Sub-Clause 15.2 [Termination by Employer] has taken effect, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the value of the Works, Goods and Contractor's Documents, and any other sums due to the Contractor for work executed in accordance with the Contract.

15.4 Payment after Termination

After a notice of termination under Sub-Clause 15.2 [Termination by Employer] has taken effect, the Employer may:

(a) proceed in accordance with Sub-Clause 2.5 [Employer's Claims],

(b) withhold further payments to the Contractor until the costs of execution, completion and remedying of any defects, damages for delay in completion (if any), and all other costs incurred by the Employer, have been established, and/or

(c) recover from the Contractor any losses and damages incurred by the Employer and any extra costs of completing the Works, after allowing for any sum due to the Contractor under Sub-Clause 15.3 [Valuation at Date of Termination]. After recovering any such losses, damages and extra costs, the Employer shall pay any balance to the Contractor.

15.5 Employer's Entitlement to Termination for Convenience

The Employer shall be entitled to terminate the Contract, at any time for the Employer's convenience, by giving notice of such termination to the Contractor. The termination shall take effect 28 days after the later of the dates on which the Contractor receives this notice or the Employer returns the Performance Security. The Employer shall not terminate the Contract under this Sub-Clause in order to execute the Works himself or to arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor under Clause 16.2 [Termination by Contractor].

After this termination, the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment] and shall be paid in accordance with Sub-Clause 16.4 [Payment on Termination].

15.6 Prohibited Practices

The Bank requires compliance with the Bank's Prohibited Practices and its prevailing sanctions policies and procedures as set forth in Appendix B to these General Conditions.

16. Suspension and Termination by Contractor

16.1 Contractor's Entitlement to Suspend Work

If the Engineer fails to certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates] or the Employer fails to comply with Sub-Clause 2.4 [Employer's Financial Arrangements] or Sub-Clause 14.7 [Payment], the Contractor may, after giving not less than 21 days' notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the

Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.

Notwithstanding the above, if the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [Employer's Financial Arrangements], the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days after the Borrower having received the suspension notification from the Bank.

The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [Delayed Payment] and to termination under Sub-Clause 16.2 [Termination by Contractor].

If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.

If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

16.2 Termination by Contractor

The Contractor shall be entitled to terminate the Contract if:

(a) the Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work] in respect of a failure to comply with Sub-Clause 2.4 [Employer's Financial Arrangements],

(b) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,

(c) the Contractor does not receive the amount due under an Interim Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 [Payment] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [Employer's Claims]),

(d) the Employer substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,

(e) the Employer fails to comply with Sub-Clause 1.6 [Contract Agreement] or Sub-Clause 1.7 [Assignment],

(f) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [Prolonged Suspension], or

(g) the Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events.

(h) the Contractor does not receive the Engineer's instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [Commencement of Works.

In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Employer, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.

In the event the Bank suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [Payment] for payments under Interim Payment Certificates, the Contractor may, without prejudice to the Contractor's entitlement to

financing charges under Sub-Clause 14.8 [Delayed Payment], take one of the following actions, namely (i) suspend work or reduce the rate of work under Sub-Clause 16.1 above, or (ii) terminate the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.

The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

16.3 Cessation of Work and Removal of Contractor's Equipment

After a notice of termination under Sub-Clause 15.5 [Employer's Entitlement to Termination for Convenience], Sub-Clause 16.2 [Termination by Contractor] or Sub-Clause 19.6 [Optional Termination, Payment and Release] has taken effect, the Contractor shall promptly:

(a) cease all further work, except for such work as may have been instructed by the Engineer for the protection of life or property or for the safety of the Works,

(b) hand over Contractor's Documents, Plant, Materials and other work, for which the Contractor has received payment, and

(c) remove all other Goods from the Site, except as necessary for safety, and leave the Site.

16.4 Payment on Termination

After a notice of termination under Sub-Clause 16.2 [Termination by Contractor] has taken effect, the Employer shall promptly:

(a) return the Performance Security to the Contractor,

(b) pay the Contractor in accordance with Sub-Clause 19.6 [Optional Termination, Payment and Release], and

(c) pay to the Contractor the amount of any loss or damage sustained by the Contractor as a result of this termination.

17. Risk and Responsibility

17.1 Indemnities

The Contractor shall indemnify and hold harmless the Employer, the Employer's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:

(a) bodily injury, sickness, disease or death, of any person whatsoever arising out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and

(b) damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss arises out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless and to the extent that any such damage or loss is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.

The Employer shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and (2) the matters for which liability may be excluded from insurance cover, as described in sub-paragraphs (d)(i), (ii) and (iii) of Sub-Clause 18.3 [Insurance Against Injury to Persons and Damage to Property].

17.2 Contractor's Care of the Works

The Contractor shall take full responsibility for the care of the Works and Goods from the Commencement Date until the Taking-Over Certificate is issued (or is deemed to be issued under Sub-Clause 10.1 [Taking Over of the Works and Sections]) for the Works, when responsibility for the care of the Works shall pass to the Employer. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section or part of the Works, responsibility for the care of the Section or part shall then pass to the Employer.

After responsibility has accordingly passed to the Employer, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking-Over Certificate, until this outstanding work has been completed.

If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contractor is responsible for their care, from any cause not listed in Sub-Clause 17.3 [Employer's Risks], the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods and Contractor's Documents conform with the Contract.

The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking-Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a Taking-Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.

17.3 Employer's Risks

The risks referred to in Sub-Clause 17.4 [Consequences of Employer's Risks] below, insofar as they directly affect the execution of the Works in the Country, are:

(a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,

(b) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war, within the Country,

(c) riot, commotion or disorder within the Country by persons other than the Contractor's Personnel,

(d) munitions of war, explosive materials, ionising radiation or contamination by radioactivity, within the Country, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radioactivity,

(e) pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds,

(f) use or occupation by the Employer of any part of the Permanent Works, except as may be specified in the Contract,

(g) design of any part of the Works by the Employer's Personnel or by others for whom the Employer is responsible, and

(h) any operation of the forces of nature which is Unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventive precautions.

17.4 Consequences of Employer's Risks

If and to the extent that any of the risks listed in Sub-Clause 17.3 above results in loss or damage to the Works, Goods or Contractor's Documents, the Contractor shall promptly give notice to the Engineer and shall rectify this loss or damage to the extent required by the Engineer.

If the Contractor suffers delay and/or incurs Cost from rectifying this loss or damage, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, which shall be included in the Contract Price. In the case of sub-paragraphs (f) and (g) of Sub-Clause 17.3 [Employer's Risks], Cost plus profit shall be payable.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

17.5 Intellectual and Industrial Property Rights

In this Sub-Clause, "infringement" means an infringement (or alleged infringement) of any patent, registered design, copyright, trademark, trade name, trade secret or other intellectual or industrial property right relating to the Works; and "claim" means a claim (or proceedings pursuing a claim) alleging an infringement.

Whenever a Party does not give notice to the other Party of any claim within 28 days of receiving the claim, the first Party shall be deemed to have waived any right to indemnity under this Sub-Clause.

The Employer shall indemnify and hold the Contractor harmless against and from any claim alleging an infringement which is or was:

(a) an unavoidable result of the Contractor's compliance with the Contract, or

(b) a result of any Works being used by the Employer:

(i) for a purpose other than that indicated by, or reasonably to be inferred from, the Contract, or

(ii) in conjunction with anything not supplied by the Contractor, unless such use was disclosed to the Contractor prior to the Base Date or is stated in the Contract.

The Contractor shall indemnify and hold the Employer harmless against and from any other claim which arises out of or in relation to (i) the manufacture, use, sale or import of any Goods, or (ii) any design for which the Contractor is responsible.

If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim. This other Party (and its Personnel) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to take over the conduct of any negotiations, litigation or arbitration upon being requested to do so by such other Party.

17.6 Limitation of Liability

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 the Contract, other than as specifically provided in Sub-Clause 8.7 [Delay Damages]; Sub-Clause 11.2 [Cost of Remedying Defects]; Sub-Clause 15.4 [Payment after Termination]; Sub-Clause 16.4 [Payment on Termination]; Sub-Clause 17.1 [Indemnities]; Sub-Clause 17.4(b) [Consequences of Employer's Risks] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights].

The total liability of the Contractor to the Employer, under or in connection with the Contract other than under Sub-Clause 4.19 [Electricity, Water and Gas], Sub-Clause 4.20 [Employer's Equipment and Free-Issue Materials], Sub-Clause 17.1 [Indemnities] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights], shall not exceed the sum resulting from the application of a multiplier (less or greater than one) to the Accepted Contract Amount, as stated in the Contract Data, or (if such multiplier or other sum is not so stated) the Accepted Contract Amount.

This Sub-Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

17.7 Use of Employer's Accommodation/ Facilities

The Contractor shall take full responsibility for the care of the Employer provided accommodation and facilities, if any, as detailed in the Specification, from the respective dates of hand-over to the Contractor until

cessation of occupation (where hand-over or cessation of occupation may take place after the date stated in the Taking-Over Certificate for the Works).

If any loss or damage happens to any of the above items while the Contractor is responsible for their care arising from any cause whatsoever other than those for which the Employer is liable, the Contractor shall, at his own cost, rectify the loss or damage to the satisfaction of the Engineer.

18. Insurance

18.1 General Requirements for Insurances

In this Clause, "insuring Party" means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant Sub-Clause.

Wherever the Contractor is the insuring Party, each insurance shall be effected with insurers and in terms approved by the Employer. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

Wherever the Employer is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Contractor. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured. If a policy indemnifies additional joint insured, namely in addition to the insured specified in this Clause, (i) the Contractor shall act under the policy on behalf of these additional joint insured except that the Employer shall act for Employer's Personnel, (ii) additional joint insured shall not be entitled to receive payments directly from the insurer or to have any other direct dealings with the insurer, and (iii) the insuring Party shall require all additional joint insured to comply with the conditions stipulated in the policy.

Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the loss or damage. Payments received from

insurers shall be used for the rectification of the loss or damage.

The relevant insuring Party shall, within the respective periods stated in the Contract Data (calculated from the Commencement Date), submit to the other Party:

(a) evidence that the insurances described in this Clause have been effected, and

(b) copies of the policies for the insurances described in Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment] and Sub-Clause 18.3 [Insurance against Injury to Persons and Damage to Property].

When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the insuring Party shall also give notice to the Engineer.

Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.

Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party. If an insurer makes (or attempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.

If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract or fails to provide satisfactory evidence and copies of policies in accordance with this Sub-Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.

Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Employer, under the other terms of the Contract or otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Employer in accordance with these obligations, liabilities or responsibilities. However, if the insuring Party fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the

Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the insuring Party.

Payments by one Party to the other Party shall be subject to Sub-Clause 2.5 [Employer's Claims] or Sub-Clause 20.1 [Contractor's Claims], as applicable.

The Contractor shall be entitled to place all insurance relating to the Contract (including, but not limited to the insurance referred to Clause 18) with insurers from any eligible source country.

18.2 Insurance for Works and Contractor's Equipment

The insuring Party shall insure the Works, Plant, Materials and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted under sub-paragraph (a) of Sub-Clause 18.1 [General Requirements for Insurances], until the date of issue of the Taking-Over Certificate for the Works.

The insuring Party shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations (including those under Clause 11 [Defects Liability]).

The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.

Unless otherwise stated in the Particular Conditions, insurances under this Sub-Clause:

(a) shall be effected and maintained by the Contractor as insuring Party,

(b) shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated to the Party actually bearing the costs of rectifying the loss or damage,

(c) shall cover all loss and damage from any cause not listed in Sub-Clause 17.3 [Employer's Risks],

(d) shall also cover, to the extent specifically required in the tender documents of the Contract, loss or damage to a part of the Works which is attributable to the use or occupation by the Employer of another part of the Works, and loss or damage from the risks listed in sub-paragraphs (c), (g) and (h) of Sub-Clause 17.3 [Employer's Risks], excluding (in each case) risks which are not insurable at commercially reasonable terms, with deductibles per occurrence of not more than the amount stated in the Contract Data (if an amount is not so stated, this sub-paragraph (d) shall not apply), and

(e) may however exclude loss of, damage to, and reinstatement of:

(i) a part of the Works which is in a defective condition due to a defect in its design, materials or workmanship (but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub-paragraph (ii) below),

(ii) a part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, materials or workmanship,

(iii) a part of the Works which has been taken over by the Employer, except to the extent that the Contractor is liable for the loss or damage, and

(iv) Goods while they are not in the Country, subject to Sub-Clause 14.5 [Plant and Materials intended for the Works].

If, more than one year after the Base Date, the cover described in sub-paragraph (d) above ceases to be available at commercially reasonable terms, the Contractor shall (as insuring Party) give notice to the Employer, with supporting particulars. The Employer shall then (i) be entitled subject to Sub-Clause 2.5 [Employer's Claims] to payment of an amount equivalent to such commercially reasonable terms as the Contractor should have expected to have paid for such cover, and (ii) be deemed, unless he obtains the cover at commercially reasonable terms, to have approved the omission under Sub-Clause 18.1 [General Requirements for Insurances].

18.3 Insurance against Injury to Persons and Damage to Property

The insuring Party shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment]) or to any person (except persons insured under Sub-Clause 18.4 [Insurance for Contractor's Personnel]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.

This insurance shall be for a limit per occurrence of not less than the amount stated in the Contract Data, with no limit on the number of occurrences. If an amount is not stated in the Contract Data, this Sub-Clause shall not apply.

Unless otherwise stated in the Particular Conditions, the insurances specified in this Sub-Clause:

(a) shall be effected and maintained by the Contractor as insuring Party,

(b) shall be in the joint names of the Parties,

(c) shall be extended to cover liability for all loss and damage to the Employer's property (except things insured under Sub-Clause 18.2) arising out of the Contractor's performance of the Contract, and

(d) may however exclude liability to the extent that it arises from:

(i) the Employer's right to have the Permanent Works executed on, over, under, in or through any land, and to occupy this land for the Permanent Works,

(ii) damage which is an unavoidable result of the Contractor's obligations to execute the Works and remedy any defects, and

(iii) a cause listed in Sub-Clause 17.3 [Employer's Risks], except to the extent that cover is available at commercially reasonable terms.

18.4 Insurance for Contractor's Personnel

The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.

The insurance shall cover the Employer and the Engineer against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury,

sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Employer or of the Employer's Personnel.

The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.

19. Force Majeure

19.1 Definition of Force Majeure

In this Clause, "Force Majeure" means an exceptional event or circumstance:

(a) which is beyond a Party's control,

(b) which such Party could not reasonably have provided against before entering into the Contract,

(c) which, having arisen, such Party could not reasonably have avoided or overcome, and

(d) which is not substantially attributable to the other Party.

Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

(i) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,

(ii) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war,

(iii) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel,

(iv) munitions of war, explosive materials, ionising radiation or contamination by radioactivity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radioactivity, and

(v) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

19.2 Notice of Force Majeure

If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the

event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.

The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.

Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.

19.3 Duty to Minimise Delay

Each Party shall at all times use all reasonable endeavours to minimise any delay in the performance of the Contract as a result of Force Majeure.

A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.

19.4 Consequences of Force Majeure

If the Contractor is prevented from performing his substantial obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], and suffers delay and/or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) if the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 19.1 [Definition of Force Majeure] and, in sub-paragraphs (ii) to (iv), occurs in the Country, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment].

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

19.5 Force Majeure Affecting Subcontractor

If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those

specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this Clause.

19.6 Optional Termination, Payment and Release

If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], or for multiple periods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment].

Upon such termination, the Engineer shall determine the value of the work done and issue a Payment Certificate which shall include:

(a) the amounts payable for any work carried out for which a price is stated in the Contract.

(b) the Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Contractor shall place the same at the Employer's disposal.

(c) other Cost or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works.

(d) the Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items to the Contractor's works in his country (or to any other destination at no greater cost); and

(e) the Cost of repatriation of the Contractor's staff and labour employed wholly in connection with the Works at the date of termination.

19.7 Release from Performance

Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Parties to fulfil its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be

released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:

(a) the Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract, and

(b) the sum payable by the Employer to the Contractor shall be the same as would have been payable under Sub-Clause 19.6 [Optional Termination, Payment and Release] if the Contract had been terminated under Sub-Clause 19.6.

20. Claims, Disputes and Arbitration

20.1 Contractor's Claims

If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Engineer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance.

If the Contractor fails to give notice of a claim within such period of 28 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.

The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.

The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Engineer. Without admitting the Employer's liability, the Engineer may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Engineer to inspect all these records and shall (if instructed) submit copies to the Engineer.

Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Engineer a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:

(a) this fully detailed claim shall be considered as interim.

(b) the Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Engineer may reasonably require; and

(c) the Contractor shall send a final claim within 28 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Engineer.

Within 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Engineer and approved by the Contractor, the Engineer shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars but shall nevertheless give his response on the principles of the claim within the above defined time period.

Within the above defined period of 42 days, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [Extension of Time for Completion], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.

Each Payment Certificate shall include such additional payment for any claim as has been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.

If the Engineer does not respond within the timeframe defined in this Clause, either Party may consider that the claim is rejected by the Engineer and any of the Parties may refer to the Dispute Board in accordance with Sub-Clause 20.4 [Obtaining Dispute Board's Decision].

The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause.

20.2 Appointment of the Dispute Board

Disputes shall be referred to a DB for decision in accordance with Sub-Clause 20.4 [Obtaining Dispute Board's Decision]. The Parties shall appoint a DB by the date stated in the Contract Data.

The DB shall comprise, as stated in the Contract Data, either one or three suitably qualified persons ("the members"), each of whom shall be fluent in the language for communication defined in the Contract and shall be a professional experienced in the type of construction involved in the Works and with the interpretation of contractual documents. If the number is not so stated and the Parties do not agree otherwise, the DB shall comprise three persons.

If the Parties have not jointly appointed the DB 21 days before the date stated in the Contract Data and the DB is to comprise three persons, each Party shall nominate one member for the approval of the other Party. The first two members shall recommend and the Parties shall agree upon the third member, who shall act as chairman.

However, if a list of potential members has been agreed by the Parties and is included in the Contract, the members shall be selected from those on the list, other than anyone who is unable or unwilling to accept appointment to the DB.

The agreement between the Parties and either the sole member or each of the three members shall incorporate by reference the General Conditions of Dispute Board Agreement contained in the Appendix A to these General Conditions, with such amendments as are agreed between them.

The terms of the remuneration of either the sole member or each of the three members, including the remuneration of any expert whom the DB consults, shall be mutually agreed upon by the Parties when agreeing the terms of appointment. Each Party shall be responsible for paying one-half of this remuneration.

If at any time the Parties so agree, they may jointly refer a matter to the DB for it to give its opinion. Neither Party shall consult the DB on any matter without the agreement of the other Party.

If a member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, a replacement shall be appointed in the same manner as the replaced person was required to have been nominated or agreed upon, as described in this Sub-Clause.

The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone. Unless otherwise agreed by both Parties, the appointment of the DB (including each member) shall expire when the discharge referred to in Sub-Clause 14.12 [Discharge] shall have become effective.

20.3 Failure to Agree on the Composition of the Dispute Board

If any of the following conditions apply, namely:

(a) the Parties fail to agree upon the appointment of the sole member of the DB by the date stated in the first paragraph of Sub-Clause 20.2, [Appointment of the Dispute Board],

(b) either Party fails to nominate a member (for approval by the other Party), or fails to approve a member nominated by the other Party, of a DB of three persons by such date,

(c) the Parties fail to agree upon the appointment of the third member (to act as chairman) of the DB by such date, or

(d) the Parties fail to agree upon the appointment of a replacement person within 42 days after the date on which the sole member or one of the three members declines to act or is unable to act as a result of death, disability, resignation or termination of appointment,

then the appointing entity or official named in the Contract Data shall, upon the request of either or both of the Parties and after due consultation with both Parties, appoint this member of the DB. This appointment shall

be final and conclusive. Each Party shall be responsible for paying one-half of the remuneration of the appointing entity or official.

20.4 Obtaining Dispute Board's Decision

If a dispute (of any kind whatsoever) arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works, including any dispute as to any certificate, determination, instruction, opinion or valuation of the Engineer, either Party may refer the dispute in writing to the DB for its decision, with copies to the other Party and the Engineer. Such reference shall state that it is given under this Sub-Clause.

For a DB of three persons, the DB shall be deemed to have received such reference on the date when it is received by the chairman of the DB.

Both Parties shall promptly make available to the DB all such additional information, further access to the Site, and appropriate facilities, as the DB may require for the purposes of making a decision on such dispute. The DB shall be deemed to be not acting as arbitrator(s).

Within 84 days after receiving such reference, or within such other period as may be proposed by the DB and approved by both Parties, the DB shall give its decision, which shall be reasoned and shall state that it is given under this Sub-Clause. The decision shall be binding on both Parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement or an arbitral award as described below. Unless the Contract has already been abandoned, repudiated or terminated, the Contractor shall continue to proceed with the Works in accordance with the Contract.

If either Party is dissatisfied with the DB's decision, then either Party may, within 28 days after receiving the decision, give a Notice of Dissatisfaction to the other Party indicating its dissatisfaction and intention to commence arbitration. If the DB fails to give its decision within the period of 84 days (or as otherwise approved) after receiving such reference, then either Party may, within 28 days after this period has expired, give a Notice of Dissatisfaction to the other Party.

In either event, this Notice of Dissatisfaction shall state that it is given under this Sub-Clause and shall set out the matter in dispute and the reason(s) for dissatisfaction. Except as stated in Sub-Clause 20.7 [Failure to Comply with Dispute Board's Decision] and Sub-Clause 20.8 [Expiry of Dispute Board's Appointment], neither Party shall be entitled to commence arbitration of a dispute

unless a Notice of Dissatisfaction has been given in accordance with this Sub-Clause.

If the DB has given its decision as to a matter in dispute to both Parties, and no Notice of Dissatisfaction has been given by either Party within 28 days after it received the DB's decision, then the decision shall become final and binding upon both Parties.

20.5 Amicable Settlement

Where a Notice of Dissatisfaction has been given under Sub-Clause 20.4 above, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, the Party giving a Notice of Dissatisfaction in accordance with Sub-Clause 20.4 above should move to commence arbitration after the fifty-sixth day from the day on which a Notice of Dissatisfaction was given, even if no attempt at an amicable settlement has been made.

20.6 Arbitration

Any dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 20.5 above and in respect of which the DB's decision (if any) has not become final and binding shall be finally settled by arbitration. Arbitration shall be conducted as follows:

(a) if the contract is with foreign contractors,

(i) for contracts financed by all participating Banks except under sub-paragraph (a) (2) below: international arbitration (1) with proceedings administered by the arbitration institution designated in the Contract Data, and conducted under the rules of arbitration of such institution; or, if so specified in the Contract Data, (2) international arbitration in accordance with the arbitration rules of the United Nations Commission on International Trade Law (UNCITRAL); or (3) if neither an arbitration institution nor UNCITRAL arbitration rules are specified in the Contract Data, with proceedings administered by the International Chamber of Commerce (ICC) and conducted under the ICC Rules of Arbitration; by one or more arbitrators appointed in accordance with said arbitration rules

(b) if the Contract is with domestic contractors, arbitration with proceedings conducted in accordance with the laws of the Employer's country.

The place of arbitration shall be the neutral location specified in the Contract Data; and the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 [Law and Language].

The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, and any decision of the DB, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Engineer from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute.

Neither Party shall be limited in the proceedings before the arbitrators to the evidence or arguments previously put before the DB to obtain its decision, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction. Any decision of the DB shall be admissible in evidence in the arbitration.

Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, the Engineer and the DB shall not be altered by reason of any arbitration being conducted during the progress of the Works.

20.7 Failure to Comply with Dispute Board's Decision

In the event that a Party fails to comply with a final and binding DB decision, then the other Party may, without prejudice to any other rights it may have, refer the failure itself to arbitration under Sub-Clause 20.6 [Arbitration]. Sub-Clause 20.4 [Obtaining Dispute Board's Decision] and Sub-Clause 20.5 [Amicable Settlement] shall not apply to this reference.

20.8 Expiry of Dispute Board's Appointment

If a dispute arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works and there is no DB in place, whether by reason of the expiry of the DB's appointment or otherwise:

(a) Sub-Clause 20.4 [Obtaining Dispute Board's Decision] and
Sub-Clause 20.5 [Amicable Settlement] shall not apply, and

(b) the dispute may be referred directly to arbitration under Sub-Clause 20.6 [Arbitration].

APPENDIX A (Not Applicable)

A General Conditions of Dispute Board Agreement

PROCEDURAL RULES

Unless otherwise agreed by the Employer and the Contractor, the DB shall visit the Site at intervals of not more than 140 days, including times of critical construction events, at the request of either the Employer or the Contractor. Unless otherwise agreed by the Employer, the Contractor and the DB, the period between consecutive visits shall not be less than 70 days, except as required to convene a hearing as described below.

The timing of and agenda for each Site visit shall be as agreed jointly by the DB, the Employer and the Contractor, or in the absence of agreement, shall be decided by the DB. The purpose of Site visits is to enable the DB to become and remain acquainted with the progress of the Works and of any actual or potential problems or claims, and, as far as reasonable, to endeavour to prevent potential problems or claims from becoming disputes.

Site visits shall be attended by the Employer, the Contractor and the Engineer and shall be co-ordinated by the Employer in co-operation with the Contractor. The Employer shall ensure the provision of appropriate conference facilities and secretarial and copying services. At the conclusion of each Site visit and before leaving the site, the DB shall prepare a report on its activities during the visit and shall send copies to the Employer and the Contractor.

The Employer and the Contractor shall furnish to the DB one copy of all documents which the DB may request, including Contract documents, progress reports, variation instructions, certificates and other documents pertinent to the performance of the Contract. All communications between the DB and the Employer or the Contractor shall be copied to the other Party. If the DB comprises three persons, the Employer and the Contractor shall send copies of these requested documents and these communications to each of these persons.

If any dispute is referred to the DB in accordance with Sub-Clause 20.4 of the Conditions of Contract, the DB shall proceed in accordance with Sub-Clause 20.4 and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the DB shall:

(a) act fairly and impartially as between the Employer and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other's case, and

(b) adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.

The DB may conduct a hearing on the dispute, in which event it will decide on the date and place for the hearing and may request that written documentation and arguments from the Employer and the Contractor be presented to it prior to or at the hearing.

Except as otherwise agreed in writing by the Employer and the Contractor, the DB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Employer, the Contractor and the Engineer, and to proceed in the absence of any party who the DB is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.

The Employer and the Contractor empower the DB, among other things, to:

(a) establish the procedure to be applied in deciding a dispute,

(b) decide upon the DB's own jurisdiction, and as to the scope of any dispute referred to it,

(c) conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Rules,

(d) take the initiative in ascertaining the facts and matters required for a decision,

(e) make use of its own specialist knowledge, if any,

(f) decide upon the payment of financing charges in accordance with the Contract,

(g) decide upon any provisional relief such as interim or conservatory measures, and

(h) open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute.

The DB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the DB shall make and give its decision in accordance with Sub-Clause 20.4, or as otherwise agreed by the Employer and the Contractor in writing. If the DB comprises three persons:

(a) it shall convene in private after a hearing, in order to have discussions and prepare its decision;

(b) it shall endeavour to reach a unanimous decision: if this proves impossible the applicable decision shall be made by a majority of the Members, who may require the minority Member to prepare a written report for submission to the Employer and the Contractor; and

(c) if a member fails to attend a meeting or hearing, or to fulfil any required function, the other two Members may nevertheless proceed to make a decision, unless:

    (i) either the Employer or the Contractor does not agree that they do so, or

    (ii) the absent Member is the chairman and he/she instructs the other Members not to make a decision.

APPENDIX B

Prohibited Practices

1. Prohibited Practices

1.1 The Bank requires that the Recipient (and all other beneficiaries of the Bank financing), as well as tenderers, suppliers, contractors, concessionaires and consultants under Bank-financed contracts for the Project, observe the highest standard of transparency and integrity during the procurement, execution and implementation of such contracts.

1.2 Definitions. In pursuance of this policy, the Bank defines the terms set forth below as Prohibited Practices:

(i) "**coercive practice**" means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

(ii) "**collusive practice**" means an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

(iii) "**corrupt practice**" means the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

(iv) "**fraudulent practice**" means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation.

(v) A **misuse of the Bank's resources** which means improper use of the Bank's resources, carried out either intentionally or through reckless disregard;

(vi) An **obstructive practice** which means (i) destroying, falsifying, altering or concealing of evidence material to a Bank investigation, which impedes the Bank's investigation; (ii) making false statements to investigators in order to materially impede a Bank investigation into allegations of a Prohibited Practice; (iii) failing to comply with requests to provide information, documents or records in connection with a Bank investigation; (iv) threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to a Bank investigation or from pursuing the investigation; or (v) materially impeding the exercise of the Bank's contractual rights of audit or inspection or access to information; and

(vii) "**theft**" means the misappropriation of property belonging to another party.

1.3. Any occurrence, or suspected occurrence, of a Prohibited Practice in the procurement, award, or implementation of a Bank-financed contract is dealt with in accordance with the provisions of the Bank's Policy on Prohibited Practices. Suppliers, contractors, service providers and Consultants selected pursuant to the provisions of Section II and concessionaires selected pursuant to paragraph 14.3, as well as the Recipient shall fully cooperate with the Bank (or a co-financier undertaking an investigation pursuant to paragraph 6.1) in any investigation into an alleged Prohibited Practice to be carried out pursuant to the Policy on Prohibited Practices, and permit the Bank or its representative (including such co-financier) to inspect such of their accounts and records as may be

relevant for such investigation and to have such records and accounts audited by the auditors appointed by the Bank.

Provisions to this effect are included in the Legal Agreements and the procurement contracts with such entities.

1.4 If the Project is financed by a sovereign-backed loan, the Bank (or, where relevant, a co-financier having undertaken an investigation pursuant to paragraph 6.1):

a) May take any of the following additional actions in connection with a Prohibited Practice under the Project:

(i) Reject a proposal for award if it determines that the tenderer recommended for award, or any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers or their employees, has, directly or indirectly, engaged in a prohibited practice in competing for the contract in question; and

(ii) Cancel the undisbursed portion of the loan allocated to a contract (and require reimbursement of the disbursed portion of the loan allocated to the contract) if it determines at any time that representatives of the Recipient or of a recipient of any part of the proceeds of the loan engaged in a prohibited practice during the procurement, administration or the implementation of the contract in question; and

b) Requires that a clause be included in tender documents and in contracts financed by the Bank loan, requiring tenderers, suppliers and contractors, and their sub-contractors, agents, personnel, consultants, service providers, or suppliers, to permit the Bank (and a co-financier undertaking an investigation pursuant to paragraph 6.1) to inspect all accounts, records, and other documents relating to the submission of tenders and contract performance, and to have them audited by auditors appointed by the Bank.

APPENDIX B

Environmental, Health and Safety (SHE)

Metrics for Progress Reports

Metrics for regular reporting:

a. environmental incidents or non-compliances with contract requirements, including contamination, pollution or damage to ground or water supplies;

b. health and safety incidents, accidents, injuries and all fatalities that require treatment.

c. interactions with regulators: identify agency, dates, subjects, outcomes (report the negative if none);

d. status of all permits and agreements:

   i. work permits: number required, number received, actions taken for those not received;

   ii. status of permits and consents:

   - *list areas/facilities with permits required (quarries, asphalt & batch plants), dates of application, dates issued (actions to follow up if not issued), dates submitted to resident engineer (or equivalent), status of area (waiting for permits, working, abandoned without reclamation, decommissioning plan being implemented, etc.);*
   - *list areas with landowner agreements required (borrow and spoil areas, camp sites), dates of agreements, dates submitted to resident engineer (or equivalent);*
   - *identify major activities undertaken in each area in the reporting period and highlights of environmental and social protection (land clearing, boundary marking, topsoil salvage, traffic management, decommissioning planning, decommissioning implementation);*
   - *for quarries: status of relocation and compensation (completed, or details of activities and current status in the reporting period).*

e. health and safety supervision:

   i. safety officer: number days worked, number of full inspections & partial inspections, reports to construction/project management.

   ii. number of workers, work hours, metric of PPE use (percentage of workers with full personal protection equipment (PPE), partial, etc.), worker violations observed (by type of violation, PPE or otherwise), warnings given, repeat warnings given, follow-up actions taken (if any);

f. worker accommodations:

   i. number of expats housed in accommodations, number of locals;

ii. date of last inspection, and highlights of inspection including status of accommodations' compliance with national and local law and good practice, including sanitation, space, etc.;

iii. actions taken to recommend/require improved conditions, or to improve conditions.

g. HIV/AIDS: provider of health services, information and/or training, location of clinic, number of non-safety disease or illness treatments and diagnoses (no names to be provided);

h. gender (for expats and locals separately): number of female workers, percentage of workforce, gender issues raised and dealt with (cross-reference grievances or other sections as needed);

i. training:

i. number of new workers, number receiving induction training, dates of induction training.

ii. number and dates of toolbox talks, number of workers receiving Occupational Health and Safety (OHS), environmental and social training.

iv. number and dates of HIV/AIDS sensitization and/or training, no. workers receiving training (this reporting period and in the past); same questions for gender sensitization, flag person training.

v. number and date of GBV /SEA sensitization and/or training, number of workers receiving training on code of conduct (in the reporting period and in the past), etc.

j. environmental and social supervision:

i. environmentalist: days worked, areas inspected and numbers of inspections of each (road section, work camp, accommodations, quarries, borrow areas, spoil areas, swamps, forest crossings, etc.), highlights of activities/findings (including violations of environmental and/or social best practices, actions taken), reports to environmental and/or social specialist/construction/site management.

ii. sociologist: days worked, number of partial and full site inspections (by area: road section, work camp, accommodations, quarries, borrow areas, spoil areas, clinic, HIV/AIDS centre, community centres, etc.), highlights of activities (including violations of environmental and/or social requirements observed, actions taken), reports to environmental and/or social specialist/construction/site management; and

iii. community liaison person(s): days worked (hours community centre open), number of people met, highlights of activities (issues raised, etc.), reports to environmental and/or social specialist /construction/site management.

k. *Grievances*: list new grievances (e.g. allegations of GBV / SEA) received in the reporting period and unresolved past grievances by date received, complainant, how received, to whom referred to for action, resolution and date (if completed), data

resolution reported to complainant, any required follow-up (Cross-reference other sections as needed):

i. Worker grievances;

ii. Community grievances

l. Traffic and vehicles/equipment:

i. traffic accidents involving project vehicles & equipment: provide date, location, damage, cause, follow-up;

ii. accidents involving non-project vehicles or property (also reported under immediate metrics): provide date, location, damage, cause, follow-up;

iii. overall condition of vehicles/equipment (subjective judgment by environmentalist); non-routine repairs and maintenance needed to improve safety and/or environmental performance (to control smoke, etc.).

m. Environmental mitigations and issues (what have been done):

i. dust: number of working bowsers, number of watering/day, number of complaints, warnings given by environmentalist, actions taken to resolve; highlights of quarry dust control (covers, sprays, operational status); % of rock/spoil lorries with covers, actions taken for uncovered vehicles;

ii. erosion control: controls implemented by location, status of water crossings, environmentalist inspections and results, actions taken to resolve issues, emergency repairs needed to control erosion/sedimentation;

iii. quarries, borrow areas, spoil areas, asphalt plants, batch plants: identify major activities undertaken in the reporting period at each, and highlights of environmental and social protection: land clearing, boundary marking, topsoil salvage, traffic management, decommissioning planning, decommissioning implementation;

iv. blasting: number of blasts (and locations), status of implementation of blasting plan (including notices, evacuations, etc.), incidents of off-site damage or complaints (cross-reference other sections as needed);

v. spill clean-ups, if any: material spilled, location, amount, actions taken, material disposal (report all spills that result in water or soil contamination;

vi. waste management: types and quantities generated and managed, including amount taken offsite (and by whom) or reused/recycled/disposed on-site;

vii. details of tree plantings and other mitigations required undertaken in the reporting period;

viii. details of water and swamp protection mitigations required undertaken in the reporting period.

n. compliance:

i. compliance status for conditions of all relevant consents/permits, for the Work, including quarries, etc.): statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance;

ii. compliance status of C-ESMP/ESIP requirements: statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance

iii. compliance status of GBV/SEA prevention and response action plan: statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance

iv. compliance status of Health and Safety Management Plan re: statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance

v. other unresolved issues from previous reporting periods related to environmental and social: continued violations, continued failure of equipment, continued lack of vehicle covers, spills not dealt with, continued compensation or blasting issues, etc. Cross-reference other sections as needed.

Section IX - Particular Conditions of Contract

The following Particular Conditions shall supplement the GC. Whenever there is a conflict, the provisions herein shall prevail over those in the GC.

Conditions	Sub- Clause	Data
Employer's name and address	1.1.2.2 & 1.3	The Employer is Mumbai Railway Vikas Corporation Ltd., New Administrative Building, D N Road CSMT, (opposite to Anjuman School) MAHARASHTRA 400001
Engineer's name and address	1.1.2.4 & 1.3	Dy. Chief Electrical Engineer, Mumbai Railway Vikas Corporation Limited, New Administrative Building, D N Road, CSMT, (opposite to Anjuman School) MAHARASHTRA 400001
Contractor's Representative's name	4.3	***[insert the name of the Contractor's Representative agreed by the Employer prior to Contract signature]***
Key Personnel names	1.1.2.7 & 6.9	***[insert the name of each Key Personnel agreed by the Employer prior to Contract signature]***
Bank's name	1.1.2.11	Asian Infrastructure Investment Bank (AIIB)
Borrower's name	1.1.2.12	The Borrower is: Government of India. The sub-Borrower is the employer, Mumbai Railway Vikas Corporation Ltd. is Public Sector Undertaking (PSU) of Government of India.
Time for Completion	1.1.3.3	45 days from notice to proceed.
Defects Notification Period	1.1.3.7	365 days.
Local Currency	1.1.4.8	Local Currency is Indian Rupees (₹)
Sections	1.1.5.6	Not Applicable.
Cost plus Profit	1.2	10 % (Ten percent)
Electronic transmission systems	1.3	Phone – 91 - 22 –22626252, Mob-7700938454 (Dy CEE). Fax:- 91 – 22- 22096972 Email: cr_gs@mrvc.gov.in
Governing Law	1.4	The Laws of Union of India
Ruling language	1.4	English
Language for communications	1.4	English / Hindi / Marathi
Time for the Parties entering into a Contract Agreement	1.6	15 Days
Time for access to the Site	2.1	Site will be available on start date of work.
As Built Drawings/Operation maintenance manuals	4.1(d)	The contractor should furnish these to the Engineer in addition to hard copies, soft copies duly digitized in a Compact Disk as detailed below:

Conditions	Sub- Clause	Data
		Completion/As build drawings of all components of Buildings and all structures.
Sustainable procurement	4.1	Not Applicable.
Performance Security	4.2	Performance Security will be in the form of a "Demand Guarantee" in the amount(s) of 5 % (five percent) of the Accepted Contract Amount and in the same currency(ies) of the Accepted Contract Amount. The performance security of a Joint Venture shall be in the name of the Joint Venture specifying the names of all members.
Environmental, Health and Safety (SHE) Performance Security	4.2	**SHE Performance Security is not required.**
	4.2	The successful tenderer shall have to submit the Performance Security within 28 (Twenty-Eight) days from the date of issue of Letter of Acceptance (LOA). Extension of time for submission of PGs beyond 28 (Twenty-Eight) days and up to 60 days from the date of issue of LOA may be given by the Authority who is competent to sign the contract agreement. However, a penal interest of 12% per annum shall be charged for the delay beyond 28 (Twenty-Eight) days, i.e., from 29th day after the date of issue of LOA. Further, if the 60th day happens to be a declared holiday in the concerned office of the Employer, submission of PGs can be accepted on the next working day. In all other cases, if the Contractor fails to submit the requisite PGs even after 60 days from the date of issue of LOA, the contract is liable to be terminated. In case contract is terminated, employer shall be entitled to forfeit Security Deposit and other dues payable against that contract. The failed Contractor shall be debarred from participating in re-tender for that work.
	Add 4.2 (i)	The contractor shall comply with all the clauses on Safety, Health and Environmental requirements of section-VII (works requirement).
Contractor's Representative	4.3-last sub paragraph	The representatives should be conversant in English, Marathi and Hindi languages, being the spoken language of the region.
Subcontractors	4.4	Subcontracting should not exceed 10% of the accepted contract value.
Employer's Equipment and free issue Materials	4.20	Employer will not issue/make available any equipment or materials free, and the contractor is fully responsible for arranging all the required equipment and inputs.

Conditions	Sub- Clause	Data
Staff and Labour	6	The cost to comply with the requirements of all the "social clauses" (G.C.C. Sub-Clauses 6.1 through 6.22), to the level and extent specified in the Specification and General Conditions of contract is to be considered by the Tenderer as part of its general overheads included in the unit rates of items and **separate payment will not be made for these items**.
Labour laws	6.4	Add para 6.4: Salient features of the major labour and other laws that are applicable to construction industry in India are given in Appendix 1 to the General Conditions of Contract. Following sub clause 6.4 (a) is added: - It is mandatory for the contractor to update Labour data on Railway's Shramik Kalyan portal. (www.shramikkalyan.indianrailways.gov.in) 1. In order to increase transparency in payment of Contract Labour wages and other payments, a web-based e-application has been developed and hosted on website www.shramikkalyan.indianrailways.gov.in. 2. All contractors are required to upload details of their LOAs, engaged workmen, wage payment details, PF/ESI details, bonus details, etc. on monthly basis. **The details so uploaded shall be available in public domain.** 3. The special condition is as under: • Contractor is to abide by the provision of Payment of Wages Act & Minimum Act. In order to ensure the same, an application has been developed & hosted on website- www.shramikkalyan.indianrailways.gov.in. Contractor shall register his firm/company, etc. and upload requisite details of labour and their payment in this period. These details shall be available in public domain. The Registration/ updation of Portal shall be done as under: (a) Contractor shall apply for onetime registration of his company/ firm etc. in the Shramik kalyan portal with requisite details subsequent to issue of Letter of Acceptance. (b) Contractor once approved, can create password with login ID (PAN No.) for subsequent use of portal of all LoAs issued in his favour.

Conditions	Sub- Clause	Data
		(c) The contractor once registered on the portal, shall provide details of his Letter of Acceptance (LoA)/Contract Agreement on shramik kalyan portal within 15 days of issue of any LoA for approval of concerned Engineer. Engineer shall update (if required) and approve the details of LoA filled by contractor within 7 days of receipt of such request. (d) After approval of LoA by Engineer, contractor shall fill the salient feature details of contract labour engaged in the contract and ensure updating of each wage payment to them on shramik kalyan portal on monthly basis. (e) It shall be mandatory upon the contractor to ensure and prompt uploading of all salient details of engaged contractual labour & payments made thereof after each wage period. While processing any Interim payment or 'Final Bill' or release of 'Advances' or 'Performance Guarantee / Security Deposit', contractor shall submit a certificate to the Engineer or Engineer's representatives that "I have uploaded the correct details of contract labours engaged in connection with this contract and payments made to them during the wage period in Railway's Shramik kalyan portal or www.shramikkalyan.indianrailways.gov.intill ____ Month ____ Year".
Normal working hours	6.5	12 hours. (9:00 HRS to 18.00 HRS and 00.00 hrs to 04.00 hrs) in two shifts (one for day and other during night).
Commencement of Works	8.1	Insert the following as sub clause 8.1 (d) and change the existing sub clause 8.1 (d) as 8.1 (e) "8.1(d) receipt by the Engineer Policies/ Certificates for Insurance taken in accordance with GC Clause 18"
Commencement of Works	8.1	Within **07 days from** the Date on which employer issues the "Notice to Proceed"
Programme	8.3	In partial modification of line 1 of Sub paragraph 1, 'the detailed time program along with Construction Methodology/ Environmental Management Plan (using MS Project/ Primavera or another equivalent/ appropriate software) shall be submitted to the Engineer for his review within 28 days of receipt of Notification of Award'.
Delay damages for the Works	8.7 & 14.15(b)	0.01 % of the Contract Price per day + GST.
Maximum amount of delay damages	8.7	5% of the final Contract Price + GST.

Conditions	Sub- Clause	Data
Works to be Measured	12.1	Add new sub clause 12.1 Please refer "Procedure Order for Recording Measurement, Test Check and Payment for Works Contracts" issued vide Procedure Order No. 2008/MRVC/Policy/431/R2 (Latest Revision) for payments of work. All payments for the subject work will be regulated as per this procedural order.
Provisional Sums	13.5.(b)(ii)	5% (Five percent)
Adjustments for Changes in Cost	13.8	**NOT APPLICABLE** ~~The contract is subject to price adjustment in accordance with G.C.C. Clause 13.8 and following information regarding coefficients does apply.~~ ~~**General Service works**~~ ~~The formula(e) for adjustment of prices are:~~ ~~R = Value of work as defined in Clause 45.1 of Conditions of Contract.~~ ~~(i) Adjustment for labour component~~ ~~Price adjustment for increase or decrease in the cost due to labour shall be paid in accordance with the following formula:~~ ~~VL = PL /100 x R x (LI – LO)/LO~~ ~~VL = increase or decrease in the cost of work during the month under consideration due to changes in consumer price index.~~ ~~Lo = the average consumer price index number for industrial workers for Mumbai (Base 2016=100) for the month prior to one month preceding the date of opening of Tender as published by as published by labour Bureau, Ministry of Labour, Government of India.~~ ~~LI = The average consumer price index number for industrial workers for Mumbai (Base 2016=100) for the prior to two month preceding the date of measurement recorded (In Measurement Book) under consideration as published by as~~

Conditions	Sub- Clause	Data
		~~published by labour Bureau, Ministry of Labour, Government of India.~~ ~~PL = Percentage of labour component of the work as indicated in table below.~~ ~~(ii) Adjustment for manufacture of Electrical equipment component~~ ~~Price adjustment for increase or decrease in the cost due to manufacture of Electrical equipment shall be paid in accordance with the following formula:~~ ~~VM= PM /100 x R x (MI – MO)/MO~~ ~~VM = Increase or decrease in the cost of work during the month under consideration due to changes in the rates for manufacture of Electrical equipment.~~ ~~MO= The average price index for manufacture of Electrical equipment ascertained from Office of Economic Adviser Price Index for the month prior to one month preceding the date of opening of Tender. (For basic price of raw materials used for manufacture of Electrical equipment).~~ ~~MI = The average price index for manufacture of Electrical equipment ascertained from Office of Economic Adviser Price Index for the prior to two month preceding the date of measurement recorded (In Measurement Book) under consideration. (For basic price of raw materials used for manufacture of Electrical equipment).~~ ~~PF = Percentage of ferrous metals component of the work as indicated in table below~~

		~~(iii) Adjustment for Copper component~~ ~~Price adjustment for increase or decrease in the cost of copper rods procured by the Contractor shall be paid in accordance with the following formula:~~ ~~VC = PC/100 x R x (CI – CO)/CO~~ ~~VC = Increase or decrease in the cost of work during the month under consideration due to changes in the rates for copper wire rod.~~ ~~CO= The average price index for copper wire rods for the month prior to one month preceding the date of opening of Tender as published by IEEMA for the manufacture of insulated cables/PVC & XLPE insulated cables.~~ ~~CI = The average price index for copper wire rods for the prior to two month preceding the date of measurement recorded (In Measurement Book) under consideration as published by IEEMA as published by IEEMA for the manufacture of insulated cables/PVC & XLPE insulated cables.~~ ~~PC = Percentage of copper component of the work as indicated in table below~~ ~~(iv) Adjustment for Aluminium component~~ ~~Price adjustment for increase or decrease in the cost of EC grade Aluminium Ingots procured by the Contractor shall be paid in accordance with the following formula:~~ ~~VA = PA/100 x R x (AI – AO)/AO~~ ~~VA = Increase or decrease in the cost of work during the month under consideration due to changes in the rates for EC grade Aluminium Ingots.~~ ~~AO= The average price index for EC grade Aluminium Ingots for the month prior to one month preceding the date of opening of Tender as published by~~

Conditions	Sub- Clause	Data

~~IEEMA for the manufacture of insulated cables/PVC & XLPE insulated cables.~~

~~AI = The average price index for EC grade Aluminium Ingots for the prior to two month preceding the date of measurement recorded (In Measurement Book) under consideration as published by IEEMA for the manufacture of insulated cables/PVC & XLPE insulated cables.~~

~~PA = Percentage of Aluminium component of the work as indicated in table below.~~

~~(v) Adjustment for Fuel & Lubricant component~~

~~Price adjustment for increase or decrease in the cost of POL (Fuel & Lubricant) shall be paid in accordance with the following formula:~~

~~Vf = Pf/ 100 x R x (F1-FO) / FO~~

~~Vf = Increase or decrease in the cost of work during the month under consideration due to changes in the rates for Fuel and Lubricant.~~

~~FO= The official retail price HSD (High Speed Diesel) at the consumer pumps of IOC at Mumbai for 15th day of the month, one month prior to the date of opening of Tender~~

~~FI = The official retail price of HSD at the consumer pumps of IOC at Mumbai for the 15th day of the month, two months prior to the date of recording of measurements (in M.B).~~

~~Pf = Percentage of Fuel and Lubricants component of the work as indicated in table below.~~

~~The following percentages will govern the price adjustment for the entire contract:~~

~~S No.~~	~~Component~~	~~%age applicable~~		
		~~LOT –I~~	~~LOT –II~~	~~LOT –IV~~
	~~Fixed (Price on which PVC not to be paid)~~	~~15~~	~~15~~	~~15~~
~~1~~	~~Labour – VL~~	~~20~~	~~20~~	~~20~~

<table>
<tr><th>Conditions</th><th>Sub- Clause</th><th>Data</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>~~2~~</td><td>~~Manufacture of Electrical equipment VM~~</td><td>~~20~~</td><td>~~20~~</td><td>~~20~~</td></tr>
<tr><td>~~3~~</td><td>~~Copper VC~~</td><td>~~25~~</td><td>~~25~~</td><td>~~25~~</td></tr>
<tr><td>~~4~~</td><td>~~Aluminium VA~~</td><td>~~15~~</td><td>~~15~~</td><td>~~15~~</td></tr>
<tr><td>~~5~~</td><td>~~Fuel & Lubricant Vf~~</td><td>~~5~~</td><td>~~5~~</td><td>~~5~~</td></tr>
<tr><td></td><td>~~Total~~</td><td>~~100 %~~</td><td>~~100 %~~</td><td>~~100%~~</td></tr>
</table>
~~**Note:** Successful Tenderer has to submit all documents along with PVC bill. The price Adjustment payment will be done bill wise. The value of the work done considered for working out price adjustment shall be exclusive of GST.~~
</td></tr>
<tr><td>Percentage of Retention</td><td>14.3</td><td>10% (Ten percent)</td></tr>
<tr><td>Limit of Retention Money</td><td>14.3</td><td>5% (Five percent) of the Accepted Contract Amount.</td></tr>
<tr><td>Schedule of Payments</td><td>14.d</td><td>
Add Sub-clause 14 d):
[Insert after GCC 14.c the following new sub clause 14.d]

14.d] PAYMENT “On account payment’:-

The Contractor shall be entitled for payment from time to time by way of “On account” or progress ’payment’ only for such works in the opinion of the Engineer, the contractor has executed in terms of the Contract conditions. Normally payments shall be made on a monthly basis for the works executed up to the last day of the calendar month.

Payment shall be made through Electronic Clearance System (ECS). Contractor should give the details of bank account, as given below.

Name of Bank:

Address of Bank:

Title of Bank Account:

Bank Account Number:

Bank Telephone Number:

Bank’s ECS code (IFSC/RTGS):
(i) Unit Prices for material:

The unit prices indicated in the BOQ is inclusive of the prices for supplying of materials required under the particular item of schedule, multiple loading/ unloading, storing, handling, erection testingand commissioning of installation in conformity of specification, Latest Indian Electricity Act and rules. The unit price is also inclusive
</td></tr>
</table>

Conditions	Sub- Clause	Data
		of all incidental charges for transport, loading/unloading and handling of materials, commission for arranging dispatch direct from manufacturer's factory/ authorized dealer/ supplier and completing all necessary formalities in this respect, such as submission of forwarding notes, all insurance premium, bankers charges for bank guarantee, indemnity bonds inclusive of cost of stamps, etc. The unit prices shall include all incidental charges duties and levies except GST (As applicable) for works contract for Railways which notified by Govt. of India @18% at present will be paid by MRVC on production of Tax invoice. (ii) **Unit Prices for erection:** The unit indicated in the Explanatory Note or as per electrical technical specification given in the tender papers and also cover all cost of administration of the contract, insurance premium, banker's charges for guarantees, cost of stamps, cost of storage, loading and unloading and handling of materials and for any road transport which the Contractor may use for carrying materials between his depot/s and site of work. The unit price includes cost of works and adjustments necessary to be done by the Contractor during or after the tests carried out. Prices for erection indicated in the BOQ are inclusive of cost of erection material, labour during day or night, welding, testing etc. to be done by the Contractor to the extent as per site requirement for successful erection. The unit prices shall include all incidental charges duties and levies on except GST (As applicable) for works contract for Railways which notified by Govt. of India @18% at present will be paid by MRVC on production of Tax invoice. For distribution boards, panel, meter box, the complete set as indicated in the particular item of schedule and with quantities required for erection, Testing & commissioning based on its approved design/ drawing and not in piecemeal shall be considered for payment. In case if the assets are not charged due to delay in EIG sanction or due to any other unforeseen reasons, the security of the assets shall be the responsibility of the contractor till these assets are finally commissioned. **(iii) Stages of payment for Electrical General Services:** (a) Supply: 70% on supply of materials (70% of the accepted cost of the supply items of the schedule duly inspected by the nominated Inspection

Conditions	Sub- Clause	Data
		Authority) will be paid on receipt of the equipment/material by the consignee. The payment will be made after arrival of material at site and receipt of the invoice & other documents mentioned below and their verification. Since the materialswill be in the possession of the contractor, the contractor shall arrange irrevocable indemnity bond for the payment. 1. Contractor's certificate that all material has been supplied against schedule. 2. Supplier's Challan and manufacturer's challan. 3. Inspection certificate including test reports as per approved Quality Assurance Plan(QAP)granted by RITES/Client's representative. 4. Certificate of receipt of materials in good condition at Contractor's depot/s duly accepted by the Client's Engineer. 5. Comprehensive Insurance on supply. 6. Indemnity Bond. (Copy enclosed) 20% on successful erection (20% of the accepted cost of the supply items). Alternatively, 20% supply payment will be released on completion of one year from the date of 70% payment of particular item of schedule against equivalent amount fresh B.G. against this payment, issued by a Schedule bank valid till the date of commissioning of project. Balance 10% of cost of supply on provisional acceptance/ handing over of installation to zonal railways/ Power supply authorities. **(a) Erection:** 90% of erection charges on successful erection of various items. Balance 10% of cost of erection on provisional acceptance by handing over of installation to zonal railways/ Power supply authorities. The payment on erection will be made after submission of Item wise Daily Progress Report duly signed by contractor and MRVC site in-charge. (b) **Final Settlement:** On Successful completion of defects liability period and issue of

Conditions	Sub- Clause	Data
		certificate of final acceptance of entire installations, the performance security will be refunded /returned to the contractor after adjustment of any dues payable by the contractor to the client. Inspection charges for the items requiring inspection of RITES will be paid directly to RITES by MRVC. Inspection call shall be given 10 days in advance from the date of inspection date.
Plant and Materials	14.5(b)(i)	Not Applicable.
	14.5(c)(i)	Not Applicable.
Minimum Amount of Interim Payment Certificates	14.6	1.00 % of the Accepted Contract Amount.
Interest rates for Delayed payment	14.8	Interest rate for Delayed payment is 6% (Six Percent) per annum for payments in local currency.
Retention money	14.9-sub paragraph 6	Substitution of retention money should be in instalments not less than 25 % of the accepted contract price.
	14.16	Add sub-clause 14.16: The contractor, for carrying out any construction work, must get themselves registered with the Registering Officer under Section-7 of the Building and Other Construction Workers Act, 1996 and rules made thereto by the concerned State Govt. and submit certificate of Registration, issued from the Registering Officer of the concerned State Govt. (Labour Dept.). As per this Act, the contractor shall be levied a cess @1% of cost of construction work, which would be deducted from each bill. Cost of material, when supplied under a separate schedule item, shall be outside the purview of cess. Rates offered shall be inclusive of 1% cess to be deducted in every payment as per Provision of The Building and Other Construction Workers Welfare Cess Act, 1996.
Employer's Entitlement to Termination for Convenience	15.5	Delete the third sentence reading- "The Employer shall not terminate the Contract under this Sub-Clause in order to execute the Works himself or to arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor under Clause 16.2 [Termination by Contractor]"
Maximum total liability of the Contractor to the Employer	17.6	Accepted Contract Amount.
Periods for submission of insurance:	18.1	
a. evidence of insurance.		10 days of receipt of Notification of award, before issue of notice for commencement of works.

Conditions	Sub- Clause	Data
b. relevant policies		10 days of receipt of Notification of award, before issue of notice for commencement of works.
Minimum amount of insurance for works and contractor's Equipment	18.2	100 % of contract value.
Maximum amount of deductibles for insurance of the Employer's risks	18.2(d)	₹ Ten Million
Minimum amount of third-party insurance	18.3	1% of contract value rounded off to nearest lakh.
Minimum amount of insurance for Contractor's Employees	18.4	In accordance with the statutory requirements applicable in India.
Insurance	18.2, 18.3 & 18.4	Alternatively, Contractor can go for contractor's all risk insurance policy (CAR Policy), equivalent to 125% of contract value. Maximum deductibles will be as per above sub-clause 18.2(d).
Claims, Disputes and Arbitration	20	In this tender, Adjudicator shall replace the Dispute Board for dispute resolution. Hence The word 'Dispute Board' wherever appearing in the tender document is replaced by 'Adjudicator'. The terms and conditions governing Adjudicator are mentioned below in PCC.
Contractor's Claims	20.1	The word 'Dispute Board' in this clause is replaced by 'Adjudicator' and the word 'Sub-Clause 20.4 [Obtaining Dispute Board's Decision]' appearing in this para is replaced by 'Sub-clause on Arbitration as appearing in PCC'.
Obtaining Adjudicator's Decision and Procedure for Disputes	20.2	Clauses 20.2 to 20.5, 20.7, 20.8 related to Dispute Board are replaced by clause about Procedure for Disputes and Obtaining Adjudicator's Decision as Appendix A enclosed: Following details shall remain part of this Annexure: **(i) Name of the agreed Adjudicator ……... *(insert name before signing contract)*.** (ii) Appointing Authority for the Adjudicator: President of the Institution of Engineers (India). Hourly rate and types of reimbursable expenses to be paid to the Adjudicator: *As per Policy of the employer Mumbai Railway Vikas Corporation Ltd.* *Policy is available at MRVC website on the following link.*

Conditions	Sub- Clause	Data
		https://mrvc.indianrailways.gov.in/works/uploads/File/arbitration%206.11.2018.pdf Daily rate and types of reimbursable expenses to be paid to the Adjudicator for field visit shall be Rs 10,000/- reimbursable expenses like boarding/lodging/travel etc. This is in addition to regular fee as brought out in the policy referred above.
Rules of arbitration (foreign contractors)	20.6-1(a)(i) and 20.6-1(a)(ii)	Rules of arbitration of the United Nations Commission on International Trade Law (UNCITRAL)
Appointment (if not agreed) to be made by	20.6-1(a)(ii), 20.6-1(b)(ii), 20.6-1(c)(i), and 20.6-1(c)(iii),	President, Institution of Engineers.
Rules of arbitration (Indian contractors)	20.6-1(b)(i)	'The Arbitration and Conciliation Act, 1996 (India)'
Period for Arbitration Award	20.6-1(c)(iv)	The Arbitrator should give final award within 180 days of starting of the proceedings
Place of Arbitration	20.6-2	Arbitration proceedings shall be held at Mumbai
Arbitration	20.6	The Arbitration and Conciliation Act 1996. The procedure will be as given in Part B Specific Provisions. Members of the arbitral tribunal shall be civil engineers, retired from Govt. service as Joint Secretary or above/equivalent grade (E8) from PSU or above. Fee & Remuneration will be as per Annexure-2.
Appendix A		**APPENDIX A**: General Conditions of Dispute Board Agreement is **deleted and replaced by 'Procedure for Disputes and Obtaining Adjudicator's Decision'**

Part B - Specific Provisions

Sub-Clause 1.1.2.7 Contractor's Personnel	**Key Personnel** The following is added at the end of the sub-clause: "Contractor's Personnel includes Key Personnel as named in Part A - Contract Data."
Sub-Clause 1.1.6.11 Other Definitions	The following is added as Sub-Clause 1.1.6.11 "SHE" means environmental, (including sexual exploitation and abuse (SEA) and gender-based violence (GBV)), health and safety.
Sub-Clause 4.1 Contractor's General Obligations	Insert in the fifth paragraph after the words "*The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works.*" "Notwithstanding Sub-Clause 8.1, the Contractor shall not carry out any Works, including mobilization and/or pre-construction activities (e.g., limited clearance for haul roads, site accesses and work site establishment, geotechnical investigations or investigations to select ancillary features such as quarries and borrow pits), unless the Engineer is satisfied that appropriate measures are in place to address environmental, health and safety risks and impacts. At a minimum, the Contractor shall apply the Management Strategies and Implementation Plans and Code of Conduct, submitted as part of the Tender and agreed as part of the Contract. The Contractor shall submit, on a continuing basis, for the Engineer's prior approval, such supplementary Management Strategies and Implementation Plans as are necessary to manage the SHE risks and impacts of ongoing works. These Management Strategies and Implementation Plans collectively comprise the Contractor's Environmental and Social Management Plan (C-ESMP). The C-ESMP shall be approved prior to the commencement of construction activities (e.g., excavation, earth works, bridge and structure works, stream and road diversions, quarrying or extraction of materials, concrete batching and asphalt manufacture). The approved C-ESMP shall be reviewed, periodically (but not less than every six (6) months), and updated in a timely manner, as required, by the Contractor to ensure that it contains measures appropriate to the Works activities to be undertaken. The updated C-ESMP shall be subject to prior approval by the Engineer.

Sub-Clause 4.2 Performance Security

Replace sub-clause 4.2 in its entirety with the following:

"4.2 **Performance Security and SHE Performance Security**

The Contractor shall obtain (at its cost) a Performance Security for proper performance in the amounts stated in the Contract Data and denominated in the currency(ies) of the Contract or in a freely convertible currency acceptable to the Employer. If amounts are not stated in the Contract Data, this Sub-Clause shall not apply.
The Contractor shall deliver the Performance Security to the Employer within 28 days after receiving the Letter of Acceptance and shall send a copy to the Engineer. The Performance Security shall be issued either by (a) by a Nationalized or Scheduled bank in India; or (b) by a foreign bank which has been determined in advance to be acceptable to the Employer and shall be in the form annexed to the Particular Conditions, as stipulated by the Employer in the Contract Data, or in another form approved by the Employer.

The Contractor shall ensure that the Performance Security are valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate (), by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.

The Employer shall not make a claim under the Performance Security except for amounts to which the Employer is entitled under the Contract.

The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Employer was not entitled to make the claim.

The Employer shall return the Performance Security and, if applicable, the SHE Performance Security to the Contractor within 21 days after receiving a copy of the Performance Certificate.

Without limitation to the provisions of the rest of this Sub-Clause, whenever the Engineer determines an addition or a reduction to the Contract Price as a result of a change in cost and/or legislation, or as a result of a Variation, amounting to

more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor shall at the Engineer's request promptly increase, or may decrease, as the case may be, the value of the Performance Security in that currency by an equal percentage."

Sub-Clause 4.4 Subcontractors

Sub-Clause 4.4 (b) is replaced by the following:

"(b) the prior consent of the Engineer shall be obtained to other proposed Subcontractors. When requesting such a prior consent, the contractor shall submit, in addition to any other required document, an undertaking from each proposed subcontractor to confirm that they have read, understand and will comply with the SHE obligations and code of conduct of the Contract;"

4.18 Protection of the Environment

The following is added at the end of the sub-clause:

"Salient features of some of the major laws that are applicable for protection of environment are given in Appendix 1"

Sub-Clause 4.21 Progress Reports

Sub-Clause 4.21 (g) is replaced by the following:

"4.21 (g) the Environmental, Health and Safety (SHE) metrics set out in Appendix C"

Add Sub-Clause 4.21 (i) as follows:

"4.21 (i) Action taken/current status of implementation on the decisions taken in the periodical review meetings held earlier"

At the end of, and as part of Sub-Clause 4.21 add a new paragraph as follows:

"The Contractor shall provide immediate notification to the Engineer of incidents in the following categories. Full details of such incidents shall be provided to the Engineer within the timeframe agreed with the Engineer.

(a) confirmed or likely violation of any law or international agreement,

(b) any fatality or serious (lost time) injury,

(c) significant adverse effects or damage to private property (e.g., vehicle accident, damage from fly rock, working beyond the boundary)

(d) major pollution of drinking water aquifer or damage or destruction of rare or endangered habitat (including protected areas) or species; or

(e) any allegation of gender-based violence (GBV), sexual exploitation or abuse, sexual harassment or sexual

misbehaviour, rape, sexual assault, child abuse or defilement, or other violations involving children."

Sub-Clause 6.4 Labour Laws

The following is added at the end of the sub-clause:

"Salient features of major labour and other laws that are applicable to construction industry in India are given as Appendix 1 to these General Conditions of Contract."

Sub-Clause 6.9 Contractor's Personnel

Key Personnel

Sub-Clauses 6.9 (e) is amended by inserting "or" at the end:

"6.9 (e)……; or"

Sub-Clauses 6.9 (f) is inserted as follows:

"6.9 (f) undertakes behaviour which breaches the Code of Conduct (SHE) (e.g., spreading communicable diseases, sexual harassment, gender-based violence, (GBV), sexual exploitation or abuse, illicit activity or crime)."

After the sentence: "*If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.*" the following is added as a new paragraph:

"The Contractor's Personnel includes Key Personnel. If the Contractor intends to replace a Key Personnel, the Contractor shall, not less than 30 days before the intended date of replacement, give notice to the Engineer, the name, address, academic qualifications and relevant experience of the intended replacement Key Personnel. The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Key Personnel or appoint a replacement."

Sub-Clause 7.8 Royalties

Royalties shall be paid by the Contractor and should be included in the Tender price.

Sub-Clause 13.3 Variation procedure

Sub-Clause 13.3. (a) is replaced with the following:

"(a)a description of the proposed work to be performed, a programme for its execution and sufficient SHE information to enable an evaluation of SHE risks and impacts;"

Sub-Clause 14.1 The Contract Price

Sub-Clause 14.1 last sentence reading 'Notwithstanding the provisions of …… payment of import duties and taxes upon importation' is replaced with the following:

"Contractors are solely responsible for obtaining any tax/duty exemption benefits available in India. The Employer will not compensate the Contractor in case of failure to receive such benefits or in the event of non-availability of such benefits. Employer will only issue necessary certificates in terms of the Government of India's relevant Notifications, if any, as per information given in Declaration Format in Section IV – Tender Forms"

Sub-Clause 14.2 Advance Payment

Sub-Clause 14.2 (a) and (b) are replaced with the following:

"(a) deductions shall commence in the next interim Payment Certificate following that in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds 30 percent (30%) of the Accepted Contract Amount Less Provisional Sums or 4 (four) months from the date of payment of first instalment of advance, whichever period concludes earlier; and

(b) deductions shall be made at the amortization rate stated in the Contract Data of the amount of each Interim Payment Certificate (excluding the advance payment and deductions for its repayments as well as deductions for retention money) in the currencies and proportions of the advance payment until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the time when 90 percent (90%) of the Accepted Contract Amount less Provisional Sums has been certified for payment, always provided that the advance shall be completely repaid prior to the expiry of the original time for completion."

Following is added as the last paragraph of Sub-Clause 14.2:

"The Contractor is to use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Engineer."

Sub-Clause 14.6 Issue of Interim Payment Certificates

The following is added to the third paragraph as (c):

(a) if the Contractor was, or is, failing to perform any SHE obligations or work under the Contract, the value of this work or obligation, as determined by the Engineer, may be withheld until the work or obligation has been performed, and/or the cost of rectification or replacement, as determined by the Engineer, may be withheld until rectification or replacement has been

completed. Failure to perform includes, but is not limited to the following:

(i) failure to comply with any SHE obligations or work described in the Works' Requirements which may include, working outside site boundaries, excessive dust, failure to keep public roads in a safe usable condition, damage to offsite vegetation, pollution of water courses from oils or sedimentation, contamination of land e.g., from oils, human waste, damage to archaeology or cultural heritage features, air pollution as a result of unauthorized and/or inefficient combustion,

(ii) failure to regularly review C-ESMP and/or update it in a timely manner to address emerging SHE issues, or anticipated risks or impacts,

(iii) failure to implement the C-ESMP e.g., failure to provide required training or sensitization,

(iv) failing to have appropriate consents/permits prior to undertaking Works or related activities,

(v) failure to submit SHE report/s (as described in Appendix C), or failure to submit such reports in a timely manner,

(vi) failure to implement remediation as instructed by the Engineer within the specified timeframe (e.g., remediation addressing non-compliance/s).

GCC 20.6 Arbitration Sub-Clause 20.6 is replaced in its entirety with the following:

"Any dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 20.5 above and in respect of which the DB's decision (if any) has not become final, and binding shall be finally settled by arbitration.

1. Arbitration shall be conducted as follows:

(a) if the contract is with foreign contractors,

(i) international arbitration with proceedings administered by the arbitration institution designated in the Contract Data, and conducted under the rules of arbitration of such institution; or, if an arbitration institution is not so specified in the Contract Data,

(ii) international arbitration in accordance with the arbitration rules of the United Nations Commission on International Trade Law (UNCITRAL). The arbitral tribunal shall consist of three Arbitrators

one each to be appointed by the Employer and the Contractor. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the parties and shall act as Presiding Arbitrator. In case of failure of the two Arbitrators so appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the Arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the authority specified in Contract Data,

(iii) for the purposes of this Sub-clause, the term "Foreign Contractor" means a contractor who is not registered in India and is not a juridical person created under Indian Law.

(b) if the Contract is with Indian contractors,

(i) arbitration with proceedings administered by the arbitration institution designated in the Contract Data, and conducted under the rules of arbitration of such institution in accordance with 'The Arbitration and Conciliation Act, 1996 (India); or, if an arbitration institution is not so specified in the Contract Data,

(ii) adhoc arbitration with proceedings administered by Arbitrators appointed by the Employer and the Contractor and conducted in accordance with the 'The Arbitration and Conciliation Act, 1996 (India)'. The arbitral tribunal shall consist of three Arbitrators one each to be appointed by the Employer and the Contractor. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the parties and shall act as Presiding Arbitrator. In case of failure of the two Arbitrators so appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the Arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the authority specified in Contract Data.

(iii) for the purposes of this Sub-clause, the term "Indian Contractor" means a contractor who is registered in India and is a juridic person created under Indian Law as well as a joint venture between such a contractor and a Foreign Contractor.

following provisions shall apply for arbitration conducted in accordance with (a)(ii) and (b)(ii) above,

(i) if one of the parties fails to appoint its Arbitrator in pursuance of sub-clauses (a)(ii) and (b)(ii) above

within 30 days after receipt of the notice of the appointment of its Arbitrator by the other party, then the authority specified in Contract Data, both in cases of Foreign Contractor as well as Indian Contractor, shall appoint the Arbitrator. A certified copy of the order of the authority, making such an appointment shall be furnished to each of the parties.

(ii) the decision of the majority of Arbitrators shall be final and binding upon both parties. The cost and expenses of Arbitration proceedings will be paid as determined by the arbitral tribunal. However, the expenses incurred by each party in connection with the preparation, presentation, etc. of its proceedings as also the fees and expenses paid to the Arbitrator appointed by such party or on its behalf shall be borne by each party itself.

(iii) where the value of the contract is Rs.50 million [US$ …. approximately] and below, the disputes or differences arising shall be referred to the Sole Arbitrator. The Sole Arbitrator shall be appointed by agreement between the parties; failing such agreement, the Sole Arbitrator shall be appointed by the appointing authority specified in the Contract Data.

(iv) the Arbitrator(s) should give final award within the number of days specified in Contract Data, from start of the proceedings, unless otherwise agreed to by the Parties.

2. The place of arbitration shall be the location specified in the Contract Data; and the language of the arbitration proceedings and that of all documents and for communications between the parties shall be English.

3. The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, and any decision of the DB, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Engineer from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute.

4. Neither Party shall be limited in the proceedings before the arbitrators to the evidence or arguments previously put before the DB to obtain its decision, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction. Any decision of the DB shall be admissible in evidence in the arbitration.

5. Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, the Engineer and the DB shall not be altered by reason of any arbitration being conducted during the progress of the Works.

6. Performance under the contract shall continue during the arbitration proceedings and payments due to the Contractor by the Employer shall not be withheld, unless they are the subject matter of the arbitration proceedings."

Appendix A

Procedure for Dispute and Appointment of the Adjudicator

1. Appointment of the Adjudicator

1.1 The Adjudicator named in PCC shall be appointed jointly by the Employer and the Contractor, at the time of the Employer's issuance of the Letter of Acceptance. If, in the Letter of Acceptance, the Employer does not agree on the appointment of the Adjudicator, the Employer will request the Appointing Authority designated in the PCC, to appoint the Adjudicator within 14 days of receipt of such request.

1.1.1 The Adjudicator should be in position before "notice to proceed with work" is issued to the Contractor and an agreement should be signed with the Adjudicator jointly by the Employer and the Contractor in the form attached – Appendix 3.

1.2 Should the Adjudicator resign or die or should the Employer and the Contractor agree that the Adjudicator is not functioning in accordance with the provisions of the Contract; a new Adjudicator shall be jointly appointed by the Employer and the Contractor. In case of disagreement between the Employer and the Contractor, within 30 days, the Adjudicator shall be designated by the Appointing Authority designated in the PCC at the request of either party, within 14 days of receipt of such request.

2. Procedure for Disputes

2.1 If the Contractor believes that a decision taken by the Project Manager was either outside the authority given to the Project Manager by the Contract or that the decision was wrongly taken, the decision shall be referred to the Adjudicator within 14 days of the notification of the Project Manager's decision.

2.2 The Adjudicator shall be paid daily at the rate specified in the PCC, together with reimbursable expenses of the types specified in the PCC, and the cost shall be divided equally between the Employer and the Contractor.

2.3 If either Party is dissatisfied with the Adjudicator's decision, then either Party may, within 28 days after receiving the decision, give a Notice of Dissatisfaction to the other Party indicating its dissatisfaction and intention to commence arbitration.

The Notice of Dissatisfaction shall state that it is given under this Sub-Clause and shall set out the matter in dispute and the reason(s) for dissatisfaction. Neither Party shall be entitled to commence arbitration of a dispute unless a Notice of Dissatisfaction has been given in accordance with this Sub-Clause.

If the Adjudicator has given its decision as to a matter in dispute to both Parties, and no Notice of Dissatisfaction has been given by either Party within 28 days after it received the Adjudicator's decision, then the decision shall become final and binding upon both Parties.

3. Amicable Settlement

Where a Notice of Dissatisfaction has been given under Sub-Clause above, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, the Party giving a Notice of Dissatisfaction in accordance with Sub-Clause above should move to commence arbitration after the fifty-sixth day from the day on which a Notice of Dissatisfaction was given, even if no attempt at an amicable settlement has been made.

4. The arbitration shall be conducted in accordance with the arbitration procedures published by the institution named and, in the place, specified in the PCC.

The Arbitrator(s) shall give a decision in writing within 120 days of start of the proceedings unless otherwise agreed to by the Parties. The Arbitrators shall entertain only those issues which have been earlier referred to the Adjudicator and either party is dissatisfied with the decision given by the Adjudicator.

Annexure 1 (A)

Appointment of Adjudicator

Suggested Draft of **Letter of Appointment of Adjudicators** in civil works contracts

Sub: "**Balance General service Electrical works in connection with construction of station buildings, service buildings, new platforms, New FOBs, staff quarters, etc. for Panvel-Karjat suburban corridor**".

To

Name and address of the Adjudicator

We hereby confirm your appointment as Adjudicator for the above contract to carry out the assignment specified in this Letter of Appointment.

For administrative purpose_____ (*name of the officer representing the Employer*) has been assigned to administer the assignment and to provide the Adjudicator with all relevant information needed to carry out the assignment on behalf of both the Employer and the contractor. The services will be required during the period of contract for the work of (Name of the Contract) _____.

The Adjudicator shall visit the worksite once in 3 (three) months till the completion of the work indicated above or as specifically requested by Employer/ Contractor for the period up to the end of defects liability period with prior intimation to the Employer and the contractor. The duration of each visit shall ordinarily be for one day only. These durations are approximate and (*Name of the Employer and Name of the Contractor*) may find it necessary to postpone or cancel the assignment and/or shorten or extend the duration.

The appointment will become effective upon confirmation of letter by you. The appointment of Adjudicator shall be liable for termination under 30 (thirty) days written notice from the date of issue of the notice, if both Employer and the Contractor so desire. Also, the appointment shall automatically stand terminated 14 days after the defect notice / correction period as stated in Clauses 23 and 24 of the Conditions of Contract is over.

The Adjudicator will be paid a fee of Rs. _____ (Rupees _____only) per each day of visit at the worksite. The actual expenses for boarding and traveling in connection with the assignment will be reimbursed to the Adjudicator. The Adjudicator will submit a pre-receipted bill in triplicate to the Employer indicating the date of the visit, fees for the visit and a proof in support of the actual expenditure [only for items valued above Rs. 200 each] incurred by him against boarding, lodging and traveling expenses after performing the visit on each occasion. The Employer will make the admissible payment (both the Employer's and the Contractor's share) to the Adjudicator within 30 days of the receipt of the bill. The Contractor's share on this account (half the paid amount) will be recovered by the Employer from the Contractor's bills against the work.

In accepting this assignment, the Adjudicator should understand and agree that he is responsible for any liabilities and costs arising out of risks associated with travel to and from the place of

emergency repatriation, loss or damage to personal/professional effects and property. The Adjudicator is advised to effect personal insurance cover in respect of such risks if he does not already have such cover in place. In this regard, the Adjudicator shall maintain appropriate medical, travel, accident and third-party liability insurance. The obligation under this paragraph will survive till termination of this appointment

Procedures for resolution of disputes by the Adjudicator is described in the contract of _____ (name of the contract) between the Employer and the contractor vide clause no. 24 of the General Conditions of Contract. Your recommendation should be given in the format attached, within 28 days of receipt of a notification of dispute.

The Adjudicator will carry out the assignment in accordance with the highest standard of professional and ethical competence and integrity, having due regard to the nature and purpose of the assignment, and will conduct himself in a manner consistent herewith. After visiting the worksite, the Adjudicator will discuss the matter with the Employer and if necessary, with the Contractor before arriving at any decision.

The Adjudicator will agree that all knowledge and information not within the public domain, which may be acquired while carrying out this service shall be all time and for all purpose, regarded as strictly confidential and held in confidence, and shall not be directly or indirectly disclosed to any party whatsoever, except with the permission of the Employer and the contractor. The Adjudicator's decision should be communicated in the form of a speaking order specifying the reasons.

The Adjudicator will agree that any manufacturing or construction firm with which he might be associated with, will not be eligible to participate in tender for any goods or works resulting from or associated with the project of which this consulting assignment forms a part

Read and Agreed

Name of Adjudicator

Signature

Place:
Date:
Name of Employer
Signature of authorized representative of Employer

Name of the Contractor
Signature of authorized representative of Contractor

Attachment: Copy of contract document between the Employer and contractor and format for recommendation.

SUMMARY OF ADJUDICATOR'S RESPONSIBILITIES

The Adjudicator has the following principal responsibilities:

1. Visit the site periodically.

2. Keep abreast of job activities and developments.

3. Encourage the resolution of disputes by the parties.

4. When a dispute is referred to it, conduct a hearing (no legal presentation), complete its deliberations, and prepare a recommendation in a professional and timely manner (as per sample format)

Sample Format of Adjudicator's Recommendation

[Project Name]
Recommendation of Adjudicator

Dispute No. XX [*NAME OF DISPUTE*]

Hearing Date: _____

Dispute

Description of dispute. A one or two sentence summation of the dispute.

Contractor's Position

A short summation of the contractor's position as understood by the Adjudicator.

Employer's Position

A short summation of the Employer's position as understood by the Adjudicator.

Recommendation

The Adjudicator's specific recommendation for settlement of the dispute. (*The recommended course is consistent with the explanation*).

Explanation

(*This section could also be called Considerations, Rationale, Findings, Discussion, and so on.*)

The Adjudicator's description of how each recommendation was reached.

Respectfully submitted,

Date: _____ _____

Date: _____ _____

Date: _____ _____

ANNEXURE-2

Fee & other expenses payable to the Arbitrators[1](Figures are indicative- To be changed as appropriate for each case)

S.No.	Particulars of fee and other charges	Amount payable per arbitrator/per case
1	Arbitrator fee	Rs 10,000/- per day subject to a maximum of Rs 2 lakhs per case; or Rs 1.5 lakhs (lump sum) subject to publishing the award within 6 months. 6 months will be reckoned from the date of first meeting.
2	Reading charges	Rs 10,000/-
3	Secretarial Assistance and Incidental charges (telephone, fax, postage etc.)	Rs 15,000/-
4	Charges for publishing / declaration of the award.	Maximum of Rs 15,000/-
5	Other Expenses (As per actuals against bills subject to maximum of the prescribed ceiling given below)	
	Traveling expenses	Economy class by air, first class AC by train, AC car by road.
	Lodging and Boarding	(i) Upto Rs. 10,000/- per day (Metro cities) (ii) Upto Rs. 5,000/- per day (Other cities) (iii) Rs. 2000/- per day (Own arrangement)
6	Local travel	Rs 1000/- per day
7	Extra charges for days other than hearing/ meeting days (maximum for 2 days)	Rs. 2,500/- per day

Note:

1. Lodging, boarding and travelling expenses shall be allowed only for those members who are residing 100 KMs away from place of meeting.

1. Delhi, Mumbai, Chennai, Kolkata, Bangalore and Hyderabad shall be considered as Metro cities.

[1]In cases of Institutional Arbitration, the fee and other expenses payable to the arbitrators shall be as per the rules of the Institution, and the Annexure should be modified accordingly.

Appendix 1
Salient Features of Labour & Environment Protection Laws[2]

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

(a) Employees Compensation Act 1923: The Act provides for compensation in case of injury, disease or death arising out of and during the course of employment.

(b) Payment of Gratuity Act 1972: gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years' service or more or on death at the rate of 15 days' wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.

(c) Employees P.F. and Miscellaneous Provision Act 1952 (*since amended*): The Act provides for monthly contribution by the employer plus workers @ 10% or 8.33%. The benefits payable under the Act are:

(i) Pension or family pension on retirement or death, as the case may be.
(ii) Deposit linked insurance on the death in harness of the worker.
(iii)Payment of P.F. accumulation on retirement/death etc.

(d) Maternity Benefit Act 1961: The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.

(e) Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act, 2013: This Act defines sexual harassment in the workplace, provides for an enquiry procedure in case of complaints and mandates the setting up of an Internal Complaints Committee or a Local Complaints Committee

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

(g) Minimum Wages Act 1948: The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if

[2]This list is only illustrative and not exhaustive. Tenderers and Contractors are responsible for checking the correctness and completeness of the list. The law as current on the date of tender opening will apply.

the employment is a scheduled employment. Construction of Buildings, Roads, Runways are scheduled employments.

(h) Payment of Wages Act 1936: It lays down the mode, manner and by what date the wages are to be paid, what deductions can be made from the wages of the workers.

(i) Equal Remuneration Act 1976: The Act provides for payment of equal wages for work of equal nature to male and female workers and for not making discrimination against Female employees in the matters of transfers, training and promotions etc.

(j) Payment of Bonus Act 1965: The Act is applicable to all establishments employing 20 or more employees. Some of the State Governments have reduced this requirement from 20 to 10. The Act provides for payments of annual bonus subject to a minimum of 8.33% of the wages drawn in the relevant year. It applies to skilled or unskilled manual, supervisory, managerial, administrative, technical or clerical work for hire or reward to employees who draw a salary of Rs. 10,000/- per month or less. To be eligible for bonus, the employee should have worked in the establishment for not less than 30 working days in the relevant year. The Act does not apply to certain establishments.

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

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

(m) Child Labour (Prohibition & Regulation) Act 1986: The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of Child Labour is prohibited in the Building and Construction Industry.

(n) Inter-State Migrant workmen's (Regulation of Employment & Conditions of Service) Act 1979: The Act is applicable to an establishment which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home upto the establishment and back etc.

(o) The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996 and the Building and Other Construction Workers Welfare Cess Act, 1996 (BOCWW Cess Act): All the establishments who carry on any building or other construction work and employ 10 or more workers are covered under these Acts. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be notified by the Government. The Employer of the establishment is required to provide safety

measures at the building or construction work and other welfare measures, such as Canteens, First –Aid facilities, Ambulance, Housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government. In the state of Maharashtra rate of cess is 1%.

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

(q) Weekly Holidays Act -1942

(r) Bonded Labour System (Abolition) Act, 1976: The Act provides for the abolition of bonded labour system with a view to preventing the economic and physical exploitation of weaker sections of society. Bonded labour covers all forms of forced labour, including that arising out of a loan, debt or advance.

(s) Employer's Liability Act, 1938: This Act protects workmen who bring suits for damages against employers in case of injuries endured in the course of employment. Such injuries could be on account of negligence on the part of the employer or persons employed by them in maintenance of all machinery, equipment etc. in healthy and sound condition.

(t) Employees State Insurance Act 1948: The Act provides for certain benefits to insured employees and their families in case of sickness, maternity and disablement arising out of an employment injury. The Act applies to all employees in factories (as defined) or establishments which may be so notified by the appropriate Government. The Act provides for the setting up of an Employees' State Insurance Fund, which is to be administered by the Employees State Insurance Corporation. Contributions to the Fund are paid by the employer and the employee at rates as prescribed by the Central Government. The Act also provides for benefits to dependents of insured persons in case of death as a result of an employment injury.

(u) The Personal Injuries (Compensation Insurance) Act, 1963: This Act provides for the employer's liability and responsibility to pay compensation to employees where workmen sustain personal injuries in the course of employment.

(v) Industrial Employment (Standing Order) Act 1946: It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get the same certified by the designated Authority.

Section X - Contract Forms

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Notification of Intention to Award

[*This Notification of Intention to Award shall be sent to each Tenderer that submitted a Tender.*]

[*Send this Notification to the Tenderer's Authorized Representative named in the Tenderer Information Form*]

For the attention of Tenderer's Authorized Representative

Name: *[insert Authorized Representative's name]*

Address: *[insert Authorized Representative's Address]*

Telephone/Fax numbers: *[insert Authorized Representative's telephone/fax numbers]*

Email Address: *[insert Authorized Representative's email address]*

[IMPORTANT: insert below the date that this Notification is transmitted to Tenderers. The Notification must be sent to all Tenderers simultaneously. This means on the same date and as close to the same time as possible.]

DATE OF TRANSMISSION: This Notification is sent by: [*email/fax*] on [*date*] (local time)

Notification of Intention to Award

Employer: *[insert the name of the Employer]*
Project: *[insert name of project]*
Country: *[insert country where Tender is issued]*
Loan No.: *[insert reference number for loan]*
Tender No: *[insert Tender reference number from Procurement Plan]*
Contract Title: *[insert the name of the contract]*

This Notification of Intention to Award (Notification) notifies you of our decision to award the above contract. The transmission of this Notification begins the Standstill Period. During the Standstill Period you may:

a) request a debriefing in relation to the evaluation of your Tender, and/or

b) submit a Procurement-Related Complaint in relation to the decision to award the contract.

1. The successful Tenderer

Name:	[*insert name of successful Tenderer*]
Address:	[*insert address of the successful Tenderer*]
Contract price:	[*insert contract price of the successful Tender*]

2. List of all Tenderers ***[INSTRUCTIONS: insert names of all Tenderers that submitted a Tender including the successful Tenderer, together with the corresponding Tender price as read out at tender opening and the evaluated Tender price (when rated criteria are not used).]***

Name of Tenderer	Tender price	luated Tender price pplicable)
[*insert name*]	[*insert Tender price*]	[*insert evaluated price*]
[*insert name*]	[*insert Tender price*]	[*insert evaluated price*]
[*insert name*]	[*insert Tender price*]	[*insert evaluated price*]
[*insert name*]	[*insert Tender price*]	[*insert evaluated price*]
[*insert name*]	[*insert Tender price*]	[*insert evaluated price*]

Or

List of all Tenderers ***[INSTRUCTIONS: insert names of all Tenderers that submitted a Tender including the successful Tenderer, together with the corresponding Tender price as read out at tender opening and the evaluated Tender price, respective technical and financial scores, combined technical and financial score (when rated criteria are used).]***

Name of Tenderer	Tender Price	Evaluated Tender Price	Technical Score	Financial Score	Combined Score
[*insert name*]	[*insert Tender price*]	[*insert evaluated price*]			
[*insert name*]	[*insert Tender price*]	[*insert evaluated price*]			
[*insert name*]	[*insert Tender price*]	[*insert evaluated price*]			
[*insert name*]	[*insert Tender price*]	[*insert evaluated price*]			
[*insert name*]	[*insert Tender price*]	[*insert evaluated price*]			

3. Reason/s why your Tender was unsuccessful

[INSTRUCTIONS: State the reason/s why <u>this</u> Tenderer's Tender was unsuccessful. Do NOT include: (a) a point-by-point comparison with another Tenderer's Tender, or (b) information that is marked confidential by the Tenderer in its Tender.]

4. How to request a debriefing

DEADLINE: The deadline to request a debriefing expires at midnight on [*insert date*] (local time).

You may request a debriefing in relation to the results of the evaluation of your Tender. If you decide to request a debriefing your written request must be made within three (3) Business Days of receipt of this Notification of Intention to Award.

Provide the contract name, reference number, name of the Tenderer, contact details; and address the request for debriefing as follows:

Attention: [*insert full name of person, if applicable*]

Title/position: [*insert title/position*]

Agency: [*insert name of Employer*]

Email address: [*insert email address*]

Fax number: [*insert fax number*] ***delete if not used***

If your request for a debriefing is received within the three (3)-Business Day deadline, we will provide the debriefing within five (5) Business Days of receipt of your request. If we are unable to provide the debriefing within this period, the Standstill Period shall be extended by five (5) Business Days after the date that the debriefing is provided. If this happens, we will notify you and confirm the date that the extended Standstill Period will end.

The debriefing may be in writing, by phone, video conference call or in person. We shall promptly advise you in writing how the debriefing will take place and confirm the date and time.

If the deadline to request a debriefing has expired, you may still request a debriefing. In this case, we will provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of the Contract Award Notice.

5. How to make a complaint

Period: Procurement-Related Complaint challenging the decision to award shall be submitted by midnight, [*insert date*] (local time).

Provide the contract name, reference number, name of the Tenderer, contact details; and address the Procurement-Related Complaint as follows:

Attention: [*insert full name of person, if applicable*]

Title/position: [*insert title/position*]

Agency: [*insert name of Employer*]

Email address: [*insert email address*]

Fax number: [*insert fax number*] ***delete if not used***

At this point in the procurement process, you may submit a Procurement-Related Complaint challenging the decision to award the contract. You do not need to have requested, or received, a debriefing before making this complaint. Your complaint must be submitted within the Standstill Period and received by us before the Standstill Period ends.

For more information see the Procurement Instructions for Recipients (Annex IV, Complaint Monitoring).

6. Standstill Period

DEADLINE: The Standstill Period is due to end at midnight on [*insert date*] (local time).

The Standstill Period lasts ten (10) Business Days after the date of transmission of this Notification of Intention to Award.

The Standstill Period may be extended as stated in Section 4 above.

If you have any questions regarding this Notification, please do not hesitate to contact us.

For and on behalf of the Employer:

Signature:_____

Name: _____

Title/Position: _____

Telephone: _____

Email: _____

Beneficial Ownership Disclosure Form

INSTRUCTIONS TO TENDERERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE FORM

This Beneficial Ownership Disclosure Form ("Form") is to be completed by the successful Tenderer. In case of joint venture, the Tenderer must submit a separate Form for each member. The beneficial ownership information to be submitted in this Form shall be current as of the date of its submission.

For the purposes of this Form, a Beneficial Owner of a Tenderer is any natural person who ultimately owns or controls the Tenderer by meeting one or more of the following conditions:

- *directly or indirectly holding 25 percent or more of the shares,*
- *directly or indirectly holding 25 percent or more of the voting rights or*
- *directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Tenderer.*

Tender No.: [*insert number of Tender process*]
To: **[*insert complete name of Employer*]**
In response to your request in the Letter of Acceptance *dated [insert date of letter of Acceptance]* to furnish additional information on beneficial ownership: *[select one option as applicable and delete the options that are not applicable]*

(i) We hereby provide the following beneficial ownership information.3

Details of Beneficial Ownership

Identity of Beneficial Owner	Directly or indirectly holding 25 percent or more of the shares (Yes / No)	Directly or indirectly holding 25 percent or more of the Voting Rights (Yes / No)	Directly or indirectly having the right to appoint a majority of the board of the directors or an equivalent governing body of the Tenderer (Yes / No)
[include full name (last, middle, first), nationality, country of residence]			

OR

(ii) *We declare that there is no Beneficial Owner meeting one or more of the following conditions:*

- directly or indirectly holding 25 percent or more of the shares,
- directly or indirectly holding 25 percent or more of the voting rights or
- directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Tenderer.

OR

(iii) We declare that we are unable to identify any Beneficial Owner meeting one or more of the following conditions. [If this option is selected, the Tenderer shall provide explanation on why it is unable to identify any Beneficial Owner]

- directly or indirectly holding 25 percent or more of the shares,
- directly or indirectly holding 25 percent or more of the voting rights or
- directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Tenderer.

Name of the Tenderer: *[*insert complete name of the Tenderer*] _____

Name of the person duly authorized to sign the Tender on behalf of the Tenderer: **[*insert complete name of person duly authorized to sign the Tender*]

_____

Title of the person signing the Tender: [*insert complete title of the person signing the Tender*] _____

Signature of the person named above: [*insert signature of person whose name and capacity are shown above*] _____

Date signed [*insert date of signing*] **day of** [*insert month*], [*insert year*] _____

* In the case of the Tender submitted by a Joint Venture specify the name of the Joint Venture as Tenderer. In the event that the Tenderer is a joint venture, each reference to "Tenderer" in the Beneficial Ownership Disclosure Form (including this Introduction thereto) shall be read to refer to the joint venture member.

** Person signing the Tender shall have the power of attorney given by the Tenderer. The power of attorney shall be attached with the Tender Schedules.

.

Letter of Acceptance

[letterhead paper of the Employer]

[date]

To: *[name and address of the Contractor]*

This is to notify you that your Tender dated *[date]* for execution of the *[name of the Contract and identification number, as given in the Contract Data]* for the Accepted Contract Amount *[amount in numbers and words] [name of currency]*, as corrected and modified in accordance with the Instructions to Tenderers, is hereby accepted by our Agency.

You are requested to furnish (i) the Performance Security within twenty-eight (28) days in accordance with the Conditions of Contract, using, for that purpose, the Performance Security Form; and (ii) the additional information on beneficial ownership in accordance with TDS ITT 48.1, within eight (8) Business days using the Beneficial Ownership Disclosure Form, included in Section X, Contract Forms, of the Tender Document.

Authorized Signature:

Name and Title of Signatory:

Name of Agency:

Attachment: Contract Agreement

Contract Agreement

THIS AGREEMENT made the _____ day of _____, _____, between _____of _____ *[insert complete name of Employer and full business address]* (hereinafter "the Employer"), of the one part, and _____ of _____ *[insert complete name and nationality of Contractor as well as full business address]* (hereinafter "the Contractor"), of the other part:

WHEREAS the Employer invited tenders for the execution of the Works, described as _____ *[insert brief description of the Works]*, and has accepted a Tender by the Contractor for the execution and completion of these Works and the remedying of any defects therein.

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.

   (a) the Letter of Acceptance;

   (b) the Letter of Tender;

   (c) the addenda Nos _____ (if any);

   (d) the Particular Conditions of Contract;

   (e) the General Conditions of Contract;

   (f) the Specification;

   (g) the Drawings*;* and

   (h) the completed Schedules and any other documents forming part of the contract, including, but not limited to:

      i. the SHE Management Strategies and Implementation Plans and

      ii. Code of Conduct (SHE)**.**

3. In consideration of the payments to be made by the Employer to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of _____ *[insert the name of the Contract governing law country]* on the day, month and year specified above.

For and on behalf of the Employer

Signed: *[insert signature]*
in the capacity of *[insert title or other appropriate designation]*
In the presence of *[insert identification of official witness]*

For and on behalf of the Contractor

Signed: *[insert signature of authorized representative(s) of the Contractor]*
in the capacity of *[insert title or other appropriate designation]*
in the presence of *[insert identification of official witness]*

Issue of Notice to proceed with the Work

(Letterhead of the Employer)

_____ (*date*)

To

_____(*name and address of the Contractor)*

_____

_____

Dear Sirs:

Pursuant to your furnishing the requisite securities as stipulated in ITT clause 50.1, insurance policy as per GCC 18, as stated in letter of acceptance and signing of the contract agreement for the construction of_____@ a Tender Price of _____*[insert amount(s) and currency(ies)]*, you are hereby instructed to proceed with the execution of the said Works in accordance with the contract documents.

Yours faithfully,

(Signature, name and title of signatory authorized to sign on behalf of Employer)

Performance Security - Demand Guarantee

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[insert name and Address of* Employer*]*

Date: _____ *[Insert date of issue]*

PERFORMANCE GUARANTEE No.: _____

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ (hereinafter called "the Applicant"[1]) has entered into Contract No. _____*dated* _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (),[1] such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the …. Day of ……, 2…[2], and any demand for payment under it must be received by us at this office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

_____

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

Contractor's personal

[1] *In the case of a JV, insert the name of the Joint Venture*

[1] *The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency(cies) of the Contract or a freely convertible currency acceptable to the Beneficiary.*

[2] *Insert the date twenty-eight (28) days after the expected completion date as described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*

MINIMUM ORGANISATION STRUCTURE REQUIRED & PENALTY FOR NON-DEPLOYMENT

The figures indicated in Table below are the minimum number of Contractor's Personnel required which are to be deployed as per the minimum level of supervision.

Item No.	Position/ specialization	Penalty Per Month per person or part thereof	Deployed by Date	No. of personnel
1	Project Manager (Electrical)	₹ 1,00,000/-	Commencement Date	1
2	Site Engineer (Electrical)	₹ 1,00,000/-	Within 7 days of Commencement Date	2
3	Environment, Health and Safety Engineer	₹ 80,000/-	Within 7 days of Commencement Date	1

NOTES: -

i. The Contractor shall deploy resources as per the above-mentioned table. The Contractor shall also confirm to deploy manpower over and above the minimum numbers indicated above, if the work so requires.

ii. The performance of project personnel deployed will be evaluated periodically by the Engineer during the contract period. In case the performance of any of the Contractor's Personnel is not satisfactory, the Contractor shall replace them with good personnel immediately as per directions of the Engineer.

iii. The personnel at Sr.No.1, must be deployed by Commencement Date. Personnel at Sr. No.2, 3 and 4 in above the table must be deployed within 07 days of Commencement Date. Nonadherence to these provisions shall attract penalty as indicated in the table above.

iv. In case of non-deployment of contractor's personnel, the penalty shall be imposed as indicated above and deducted from Contractor's running / final bills. The decision of the Engineer in this regard shall be final and binding.

Minimum level of supervision, qualification & experience of Contractor's Personnel shall be as follows:

Item No.	Position/ specialization	Relevant academic qualifications	Minimum years of relevant work experience
1	Project Manager	Bachelor's degree in electrical engineering	Minimum 7 years' relevant work experience. Preferable Experience of Railway/Metro.
2	Site Engineer (Electrical)	Bachelor's degree/Diploma in electrical engineering	Minimum 3/5 years' relevant work experience. Preferable Experience of Railway/Metro.
3	Environment, Health and Safety Engineer	Graduate in Civil or Environmental Engineering with preference in specialization and/or additional qualification in Occupational Health and Safety	Minimum 05 Years as Environment, Health, and Safety Engineer

NOTES:

1. The Curriculum Vitae (CV) of concerned personnel shall be submitted to the Engineer for consideration. No person mentioned in table above shall be deployed in the project without Engineer's approval. Incomplete submission of CV shall not be considered as submission.

2. Relaxation in qualification / experience can be given by the Engineer in exceptional cases where candidates have got high level of professional competency. Decision of the Engineer in such cases shall be final and binding.

Safety Health and Environment (SHE) Performance Security

(NOT APPLICABLE)

Advance Payment Security - Demand Guarantee

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____ *[Insert name and Address of* Employer*]*

Date: _____ *[Insert date of issue]*

ADVANCE PAYMENT GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: [*Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ (hereinafter called "the Applicant") has entered into Contract No. _____ *dated* _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____ ( ) is to be made against an advance payment guarantee.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ ()[1] upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating either that the Applicant:

(a) has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or

(b) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Applicant on its account number _____ at _____..

[1] *The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.*

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Applicant as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, less provisional sums, has been certified for payment, or on the ___ day of _____, 2___,[2] whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

_____

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

[2] *Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*

Retention Money Security - Demand Guarantee

_____ *[Guarantor letterhead or SWIFT identifier code]*

Beneficiary: _____ *[Insert name and Address of* Employer*]*

Date: _____ *[Insert date of issue]*

RETENTION MONEY GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: [*Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ *[insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. _____ *[insert reference number of the contract]* dated _____ with the Beneficiary, for the execution of _____ *[insert name of contract and brief description of* Works*]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, the Beneficiary retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, payment of *[*insert the second half of the Retention Money *or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money,* the difference between half of the Retention Money and the amount guaranteed under the Performance Security is to be made against a Retention Money guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ *[insert amount in figures]*()*[amount in words]*[1] upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without your needing to prove or show grounds for your demand or the sum specified therein.

[1] *The Guarantor shall insert an amount representing the amount of the second half of the Retention Money or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and denominated either in the currency(ies) of the second half of the Retention Money as specified in the Contract, or in a freely convertible currency acceptable to the Beneficiary.*

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited to the Applicant on its account number _____ at _____ *[insert name and address of Applicant's bank]*.

This guarantee shall expire no later than the …. Day of ……, 2…[2], and any demand for payment under it must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

_____

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

[2] *Insert the same expiry date as set forth in the performance security, representing the date twenty-eight (28) days after the completion date described in GCC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*

STANDING INDEMNITY BOND FOR ON ACCOUNT PAYMENTS

(On paper of requisite stamp value)

We, M/s. ……do hereby undertake to hold at our stores Depot(s)/ sub Depot(s) worksite at/between …….. for and on behalf of the President of India acting in the premises through the General Manager (Rolling Stock), MRVC, Mumbai (hereinafter referred to as employer) all materials for which 'On Account payments/'Payments have been made to us against the Contract.
……
……
……
……
vide letter of Acceptance No. ……. dated ……..……or contract agreement No. ……. …… Dated …… and also materials handed over to us by the employer for the purpose of execution of the said Contract, until such time the materials are duly erected or otherwise handed over to him.

We shall be entirely responsible for the safe custody and protection of the said materials against all risk till they are duly delivered as erected equipment to the employer or as he may direct otherwise and shall indemnify the employer against any loss, damage or deterioration whatsoever in respect of the said materials while in our possession and against disposal of surplus materials. The said materials shall at all times be open to inspection by any officer authorized by the Deputy Chief Electrical Engineer, Mumbai Railway Vikas Corp. Ltd. Mumbai.

Should any loss, damage or deterioration of materials occur or surplus materials disposed off and refund becomes due, the employer shall be entitled to recover from us the full cost as per price included in Schedule (BOQ) to the Contract and also compensation for such loss or damage if any along with the amount to be refunded without prejudice to any other remedies available to him by deduction from any sum due or any sum which at any time hereafter becomes due to us under the said or any other Contract.

Dated this ……..day of ……

For and behalf of

Signature of witness
Name of witness in Block Letters
Address.

End of the document

****