DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

Ministry of Transport, Highways, Ports & Civil Aviation

SRI LANKA RAILWAYS
RAILWAY EFFICIENCY IMROVEMENT PROJECT

FUNDED BY

ASIAN DEVELOPMENT BANK
ADB LOAN NO. 3806SRI

BIDDING DOCUMENT
for
Procurement
of
Improvement of Passenger Facilities at Colombo Fort Railway Station

CONTRACT PACKAGE: REIP/ADB/NCB/W/07

September 2025

STANDARD BIDDING DOCUMENT

Procurement of Works

- Without Prequalification -

- Single-Stage: One-Envelope Bidding Procedure -

Asian Development Bank
December 2016

Procurement of Works

BIDDING DOCUMENT
for
Procurement
of

Improvement of Passenger Facilities at Colombo Fort Railway Station

Issued on: 1st September 2025

Invitation for Bids No.: REIP/ADB/NCB/W/07

NCB No.: REIP/ADB/NCB/W/07

Employer: Ministry of Transport, Highways, Ports and Civil Aviation

Country: Sri Lanka

Preface

This Bidding Document for the Procurement of Works has been prepared by Ministry of Transport, Highways, Ports and Civil Aviation and is based on the Standard Bidding Document for the Procurement of Works (SBD Works) issued by the Asian Development Bank dated December 2016.

ADB's SBD Works has the structure and the provisions of the Master Procurement Document entitled "Bidding Documents for the Procurement of Works", prepared by multilateral development banks and other public international financial institutions except where ADB-specific considerations have required a change.

Table of Contents - Summary Description

PART I BIDDING PROCEDURES

PART II REQUIREMENTS

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Section 1 - Instructions to Bidders

This Section specifies the procedures to be followed by Bidders in the preparation and submission of their Bids. Information is also provided on the submission, opening, evaluation of bids, and on the award of contract.

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Section 1 - Instructions to Bidders

A. General

1. Scope of Bid

1.1 In connection with the Invitation for Bids (IFB) indicated in the Bid Data Sheet (BDS), the Employer, as indicated in the BDS, issues this Bidding Document for the procurement of Works as specified in Section 6 (Employer's Requirements). The name, identification, and number of contracts of the international competitive bidding (ICB) are provided in the BDS.

1.2 Throughout this Bidding Document,

(a) the term "in writing" means communicated in written form and delivered against receipt;

(b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and

(c) "day" means calendar day.

2. Source of Funds

2.1 The Borrower or Recipient (hereinafter called "Borrower") indicated in the BDS has applied for or received financing (hereinafter called "funds") from the Asian Development Bank (hereinafter called "ADB") toward the cost of the project named in the BDS. The Borrower intends to apply a portion of the funds to eligible payments under the contract(s) for which this Bidding Document is issued.

2.2 Payments by the ADB will be made only at the request of the Borrower and upon approval by ADB in accordance with the terms and conditions of the Financing Agreement between the Borrower and ADB (hereinafter called "Financing Agreement"), and will be subject in all respects to the terms and conditions of that Financing Agreement. No party other than the Borrower shall derive any rights from the Financing Agreement or have any claim to the funds.

3. Fraud and Corruption

3.1 ADB's Anticorruption Policy requires Borrowers (including beneficiaries of ADB-financed activity), as well as Bidders, Suppliers, and Contractors under ADB-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, ADB

(a) defines, for the purposes of this provision, the terms set forth below as follows:

(i) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;

(ii) "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;

(iii) "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;

(iv) "collusive practice" means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party;

(v) "obstructive practice" means (a) deliberately destroying, falsifying, altering, or concealing of evidence material to an ADB investigation; (b) making false statements to investigators in order to materially impede an ADB investigation; (c) failing to comply with requests to provide information, documents, or records in connection with an Office of Anticorruption and Integrity (OAI) investigation; (d) threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or (e) materially impeding ADB's contractual rights of audit or access to information; and

(vi) "integrity violation" is any act which violates ADB's Anticorruption Policy, including (i) to (v) above and the following: abuse, conflict of interest, violations of ADB sanctions, retaliation against whistleblowers or witnesses, and other violations of ADB's Anticorruption Policy, including failure to adhere to the highest ethical standard.

(b) will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations in competing for the Contract;

(c) will cancel the portion of the financing allocated to a contract if it determines at any time that representatives of the Borrower or of a beneficiary of ADB financing engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations during the procurement or the execution of that contract, without the Borrower having taken timely and appropriate action satisfactory to ADB to remedy the situation;

(d) will impose remedial actions on a firm or an individual, at any time, in accordance with ADB's Anticorruption Policy and Integrity Principles and Guidelines (both as amended from time to time), including declaring ineligible, either indefinitely or for a stated period of time, to participate[1] in ADB-financed, -administered, or -supported activities or to benefit from an ADB-financed, -administered, or -supported contract, financially or otherwise, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices or other integrity violations; and

[1] Whether as a Contractor, Nominated Subcontractor, Consultant, Manufacturer or Supplier, or Service Provider; or in any other capacity (different names are used depending on the particular Bidding Document). A Nominated Subcontractor is one that either has been (i) included by the Bidder in its prequalification application or bid because it brings specific and critical experience and know-how that are accounted for in the evaluation of the bidder's prequalification application or the bid; or (ii) appointed by the Employer.

(e) will have the right to require that a provision be included in bidding documents and in contracts financed by ADB, requiring Bidders, suppliers and contractors to permit ADB or its representative to inspect their accounts and records and other documents relating to the bid submission and contract performance and to have them audited by auditors appointed by ADB.

3.2 Furthermore, Bidders shall be aware of the provision stated in Subclauses 1.15 and 15.6 of the Conditions of Contract.

4. Eligible Bidders

4.1 A Bidder may be a natural person, private entity, or government-owned enterprise subject to ITB 4.5 - or any combination of them with a formal intent to enter into an agreement or under an existing agreement in the form of a Joint Venture. In the case of a Joint Venture,

(a) all partners shall be jointly and severally liable; and

(b) the Joint Venture shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the Joint Venture during the bidding process and, in the event the Joint Venture is awarded the Contract, during contract execution.

4.2 A Bidder, and all parties constituting the Bidder, shall have the nationality of an eligible country, in accordance with Section 5 (Eligible Countries). A Bidder shall be deemed to have the nationality of a country if the Bidder is a citizen or is constituted, incorporated, or registered, and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed subcontractors or suppliers for any part of the Contract including related services.

4.3 A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to be in a conflict of interest with one or more parties in the bidding process if any of, including but not limited to, the following apply:

(a) they have controlling shareholders in common; or

(b) they receive or have received any direct or indirect subsidy from any of them; or

(c) they have the same legal representative for purposes of this bid; or

(d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to material information about or improperly influence the bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or

(e) a Bidder participates in more than one bid in this bidding process, either individually or as a partner in a joint venture, except for alternative offers permitted under ITB 13 of the Bidding Document. This will result in the disqualification of all Bids in which it is involved. However, subject to any finding of a conflict of interest in terms of ITB 4.3(a)-(d) above, this does not limit the participation of a Bidder as a Subcontractor in another Bid or of a firm as a Subcontractor in more than one Bid; or

(f) a Bidder or any affiliated entity, participated as a Consultant in the preparation of the design or technical specifications of the works that are the subject of the Bid; or

(g) a Bidder was affiliated with a firm or entity that has been hired (or is proposed to be hired) by the Employer or Borrower as Engineer for the Contract.

4.4 A firm shall not be eligible to participate in any procurement activities under an ADB-financed, -administered, or -supported project while under temporary suspension or debarment by ADB pursuant to its Anticorruption Policy (see ITB 3), whether such debarment was directly imposed by ADB, or enforced by ADB pursuant to the Agreement for Mutual Enforcement of Debarment Decisions. A bid from a temporary suspended or debarred firm will be rejected.

4.5 Government-owned enterprises in the Employer's country shall be eligible only if they can establish that they (i) are legally and financially autonomous, (ii) operate under commercial law, and (iii) are not a dependent agency of the Employer.

4.6 Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer, as the Employer shall reasonably request.

4.7 Firms shall be excluded if 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 Borrower's country prohibits any import of goods or contracting of works or services from that country or any payments to persons or entities in that country.

5. Eligible Materials, Equipment, and Services

5.1 The materials, equipment, and services to be supplied under the Contract shall have their origin in eligible source countries as defined in ITB 4.2 above and all expenditures under the Contract will be limited to such materials, equipment, and services. At the Employer's request, Bidders may be required to provide evidence of the origin of materials, equipment, and services.

5.2 For purposes of ITB 5.1 above, "origin" means the place where the materials and equipment are mined, grown, produced, or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.

B. Contents of Bidding Document

6. Sections of Bidding Document

6.1 The Bidding Document consist of Parts I, II, and III, which include all the sections indicated below, and should be read in conjunction with any addenda issued in accordance with ITB 8.

PART I Bidding Procedures
Section 1 - Instructions to Bidders (ITB)
Section 2 - Bid Data Sheet (BDS)
Section 3 - Evaluation and Qualification Criteria (EQC)

Section 4 - Bidding Forms (BDF)
Section 5 - Eligible Countries (ELC)

PART II Requirements
Section 6 - Employer's Requirements (ERQ)

PART III Conditions of Contract and Contract Forms
Section 7 - General Conditions of Contract (GCC)
Section 8 - Particular Conditions of Contract (PCC)
Section 9 - Contract Forms (COF)

6.2 The IFB issued by the Employer is not part of the Bidding Document.

6.3 The Employer is not responsible for the completeness of the Bidding Document and its addenda, if they were not obtained directly from the source stated by the Employer in the IFB.

6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Document. Failure to furnish all information or documentation required by the Bidding Document may result in the rejection of the bid.

7. Clarification of Bidding Document, Site Visit, Pre-Bid Meeting

7.1 A prospective Bidder requiring any clarification on the Bidding Document shall contact the Employer in writing at the Employer's address indicated in the BDS or raise his inquiries during the pre-bid meeting if provided for in accordance with ITB 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received no later than 21 days prior to the deadline for submission of bids. The Employer shall forward copies of its response to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. Should the Employer deem it necessary to amend the Bidding Document as a result of a request for clarification, it shall do so following the procedure under ITB 8 and ITB 22.2.

7.2 The Bidder 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 Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.

7.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, 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 The Bidder's designated representative is invited to attend a pre-bid meeting, if provided for in the BDS. 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 Bidder is requested to submit any questions in writing, to reach the Employer not later than 1 week before the meeting.

7.6 Minutes of the pre-bid meeting, including the text of the questions raised, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3. Any modification to the Bidding Document that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting.

7.7 Nonattendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.

8. Amendment of Bidding Document

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

8.2 Any addendum issued shall be part of the Bidding Document and shall be communicated in writing to all who have obtained the Bidding Document from the Employer in accordance with ITB 6.3.

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

C. Preparation of Bids

9. Cost of Bidding

9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

10. Language of Bid

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

11. Documents Comprising the Bid

11.1 The Bid shall comprise the following:

(a) Letter of Bid;

(b) completed schedules as required, including priced Bill of Quantities, in accordance with ITB 12 and ITB 14;

(c) Bid Security or Bid-Securing Declaration, in accordance with ITB 19;

(d) alternative Bids, if permissible, in accordance with ITB 13;

(e) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2;

(f) documentary evidence in accordance with ITB 17, establishing the Bidder's qualifications to perform the contract if its Bid is accepted;

(g) Technical Proposal in accordance with ITB 16;

(h) any other document required in the BDS.

11.2 In addition to the requirements under ITB 11.1, Bids submitted by a Joint Venture shall include a copy of the Joint Venture Agreement entered into by all partners. Alternatively, a Letter of Intent to execute a Joint Venture Agreement in the event of a successful Bid shall be signed by all partners and submitted with the Bid, together with a copy of the proposed agreement.

12. Letter of Bid and Schedules

12.1 The Letter of Bid and Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Section 4 (Bidding Forms). The forms must be completed without any alterations to the text, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested and as required in the BDS.

13. Alternative Bids

13.1 Unless otherwise indicated in the BDS, alternative Bids shall not be considered.

13.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the BDS, as will the method of evaluating different times for completion.

13.3 Except as provided under ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Bidding Document must first price the Employer's design as described in the Bidding 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 lowest evaluated Bidder conforming to the basic technical requirements shall be considered by the Employer.

13.4 When specified in the BDS, Bidders are permitted to submit alternative technical solutions for specified parts of the Works. Such parts will be identified in the BDS and described in Section 6 (Employer's Requirements). The method for their evaluation will be stipulated in Section 3 (Evaluation and Qualification Criteria).

14. Bid Prices and Discounts

14.1 The prices and discounts quoted by the Bidder in the Letter of Bid and in the Bill of Quantities shall conform to the requirements specified below.

14.2 The Bidder 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 Bidder will not be paid for by the Employer when executed, and shall be deemed covered by the rates for other items and prices in the Bill of Quantities.

14.3 The price to be quoted in the Letter of Bid, in accordance with ITB 12.1, shall be the total price of the Bid, excluding any discounts

offered. Absence of the total bid price in the Letter of Bid may result in the rejection of the Bid.

14.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Bid, in accordance with ITB 12.1.

14.5 Unless otherwise provided in the BDS and the Contract, the rates and prices quoted by the Bidder 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 Bidder shall furnish the indexes and weightings for the price adjustment formulas in the Tables of Adjustment Data included in Section 4 (Bidding Forms) and the Employer may require the Bidder to justify its proposed indexes and weightings.

14.6 If so indicated in ITB 1.1, bids are being invited for individual contracts or for any combination of contracts (packages). Bidders wishing to offer any price reduction for the award of more than one Contract shall specify in their bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Price reductions or discounts shall be submitted in accordance with ITB 14.4, provided the Bids for all contracts are submitted and opened at the same time.

14.7 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder.

15. Currencies of Bid and Payment

15.1 The unit rates and the prices shall be quoted by the Bidder entirely in the currency specified in the BDS.

15.2 Bidders shall indicate the portion of the bid price that corresponds to expenditures incurred in the currency of the Employer's country in the Schedule of Payment Currencies included in Section 4 (Bidding Forms).

15.3 Bidders expecting to incur expenditures in other currencies for inputs to the Works supplied from outside the Employer's country and wishing to be paid accordingly may indicate up to three foreign currencies in the Schedule of Payment Currencies included in Section 4 (Bidding Forms).

15.4 The rates of exchange to be used by the Bidder for currency conversion during bid preparation shall be the selling rates for similar transactions prevailing on the date 28 days prior to the deadline for submission of bids published by the source specified in the BDS. If exchange rates are not so published for certain currencies, the Bidder shall state the rates used and the source. Bidders should note that for the purpose of payments, the exchange rates confirmed by the source specified in the BDS as the selling rates prevailing 28 days prior to the deadline for submission of Bids shall apply for the duration of the Contract so that no currency exchange risk is borne by the Bidder.

15.5 Foreign currency requirements indicated by the Bidders in the Schedule of Payment Currencies shall include but not limited to the specific requirements for

(a) expatriate staff and labor employed directly on the Works;

(b) social, insurance, medical and other charges relating to such expatriate staff and labor, and foreign travel expenses;

(c) imported materials, both temporary and permanent, including fuels, oil and lubricants required for the Works;

(d) depreciation and usage of imported Plant and Contractor's Equipment, including spare parts, required for the Works;

(e) foreign insurance and freight charges for imported materials, Plant and Contractor's Equipment, including spare parts; and

(f) overhead expenses, fees, profit, and financial charges arising outside the Employer's country in connection with the Works.

15.6 Bidders may be required by the Employer to clarify their foreign currency requirements, and to substantiate that the amounts included in the unit rates and prices and shown in the Schedule of Payment Currencies are reasonable and responsive to ITB 15.3 above, in which case a detailed breakdown of its foreign currency requirements shall be provided by the Bidder.

15.7 Bidders should note that during the progress of the Works, the foreign currency requirements of the outstanding balance of the Contract Price may be adjusted by agreement between the Employer and the Contractor in order to reflect any changes in foreign currency requirements for the Contract, in accordance with Subclause 14.15 of the Conditions of Contract. Any such adjustment shall be effected by comparing the percentages quoted in the bid with the amounts already used in the Works and the Contractor's future needs for imported items.

16. Documents Comprising the Technical Proposal

16.1 The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule, and any other information as stipulated in Section 4 (Bidding Forms), in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.

17. Documents Establishing the Qualifications of the Bidder

17.1 To establish its qualifications to perform the Contract in accordance with Section 3 (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding information sheets included in Section 4 (Bidding Forms).

17.2 Domestic Bidders, individually or in joint ventures, applying for eligibility for domestic preference shall supply all information required to satisfy the criteria for eligibility as described in ITB 33.

18. Period of Validity of Bids

18.1 Bids shall remain valid for the period specified in the BDS after the bid submission deadline date prescribed by the Employer. A bid valid for a shorter period shall be rejected by the Employer as nonresponsive.

18.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. If a bid security is requested in accordance with ITB 19, it shall also be extended 28 days beyond the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its Bid.

19. Bid Security / Bid-Securing Declaration

19.1 Unless otherwise specified in the BDS, the Bidder shall furnish as part of its Bid, in original form, either a Bid-Securing Declaration or a bid security as specified in the BDS. In the case of a bid security, the amount and currency shall be as specified in the BDS.

19.2 If a Bid-Securing Declaration is required pursuant to ITB 19.1, it shall use the form included in Section 4 (Bidding Forms). The Employer will declare a Bidder ineligible to be awarded a Contract for a specified period of time, as indicated in the BDS, if the Bid-Securing Declaration is executed.

19.3 If a bid security is specified pursuant to ITB 19.1, the bid security shall be, at the Bidder's option, in any of the following forms:

(a) an unconditional bank guarantee,

(b) an irrevocable letter of credit, or

(c) a cashier's or certified check,

all from a reputable source from an eligible country as described in Section 5 (Eligible Countries). In the case of a bank guarantee, the bid security shall be submitted either using the Bid Security Form included in Section 4 (Bidding Forms) or another form acceptable to the Employer. The form must include the complete name of the Bidder. The bid security shall be valid for 28 days beyond the original validity period of the bid, or beyond any period of extension if requested under ITB 18.2.

19.4 Unless otherwise specified in the BDS, any Bid not accompanied by a substantially compliant bid security or Bid-Securing Declaration, if one is required in accordance with ITB 19.1, shall be rejected by the Employer as nonresponsive.

19.5 If a bid security is specified pursuant to ITB 19.1, the bid security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's furnishing of the performance security pursuant to ITB 41.

19.6 If a bid security is specified pursuant to ITB 19.1, the bid security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required performance security.

19.7 The bid security may be forfeited or the Bid-Securing Declaration executed,

(a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, except as provided in ITB 18.2; or

(b) if the successful Bidder fails to

(i) sign the Contract in accordance with ITB 40;

(ii) furnish a performance security in accordance with ITB 41;

(iii) accept the arithmetical correction of its Bid in accordance with ITB 31; or

(iv) furnish a domestic preference security if so required.

19.8 The Bid Security or Bid Securing Declaration of a Joint Venture shall be in the name of the Joint Venture that submits the bid. If the Joint Venture has not been legally constituted at the time of bidding, the bid security or Bid-Securing Declaration shall be in the names of all future partners as named in the letter of intent mentioned in ITB 4.1.

20. Format and Signing of Bid

20.1 The Bidder shall prepare one original set of the documents comprising the Bid as described in ITB 11 and clearly mark it "ORIGINAL." Alternative Bids, if permitted in accordance with ITB 13, shall be clearly marked "ALTERNATIVE." In addition, the Bidder shall submit copies of the Bid, in the number specified in the BDS and clearly mark them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.

20.2 The original and all copies of the Bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified in the BDS and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Bid, except for unamended printed literature, shall be signed or initialed by the person signing the Bid. If a Bidder submits a deficient authorization, the Bid shall not be rejected in the first instance. The Employer shall request the Bidder to submit an acceptable authorization within the number of days as specified in the BDS. Failure to provide an acceptable authorization within the prescribed period of receiving such a request shall cause the rejection of the Bid.

20.3 Any amendments such as interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

D. Submission and Opening of Bids

21. Sealing and Marking of Bids

21.1 Bidders may always submit their Bids by mail or by hand. When so specified in the BDS, Bidders shall have the option of submitting their Bids electronically. Procedures for submission, sealing, and marking are as follows:

(a) Bidders submitting Bids by mail or by hand shall enclose the original and all copies of the Bid, including alternative Bids, if permitted in accordance with ITB 13, in separate sealed envelopes, duly marking the envelopes as "ORIGINAL," "ALTERNATIVE," and "COPY." These envelopes containing the original and the copies shall then be enclosed in one single envelope. The rest of the procedure shall be in accordance with ITB 21.2 and ITB 21.3.

(b) Bidders submitting Bids electronically shall follow the electronic bid submission procedures specified in the BDS.

21.2 The inner and outer envelopes shall

(a) bear the name and address of the Bidder;

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

(c) bear the specific identification of this bidding process indicated in the BDS 1.1; and

(d) bear a warning not to open before the time and date for bid opening.

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 Bid.

22. Deadline for Submission of Bids

22.1 Bids must be received by the Employer at the address and no later than the date and time indicated in the BDS.

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

23. Late Bids

23.1 The Employer shall not consider any Bid that arrives after the deadline for submission of bids, in accordance with ITB 22. Any bid received by the Employer after the deadline for submission of Bids shall be declared late, rejected, and returned unopened to the Bidder.

24. Withdrawal, Substitution, and Modification of Bids

24.1 A Bidder may withdraw, substitute, or modify its Bid 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 ITB 20.2, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the Bid must accompany the respective written notice. All notices must be

(a) prepared and submitted in accordance with ITB 20 and ITB 21 (except that withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL,” “SUBSTITUTION,” “MODIFICATION”; and

(b) received by the Employer no later than the deadline prescribed for submission of Bids, in accordance with ITB 22.

24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.

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

25. Bid Opening

25.1 The Employer shall open the Bids in public at the address, on the date and time specified in the BDS in the presence of Bidders` designated representatives and anyone who chooses to attend. Any specific electronic bid opening procedures required if electronic bidding is permitted in accordance with ITB 21.1, shall be as specified in the BDS.

25.2 First, envelopes marked “WITHDRAWAL” shall be opened and read out and the envelope with the corresponding Bid shall not be opened, but returned to the Bidder. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Next, envelopes marked “SUBSTITUTION” shall be opened and read out and exchanged with the corresponding Bid being substituted, and the substituted Bid shall not be opened, but returned to the Bidder. No bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at bid opening. Envelopes marked “MODIFICATION” shall be opened and read out with the corresponding Bid. No bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at bid opening. Only envelopes that are opened and read out at bid opening shall be considered further.

25.3 All other envelopes shall be opened one at a time, reading out the name of the Bidder and whether there is a modification; the Bid Price(s), including any discounts and alternative offers; the presence of a bid security or Bid-Securing Declaration, if required; and any other details as the Employer may consider appropriate. Only discounts and alternative offers read out at bid opening shall be considered for evaluation. Unless otherwise specified in the BDS, all pages of the Letter of Bid and Bill of Quantities are to be initialed by at least three representatives of the Employer attending bid opening. No Bid shall be rejected at bid opening except for late Bids, in accordance with ITB 23.1.

25.4 The Employer shall prepare a record of the bid opening that shall include, as a minimum, the name of the Bidder and whether there is a withdrawal, substitution, or modification; the Bid Price, per contract if applicable, including any discounts and alternative offers; and the presence or absence of a bid security or Bid-Securing Declaration, if one was required. The Bidders’ representatives who are present shall be requested to sign the record. The omission of a Bidder’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 Bidders who submitted Bids on time, and posted online when electronic bidding is permitted.

E. Evaluation and Comparison of Bids

26. Confidentiality

26.1 Information relating to the examination, evaluation, comparison, and postqualification of Bids and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process until information on the Contract award is communicated to all Bidders.

26.2 Any attempt by a Bidder to influence the Employer in the evaluation of the Bids or Contract award decisions may result in the rejection of its Bid.

26.3 Notwithstanding ITB 26.2, from the time of bid opening to the time of Contract award, if any Bidder wishes to contact the Employer on any matter related to the bidding process, it may do so in writing.

27. Clarification of Bids

27.1 To assist in the examination, evaluation, and comparison of the bids, and qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder 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 in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids, in accordance with ITB 31.

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

28. Deviations, Reservations, and Omissions

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

(a) "Deviation" is a departure from the requirements specified in the Bidding Document;

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

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

29. Determination of Responsiveness

29.1 The Employer's determination of a Bid's responsiveness is to be based on the contents of the Bid itself, as defined in ITB11.

29.2 A substantially responsive Bid is one that meets the requirements of the Bidding 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 Bidding Document, the Employer's rights or the Bidder's obligations under the proposed Contract; or

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

29.3 The Employer shall examine the technical aspects of the Bid submitted in accordance with ITB 16, Technical Proposal, in particular, to confirm that all requirements of Section 6 (Employer's Requirements) have been met without any material deviation, reservation, or reservation.

29.4 If a Bid is not substantially responsive to the requirements of the Bidding 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 Bid is substantially responsive, the Employer may waive any nonconformities in the Bid that do not constitute a material deviation, reservation, or omission.

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

30.3 Provided that a Bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or nonconforming item or component. The adjustment shall be made using the method indicated in Section 3 (Evaluation and Qualification Criteria).

31. Correction of Arithmetical Errors

31.1 Provided that the Bid 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.

(c) If there is a discrepancy between the bid price in the Summary of Bill of Quantities and the bid amount in item (c) of the Letter of Bid, the bid price in the Summary of Bill of Quantities will prevail and the bid amount in item (c) of the Letter of Bid will be corrected.

(d) 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), (b) and (c) above.

31.2 If the Bidder that submitted the lowest evaluated Bid does not accept the correction of errors, its Bid shall be disqualified and its bid security may be forfeited or its Bid-Securing Declaration executed.

32. Conversion to Single Currency

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

33. Margin of Preference

33.1 Unless otherwise specified in the BDS, a margin of preference shall not apply.

34. Evaluation of Bids

34.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.

34.2 To evaluate a Bid, the Employer shall consider the following:

(a) the bid 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 ITB 31.1;

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

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

(e) adjustment for nonconformities in accordance with ITB 30.3; and

(f) application of all the evaluation factors indicated in Section 3 (Evaluation and Qualification Criteria).

34.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.

34.4 If this Bidding Document allows Bidders to quote separate prices for different contracts, and the award to a single Bidder of multiple contracts, the methodology to determine the lowest evaluated price of the contract combinations, including any discounts offered in the Letter of Bid, is specified in Section 3 (Evaluation and Qualification Criteria).

34.5 If the Bid, which results in the lowest Evaluated Bid Price, is seriously unbalanced or front loaded in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.

35. Comparison of Bids

35.1 The Employer shall compare all substantially responsive Bids to determine the lowest evaluated Bid, in accordance with ITB 34.2.

36. Qualification of the Bidder

36.1 The Employer shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive Bid meets the qualifying criteria specified in Section 3 (Evaluation and Qualification Criteria).

36.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17.1.

36.3 An affirmative determination shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the Bid, in which event the Employer shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder's qualifications to perform satisfactorily.

37. Employer's Right to Accept Any Bid, and to Reject Any or All Bids

37.1 The Employer reserves the right to accept or reject any Bid, and to annul the bidding process and reject all Bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all Bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.

F. Award of Contract

38. Award Criteria

38.1 The Employer shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated Bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

39. Notification of Award

39.1 Prior to the expiration of the period of bid validity, the Employer shall notify the successful Bidder, in writing, that its Bid has been accepted.

39.2 At the same time, the Employer shall also notify all other Bidders of the results of the bidding. The Employer will publish in an English language newspaper or well-known freely accessible website the results identifying the bid and lot numbers and the following information: (i) name of each Bidder who submitted a Bid; (ii) bid prices as read out at bid opening; (iii) name and evaluated prices of each Bid that was evaluated; (iv) name of bidders whose bids were rejected and the reasons for their rejection; and (v) name of the winning Bidder, and the price it offered, as well as the duration and summary scope of the contract awarded. After publication of the award, unsuccessful Bidders may request in writing to the Employer for a debriefing seeking explanations on the grounds on which their Bids were not selected. The Employer shall promptly respond in writing to any unsuccessful Bidder who, after publication of contract award, requests a debriefing.

39.3 Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

40. Signing of Contract

40.1 Promptly after notification, the Employer shall send the successful Bidder the Contract Agreement.

40.2 Within 28 days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.

41. Performance Security

41.1 Within 28 days of the receipt of notification of award from the Employer, the successful Bidder shall furnish the performance security in accordance with the Conditions of Contract, subject to ITB 34.5, using for that purpose the Performance Security Form included in Section 9 (Contract Forms), or another form acceptable to the Employer.

41.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or to sign the Contract Agreement shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security or execution of the Bid-Securing Declaration. In that event, the Employer may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.

41.3 The above provision shall also apply to the furnishing of a domestic preference security if so required.

Section 2 - Bid Data Sheet

This Section consists of provisions that are specific to each procurement and supplement the information or requirements included in Section 1 - Instructions to Bidders.

A. General

ITB 1.1	The number of the Invitation for Bids (IFB) is: REIP/ADB/NCB/W/07
ITB 1.1	The Employer is: Ministry of Transport, Highways, Ports and Civil Aviation
ITB 1.1	The name of the national competitive bidding (NCB) is: Improvement of Passenger Facilities at Colombo Fort Railway Station The identification number of the NCB is: REIP/ADB/NCB/W/07 The number and identification of lots comprising this NCB is: None
ITB 2.1	The Borrower is: Democratic Socialist Republic of Sri Lanka
ITB 2.1	The name of the Project is: Railway Efficiency Improvement Project

B. Contents of Bidding Documents

ITB 7.1	For **clarification purposes** only, the Employer's address is: Attention: Project Director, Colombo Suburban Railway Project, No. 217, Cotta Road, Colombo 08. ZIP Code: 00800 Sri Lanka. Telephone: 011-265640-42 Fax: 011-2674354 E-mail: pdcsrplk@gmail.com Note - Request for clarification should be received by the Employer no later than 21 days prior to the closing date of the bid. Employer will not be bound to answer the clarification inquiries received after the said period.

ITB 7.4	A Pre-Bid meeting will take place. Date: 15th September 2025 Time: 10.00 a.m. Place: Colombo Suburban Railway Project, No. 217, Cotta Road, Colombo 08. ZIP Code: 00800 Sri Lanka. A site visit conducted by the Employer will be organized on 16th September 2025.

C. Preparation of Bids

ITB 10.1	The language of the Bid is: English
ITB 11.1 (h)	The Bidder shall submit with its Technical Bid the following additional documents: 1. Proposals for subcontracting elements of the works if the total of such subcontracting is more than 10 percent of the Bid price. 2. A duly notarized affidavit certifying the accuracy of the information on current contract commitments given in form Fin 4. 3. If Bidder is a Joint Venture, a copy of JV agreement or Letter of Intent to execute a JV Agreement in the event of a successful bid shall be signed by all partners together with the proposed agreement or the Memorandum of Understanding and if the bidder is limited Liability Company, a copy of Certificate of Incorporation and if the bidder is partnership, partnership agreement and business registration, if the bidder is proprietorship, a certificate of business registration. 4. Authority to seek references from the bidder's bankers. In the case of a JV, such authority from all the JV partners. 5. Any person acts as an agent, representative or nominee for or on behalf of any bidder shall register himself with the Registrar of Companies if the bid price exceeds LKR 5 million in accordance with the Public Contracts Act No. 3 of 1987 and subsequent gazette notification. Such certificate issued to the local agent/ representative by the registrar of companies to be submitted. a. "Any person who acts as an agent or sub agent, representative or nominee for or on behalf of any bidder shall register himself before submission of bids with Registrar of Public Contracts Sri Lanka, as required by the Public Contract Act No. 03 of 1987. The Original Certificate of registration shall be submitted with the bid.'' b. The successful bidder shall be required to register upon the award of the contract with the Registrar of Public Contracts Sri Lanka, as required by

	the Public Contract Act No 03 of 1987. c. "The successful bidder shall provide the relevant particulars required by the Public Contracts Act No. 03 of 1987 to the Registrar of Public Contracts upon the award of the Contract.'' 6. VAT Registration Certificate. Bidders already registered for VAT should submit this with their Bid while successful foreign bidders are allowed to complete the requirement before award of the Contract. 7.Valid Construction Development Authority (CIDA) registration certificate C2 or above 8. The breakdown of the rate builds up for the Bills of Quantities items listed under schedules in Section 4. 9. Tender Index: The Bidder shall include with his Bid an index which cross refers all of the Employer's bid requirements elaborated in these documents to all the individual sections within this Bid for the Technical Bid which the Bidder intends to prefer his responses to each and every one of those requirements.
ITB 12.1	The units and rates in figures entered into the Bill of Quantities and Daywork Schedule should be typewritten or if written by hand, must be in print form. Bill of Quantities and Daywork Schedule not presented accordingly may be considered nonresponsive.
ITB 13.1	Alternative Bids shall not be permitted.
ITB 13.2	Alternative times for completion shall not be permitted.
ITB 13.4	Alternative technical solutions shall be permitted for the following parts of the Works: None
ITB 14.5	The prices quoted by the Bidder shall be subjected to price adjustment only in respect of local currency component
ITB 15.1	The unit rates and the prices shall be quoted by the Bidder entirely in: Sri Lankan Rupees (LKR)
ITB 15.4	The rates of exchange shall be the selling rates 28 days prior to the deadline for submission of bids published by: Central Bank of Sri Lanka
ITB 18.1	The bid validity period shall be 120 days.

ITB 19.1	The Bid Security Declaration is not acceptable. The Bank Guarantee shall be issued through or by a Bank acceptable to the Central Bank of Sri Lanka The Bidder shall furnish a bid security in the amount of LKR 14 million or an equivalent amount in freely convertible foreign currency. For the purpose of conversion of the required bid security amount to a freely convertible currency, the selling exchange rate published by the Central Bank of Sri Lanka on the date 28 days prior to the deadline for bid submission shall be applied. Bid security obtained from a bank in Sri Lanka shall be in the form of a certified check, a letter of credit or a bank guarantee, issued from a reputable bank license by the Central Bank of Sri Lanka. If the bid security is obtained from a bank based in another country, it shall be issued by a reputed bank from an eligible country. If the Guarantee is in a form of irrevocable Letter of Credit or Cashier's or certified cheque or a bank guarantee obtained from a Bank in another country, it shall be encashable in Sri Lanka. Foreign Bidders are encouraged to use corresponding bank in Sri Lanka. Bid Security shall be valid from 16.10.2025 to 13.02.2026 (Bid security shall be valid for 28 days beyond the original validity period of the bid)
ITB 19.2	The ineligibility period will be not be applicable
ITB 19.4	Subject to the succeeding sentences, any bid not accompanied by an irrevocable and callable bid security shall be rejected by the Employer as nonresponsive. If a Bidder submits a bid security that (i) deviates in form, amount, and/or period of validity, or (ii) does not provide sufficient identification of the Bidder (including, without limitation, failure to indicate the name of the Joint Venture or, where the Joint Venture has not yet been constituted, the names of all future Joint Venture Partners), the Employer shall request the Bidder to submit a compliant bid security within 7 days of receiving such a request. Failure to provide a compliant bid security within the prescribed period of receiving such a request shall cause the rejection of the Bid.
ITB 20.1	In addition to the original Bid, the number of copies is: **One hard copy and one soft copy with CD**
ITB 20.2	The written confirmation of authorization to sign on behalf of the Bidder shall consist of: (i) Bids submitted by a limited liability company or a corporation: It shall be signed by a duly authorized person(s) holding a Power of Attorney notarized by Attorney-at-law or shall include an authorization by the

	Company's or Corporation's Board of Directors by a Board resolution and certified by the Company Secretary authorizing for such person(s) to sign the documents. (ii) Bids submitted by an individual or the Partnership: The person signing on behalf of the bidder shall be duly authorized person holding a Power of Attorney notarized by Attorney-at-law or in respect of a partnership shall include a copy of the partnership agreement to demonstrate relationship of the signing partner to the partnership. (iii) Bids submitted by existing or intended Joint Venture (JV) shall include an undertaking signed by all parties (i) stating that all parties shall be jointly and severally liable, and (ii) nominating a representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution.
ITB 20.2	The Bidder shall submit an acceptable authorization within Seven (7) days.

D. Submission and Opening of Bids

ITB 21.1	Bidders shall not have the option of submitting their Bids electronically.
ITB 21.1 (b)	If Bidders shall have the option of submitting their Bids electronically, the electronic bidding submission procedures shall be: Not Applicable
ITB 22.1	For **bid submission purposes** only, the Employer's address is: Attention: Chairman Ministry Procurement Committee, 7th Floor, "Sethsiripaya", Stage -II Battaramulla. ZIP code: 10120 Sri Lanka. **The deadline for bid submission is:** Date: 16.10.2025 Time: 2.00 p.m.
ITB 25.1	The bid opening shall take place at: Ministry of Transport, Highways, Ports and Civil Aviation, 7th Floor, "Sethsiripaya", Stage II, Battaramulla, Sri Lanka. Date: 16.10.2025 Time: 2.00 p.m.

ITB 25.1	Electronic bid opening procedure shall be as follows: Not Applicable
ITB 25.3	The Letter of Bid and Bill of Quantities shall be initialed by all representatives of the Employer attending the Bid opening.

E. Evaluation and Comparison of Bids

ITB 32.1	The currency that shall be used for bid evaluation and comparison purposes to convert all bid prices expressed in various currencies into a single currency is: Sri Lankan Rupees (LKR) The source of selling exchange rate shall be: Central Bank of Sri Lanka. The date for the selling exchange rate shall be: 28 days prior to the deadline for submission of Bids
ITB 33.1	A margin of preference shall not apply.

Section 3 - Evaluation and Qualification Criteria

- Without Prequalification -

This Section contains all the criteria that the Employer shall use to evaluate bids and qualify Bidders. In accordance with ITB 34 and ITB 36, no other methods, criteria and factors shall be used. The Bidder shall provide all the information requested in the forms included in Section 4 (Bidding Forms).

Table of Criteria

1. Evaluation

In addition to the criteria listed in ITB 34.2 (a)–(e), other relevant factors are as follows:

1.1 Adequacy of Technical Proposal

Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity to successfully implement the contract considering its proposed site organization, method statement, mobilization, and construction schedule (to be described by the Bidder in sufficient detail to demonstrate the adequacy of its work methods, scheduling, and material sourcing) including the extent to which they are presented in a consistent manner and comply with requirements stipulated in Section 6 (Employer's Requirements) without material deviation, reservation, or omission.

Noncompliance with equipment and personnel requirements described in Section 6 (Employer's Requirements) shall not normally be a ground for bid rejection, and such noncompliance will be subject to clarification during bid evaluation and rectification prior to contract award.

1.2 Completion Time

An alternative Completion Time, if permitted under ITB 13.2, will be evaluated as follows:

Not Applicable

1.3 Technical Alternatives

Technical alternatives, if permitted under ITB 13.4, will be evaluated as follows:

Not Applicable

1.4 Quantifiable Nonconformities and Omissions

Subject to ITB 14.2 and ITB 34.2, the evaluated cost of quantifiable nonconformities including omissions, is determined as follows:

Pursuant to ITB 31.3, the cost of all quantifiable nonmaterial nonconformities shall be evaluated, including omissions in Daywork where competitively priced but excluding omission of prices in the Bill of Quantities. The Employer will make its own assessment of the cost of any nonmaterial nonconformities and omissions for the purpose of ensuring fair comparison of Bids

1.5 Domestic Preference

If a margin of preference is provided for under ITB 33.1, the following procedure shall apply:

Not Applicable

1.6 Multiple Contracts

Not Applicable

2. Qualification

It is the legal entity or entities comprising the Bidder, and not the Bidder's parent companies, subsidiaries, or affiliates, that must satisfy the qualification criteria described below.

2.1 Eligibility

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
2.1.1 Nationality					
Nationality in accordance with ITB Subclause 4.2.	must meet requirement	must meet requirement	must meet requirement	not applicable	Forms ELI - 1; ELI - 2 with attachments
2.1.2 Conflict of Interest					
No conflicts of interest in accordance with ITB Subclause 4.3.	must meet requirement	must meet requirement	must meet requirement	not applicable	Letter of Bid
2.1.3 ADB Eligibility					
Not having been declared ineligible by ADB, as described in ITB Subclause 4.4.	must meet requirement	must meet requirement	must meet requirement	not applicable	Letter of Bid
2.1.4 Government-Owned Entity					
Bidder required to meet conditions of ITB Subclause 4.5.	must meet requirement	must meet requirement	must meet requirement	not applicable	Forms ELI - 1; ELI - 2 with attachments
2.1.5 United Nations Eligibility					
Not having been excluded by an act of compliance with a United Nations Security Council resolution in accordance with ITB Subclause 4.7.	must meet requirement	must meet requirement	must meet requirement	not applicable	Letter of Bid

2.2 Pending Litigation and Arbitration

Pending litigation and arbitration criterion shall apply.

2.2.1 Pending Litigation and Arbitration

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
All pending litigation and arbitration, if any, shall be treated as resolved against the Bidder and so shall in total not represent more than Fifty percent (50%) of the Bidder's net worth calculated as the difference between total assets and total liabilities.	must meet requirement by itself or as partner to past or existing Joint Venture	not applicable	must meet requirement by itself or as partner to past or existing Joint Venture	not applicable	Form LIT - 1

2.2.2 Non Performing Contracts

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
Non-performance[1] in a contract has not been occurred as a result of Contractor's default within last 2 years.	must meet requirement	not applicable	must meet requirement	not applicable	Form LIT -2

1. ADB financed projects in Sri Lanka and Railway projects shall be considered for assessment of Non-performing Contracts based on the following criteria.

1. If Notice to Correct (NC) has been issued as per Clause 15.1 of FIDIC **Conditions of Contract for Plant and Design-Build for ELECTRICAL AND MECHANICAL PLANT and Design-Build FOR BUILDING AND ENGINEERING WORKS, DESIGNED BY THE CONTRACTOR'** 1st Edition 1999 or **FIDIC MDB Harmonized Condition of Contracts** on the poor performance of the Contractor or similar notice as per the relevant Conditions of Contract (COC) issued before the date of Invitation of these Bids and within last two years, unless the Engineer certifies that Contractor has corrected the contents of the Notice to Correct. This certificate shall be accompanied with the bid; or

2. (i) If maximum Delay Damage has been imposed, and/or;

   (ii) If any Contract has been terminated due to the Contractor's default.

   When (i) and (ii) above was

   (a) not challenged by the Contractor, including through referral to the Dispute Resolution Mechanism (DRM) under the respective contract, or

   (b) challenged by the Contractor, including through referral to the Dispute Resolution Mechanism under the respective contract but fully settled against the Contractor.

2.3 Financial Situation

2.3.1 Historical Financial Performance

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
Submission of audited financial statements or, if not required by the law of the Bidder's country, other financial statements acceptable to the Employer, for the last seven (7) years to demonstrate the current soundness of the Bidder's financial position. As a minimum, the Bidder's net worth for the last year calculated as the difference between total assets and total liabilities should be positive.	must meet requirement	not applicable	must meet requirement	not applicable	Form FIN - 1 with attachments

2.3.2 Average Annual Construction Turnover

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
Minimum average annual construction turnover of LKR 1,100 million calculated as total certified payments received for contracts in progress or completed, within the last Seven (7) years.	must meet requirement	must meet requirement	must meet 25% of the requirement	must meet 40% of the requirement	Form FIN - 2

2.3.3 Financial Resources

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
For Single Entities: The Bidder must demonstrate that its financial resources defined in FIN - 3, less its financial obligations for its current contract commitments defined in FIN - 4, meet or exceed the total requirement for the Subject Contract of LKR 280 million,	must meet requirement	not applicable	not applicable	not applicable	Form FIN – 3 and Form FIN – 4
For Joint Ventures: (1) One partner must demonstrate that its financial resources defined in FIN - 3, less its financial obligations for its own current contract commitments defined in FIN - 4, meet or exceed its required share of 40% from the total requirement for the Subject Contract. AND	not applicable	not applicable	not applicable	must meet requirement	Form FIN – 3 and Form FIN – 4
(2) Each partner must demonstrate that its financial resources defined in FIN - 3, less its financial obligations for its own current contract commitments defined in FIN - 4, meet or exceed its required share of 25% from the total requirement for the Subject Contract. AND	not applicable	not applicable	must meet requirement	not applicable	Form FIN – 3 and Form FIN – 4
(3) The joint venture must demonstrate that the combined financial resources of all partners defined in FIN - 3, less all the partners' total financial obligations for the current contract commitments defined in FIN - 4, meet or exceed the total requirement for the Subject Contract of LKR 280 million.	not applicable	must meet requirement	not applicable	not applicable	Form FIN – 3 and Form FIN – 4

2.4 Construction Experience

2.4.1 Contracts of Similar Size and Nature

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
Participation in at least one contract that has been successfully or substantially completed within the last Seven (7) years and that is similar to the proposed contract, where the value of the Bidder's participation exceeds LKR 1,000 million. The similarity of the Bidder's participation shall be of one building of at least three stories with not less than 15,000 sq.ft in total or The similarity of the Bidder's participation shall be of bridges (passenger overhead/ roadway/ railway/ etc.) construction with minimum 60 ft in total length.	must meet requirement	not applicable	not applicable	must meet requirement	Form EXP - 1

2.4.2 Construction Experience in Key Activities

(May be complied with by specialist subcontractors. The employer shall require evidence of the subcontracting agreement from the bidder. A specialist subcontractor is a specialist enterprise engaged for highly specialized processes, which the main contractor cannot provide.)

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
For the above or other contracts executed during the period stipulated in 2.4.1 above, a minimum construction experience in the following key activities:	must meet requirement	must meet requirement [a]	not applicable	not applicable	Form EXP - 2
Design experience of an office building with escalators and elevators **or** passenger overhead bridge with escalators and elevators.					
Experience in particular Foundation type (at least 4,500 sq.ft ground floor area)					
Experience in one three story (or above) building construction with not less than 15,000 sq.ft in total					
Experience in one bridge steel (passenger overhead/ roadway/ railway/ etc.) construction with minimum 60 ft in total length					
Experience in installing at least one escalator and one elevator					

[a] In the case of a joint venture bidder, at least one of the partners must have experience in the key activity if the bidder itself (not its subcontractor) will carry out the relevant activity.

Section 4 - Bidding Forms

- Without Prequalification -

This Section contains the forms to be completed by the Bidder and submitted as part of its Bid.

Table of Forms

Letter of Bid

The bidder must accomplish the Letter of Bid on its letterhead clearly showing the bidder's complete name and address.

Date: .....
ICB No.: .....
Invitation for Bid No.: .....

To: [. . .*insert complete name of the employer* . . .]

We, the undersigned, declare that:

(a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB) 8.

(b) We offer to execute in conformity with the Bidding Documents the following Works: [. . .*insert narrative* . . .]

(c) The total price of our Bid, excluding any discounts offered in item (d) below is:

[*amount of foreign currency in words*], [*amount in figures*], and [*amount of local currency in words*], [*amount in figures*]

The total bid price from the Summary of Bill of Quantities should be entered by the bidder inside this box. Absence of the total bid price in the Letter of Bid may result in the rejection of the bid.

(d) The discounts offered and the methodology for their application are: [. . .*insert discounts and methodology for their application if any* . . .]

(e) Our bid shall be valid for a period of [. . .*insert bid validity period as specified in ITB 18.1 of the BDS* . . .] days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

(f) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents.

(g) Our firm, including any Subcontractors or Suppliers for any part of the Contract, have nationalities from eligible countries in accordance with ITB 4.2.

(h) We, including any Subcontractors or Suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 4.3.

(i) We are not participating, as a Bidder in more than one Bid in this bidding process in accordance with ITB 4.3(e), other than alternative offers submitted in accordance with ITB 13.

(j) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible by ADB, under the Employer's country laws or official regulations or by an act of compliance with a decision of the United Nations Security Council.

(k) [We are not a government-owned enterprise] / [We are a government-owned enterprise but meet the requirements of ITB 4.5].[1]

(l) We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract:[2]

Name of Recipient	Address	Reason	Amount
.....	.....	.....	.....
.....	.....	.....	.....

(m) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed.

(n) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

(o) We agree to permit ADB or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by ADB.

(p) If our Bid is accepted, we commit to mobilizing key equipment and personnel in accordance with the requirements set forth in Section 6 (Employer's Requirements) and our technical proposal, or as otherwise agreed with the Employer.

Name .....

In the capacity of .....

Signed .....

Duly authorized to sign the Bid for and on behalf of .....

Date .....

[1] Use one of the two options as appropriate.

[2] If none has been paid or is to be paid, indicate "None".

Schedules

Schedule of Payment Currencies

For .....*insert name of Section of the Works* .....

Separate tables may be required if the various sections of the Works (or of the Bill of Quantities) will have substantially different foreign and local currency requirements. In such a case, the Employer should prepare separate tables for each Section of the Works.

	A	B	C	D
Name of Payment Currency	**Amount of Currency**	**Rate of Exchange to Local Currency**	**Local Currency Equivalent C = A x B**	**Percentage of Net Bid Price (NBP) 100xC / NBP**
Local Currency		**1.00**		
Foreign Currency #1				
Foreign Currency #2				
Foreign Currency #3				
Net Bid Price				**100.00**
Provisional Sums Expressed in Local Currency		**1.00**		
BID PRICE				

- Note -

The rates of exchange shall be the selling rates 28 days prior to the deadline for submission of bids published by the source specified in BDS 15.

Tables of Adjustment Data

To be entered by the bidder

Table A - Local Currency

Index Code	Index Description	Source of Index	Base Value and Date	Bidder's Local Currency Amount	Bidder's Proposed Weighting
L1 L3 M3 M5 M13 M14 M18 M20 M21 M24 M26 M27 M32 M36 M37 M38 M39 P2	Nonadjustable	**CIDA Index**	—	—	a: 0.15 b: _____ c: _____ d: _____ e: _____
			Total		**1.00**

Table B - Foreign Currency (Not Applicable)

Name of Currency: .....

Insert name of currency. If the bidder wishes to quote in more than one foreign currency, but in no case more than three, this table should be repeated for each foreign currency.

To be entered by the bidder

Index Code	Index Description	Source of Index	Base Value and Date	Bidder's Currency in Type/Amount	Equivalent in FC1	Bidder's Proposed Weighting
	Nonadjustable	—	—	—		a: 0.15 b: _____ c: _____ d: _____ e: _____
				Total		**1.00**

- Note -

As per GCC 1.1.3.1, "Base Date" means the date 28 days prior to the latest date for submission of the bid.

Tables of Adjustment Data shall only be included if prices are to be quoted as adjustable prices in accordance with ITB 14.5.

Bid Security
Bank Guarantee

.....Bank's name, and address of issuing branch or office[1] .....

Beneficiary: .....*Name and address of the employer* .....

Date:.....

Bid Security No.: .....

We have been informed that . . . . . *name of the bidder.* . . . . (hereinafter called "the Bidder") has submitted to you its bid dated . . . . . (hereinafter called "the Bid") for the execution of . . . . . *name of contract* . . . . . under Invitation for Bids No. . . . . (“the IFB”).

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we . . . . . *name of bank.* . . . . hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of . . . . . *amount in words* . . . . . (. . . . . *.amount in figures* . . . . .) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder

(a) has withdrawn its Bid during the period of bid validity specified by the Bidder in the Letter of Bid; or

(b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter “the ITB”); or

(c) having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Agreement, or (ii) fails or refuses to furnish the performance security, in accordance with the ITB, or (iii) fails or refuses to furnish a domestic preference security, if required.

This guarantee will expire (a) if the Bidder is the successful Bidder, upon our receipt of copies of the Contract Agreement signed by the Bidder and the Performance Security issued to you upon the instruction of the Bidder; or (b) if the Bidder is not the successful Bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder of the name of the successful Bidder, or (ii) 28 days after the expiration of the Bidder’s bid.

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

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.[2]

. . . . . *.Authorized signature(s) and bank's seal (where appropriate).* . . . . . .

-- Note –

In case of a joint venture, the bid security must be in the name of all partners to the joint venture that submits the bid.

[1] All italicized text is for use in preparing this form and shall be deleted from the final document.

[2] Or 758 as applicable.

Bid-Securing Declaration

(Not Applicable)

Date: *[insert date (as day, month and year)]*
Bid No.: *[insert number of bidding process]*
Alternative No.: *[insert identification No if this is a bid for an alternative]*

To: *[insert complete name of the employer]*

We, the undersigned, declare that:

We understand that, according to your conditions, Bids must be supported by a Bid-Securing Declaration.

We accept that we will automatically be suspended from being eligible for bidding in any contract with the Borrower for the period of time of . . . [*insert number of years as indicated in ITB 19.2 of the BDS*]. . . . . starting on the date that we receive a notification from the Employer, if we are in breach of our obligation(s) under the bid conditions, because we

(a) have withdrawn our Bid during the period of bid validity specified in the Letter of Bid; or

(b) do not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or

(c) having been notified of the acceptance of our Bid by the Employer during the period of bid validity, (i) fail or refuse to execute the Contract, if required; or (ii) fail or refuse to furnish the Performance Security, in accordance with the ITB; or (iii) fail or refuse to furnish a domestic preference security, if required.

We understand this Bid-Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) 28 days after the expiration of our Bid.

Signed: *[insert signature of person whose name and capacity are shown]*

In the capacity of [*insert legal capacity of person signing the Bid-Securing Declaration*]

Name: [*insert complete name of person signing the Bid-Securing Declaration*]

Duly authorized to sign the bid for and on behalf of [*insert complete name of the bidder*]

Dated on _____ day of _____, _____ [*insert date of signing*]

Corporate Seal *[where appropriate]*

-- Note --

In case of a joint venture, the Bid-Securing Declaration must be in the name of all partners to the joint venture that submits the bid.

Bill of Quantities

This shall be read in conjunction with the instructions to Bidders, General Conditions of Contract, Contract Data, Bidding Data, General Specifications Standard Specifications for Construction and Maintenance of Roads and Bridges (SSCM) published by CIDA), and Particular Specifications.

A. Preamble

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders and all the Bid documents/conceptual drawings listed in Clause 6.1 of ITB.

2. The quantities given in the Bill of Quantities are estimated and provisional and give to provide a common basis for bidding. The Contractor will be responsible to assess his own purchasing requirements based on approved Drawings and/or Specifications etc.

3. Payment will be made in accordance with the basis of payment clauses of the Particular Conditions, Specifications and the Clauses of the Contract Documents and the unit rates and prices of the bid for the appropriate pay items in the priced Bill of Quantities, where applicable. The percentage of work done will be calculated on actual work completed and agreed by the Engineer.

4. 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 separately

5. **Bill No.1 to 8**

   The rates and prices inserted in the priced Bill of Quantities except as otherwise provided under the Contract are for completed and finished items of work complete in all respects

   a. **Bill No. 1** of Bill of Quantities comprises Preliminaries which are estimated and provisional, and are given to provide a common basis for bidding. For Bill No.1, the bidder shall quote his rate in the prescribed places.

      The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices bid in the priced Bill of Quantities. Measurement and Payment procedure is given in the Section 6 - Specifications for any Item, and such procedure shall take precedence.

      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

   b. **Bill No. 2** of Bill of Quantities comprises Lump Sums for survey and investigation works and the design proposal. The payments will be made based on payment procedure given in the Section 8, Particular Conditions of the Contract.

   c. **Bill No.3 to No. 5** of Bill of Quantities comprises permanent lump sum for permanent construction works of New Service Building, New Passenger Bridge and Entrance Porch at Bambalapitiya End and Passenger Bridge at Maradana End. The demolition plan is attached with in the section 6 – Employer's Requirements of the Bidding document. The payments will be made based on payment procedure given in the Section 8, Particular Conditions of the Contract.

d. **Bill No.6** of Bill of Quantities comprises Lump Sums for Completion of Landscape work. The payments will be made based on payment procedure given in the Section 8, Particular Conditions of the Contract.

e. **Bill No. 7** of Bill of Quantities comprises Provisional Sum for prescribed tasks and items. The payments will be made based on the agreed / actual rate and in accordance with sub clause 13.5 of Conditions of Contract.

f. **Bill No. 8** of Bill of Quantities comprises Dayworks. It will be utilized as directed by Engineer and in accordance with sub clause 13.6 of Conditions of Contract.

B. Preamble to Bill of Quantities

General

The preamble to Bill of Quantities provides a guide to measurement and payment of the items in the Bill of Quantities.

The relevant clause of this Preamble shall be deemed to apply equally to work subsequently ordered for execution by the Contractor, either under Provisional Sum orders or variation orders, except where specifically varied therein.

All the Bidders are requested to refer "Pricing Preamble and notes below" and works items of this Bills of Quantities shall be priced to fulfil the requirements there-in. Also see that no page or items are missing prior to pricing the bill of quantities.

The bidder is advised to scrutinize Bills of Quantities , Drawings, Conditions of Contracts and Specifications to gather to identify his obligations to this Contract, It is Tenderer's responsibility to price the Tender, which shall be sufficient to company all his obligations under above documents as well as all other rules and regulations in the country.

The Bidder is advised to visit the site of the proposed work, as it is his responsibility to ascertain the conditions governing access to the site, and external working space, storage area etc. These General Requirements are applicable to the whole of the Works. Each item is to be priced individually and the Tenderer shall not enter any lumpsum(s) covering more than one or all items.

Where any item has not been priced, has been ticked or been dashed, it shall be deemed that the value of any such item has been included elsewhere within the Bills of Quantities.

The Bidder should note that the General Requirements section of the bill of quantities shall be administrated strictly in accordance with the Contract.

Any other preliminary items not listed below but deemed necessary for the successful execution of the project shall be included in the Rates, as no Claims for extra payments for such would be entertained.

Mechanical plant and equipment which emits excessive noise, water, smoke, fumes, or obnoxious liquids, gases etc., will not be allowed to be used on the Site. If the use of such machinery becomes necessary, the Contractor is expected to obtain prior approval from the Engineer

The Engineer has the discretion as to when he deem it necessary for the Contractor to take precautions, maintain or repair any such plant and equipment or order their removal from the site.

The Contractor shall maintain the quality and standards during construction including supplying specimen and samples of materials for approval and for testing without any additional cost. All approved materials/ equipment samples shall be retained on site under lock and key and to be protected as necessary

The Contractor shall protect and maintain the access to the Site, clear of mud and debris connected with Works and services.

All temporary work shall be dismantled and cleared away from the site on completion of the work.

Contractor shall provide helmets, gloves, safety masks, dust masks, eye goggles, boots etc. for the workmen.

Contractor should provide safety boards, signs and safety ribbons (plastic yellow and black stripes) to be erected at site.

Contractor shall be responsible for erection, shifting and maintaining necessary protective netting, fencing, hoarding, screens at site and other precautions to the required standard and satisfaction of the Engineer.

The contractor shall be responsible for any loss or damage to the public, works, existing structures, adjoining structures and unfixed materials.\

The Contractor shall protect, uphold and maintain existing water and drainpipes, ducts, sewers, service mains, overhead cables, etc. in the Site unless earmarked for demolition. The Contractor is to make good any damage due to any cause within his control at his own expenses or pay any cost and charges in connection therewith. In case where the services are temporarily terminated or diverted the Contractor is to give the necessary notice to the appropriate authority with the approval of the Employer and the Engineer and arrange for the work to be carried out and pay all costs and charges in connection therewith. Delays caused by such damage to the contract completion will not be entertained.

The Contractor shall prepare and submit a detailed programme of work in the form of a bar schedule showing critical path within 10 days of the date of Letter of Acceptance, and shall include all activities, Material Procurement schedule, Labour and machinery histogram. The activities shall include the delivery, construction, installation, testing and commissioning of components and all items associated with setting up on site

The Contractor shall be responsible for necessary lighting, watchman and other suitable measures during construction until handing over.

Care should be taken to protect existing drainage lines, power cables, signal cables, railway track, train commuters, etc.

Steel, Brass and all other metal debris found in excavation must be return to the employer.

It shall be the Contractor's responsibility to visit the Site and ascertain for himself the means of access in relation to the location. It would be his responsibility to ensure satisfactory maintenance of the access road for movement of machinery and traffic. Any damage to existing access should be made good at the Contractor's expenses.

Units

Metric units are used throughout the Bill of Quantities for measurement purposes unless otherwise indicated. The following abbreviations are used in this Contract.

Unit	Abbreviation
Millimetre	mm
Linear Metre	m
Square metre	sq.m
Cubic metre	cu.m
Kilometre	km
Kilo gram	kg
Metric ton	t
Litre	lt
Number	nr
Provisional Sum	PS

Lump Sum	LS
Hour	hr
Week	wk
Month	mon
Labour day	L.day
Sri Lanka Rupees	LKR / Rs.
Kilometre month	Km-mth

Method of Measurement

Whenever the method of measurement is not clear from documents available, the principles as given in the Sri Lanka standard 573:1999 (1st Revision), Method of Measurement of Building work shall be applicable.

Rates and Lump Sum for Completed Work

Notwithstanding any limits which may be implied by the wording of the individual items and/or explanation in this preamble it is to be clearly understood by the Contractor that the rates and sums which he enters in the Bills of Quantities shall be for the work complete in every respect, he shall be deemed to have taken full account of all requirements and obligations, whether expressed or implied, covered by all parts of the Contract, and to have priced the items herein accordingly. The rates and sums must therefore include for all incidental and contingent expenses and risks of every kind necessary to construct, complete and maintain the whole of the Works in accordance with the Contract. Full allowance shall be made in the rates and/or sums against the various items in the Bills of Quantities for all costs involved in the following inter-alia, which are referred to and/or specified herein, except where separate items are provided.

1) All site investigations, which may be necessary;
2) All setting out and survey work;
3) Temporary fencing, watching, and lighting;
4) Paying fees for permits and giving notice to authorities;
5) Payment of all patent rights and royalties;
6) Reinstatement of the site;
7) Safety precautions and all measures to prevent and suppress fire and other hazards;
8) Interference to the works by persons, vehicles, and the like using the existing facilities;
9) Works in connection with the protection and safety of adjacent structures;
10) Supplying, maintaining and removal upon completion Contractor's own accommodation, offices, stores, workshops, transport, welfare services and all charge in connection therewith; except those for which a separate BOQ item is provided;
11) Working in the dry except where otherwise permitted by the specification;
12) Maintenance of access roads;
13) The supply, inspection, sampling and testing of materials and of the Works, including provision and use of equipment;
14) The cost of all tests and other requirements in respect to the Contractor's plant and equipment.
15) The recruitment, bringing to and from the site, accommodating and feeding and all incidental costs and expenses involved in the provision of all necessary skilled and unskilled labour and supervision, except for whom a separate BOQ item is provided;

16) All statutory taxes and levy, surcharges, fees etc. including stamp duty payable on the contract, which will have to be borne by the Contractor, excluding VAT.

The Contractor shall be guided by the Central Environmental Authority (CEA) and the Urban Development Authority of Sri Lanka, He shall ensure compliance by preparing a compliance with these Terms and Conditions for which no additional payment shall be made.

Items against with no rates or sum entered by the Contractor, whether quantities are stated or not, will not be paid for when executed, but will be regarded as covered by other rates in the Bills of Quantities and considered subsidiary to the cost of particular works.

The whole cost of complying with the overall provisions of the Contract shall be included in the items provided in the bill of quantities, and where no items are provided, the cost shall be deemed to be distributed among the rates and prices included for the related items of work.

The quantities set out in the Bills of Quantities are the estimated quantities of the work and they shall not be taken as the actual and correct quantities of the works to be executed by the Contractor in fulfilment of his obligation under the contact.

The Contractor shall be deemed to have taken into account all recognized holidays, festivals, religious, constitutional and other customs in his Bid Prices and his Construction Programs.

Rates and Sums to Bear Proper Relation to work Described

The rates and sums entered by the Contractor against all items in the Bills of Quantities must bear a proper relationship to the cost of carrying out the work described in the Contract; all on costs and similar charges which are applicable to the Contract as a whole shall be spread over all the rates in the Bills of Quantities, whilst those which are applicable only to particular sections of the Contract are only to be spread over items to which these sections refer.

Protection of Work and Cleaning up on Completion

The Contractor shall allow, in his rates, for protecting completed work from subsequent operations, making good all damage to complete work, for clearing away all rubbish as it accumulates, and leaving the site in a tidy condition, orderly manner to the satisfaction of the Employer and Engineer.

Demolition

The rates and prices for demolition shall include for;

1. The activities prior to the demolition, including further surveys, investigations.
2. Providing adequate supports to the adjacent structures and the structure to be demolished, including the shoring, propping needling etc.
3. Removal of all debris as directed, and recover the salvaged material.
4. Making good of all works disturbed or damaged.
5. Diverting or disconnecting any existing service lines which could be affected.

Site Clearance

Rates for site clearance shall include (if not separately allowed) for the removal of all trees, shrubs, boulders or other debris from the area of the site and disposal of same in an approved location, spreading at least 100mm of topsoil over the site upon completion.

Day Works

A Day- Works schedule is included in the Bill of Quantities for use when a Work is executed on a Day-Work basis in accordance with the Conditions of Contract. Work shall not be executed as Day-Works except by the written order of the Engineer. Please also refer to the Notes under the Day Work schedule.

- **Labour**

  Payments in respect of labour used in the execution of the Day Works shall be at the hourly rate stated in the Daywork Schedule.

  The inserted rates for labour shall cover all bonuses, statutory charges and all other charges and costs in respect of or incidental to the employment of the said labour, except only the cost of materials and Constructional Plant. The rate shall also include the costs in respect of portable tools such as picks, shovels, wheelbarrows, trowels, ladders, hand-saw, buckets, trestles, hammers, chisels and all items of a like of a like nature, which for the purpose of works executed on a Day- Work basis shall not be considered as Constructional Plant.

- **Material and Goods**

  The stated rate shall cover the costs of taking delivery and putting into the store or stockpile, usage of any minor tools/equipment not listed under plant and equipment, storage, overheads and all other charges and costs in respect of or incidental to the procurements and handling of such materials or goods.

  The cost of taking the materials from the store of stockpile on site to the place where they are used shall be paid for the appropriate Day Work rates for labour and constructional plant.

- **Constructional Plant**

  The inserted rate for Constructional Plant shall be paid for the plant when actually employed directly in the execution of the work on Day-Work basis, excluding any travelling time, associated movement on the site with a prime mover or idling hours. The rate shall include for the following:

  a. The cost of Constructional Plant including maintenance and spares, fuel and fuel distribution, oil grease and any other consumables.
  b. The cost of crews, operators/drivers and attendants.
  c. All overheads, profits and other costs associated with the plant being required to work on a Day-Work basis.

Temporary services

The Contractor shall provide and maintain all necessary temporary services necessary for the execution of the Works under the Contract. The Contractor shall make application and install such services in accordance with the regulations and requirements of the relevant local authorities.

The Contractor shall be responsible for all costs and charges in connection with the installation alteration, shifting, adapting use and maintenance of such services. On completion of the Works, the Contractor shall disconnect such services, which are no longer required by him and or the Employer and clear away all traces.

Provisional Sum Description

Description

The overhead and profit percentage allowed for provisional sums are deemed to include Contractor's site and head office overheads, profits, any attendance and liaison required by the Contractor to implement works under such provisional sums.

Measurement and Payment

The amount payable will be such percentage of the value of the actual work performed under the provisional sum based on the percentage given in Contract Data under Clause 13.5(b) ii of Particular Conditions of Contract.

Grand Summary

Bill No	Description of work	Amount (LKR)
1	Preliminaries	
2	Design Proposal	
3	Fort Station New Service Building	
4	Construction of New Passenger Bridge and Entrance Porch at Bambalapitiya End	
5	Construction of Passenger Bridge at Maradana End	
6	Landscape Work	
7	Provisional Sums	45,600,000.00
8	Day Work Rates	
	8.1 Labour	
	8.2 Materials	
	8.3 Machinery	
	Sub Total 1	
	10% Physical Contingency	
	5% Financial Contingency	
	Grand Total (without VAT)	

BILL NO. 1 - Preliminaries

Item	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
	Site Facilities for the Engineer				
1.1	Provide & furnished office with adequate furniture, and equipment, fixed telephone, to accommodate the Engineer's staff as per Annex 1 in ER and removal at the completion of the works	Item	Lump Sum		
2	Service and maintenance of Engineer's office as per Specification Annex 1 in ER	15	Month		
3	Provide computers and printers for Engineer's office as per Specification	Item	Lump Sum		
4	Stationery & other consumables for Engineer's office	15	Month		
	Contractor's Mobilization & Site Establishment				
5	Provide contractors site office, accommodation for contractor's staff and workers and removal at the completion of the works	Item	Lump Sum		
6	Maintenance of site office, accommodation for contractor's staff and workers	Item	Lump Sum		
7	Provide temporary sheds for workshops and stores and removal at the completion of the works	Item	Lump Sum		
8	Maintenance of temporary sheds for workshops and stores	Item	Lump sum		
	Site Operations				
9	All necessary surveying, levelling and setting out including establishment of all control points.	Item	Lump Sum		
10	Allow for maintaining an adequate number of security personnel and security systems including lighting on full time basis throughout the period of construction to handing over.	Item	Lump Sum		
11	Monthly Progress Reports including progress photographs	15	Month		
12	Maintain laboratory services for preparing samples and making arrangement for material testing as required	15	Month		
	Care of Health, Safety and Environment				
13	Provide Safety fence to cover the construction site area and necessary sign boards	Item	Lump Sum		
14	Provide and maintenance of safety equipment's confirming safety regulations.	15	Month		
15	Provide and maintenance of health facilities to workman shall conform to the latest Public Health and Industrial regulations	15	Month		
16	Allow for preparation and Implementation of HIV-AIDS and Dengue prevention and Health Programme	Item	Lump Sum		
	Project Name Board				
17	Allow for provide, erection and maintenance of project name board as per the design provided and were directed by the Engineer.	Item	Lump Sum		

Item	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
	Services				
18	The Contractor shall ensure steady and uninterrupted power supply to the Works and allow for obtaining temporary electricity connection for the Works including connection, distribution system as necessary.	1	PS		412,000.00
19	Maintain of electricity connection including payment to the authorities for consumption	15	Month		
20	The Contractor shall ensure uninterrupted water supply to the works including drinking water and allow for obtain temporary mains water connection and make necessary arrangements to supply of water to the Site	1	PS		412,000.00
21	Maintain of water connection including payment to the authorities for consumption	15	Month		
22	Allow for maintaining the Site in a clean and orderly condition during the construction period	15	Month		
	Insurance and Bonds				
24	Provide and maintain contractor's all risk insurance as per Contract	Item	Lump Sum		
25	Provide and maintain Third Party Insurance as per Contract	Item	Lump Sum		
26	Provide and maintain Workman's Compensation Insurance as per Contract	Item	Lump Sum		
27	Provide and maintain Performance Bond as per Contract	Item	Lump Sum		
28	Provide and maintain Bank Guarantee for Advance Payment as per Contract	Item	Lump Sum		
29	Provide and maintain Professional Indemnity Insurance as per Contract	Item	Lump Sum		
	Handing-Over				
30	Allow for providing 4 sets of as built drawings (as built drawings for mechanical and electrical sections has been allowed under each trades separately) and necessary technical information, maintenance manuals and other document to the Consultant's approval after completion.	Item	Lump Sum		
	C/F to SUMMARY				

BILL NO. 2 - Design Proposal

Item	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
2.1	Survey and geo-technical investigation Work	Item	Lump Sum		
2.2	Detailed design of the Service Building & Passenger Bridges including authority approvals	Item	Lump Sum		
	C/F to SUMMARY				

BILL NO. 3 - Fort Station New Service Building

Item	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
3.1	Demolition works and Site Clearing	Item	Lump Sum		
3.2	Excavation and Sub-structure Construction up to DPC Level	Item	Lump Sum		
3.3	Anti Termite Treatment	Item	Lump Sum		
3.4	Superstructure, roof slab and all concrete and masonry Work	Item	Lump Sum		
3.5	Water Proofing Work	Item	Lump Sum		
3.6	Floor, wall and ceiling finishes and Painting	Item	Lump Sum		
3.7	Joinery, Partition and Glazing Works	Item	Lump Sum		
3.8	Electrical and mechanical works including air conditioning, lightning protection system and fire protection system	Item	Lump Sum		
3.9	Supply, Installation and commissioning of the lift	Item	Lump Sum		
3.10	Networking, Telephone System, Public Address system	Item	Lump Sum		
3.11	Plumbing, Drainage and Sanitary Installation Work	Item	Lump Sum		
3.12	Landscaping and all external works	Item	Lump Sum		
	C/F to SUMMARY				

BILL NO. 4 – Construction of New Passenger Bridge and Entrance Porch at Bambalapitiya End

Item	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
4.1	**Construction of Entrance Buildings at DR Wijewardena Mawatha & Olcott Mawatha**				
4.1. 1	Demolition works and Site Clearing	Item	Lump Sum		
4.1.2	Excavation and Sub-structure Construction up to DPC Level	Item	Lump Sum		
4.1.3	Anti Termite Treatment	Item	Lump Sum		
4.1.4	Superstructure, roof slab, roof and all concrete and masonry Work	Item	Lump Sum		
4.1.5	Water Proofing Work	Item	Lump Sum		
4.1.6	Floor, wall and ceiling finishes and Painting	Item	Lump Sum		
4.1.7	Joinery, Partition and Glazing Works	Item	Lump Sum		
4.1.8	Electrical and mechanical works including air conditioning, lightning protection system and fire protection system	Item	Lump Sum		
4.1.9	Supply, Installation and commissioning of the lifts and Escalators	Item	Lump Sum		
4.1.10	Plumbing, Drainage and Sanitary Installation Work	Item	Lump Sum		
4.1.11	Public Address system	Item	Lump Sum		
4.1.12	Landscaping and all external works	Item	Lump Sum		
4.2	**Construction of Passenger Bridge Connecting DR Wijewardena Mawatha & Olcott Mawatha**				
4.2.1	Demolition works and Site Clearing	Item	Lump Sum		
4.2.2	Excavation and Sub-structure Construction up to DPC Level	Item	Lump Sum		
4.2.3	Anti Termite Treatment	Item	Lump Sum		
4.2.4	Superstructure up to bridge deck	Item	Lump Sum		
4.2.5	Construction of bridge deck	Item	Lump Sum		
4.2.6	Superstructure from bridge deck to roof slab including roof	Item	Lump Sum		
4.2.7	Electrical and mechanical works including lightning protection system and fire protection system	Item	Lump Sum		
4.2.8	Supply, Installation and commissioning of the lifts and Escalators	Item	Lump Sum		
4.2.9	Floor, wall and ceiling finishes and Painting	Item	Lump Sum		
4.2.10	Water Proofing Work	Item	Lump Sum		
4.2.11	Plumbing, Drainage Work	Item	Lump Sum		
4.3	Construction of connection bridge to connect new passenger bridge and existing passenger overhead bridge above Olcott Mawatha to match with the existing (Including electrical works)	Item	Lump Sum		
	C/F to SUMMARY				

BILL NO. 5 – Construction of Passenger Bridge at Maradana End

Item	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
5.1	Demolition works and Site Clearing	Item	Lump Sum		
5.2	Excavation and Sub-structure Construction up to DPC Level	Item	Lump Sum		
5.3	Anti Termite Treatment	Item	Lump Sum		
5.4	Superstructure up to bridge deck	Item	Lump Sum		
5.5	Construction of bridge deck	Item	Lump Sum		
5.6	Superstructure from bridge deck to roof slab including roof	Item	Lump Sum		
5.7	Electrical and mechanical works including lightning protection system and fire protection system	Item	Lump Sum		
5.8	Supply, Installation and commissioning of the lifts	Item	Lump Sum		
5.9	Floor, wall and ceiling finishes and Painting	Item	Lump Sum		
5.10	Water Proofing Work	Item	Lump Sum		
5.11	Plumbing, Drainage Work	Item	Lump Sum		
5.12	SM operations cabin construction on bridge deck covered with tempered glass/ block work as detailed in drawings	Item	Lump Sum		
	C/F to SUMMARY				

BILL NO. 6 – Landscape Work

Item	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
7.1	Landscape Work and Road Work as per the drawings	Item	Lump Sum		
	C/F to SUMMARY				

BILL NO. 7 – Provisional Sums

Item	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
7.1	Stationary for Employer	Item	Prov. Sum		400,000.00
7.2	Relocation of utility services	Item	Prov. Sum		7,000,000.00
7.3	Providing Temporary Toilet facilities for passengers	Item	Prov. Sum		5,000,000.00
7.4	Permanent electricity and water from existing SLR connection (new transformer or capacity enhancement)	Item	Prov. Sum		20,000,000.00
7.5	Special tests ordered by the Engineer	Item	Prov. Sum		1,000,000.00
7.6	Safety and necessary protection work for train operation and railway passengers (operating staff, supervisory staff, flagmen and railway protection works,etc)	Item	Prov. Sum		8,000,000.00
7.7	Periodic monitoring of environmental parameters. (air quality, water quality, noise level etc.)	Item	Prov. Sum		2,500,000.00
7.8	Payment of Employer's portion to the Dispute Board	Item	Prov. Sum		1,500,000.00
7.9	Property Condition Survey	Item	Prov. Sum		200,000.00
	C/F to SUMMARY				**45,600,000.00**

Bill No. 8 – Day Work Rates

Bill no. 8.1 – Labour

All quantities are provisional

Item	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
1	Surveyor	Hrs	20		
2	Survey Assistant (Skilled)	Hrs	20		
3	Laboratory Technician	Hrs	20		
4	Cad Operator	Hrs	20		
5	Draughtsman	Hrs	20		
6	Foreman	Hrs	20		
7	Operator (Heavy Equipment)	Hrs	20		
8	Operator (Light Equipment)	Hrs	20		
9	Driver (Heavy Duty Vehicles)	Hrs	20		
10	Driver (Light Duty Vehicles)	Hrs	20		
11	Mechanic	Hrs	20		
12	Welder	Hrs	20		
13	Electrician	Hrs	20		
14	Carpenter	Hrs	20		
15	Mason	Hrs	20		
16	Steel Fixeer	Hrs	20		
17	Semi-skilled Labour	Hrs	20		
18	Unskilled Labour	Hrs	20		
	Total Bill No.8.1 (Dayworks -Labour) carried to SUMMARY				

Bill no. 8.2 – Materials

All quantities are provisional

Item	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
1	Cement OPC in 50 kg Bag	No.	10		
2	Formwork- smooth	Sq.m	10		
3	Formwork- rough	Sq.m	10		
4	Reinforcing Steel	Mt	1		
5	River Sand	Cu.m.	5		
6	20mm Aggregate	Cu.m.	5		
7	150-225mm Rubble	Cu.m.	10		
8	65mm Track Ballast	Cu.m.	10		
8	Concrete Grade 25/20	Cu.m.	5		
10	Aggregate Base Course material	Cu.m.	5		
11	Asphalt Concrete hot mix	Mt	5		
12	Auto Diesel	Ltr	50		
13	Petrol	Ltr	50		
14	Kerosine	ltr	10		
	Sub Total				
	Percentage mark-up applicable to materials			……..%	
	Total Bill No.8.2 (Dayworks - Material) carried to SUMMARY				

Bill no. 8.3 – Machinery

Item	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
1	30-ton Mobile Crane	hr	50		
2	Lorry 3-5 tons	hr	9		
3	Low bed trailer 20-40 tons	hr	6		
4	Site Dumper, over 1 m3	hr	6		
5	Tipper Truck up to 5 tonnes	hr	12		
6	Tipper Truck 10 to 15 tonnes	hr	12		
7	Water Bowser, 6000 ltr with spray bar	hr	6		
8	Bitumen Distributer, over 4500 ltr	hr	6		
9	Farm Tractor with trailer	hr	12		
10	Bulldozer wheeled or tracked, 100 to 200 hp	hr	6		
11	Backhoe tracked 50-100 hp	hr	6		
12	Backhoe tracked 100-200 hp	hr	6		
13	Excavator 200 or equivalent	hr.	6		
14	Loader ($2.5m^3$-$3.5\ m^3$)	hr.	6		
15	Motor Grader up to 100 hp	hr	7		
16	Steel Wheeled Roller, vibratory 4 to 8 t	hr	8		
17	Steel Wheeled Roller, vibratory 10 t	hr	7		
18	Pneumatic tyred roller, 8-12 t	hr	4		
19	Hand Roller, vibratory, ½ to 1 t	hr	6		
20	Concrete pump Car (L=37m boom)	hr	6		
21	Plate Compactor, vibratory, over 90 kg	hr	6		
22	Asphalt Paver wheeled or tracked, 60 t/hr	hr	5		
23	Drilling rig, over 75 mm dia. Bit	hr	5		
24	Air compressor with hoses and tools, 250-600 cfm	hr	4		
25	Generator 10 to 50 kVA	hr	4		
26	Water Pump with hoses, 50-100 mm outlet	hr	4		
27	Concrete mixer, 0.5 m3	hr	6		
28	Porker Vibrator	hr	6		
29	Electric Bar Bending Machine	hr	6		
30	Welding set, electric 300-400 amp	hr	4		
31	Jack Hammers	hr	8		
	Total Bill No.8.3 (Dayworks - Equipment) carried to SUMMARY				

Technical Proposal

1. Bidder's Technical Proposal
    1.1. Comments on Employer's Requirements, if any
    1.2. Design Proposal
    1.3. Team Composition and Task Assignment (Design and Construction)
    1.4. Construction Proposal
2. Site Organization
3. Method Statements
4. Bidder's Work Program
    4.1. Design Related Activities
    4.2. Construction Related Activities
        a) Construction of Fort Station New Service Building
        b) Construction of New Passenger Bridge and Entrance Porch at Bambalapitiya End
        c) Construction of New Passenger Bridge at Maradana End
        d) Landscape
5. Personnel
6. Equipment
7. Procurement Plan / Cash Flow
8. Quality Assurance Plan
9. Environmental Management Action Plan
10. Health & Safety Management Plan
11. Details of works including specialized works if already decided to be sub-contracted
12. Subcontractor Schedule
13. Risk Assessment and Mitigation Plan
14. Traffic Management Plan

NOTE:- The total construction is happening in the station which is highly crowded and has frequent train movements. Further, the construction has to be carried out without disturbance to the train operations. Hence, special consideration should be given to the safety of passengers and train movement.

Construction Sequence

Refer: - 5. General instructions under Supplementary Information Regarding Works under Section 6 of the bidding document.

Bidder's Technical Proposal

1. Comments on Employer's Requirements, if any
2. Design Proposal
3. Team Composition and Task Assignment (Design and Construction)
4. Construction Proposal

Site Organization

(Note 1: Evaluation of the Bidder's Site Organization will include an assessment of the Bidder's capacity to mobilize key personnel for the Contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section 6 [Employer's Requirements]).

Method Statement

(Note 1: The Works is to be carried out within the Colombo Fort Railway Station Limit while allowing the movements of the existing rail traffic and passenger movements to the extent described in the Scope of Work paying utmost attention to Environmental and Safety aspects as described in the Employer's Requirement. Therefore, the Method Statement shall include the bidder's proposal to ensure the minimum disturbance to train operation and passenger movements, segmental or any other improved construction sequence and to prevent socio and environmental issues during construction).

Bidder's Work Program

1. Design Related Activities
2. Construction Related Activities

(Note 1: Evaluation of the Bidder's Construction Schedule will include an assessment of the Bidder's technical capacity to mobilize equipment for the Contract consistent with its proposal regarding work methods, scheduling, and material and labour sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section 6 [Employer's Requirements] and should be completed the Work within the given period)

Personnel

Equipment

Procurement Plan / Cash Flow

Quality Assurance Plan

Environmental Management Action Plan

Health & Safety Management Plan

Details of works including specialized works if already decided to be sub-contracted

Subcontractor Schedule

Risk Assessment and Mitigation Plan

Traffic Management Plan

Personnel

Form PER – 1: Proposed Personnel

Bidder should provide the details of the proposed personnel and their experience record in the relevant Information Forms below for each candidate:

1.	**Title of position***
	Name
2.	**Title of position***
	Name
3.	**Title of position***
	Name
4.	**Title of position***
	Name
5.	**Title of position***
	Name
6.	**Title of position***
	Name
etc.	**Title of position***
	Name

-- Note --

** As listed in Section 6 (Employer's Requirements).*

Form PER – 2: Resumé of Proposed Personnel

The Bidder shall provide all the information requested below. Use one form for each position.

Position		
Personnel information	**Name**	**Date of birth**
	Professional qualifications	
Present employment	**Name of employer**	
	Address of employer	
	Telephone	**Contact (manager / personnel officer)**
	Fax	**E-mail**
	Job title	**Years with present employer**

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

From	To	Company/Project/Position/Relevant Technical and Management Experience

Equipment

Form EQU: Equipment

The Bidder shall provide adequate information and details to demonstrate clearly that it has the capability to meet the equipment requirements indicated in Section 6 (Employer's Requirements), using the Forms below. A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder.

Item of Equipment		
Equipment Information	**Name of manufacturer**	**Model and power rating**
	Capacity	**Year of manufacture**
Current Status	**Current location**	
	Details of current commitments	
Source	**Indicate source of the equipment** ☐ **Owned** ☐ **Rented** ☐ **Leased** ☐ **Specially manufactured**	

Omit the following information for equipment owned by the Bidder.

Owner	**Name of owner**	
	Address of owner	
	Telephone	**Contact name and title**
	Fax	**Telex**
Agreements	**Details of rental / lease / manufacture agreements specific to the project**	

COVID-19 specific Site Health and Safety Management Plan

Technical Proposal shall also include a Health and Safety COVID-19 Plan, in accordance with the relevant government regulations and guidelines on COVID-19 prevention and control shall comply with all applicable national, provincial and local Laws and regulations in Sri Lanka - quarantine and prevention of diseases ordinance (chapter 222) Extraordinary Gazette no.:2197/25, Date :2020-10-15 published by Ministry of Health - Corona Virus Disease 2019 (Covid 19) (Preventive Measures)

Bidders Qualification

To establish its qualifications to perform the contract in accordance with Section 3 (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.

Form ELI - 1: Bidder's Information Sheet

Bidder's Information	
Bidder's legal name	
In case of a Joint Venture, legal name of each partner	
Bidder's country of constitution	
Bidder's year of constitution	
Bidder's legal address in country of constitution	
Bidder's authorized representative (name, address, telephone number(s), fax number(s), e-mail address)	

Attached are copies of the following documents.

- ❑ 1. In case of a single entity, articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and ITB 4.2.
- ❑ 2. Authorization to represent the firm or Joint Venture named above, in accordance with ITB 20.2.
- ❑ 3. In case of a Joint Venture, a letter of intent to form a Joint Venture or Joint Venture agreement, in accordance with ITB 4.1.
- ❑ 4. In case of a government-owned enterprise, any additional documents not covered under 1 above required to comply with ITB 4.5.

Form ELI - 2: Joint Venture Information Sheet

Each member of the Joint Venture and Specialist Subcontractor must fill out this form separately.

Joint Venture / Specialist Subcontractor Information	
Bidder's legal name	
Joint Venture Partner's or Specialist Subcontractor's legal name	
Joint Venture Partner's or Specialist Subcontractor's country of constitution	
Joint Venture Partner's or Specialist Subcontractor's year of constitution	
Joint Venture Partner's or Specialist Subcontractor's legal address in country of constitution	
Joint Venture Partner's or Specialist Subcontractor's authorized representative information (name, address, telephone number(s), fax number(s), e-mail address)	
Attached are copies of the following documents: ❑ 1. Articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and ITB 4.2. ❑ 2. Authorization to represent the firm named above, in accordance with ITB 20.2. ❑ 3. In the case of a government-owned enterprise, documents establishing legal and financial autonomy and compliance with commercial law, in accordance with ITB 4.5.	

A Specialist Subcontractor is a specialist enterprise engaged for highly specialized processes that cannot be provided by the main Contractor.

Form LIT - 1: Pending Litigation and Arbitration

Each Bidder must fill out this form if so required under Criterion 2.2 of Section 3 (Evaluation and Qualification Criteria) to describe any pending litigation or arbitration formally commenced against it.

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

Joint Venture Partner: _____

Pending Litigation and Arbitration

Choose one of the following:

❑ No pending litigation and Arbitration.

❑ Below is a description of all pending litigation and Arbitration involving the Bidder (or each Joint Venture member if Bidder is a Joint Venture).

Year	Matter in Dispute	Value of Pending Claim in LKR Equivalent	Value of Pending Claim as a Percentage of Net Worth

- Note -

This form shall only be included if Criterion 2.2 of Section 3 (Evaluation and Qualification Criteria) is applicable.

Form LIT - 2: Non-performing Contracts

Each Bidder must fill out this form if so required under Criterion 2.2 of Section 3 (Evaluation and Qualification Criteria) to describe any non-performing Contracts.

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

Name of the entity: _____

Non-performing Contracts

Choose one of the following:

❑ Below is details of Notice to Correct, Delay Damages and Termination due to Contractor's default (or each Joint Venture member if Bidder is a Joint Venture).

Details of Notice to Correct (NC) or similar notices

Date of issued	Name of the Contract and Employer details	Whether the Engineer certifies that Contractor has corrected the contents of the NC (Yes / No)

Details of Delay Damages

Date imposed	Name of the Contract and Employer details	Whether delay damages fully imposed? (Yes / No)	Challenged by the Contractor through DRM? (Yes / No)

Details of Contract has been terminated due to the Contractor's default

Date terminated	Name of the Contract and Employer details	Challenged by the Contractor through DRM? (Yes / No)

- Note -

This form shall only be included if Criterion 2.2 of Section 3 (Evaluation and Qualification Criteria) is applicable.
Bidder must attach all documentary evidence to proof.

Form FIN - 1: Historical Financial Performance

Each Bidder must fill out this form.

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

Joint Venture Partner: _____

Financial Data for Previous 7 Years [LKR Equivalent]						
Year 1:	**Year 2:**	**Year 3:**	**Year 4:**	**Year 5:**	**Year 6:**	**Year 7:**

Information from Balance Sheet

Total Assets (TA)							
Total Liabilities (TL)							
Net Worth = TA – TL							
Current Assets (CA)							
Current Liabilities (CL)							

Most Recent Working Capital	To be obtained for most recent year and carried forward to FIN - 3 Line 1; in case of Joint Ventures, to the corresponding Joint Venture Partner's FIN – 3.

Information from Income Statement

Total Revenues							
Profits Before Taxes							
Profits After Taxes							

❑ Attached are copies of financial statements (balance sheets including all related notes and income statements) for the last _____ years, as indicated above, complying with the following conditions:

- Unless otherwise required by Section 3 of the Bidding Document, all such documents reflect the financial situation of the legal entity or entities comprising the Bidder and not the Bidder's parent companies, subsidiaries, or affiliates.
- Historical financial statements must be audited by a certified accountant.
- Historical financial statements must be complete, including all notes to the financial statements.

❑ Historical financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).

Form FIN - 2: Average Annual Construction Turnover

Each Bidder must fill out this form.

The information supplied should be the Annual Turnover of the Bidder or each member of a Joint Venture in terms of the amounts billed to clients for each year for work in progress or completed, converted to US dollars at the rate of exchange at the end of the period reported.

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

Joint Venture Partner: _____

Annual Turnover Data for the Last 7 Years (Construction only)			
Year	**Amount Currency**	**Exchange Rate**	**LKR Equivalent**
		Average Annual Construction Turnover	

Form FIN – 3: Availability of Financial Resources

Bidders must demonstrate sufficient financial resources, usually comprising of Working Capital supplemented by credit line statements or overdraft facilities and others to meet the Bidder's financial requirements for

(a) its current contract commitments, and

(b) the subject contract.

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

Joint Venture Partner: _____

Financial Resources		
No.	**Source of financing**	**Amount (LKR equivalent)**
1	Working Capital (to be taken from FIN - 1)	
2	Credit Line[a]	
3	Other Financial Resources	
	Total Available Financial Resources	

[a] *To be substantiated by a letter from the bank issuing the line of credit.*

Form FIN- 4: Financial Requirements for Current Contract Commitments

Bidders (or each Joint Venture partner) should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

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

Joint Venture Partner: _____

Current Contract Commitments						
No.	**Name of Contract**	**Employer's Contact (Address, Tel, Fax)**	**Contract Completion Date**	**Outstanding Contract Value (X) [a]**	**Remaining Contract Period in months (Y) [b]**	**Monthly Financial Resources Requirement (X / Y)**
1						
2						
3						
4						
Total Monthly Financial Requirement for Current Contract Commitments						**LKR** . . . . .

[a] *Remaining outstanding contract values to be calculated from 28 days prior to the bid submission deadline ($ equivalent based on the foreign exchange rate as of the same date).*

[b] *Remaining contract period to be calculated from 28 days prior to bid submission deadline.*

Form FIN - 5: Self-Assessment Tool for Bidder's Compliance to Financial Resources (Criterion 2.3.3 of Section 3)

This form requires the same information submitted in Forms FIN - 3 and FIN - 4. All conditions of "Available Financial Resources Net of CCC ≥ Requirement for the Subject Contract" must be satisfied to qualify.

Form FIN - 5A: For Single Entities

For Single Entities: (A)	Total Available Financial Resources from FIN – 3 (B)	Total Monthly Financial Requirement for Current Contract Commitments (CCC) from FIN – 4 (C)	Available Financial Resources Net of CCC D = (B - C)	Requirement for the Subject Contract (E)	Results: Yes or No [*D must be greater than or equal to E*] (F)
_____ (Name of Bidder)				. . . . .	

Form FIN - 5B: For Joint Ventures

For Joint Ventures: (A)	Total Available Financial Resources from FIN – 3 (B)	Total Monthly Financial Requirement for Current Contract Commitments (CCC) from FIN – 4 (C)	Available Financial Resources Net of CCC D = (B - C)	Requirement for the Subject Contract (E)	Results: Yes or No [*D must be greater than or equal to E*] (F)
One Partner:					
_____ (Name of Partner)				. . . . .	
Each Partner:					
_____ (Name of Partner 1)				. . . . .	
_____ (Name of Partner 2)				. . . . .	
_____ (Name of Partner 3)				. . . . .	
All partners combined	∑ D = Sum of available financial resources net of current contract commitments for all partners		∑ D = _____	. . . . .	

Form FIN – 5 is made available for use by the bidder as a self-assessment tool, and by the employer as an evaluation work sheet, to determine compliance with the financial resources requirement as stated in 2.3.3. Failure to submit Form FIN - 5 by the Bidder shall not lead to bid rejection.

Form EXP – 1: Contracts of Similar Size and Nature

Fill out one (1) form per contract.

Contract of Similar Size and Nature		
Contract No . . . . . of	**Contract Identification**	
Award Date		**Completion Date**
Total Contract Amount		**LKR**
If partner in a Joint Venture or subcontractor, specify participation of total contract amount	**Percent of Total**	**Amount**
Employer's name **Address** **Telephone number** **Fax number** **E-mail**		
Description of the Similarity in Accordance with Criterion 2.4.1 of Section 3 (Evaluation and Qualification Criteria)		
Participation in at least one contract that has been successfully or substantially completed within the last Seven (7) years and that is similar to the proposed contract, where the value of the Bidder's participation exceeds LKR 1,116 million. The similarity of the Bidder's participation shall be of one building of at least three stories with not less than 15,000 sq.ft in total or The similarity of the Bidder's participation shall be of bridges (passenger overhead/ roadway/ railway/ etc.) construction with minimum 60 ft in total length.		

Form EXP - 2: Construction Experience in Key Activities

Fill out one (1) form per contract.

Contract with Similar Key Activities		
Contract No . . . . . of	**Contract Identification**	
Award Date		**Completion Date**
Total Contract Amount		**LKR**
If partner in a Joint Venture or subcontractor, specify participation of total contract amount	**Percent of Total**	**Amount**
Employer's name **Address** **Telephone number** **Fax number** **E-mail**		
Description of the Key Activities in Accordance with Criterion 2.4.2 of Section 3 (Evaluation and Qualification Criteria)		
Design experience of an office building with escalators and elevators or passenger overhead bridge with escalators and elevators. Experience in particular Foundation type ((at least 4,500 sq.ft ground floor area) Experience in one three story (or above) building construction with not less than 15,000 sq.ft in total Experience in one bridge steel (passenger overhead/ roadway/ railway/ etc.) construction with minimum 60 ft in total length Experience in installing at least one escalator and one elevator		

Section 5 - Eligible Countries

This Section contains the list of eligible countries.

Afghanistan
Armenia
Australia
Azerbaijan
Bangladesh
Bhutan
Brunei Darussalam
Cambodia
China, People's Republic of
Cook Islands
Fiji
Georgia
Hong Kong, China
India
Indonesia
Japan
Kazakhstan
Kiribati
Korea, Republic of
Kyrgyz Republic
Lao People’s Democratic Republic
Malaysia
Maldives
Marshall Islands
Micronesia, Federated States of
Mongolia
Myanmar
Nauru
Nepal
New Zealand
Niue
Pakistan
Palau
Papua New Guinea
Philippines
Samoa
Singapore
Solomon Islands
Sri Lanka
Taipei, China
Tajikistan
Thailand
Timor-Leste
Tonga
Türkiye
Turkmenistan
Tuvalu
Uzbekistan
Vanuatu
Viet Nam

Nonregional members

Austria
Belgium
Canada
Denmark
Finland
France
Germany
Ireland
Israel
Italy
Luxembourg
The Netherlands
Norway
Portugal
Spain
Sweden
Switzerland
United Kingdom
United States

Section 6 – Employer's Requirements

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Specifications

SECTION 6.1 Technical Specifications for Construction Works

1. All material and construction shall if not mentioned in the document confirm to relevant standards specified in documents of Construction Institute Development Authority formerly known as ICTAD.

2. Use of all materials and constructions shall be subjected to the satisfaction of the Employee/Architect/Engineer.

3. The works under the contract agreement shall be executed in accordance with specifications given in the following publications issued by the CIDA, Sevsiripaya, 123 Wijerama Mawatha, Colombo 07 and as specified.

4. If the tenderer is unclear regarding any of the clauses of the Specifications, he shall obtain all clarifications before submission of the tender.

Refer to following Standard Specifications

1. Standard Specifications for Construction and Maintenance of Roads and Bridges, Second Edition June 2009 published by the Institute of Construction Training and Development (ICTAD), ICTAD Publication No. SCA/5

2. Specifications for Building Works Vol-I – 3rd Edition July 2001, CIDA Publication No.CIDA/SCA/4/I

3. Specifications for Building Works Vol-II - 2nd Edition October 2001, CIDA Publication No.CIDA/SCA/4/II

4. Specifications for Electrical & Mechanical Works associated with Building and Civil Engineering - 2nd Edition (Revised) August 2000, CIDA Publication No.CIDA/SCA/8

5. Specifications for Water Supply, Sewerage & Drainage Works - [2nd Edition (Revised) – April 2002] – ICTAD Publication No. SCA/3/2'

6. Standard Specifications for Loading for Buildings according to Live loads are taken as per BS 6399: part 1:1984 Wind loads shall be calculated according to CP3: chapter v:part 2:1972.

7. Standard Specification for concrete shall be in accordance with BS 8110, BS 8007. Concrete testing shall be in accordance with BS 5328, unless otherwise specified.

8. Standard Specifications for Electrical Design and installation work shall be complied with BS7671 - 18th Edition.

9. Standard Specifications for Structural use of steel works in buildings shall be complied with BS5090 – 1 : 2000.

   If Bidders do not already possess copies of latest editions, may purchase from the Construction Industry Development Authority (Successor to ICTAD): CIDA Publications.

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Chapter 1.0 – GENERAL

1.1 Specification to be used in respect of the present Contract

The following specifications published by the Institute for construction institute Development (CIDA) shall be used in conjunction with these specifications and the General Notes in the drawings for each building respectively.

SCA/4 (Vol.) Specifications for Building Work – Vol. (I), Sri Lanka.
Third Edition (Revised), July 2004

SCA/5 Specifications for Construction and Maintenance of Roads and Bridges.
Second Edition (Revised), June 2009

In the event of any discrepancy of among the construction documents following precedence shall be prevailed.

1) Drawings including General Notes
2) The Technical Specifications
3) CIDA Specifications

1.2 Origin and quality of the materials

The origin, qualities, characteristics, types, dimension and weights, methods of testing, marking, control and acceptance of materials and prefabricated products will conform to these specifications and to regulations of the ICTAD (CIDA). If the local standards are not available, then referred to similar accepted standards.

The origin of materials and products relative to the works are subject to the approval of the Engineer, before any supply to the site, to the maximum on the forty fifth (45) day from the notification of the Contract. To his agreement application, the Contract will attach all useful test reports, samples and references. The Contractor will not modify the origin of materials and products without the authorization of the Engineer.

1.3 Obligation of the Contractor towards the Engineer

Before beginning any works, the Contractor is required to declare to the Engineer any error, omission or contradiction between the various plans, drawings and quantities of items to be supplied by the Employer. He is support to know the site conditions, the difficulties of access and work management, and has to maintain in good condition of service and operation the roads, drains, works of any nature encountered in the immediate vicinity of work.

The Contractor is also under the obligation to check the indications contained in this document with which he must conform.

He will thus have in particular:

- To check all the layouts and elevation levels mentioned on the various drawings and their compatibility.

- To make sure that there is no construction between the description and the drawings, or the various documents between themselves.
- To check the compatibility of the space allocated to the various works, and ensure the work time resulting from their execution is always complied with,
- To check that the number of items proposed to be supplied by the Employer match the quantities estimated during his own survey.

If the Contractor delete an omission or has a doubt, he shall immediately inform the Engineer, who will decide on the procedure to be followed. Failure by him to mention it in time to the Engineer, will lead him to assume the consequences of any errors, omissions or undetected construction.

1.4 Work management

The site will be organized and work will be carried out according to the provisions of the Civil Engineering Specifications (CIDA). The Contractor will submit to the Engineer the work programme according to the provisions of this document. Moreover, he will submit to the Engineer all the measures which he intends to take as regards safety on the work site.

1.5 Documents provided by the Contractor

The General Conditions and Conditions of Particular Application of Contract include a list of documents together with the checking time and delivery times. Within the allowed, the Contractor will provide the documents specified.

The Contractor will supply in particular:

- The programme of work
- Site log book
- The site installation plan
- The Health and Safety Plan

1.6 Programme of Work

Within 14 days from the notification of the Contractor, the Contractor will provide the Engineer the programme of work. This will include in particular:

- The phasing of working – please refer Item no 5 “General instructions” of Supplementary Information Regarding Works to Be Procured in this section.
- The work execution schedule and times estimated for the execution of each phase, assuming that the sum of the times of each phase shall not be greater than the completion period for the contract,

Moreover, he will indicate the critical tasks which determine the critical path and highlight:

- The tasks to carry out in order to complete the work, and their sequence,
- For each task, the date scheduled for its completion,
- The critical tasks which control the completion period of the work,
- The schedules of requirements for material procurement,

The list above is not exhaustive and the Contractor will provide the Engineer all information which he considers useful for him to estimate the needs and to manage the general condition of work.

It will define the estimated dates of interventions by the joint Contractors or subcontractors.

During the work and at each weekly progress meeting, the Contractor will provide an update schedule, detailed work completed, those remaining and the estimated completion dated. On this schedule, the critical items likely to influence the partial or total times will have to be shown.

1.5.2 Site log book

A log will be prepared by the Engineer. In this report will be regularly set out.

- The administrative operations relative to the execution and the supervision for work, such as the work order, working drawing approvals, etc.
- Noted weather conditions,
- Results of the tests,
- Results of various measurements,
- Incidents or details of interest regarding the subsequent behavior of the works, or likely to the give rise to special claim from the Contractor.

A detailed daily report established by a representative of the Contractor will be annexed each day on which will be indicated, per work item.

- The schedules of work, the manpower and the qualification of the personnel, the material present on the site and its work time, the duration and the cause of the stoppages, the measured work carried out each day.
- Incident on the building site likely to give rise to special claim from the Contractor,
- All the instructions imposed by the Engineer in the course of site work.

The daily progress report will be signed each day both by the representatives of the Engineer and the Contractor.

1.5.3 Site Installation Plan

Within 30 days from the notification of the Contract, the Contractor will provide the Engineer the following documents:

- The site installation plan at each site,
- The proposed construction plant,
- Proposals for dumping area.

For each site, the zones reserved for the site installation will have to receive prior agreement of the Engineer. The supply of the building site with electricity and water will be the responsibility of the Contractor.

The Contractor will have to provide and maintain at the request of the Engineer a site office, allowing periodic site meetings to be held as described in the contract data. In this room, the Contractor or his representatives will permanently keep a complete specimen of the contract documents and drawing in good condition, as well as the site log book at the disposal of the Engineer.

1.5.4 Health and Safety Plan

Within 30 days from the notification of the Contract, the Contractor will hand over to the Engineer a specific Health and Safety Plan:

1.7 General Site Works

1.6.1 Procedure

The excavations and fillings shall be carried out in such manner and order as the Engineer may direct.

1.6.2 General Excavation

The entire area within the limits of earthwork as indicated shall be constructed to the lines, grades, elevations, slopes and cross sections indicated on the drawing with added allowance for the thickness of gravel base and paving where required. Slopes and drainage features shall present a neat uniform appearance upon completion of the work and shall be approved by the Engineer. Excavated materials meeting the requirement of fill materials may be conserved for subsequent use or placed as earth fill immediately after excavation upon approval of the Engineer. The suitability of all excavated materials for specific purposes shall be determined by the Engineer. The Contractor shall not waste or otherwise dispose of suitable excavated materials. All excavation shall be performed under the limitations and requirements set out in the sections of this specification pertaining to control of water.

The excavations are to be executed to the widths shown on the Drawings, and to the depths below existing ground levels as directed by the engineer in order to obtain satisfactory foundations. If the Contractor excavates to any widths or depths greater than those shown on the Drawings or as instructed by the engineer, he shall at his own expense fill in such widths or depths of excavation beyond that instructed or shown with weak concrete to the satisfaction of the engineer. Excavations shall always be kept free of water.

Excavated material shall be kept at least 1 meter away to prevent collapsing of excavated faces of earth. Level and ram bottoms, of all excavations to receive concrete, form stepping's, if necessary, as directed to allow for sloping ground, and well water excavations before pouring concrete. The Contractor shall report to the engineer when secure bottoms to the excavations have been obtained. Any concrete or other work executed before the excavations have been inspected and approved shall, if so directed, be removed and new work substituted after the excavations have been approved all at the Contractor's expense. Any metal debris found during the exaction belongs to the client therefore shall be handed over to the client as soon as possible. The excavation process shall always be supervised by the engineer, or a representative appointed by Sri Lanka Railway. Specifications for Earthworks BS 6031:2009 Code of practice.

1.6.3 Earthwork

The earthwork shall include all the work such as excavation of all materials of whatever nature encountered, handling, hauling and compaction of required fill materials, disposal of all excess excavated material, special shoring, bracing an protection work in deep excavation, preparation of sub –grade, dewatering as necessary, protection of adjacent property, backfill, surface reinstatement, and embankment to the lines and grades indicated on the drawings.

Any metal debris found during the exaction belongs to the client therefore shall be handed over to the client as soon as possible. The excavation process shall always be supervised by the engineer, or a representative appointed by Sri Lanka Railway.

1.6.4 Site Investigation

(a) General

The site on which work will be completed has been the subject of a preliminary ground survey (see Geotechnical Investigation Report). In any event, the Contractor will be supposed to know the nature of the ground, and will have to take precautions which he considers useful for recognition of the nature and the stability of the ground in which work is to be carried out.

The control of work is left to the appreciation of the Contractor. It is formally forbidden for the Contractor to begin work of masonry or installation of pipes without having received the approval of the Engineer following the inspection of the trench bottom.

The boring logs and related information depict subsurface conditions only at the specific locations and at the particular time designated on the logs. Soil conditions at other locations may differ from those occurring at the boring locations Also, the passage of time may results in a change of the subsurface conditions or water-levels at the boring locations. The Employer does not guarantee any statements, opinions, or conclusions contained in the report. The Contractor shall assume all responsibility for deductions and conclusions as to the nature of the materials to be excavated, the difficulties involved, dewatering, and maintaining the required excavations and of doing the work affected by the subsurface conditions at the site of the work. Neither the Employer nor any of its Offers, the Engineer or Consultant shall be liable for any loss sustained by the Contractor by or deduced from said borings, samples, tests, and/or reports, and the actual conditions encountered during the progress of the work. The Engineer or the Consultant may change the design parameters slightly according to the subsurface condition after the excavation of particular location. The modified drawings and other specifications would be submitted by the Engineer to carry out the construction.
No borrow pits will be allowed to be opened up on the Site without prior permission from the engineer.

(b) Levels to be Recorded

Before the surface of any part of the site is disturbed or the works thereon are begun, the Contractor is requested to carry out the detail topographical survey and shall take and record levels of any such part, in the manner specified or as agreed with the Engineer. Two working days notice is to be given the Engineer so that the recording of levels can be performed in the Engineer.

(c) Inspection of Site

The Contractor is deemed to have visited the Site and to have ascertained the depth of water table, its variation during the high and low tides, nature of the soil and sub-soils, to be excavated. No claim will be allowed on account of these being of a different nature from that for which he has allowed in his prices. BS 5930:2015 Code of practice for ground investigations

(d) Site Security

Security Personals must be present at site 24 hours every day from handing over of the site to handing over of the site.

1.6.5 Rock and Hard Materials

For the purpose of this Contract, rock is defined a natural material that is so hard that, in the opinion of the Engineer, it cannot be removed by the ordinary method of hand or machine excavation without undue difficulty, or without preliminary work to break or loosen the material by use of blasting impostors, or similar procedures.

Hard materials is similarly defined as artificial material such as concrete that, in the opinion of the Engineer, is so hard that it cannot be removed by the ordinary methods of hand or machine excavation without undue difficulty or without preliminary work to break or loosen the material.

Use of such preliminary procedures will not in itself justify rock or hard material classification. The Contractor shall notify the Engineer as soon as he encounters rock or hard material for which he intends to claim payment to payment to permit an assessment to be made as work proceeds.

1.6.6 Explosive and Blasting

The Engineer shall have power to regulate, restrict or prohibit blasting if in his opinion it is necessary to do so for the safety of persons or property or to safeguard the work. No blasting shall be carried out in any part of the works without the permission on writing of the Engineer. Such permission shall not absolve the Contractor from any of his obligations or liabilities under the Contract and he shall take all necessary precautions including the use of blasting nets to avoid damage, loss or injury to persons and to public or private property.

(a) Responsibility

The Contractor shall be solely responsible for injury to persons, or property that may results from his use of explosives, and the exercise of, or failure to exercise control on the part of the Engineer shall in no way relieve him of responsibility for injury or damage resulting from their use.

(b) Supervision

All blasting shall be done under the supervision of a competent blasting expert, and subject to Sri Lanka regulations for blasting.

(c) Blasting Caps

If electric blasting caps are used, precautions should be taken to warn operators of radio equipment to stop transmitting in any area in which blasting operations are in progress.

(d) Location

Explosive shall not be used within any distance that the Engineer may direct from concrete placed in the Works, any existing structure, water main, electric cable, sewer, conduit or other service.

(e) License

The Contractor shall obtain the necessary licenses for the storage, transport and handling of explosives and shall provide a store or stores suitable for explosive in accordance with local regulations. The special security permission may require before any kind of blasting and transportation of blasting materials to the site area. It is Contractors responsibility to take necessary approval from relevant authorities. The Engineer will assist the Contractor in such situation arises.

1.6.7 Bracing and Shoring

Excavated surfaces too steep to be safe and stable if unsupported shall be supported as necessary to safeguard the work and workmen, to prevent sliding or setting of the adjacent ground and to avoid damaging existing improvements. The width of the excavation shall be increased if necessary to provide space for sheeting, Bracing shoring and other supporting installation. The Contractor shall furnish, Place and subsequently remove such supporting installations.

1.6.8 Shoring with Sheet Piling

Shoring with interlocking sheet piling is recommended in deep excavation marked in the drawings. The Contractor shall propose the method of construction of sheet piling and the specification of sheet piles in detail to the Engineers approval.

1.6.9 Borrow Excavation

When the qualities of suitable surplus materials obtained from specific excavations are insufficient to construct the specified fills, additional materials shall be obtained from approved borrow areas. Borrow pits shall be excavated and finally dressed in a manner to eliminate steep or unstable side slopes or other hazardous or unsightly conditions. The extent and depth of borrow pits and the limits of designated borrow areas shall be approved by the Engineer. The Contractor is responsible for the arrangement and payment for all borrow material and the material selected shall meet the approval of the Engineer.

1.6.10 Disposal of Material

All surplus excavated material and materials arising from site clearance shall be disposed by the Contractor to the tips provided by the Contractor of materials arising from site clearance or from excavations are subject to the applicable provisions of the Conditions of the Contracts.

1.6.11 Excess Excavations

The Contractor at his own expense shall remove from the site all materials resulting from excess excavation below that required for the foundation and bedding and shall make good the same with such kind of all material or in such class of concrete as may be reasonably required by the Engineer/Consultant having regard to the circumstances.

1.6.12 Control of Water

The Contractor shall furnish, install and operate all necessary machinery, appliances, and equipment to keep excavations free water during construction and shall dispose of water so as not to cause injury to private property, or to cause a nuisance or menace to the plinth Beams shall be provided to prevent surface water from draining in to structural excavations. Earth banks shall be

suitably protected from damage by erosion during construction. Any damage occurring shall be repaired by the Contractor at his expense.

1.6.13 Standards Earthwork Compaction Test Procedure

All compacted earth fill dry density shall equal or exceed the specified percentage per the BS 1377. This method will be used to determine the maximum dry density of each type of soil used in compacted fill, backfill, and embankments and to measure the relative compaction at optimum moisture content of compacted fills, backfill embankment and sub grades.

During the course of the work, the Contractor, under supervision of the Engineer, will perform such tests as are required to identify materials, to determine compaction characteristics to determine moisture content and to determine density of fill in place. These tests performed by the Contractor will be used to verify that the backfill and fill conform to the requirements of the specifications.

1.6.14 Testing

Testing will be performed by the Contractor or an approval testing laboratory selected by the Contractor when, where, and as directed by the Engineer. The costs of all compaction testing and other as stated above will be borne by the Contractor. The Contractor shall adjust his operations so as to permit time to make tests, and shall excavate and fill such holes as may be required for sampling and testing.

1.8 Access, Site Clearance and Embankments

1.7.1 Access

The Contractor shall construct and maintain necessary haul access roads within the construction areas as required in completing all work. Upon completion of construction, all haul or access roads, backfill, and disposal areas shall be dressed to provide drainage and left in a site condition. The Contractor shall maintain existing public thoroughfares and control dust, such that it will not be offensive and that all public thoroughfares be effectively signed, with flagmen present, to ensure the safety of all inhabitants.

Light vehicles and site personnel will be granted access to the site with the prior approval from the SLR. The contractor shall get access to the site only via the gates permitted by SLR. Furthermore, vehicle passes will be issued to contractor’s vehicles. The contractor shall use only permitted routes within railway yard premises and not use alternative routes without the approval of the SLR.

1.7.2 Site Clearance

The entire site area shall be cleared and grubbed of all vegetation, including soil in the root zone. All the existing structures, which need to be removed from the site, shall be demolished and debris disposed. Any underground existing items, which are likely to interface with the work, shall be unearthed and removed. All deleterious material, such as trees, bush, heavy vegetation, trash, broken concrete, large stones, etc. Shall be removed from the site area. All soil, rock or other materials unsuitable for use in a compacted backfill fill or as foundation materials, as determined by the Engineer shall be excavated and exported from the site. Disposal of cleared material shall be approved by the Engineer. All stumps, roots, and root clusters having a diameter.

Greater than 25mm shall be removed to a depth of at least 500mm for concrete structures and 300mm for embankment sites and other areas. In any case, flora which exhibits are growth potential after grubbing to these depths shall be removed entirely. Such determinations shall be made by the Engineer.

The Contractor shall also check the necessity of the relocation of any overhead electricity or telecommunication cables or posts which will interfere with the construction work.

Cut down and remove shrubs and trees as directed, grub up roots and fill holes so formed with vegetative soil. No shrubs, trees, plants, etc., shall be removed except as directed by the Architect and the Contractor shall be held responsible for any damage caused by the building operations to those shrubs, trees, etc., not so directed to be removed.

(a) Engineered Fill Material

Furnish from sources approved by Engineer impervious soils free from trash, roots, sod or other perishable materials. Excavated site soils meeting the requirements of impervious embankment fill may be used for engineered fill as approved by the Engineer. Certain areas within a larger designated excavation area may not be suitable for embankment fill and such areas shall be rejected as embankment fill and be disposed of by the Contactor.

All grass, vegetable matter etc., must be removed or with the permission of the architect burned, on site at the commencement of the Contract over areas as directed by the engineer. 200mm of surface soil shall be removed from that part of the site to be occupied by the buildings.

(b) Site Grading Material

Existing site soils free from trash, roots, sod, or other perishable materials or as specified for

Engineered fill material.

1.7.3 Embankment filling and Structure back - filling

All fills, embankments, and structure backfill shall be placed in dry areas and dry excavations.

(a) Equipment

Use equipment for construction of fills and backfill that produce the specified compaction, type and capacities as required and approved by the Engineer.

(b) Protection

Protect all working areas from damage by water or otherwise maintain site drainage at all times, and keep water away from standing on top of constructed fills and backfill.

1.7.4 Foundation Preparation

Foundation for earth fill shall be stripped to remove all obstructions vegetation, debris or other unsuitable materials. Except as otherwise specified, foundation surfaces shall be graded to remove surface irregularities and shall be scarified and loosened to a minimum depth of 100m. The moisture content shall be controlled as specified for engineered fill and the surface materials of the foundation shall be compacted and bonded with the first layer of earth fill as specified for subsequent layers of earth fill.

(a) Rock Foundations

All rock foundation and abutment surface shall be cleared of all loose materials by hand of other effective means and shall be free of standing water when fill is placed. Previous rock foundations shall be excavated to 150mm below finished grade shown on the drawings and a lining shall be placed as specified herein. Fill immediately adjacent to such rock foundations or not accessible with large compaction equipment shall be compacted to the specified density by means of hard taming or manually directed power tempers or plate vibrators.

(b) Benching

Where slope of existing soils to receive fill exceeds 4:1 horizontal benches shall be cut to key the new fill material to the existing soils. At least 300mm of exiting soil normal to the original slope shall be removed and re-completed as the new fill is brought up in layers.

1.7.5 Construction of Fills and Embankments

Engineered fill shall be constructed where indicated or specified, and wherever fills are required in areas to receive structures, using approved engineered fill materials. Other fills shall be constructed in the same manner using site grading fill materials or Engineered fill material. The material for the fill should have the same properties as those of the existing bund material and should not contain any undesirable materials including clays, slits, peat and other organic soils.

1) Placement

Earth fill shall not be placed until the required excavation and foundation prepared has been completed and the foundation has been inspected and approved by the Engineer. Fill shall be placed in approximately horizontal layers of thickness that can be uniformly compacted by the equipment used but of maximum 225mm loose thickness. Hand compacted fill including fill compacted by manually directed power tampers, shall be placed in a manner which will prevent damage to the structures and will allow structures to assume the loads from the fill gradually and uniformly. The height of the fill adjacent to a structure shall be increased at approximately the same rate on all sides of the structure. Pond embankments shall be placed in a manner such that they meet the following additional requirements.

i) Distribution

The distribution of materials throughout each layer shall be essentially uniform and the fill shall be free from lenses, pockets, streaks, or layers of material differing substantially in texture of gradation from the surrounding materials.

ii) Hard Surfaces

If the surface of any layer becomes too hard for proper bond with the succeeding layer, it shall be scarified parallel to the axis of the fill to a depth not less than 300mm specified in ICTAD specification SCA/4/1 before the next layer is placed.

iii) Drainage

The top surface of all embankments shall be approximately level during construction except that a crown or cross slope (Super elevation) of not less than 2 percent shall be maintained of effective drainage. Through not shown on the drawings, all finish grade embankment to surfaces shall be finished with 2 percent crown or cross – slope as applicable for the site drainage.

2) Compaction

All controlled fills beneath structures shall be compacted to not less than 95% of maximum dry density including areas 1.5m outside the structure area. All other controlled fill shall be compacted to not less than 95% of maximum dry density. Uniform moisture distribution shall be obtained by dicing, balding, or other approved methods prior to the compaction of the layer. If the top surface of the preceding layer of compacted fill or foundation becomes too dry or wet to permit suitable bond it shall be scarified and moistened by sprinkling or aerated to acceptable moisture content prior to the

placement of the next layer. Dry density should be 1.65 g/cm^3.

3) Structural Backfilling

Excavated or imported material that meets the requirements shall be used for engineered fill material. Backfill shall be compacted by use of tamping or sheep foot roller or mechanical tamper or other approved methods. Backfill material shall be brought to within 2% of optimum moisture content and shall be compacted in layers of depths compatible with the equipment used. Flooding or jetting shall not be accepted unless approved by the Engineer. Backfill shall be compacted to not less than 95 percent of maximum dry density.

1.7.6 Control of Water

1) Drainage Provisions

Drainage ditches, diversions and temporary pipes shall be provided as required to maintain drainage off the work areas. Ditches and diversions shall be provided with cross sectional areas at least equal to that of the intercepted watercourses, as approved by the Engineer.

2) De - watering

The Contractor shall perform de – watering as required so that all work of the Contract is installed on dry areas and excavations, including without limitation the construction of structures and underground piping. Contractor should give a method statement before commencement of work.

1.7.7 Termites

The Contractor must destroy any termite nests found within the perimeter of the buildings and take out and destroy queens, impregnate holes and tunnels with approved insecticide and back fill with hard material well rammed and consolidated.

- Anti-termite treatment is to be carried out by an approved Specialist strictly in accordance with their printed specification which must be approved by the engineer before use on the Site.
- The bottom surfaces of all excavations to receive foundation concrete, column bases and the like are to be treated before concrete is poured.
- After the hardcore filling has been prepared the whole surface, and the top surface of foundation walling shall be similarly treated before the concrete slabs are poured. The treatment shall extend 1.50 meters beyond the external wall faces of the building.

Chapter 2.0 – CONCRETE WORKS

2.1 General

All concrete shall be “designed” mixes unless stated otherwise. Designed mixes shall be in accordance with Appendix 1 of this section.

2.1.1 Codes of Practice

As specified in ICTAD (CIDA) specification SCA/4/1

2.1.2 Designed Mixes

For each designed mix, the Contractor shall select mix proportions to meet the requirements of the Contract. Those requirements are detailed in Appendix 1.

2.1.3 Cement

As specified in ICTAD (CIDA) specification SCA/4/1

2.1.4 Polythene Membrane

- Unless otherwise described protective membranes to be of No. 1000 gauge polythene laid under floor slabs.
- Where the joints occur, there is to be a minimum of 300mm welted lap, or a joint made with approved tape.
- The Contractor shall ensure that membrane surfaces will not be pierced during the laying and concreting of sub-floors. No level pegs shall be driven through the polythene membrane.

2.2 Manufacture and Brand

The contractor shall inform the Engineer of the source, brand name and manufacturer of the proposed cement. The Contractor shall not place the order for the cement before the Engineer’s approval.

2.2.1 Supply

Cement Supply shall be arranged through companies operating quality assurance procedures.

2.2.2 Delivery

Cement shall be delivered to Site in bags or suitable containers. Each bag or container shall be sealed and marked with the name of the brand and manufacture and the number of the consignment. The Contractor shall arrange for deliveries to be made with sufficient frequency to ensure freshness. Delivery arrangements of any bulk cement shall be to the Engineer’s approval.

For each consignment delivered, the Contractor shall supply the Engineer with a statement showing the quantity, the number of the consignment, the name of the manufacture, the date of grinding and the number and date of the manufacture’s test certificate relating to that consignment.

2.2.3 Storage

Cement shall be stored so that each delivered batch is clearly identifiable. It shall be kept dry, off the ground in covered and watertight stores, and used in order of delivery. Loose or split bags or air-set cement shall not be used.

2.3 Aggregates

As specified in ICTAD (CIDA) specification SCA/4/1

2.3.1 Segregation

Aggregates shall be produced, delivered and stored in such a way that they do not segregate, mix, or become contaminated.

2.3.2 Staining Impurities

Aggregates for exposed concrete shall only be supplied from sources known to be free of staining impurities such as coal, lignite, iron pyrites etc.

2.4 Water

As specified in ICTAD (CIDA) specification SCA/4/1

2.4.1 Compliance

Water shall be clean, potable and free from deleterious matter in solution or suspension and shall comply with the requirements of SLS 572 & As specified in ICTAD (CIDA) specification SCA/4/1

2.5 Admixtures

As specified in ICTAD (CIDA) specification SCA/4/1

2.5.1 Submission to Engineer

The Contractor is advised to consider the cement content and maximum water cement ratios contained in Appendix 1.
It is anticipated that admixtures will be necessary to achieve suitable levels of workability with the higher strength mixes. However, admixture (e.g. calcium nitrates) for the improvement of durability of concrete shall not be allowed.

The Contractor shall submit to the Engineer for review full details of all proposed admixtures and the manner of addition to the mix.

2.5.2 Compliance

Admixtures shall comply with BS EN 12878:2005 and / or BS EN 934:2009 where appropriate.

2.5.3 Required Details

The Contractor shall supply the Engineer with information relating to the use of the admixtures including but limited to the following.

a) The detrimental effects of under and over – dosage
b) The chemical names of the main active ingredients
c) Possible side effects

2.6 Concrete

2.6.1 Characteristic Strength

The specified characteristic strength of a designed mix shall be the 28 days compressive cube strength in N/mm^2, equal to the grade number stared Appendix 1.

2.6.2 Mix Reference

1) The Mix Reference of concrete shall be as defined in Appendix 1.
2) For the OPC/PFA mix specified in Appendix 1. The PFA content shall be 25% by weight of the specified minimum cementitious content.

2.6.3 Water / Cement Ratio

The water /cement ratio of the concrete mix shall be the minimum required to give adequate workability of the concrete, but shall not exceed the maximum value stated in Appendix 1.

2.6.4 Other notes

- All concrete notes shall be in accordance with BS 8110, BS 8007 and specifications.
- Concrete testing shall be in accordance with BS 5328, unless otherwise specified.
- All concrete notes shall be ready-mix and supplied according to the approved design mixes. Unless prior approval taken from the consultant.
- Concrete in the following areas shall have sand and crushed stone aggregates, ordinary Portland cement proportioned to produce a dense workable mix which can be placed without segregation or excess free surface water.it shall also have the properties indicated below.

a. All concrete for reinforced concrete work shall be grade 25 with maximum aggregate size 20mm unless noted otherwise.
b. All concrete for concrete screed shall be grade 15.
c. Concrete for the lintels, beams to be grade 20.

- Mix designs shall be prepared and submitted by the contractor for approval of the consultant. The contractor shall submit result of trial mixes, grading curves and all other details to enable the consultant to evaluate the proposed mix designs.
- Concrete shall be well compacted by mechanical means without segregation.
- All concrete surfaces, except those covered by form work, shall be cured to the satisfaction of the Engineer.
- All grade beams and slabs shall be formed on sides unless shown otherwise.
- Concrete of slabs-on-grade (ground slabs, other than raft) shall be placed in bays where lengths and widths do not exceed six meters unless approved by the consultant.

- Concreting of raft slab-on- grade shall be placed in bays where lengths and widths do not exceed sixteen meters unless approved by the consultant.
- Contractor shall submit construction joint layout, pouring pattern and casting sequence for approval of the consultant at least two weeks before the pouring of concrete.
- All beam vertical construction joints shall be made at one third of the span points using vertical bulkheads with shear keys and dowels. (when a secondary beam intersects a primary beam at this point, the joint in the primary beam shall be offset a distance equal to twice the width of the beam) the location of construction joints shall be approved by the consultant.
- Horizontal construction joints shall be permitted only when shown on the structural drawings or approved by the consultant. Horizontal or nearly horizontal joints shall be prepared by roughening the surface in an approved manner so that the aggregates are exposed uniformly, leaving no laitance, loose particles or damaged concrete.
- Except as detailed on structural drawings, no slabs, or beams shall be sleeved for piping or ducts, unless approved by the consultant.

- Where conduits run in slabs, they shall be positioned at mid- depth of slab. Conduit size shall not exceed 33% of the slab depth. No conduit shall be placed in slabs with actual concrete thickness less than 75mm. There shall be a minimum of 75mm of clear space between conduits. Aluminium conduits are prohibited. Place chairs of 10mm dia. Steel perpendicular to the conduit path. The added r/f shall extend 400mm on both sides and spacing of the added R/F to be 600mm - 800mm.

- All foreign material shall be entirely removed from forms prior to placing of concrete. Any defects in the hardened concrete shall be satisfactorily repaired & /or replaced as deemed appropriate by the consultant. The contractor shall remove and replace any concrete which fails to attain specified strengths, if so directed by the consultant.

- Minimum free fall of concrete should be limited to 1500mm during the placement of concrete.in the event lift height is greater than 1500mm tremie pipe or similar approved arrangement should be used.

- All reinforced concreate for base, column, slab, beams, and stub columns, plinth beams shall be with G25 Remixed concreate.

- Floor concrete with minimum reinforcement to prevent cracks and shall keep necessary expansion joints on the concrete floor as Engineer's approval.

Reinforcement steel notes:

- All reinforcing steel shall comply with BS 4449 grade 460 high tor deformed type 2 bars or grade 250 mild steel. Use of reinforcement for the work will be considered only upon submittal of relevant information to the consultant for approval submittals shall include mill certificates or other recognized certifications clearly indicating the material composition, tor strength, ultimate strength, and bar bend test. The consultant may order additional tests to be carried out, as may be required, the costs of which shall be borne by the contractor.

- No reinforcing bars shall be welded. Unless specifically noted or approved by the consultant.

- Minimum concrete cover for reinforcement shall be as noted below, unless otherwise indicated.

- Concrete surfaces protected against weather or
- aggressive condition - 25mm (interior areas)

- Concrete surfaces exposed to rain or alternate
- wetting and drying, continuously under water -40mm
- and contact with soil - 40mm
- 3.4 Provide concrete cover blocks or standard bar chairs with protective tips and spacers spaced as required to provide specified concrete protection for reinforcement but not to

exceed 900mm on center for all slabs and beams. Place bar chairs or cover blocks longitudinally in all beams directly below the stirrups. Bar shall be tied in place with 16 gauge doubled-annealed iron wire.

- Abbreviations for reinforcement: -

- * 'r' - mild steel of characteristic strength of250 n/mm2/to bs 4449
  * 't' - high for steel of characteristic strength of 460n/mm2/ to bs 4449
  * bar notations

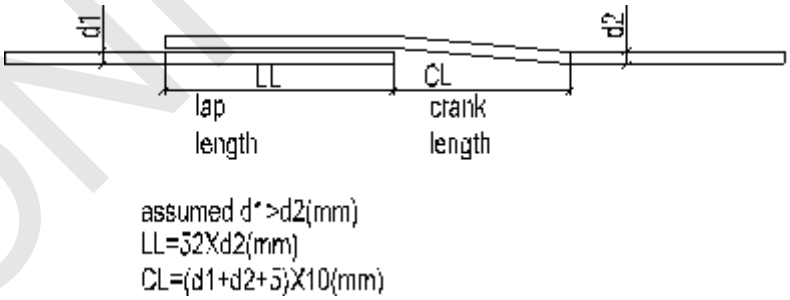
T - top reinforcement (t1-outer, t2-inner)
B - bottom reinforcement (b1-outer, b2-inner) Nf - near face reinforcement

Ff - far face reinforcement

Bf - both face reinforcement

3.6 Reinforcement detailing shall be accordance with BS8666.2005.

3.7 Typical lapping and cranking detail (unless otherwise indicated)



2.7 Trial Mixes

2.7.1 General

Trial mixes shall be prepared for each Mix Reference of designed mix concrete in accordance with BS 1881 and BS EN 12350.

The Contractor shall programme preliminary trial mixes preparation and testing before concreting. No structural concrete shall be places in the Works until the design of the mix and sources of material have been approved by the Engineer.

The mixes shall be prepared before the works commence preferably under full scale production conditions or, if this is not possible, in an approved laboratory using a sufficient number of samples to be representative of the aggregates and cement to be used.

2.7.2 Plant Trials

(1) Plant Trials shall be made using the plant or plants proposed and the mix designs and constructions submitted to the Engineer.

(i) Workability
Each sample shall be tested for slump and flow in accordance with BS EN 12350-2:2000 and BS EN 12350-3:2000

(ii) Test Results
The results of tests on concrete taken from the Plant Trials in accordance with this Clause shall comply with the following requirements

(a) All values for slump and flow during the period estimated minimum and maximum time for discharge of the concrete at the point of place shall be within ± 20% or 25mm (whichever is the greater) of the design value.

(b) Values of slump and flow at the estimated maximum time for discharge of concrete at the point of place shall be not less than 80% of the slump and flow at the estimated minimum time for discharge of concrete at the point of place for relevant batch.

(c) Maximum bleed at 1 hour shall not exceed 0.5 percent of the net mixing.

(d) Maximum total bleed, until cessation of bleeding, shall not to exceed 1.5 percent of the net mixing water.

(e) Final set shall be at least 1 hour less than the maximum limit stated by the Contractor but in any event shall not to exceed 20 hours.

2.7.3 Non - Compliance of Plant Trial Tests

If the result of test for workability or compressive strength of laboratory mix trial and plant trial concrete does not comply with the specified requirements for the property particulars of proposed changes to the materials, mix design or methods of production shall be submitted to the Engineer, further laboratory mix trials or plant trials shall be made until the result of every test compiles with the specified requirements for workability and compressive strength of laboratory mix trial and plant trial concrete.

2.7.4 Sampling for Cube Testing

A set of six cubes shall be made from each of three batches for each Mix Reference concrete. The rate of sampling is given in Appendix 1.

From each sample of six cubes, two shall be tested at an age of 7 days and four at 28 days.

This procedure shall be followed when accelerate testing proposed for the Works cubes, but an additional three cube from each batch shall be made, cured and tested in accordance with the accelerated regime.

The average of each three cube strengths shall be taken as test results.

2.7.5 Workability

The workability of each batch of the trail mixes shall be determined by slump test as described in BS EN 12350 – 2:2000, or by an alternative method approved by the Engineer.

The free water/cement ratio shall be minimum possible having regard to the proposed method of compaction. The slump, when measured in accordance with BS EN 12350
– 2:2000 shall be within the range $\pm$25mm, of the optimum values shown in Appendix 1.

2.7.6 Details to submitted

The Contractor shall submit to the Engineer details of trial mixes proposed for adoption in the Works including.

a) The grading of the coarse and fine aggregates
b) The ratio by weight of all constituents of the mix
c) Workability; and
d) The test cube results.

2.7.7 Acceptance Criteria

Characteristic strength criteria for Trial Mixes shall be met provided that both the following are met.

(i) The average strength at 28^{th} days determined from the test results from any group of three consecutive batches exceeds the specified characteristic strength by not less than 3.5 N/mm^2 for concrete of Grade 20 and above,

(ii) Any one test result is not less than the specified characteristic strength.

2.7.8 Trial Mixed after Commencement of Works

Where a trail mix is required after the commencement of the works (following a proposal to change mix proportions for instance), the foregoing preliminary trial mix procedure shall be adopted.

2.8 Batching and Mixing

As specified in the ICTAD (CIDA) specification SCA/4/1

2.9 Quality Control

2.9.1 Quality Control of Concrete

The Contractor shall provide full time on site a fully qualified Concrete Supervisor whose duties shall include day to day supervision of the concrete constructions and the concrete mixing, placing, sampling, testing and record keeping operations.

The Contractor shall ensure that his Concrete Supervisor is aware of the importance of maintaining a uniform quality of concrete and that he is experienced in detecting variations in quality and workability and rapidly concreting the same.

2.9.2 Acceptability Criteria

Compliance with the specified characteristic strength as specified in ICTAD (CIDA) specification SCA/4/1

2.9.3 Recording of Test Results

The results of all works tests carried out to control the quality of concrete and concrete material shall be recorded by the Contractor on forms agreed with the Construction Supervisory Staff. The Contractor shall supply to the Construction Supervisory Staff. The Contractor shall supply to the Construction Supervisory Staff copy of each test results.

2.9.4 Unsatisfactory Test Results

Should any of the 28 – day test results on concrete or concrete materials be unsatisfactory, the Engineer / Design Consultant may take actions at the Contractors expense.

2.10 Ready – Mixed Concrete

Ready – mixed concrete shall be used only with the approval of the Engineer and shall comply with all the requirements of the Specification for concrete unless otherwise stated and also the following special requirements.
The Contractor shall be entirely responsible for demonstrating to the Engineer that the ready –mix concrete which he proposes to use will comply with the Specification and that the concrete actually used in the Works also fully compiles.

The concrete shall be carried in purpose – made agitators, operating continuously or truck mixers. Ready – mix concrete shall, where applicable, comply with the requirements of BS EN 206. When truck – mixed concrete is used, water shall be added under supervision either at the Site or at the central batching plant as agreed by the Engineer, but in no circumstances shall water be added in transit.

2.11 Casting Concrete

2.11.1 Construction Sequences

The Contractor shall comply with any sequence of construction stated on the Drawings or given elsewhere in the Specification.

The Contractor shall submit for comment to the Engineer in advance of Construction, a layout showing the position of the proposed construction joints. If any, the sequence of construction and a method statement on the arrangements to supply, handle and finish each intended pour area. The method statement shall contain comprehensive details of the operation necessary to produce the construction joints.

The number of construction joints shall be the minimum necessary for the proper execution of the work.
The Contractor shall take measures in casting of concrete sections to control the risk of early – age thermal cracking.

2.11.2 Workability

The Concrete shall be of just sufficient workability to the readily worked into position and compacted, taking into consideration any particular conditions under which the concrete is being placed.

Workability shall be monitored at the same frequency as the concrete cube sampling rate and at such additional times as directed by the Engineer. Measurement shall be in accordance with BS EN 12350:2000 and shall be within the following limits or limits of the optimum values given in Appendix 1:

Slump tolerance: ±25 mm whichever is the greater.

2.11.3 Transportation

Concrete shall be transported and placed so that contamination, segregation or loss of the constituent materials does not occur.

2.11.4 Placing

As specified in ICTAD (CIDA) specification SCA/4/1

2.11.5 Concreting during Wet Weather

No concreting shall be carried out during periods of continuous heavy rain unless the concrete is covered during mixing, transporting and placing. Cover of placed concret be maintained until the initial set has occurred.

2.11.6 Compaction and Finish

As specified in ICTAD (CIDA) specification SCA/4/1

2.11.7 Attendance of steel Fixer

A competent steel fixer shall attend during concreting of all reinforced work. The steel fixer shall ensure that reinforcement and other embedded items remain in position as work

2.12 Construction Joints

As specified in ICTAD (CIDA) specification SCA/4/1

2.12.1 Water - Stops

Method statement and material to be approved by Engineer / Design Consultant

2.13 Curing

2.13.1 Protecting Concrete

Immediately after compacting and finishing, the concrete shall be protected from the harmfuleffects of weather, including rain, sun, wind rapid temperature changes and from drying out. Details of curing liquids, compounds membranes and methods to be used and subsequent methods of removal, shall be subject to approval by the Engineer. Where the Contractor proposes to use a curing liquid, compound or membrane on surfaces which are to take a subsequent bonded layer, then it shall be compatible with that layer and the Contractor shall demonstrate by comparative tests that the adhesion of the subsequent layer will not be reduced.

The concrete shall be protected from other work in progress. No equipment, vehicles, workmen or materials shall be permitted on recently placed concrete until the concrete is strong enough not to be damaged. If damaged occurs, this shall be immediately reported to the Engineer and the Contractor shall propose remedy measures for Engineers consent.

2.13.2 Inspection of concrete Surfaces

No concrete surface shall be worked on in any after the removal of formwork, or permanently covered up, until it has been inspected and approved by the Engineer / Design Consultant and Client's Consultant

2.14 Defective Concrete

2.14.1 Rejection and Reconstruction of Faculty Work

Concrete which is found to be defective on directed by the Engineer / Design Consultant shall be cut out and replaced at the Contractors expense.

If there is any doubt concerning the strength or quality of previously placed and hardened concrete or the position of the reinforcement, the Contractor shall agree

a) A cover meter survey, in accordance with BS 1881: Part 204: 1988
b) 150mm diameter core samples taken at locations directed by the Engineer /Design Consultant, tested in accordance with BS EN 12504 - 1: 2000 at an approved testing laboratory, and the equivalent cube strength determined. A cover meter shall be used to determine locations where coring will cause least reinforcement. Core holes in concrete which is to remain in the works shall be repaired by filling with concrete or motor of the strength specified for the surrounding concrete.

c) A series of rebound hammer tests taken at locations directed by the Engineer / Design Consultant in accordance with BS EN 12504 - 2 :2001. Correlation between strength and rebound number shall be carried out using 150mm cubes of the same concrete Mix Reference as the suspect concrete.

Appendix 1 – Designed Concrete Mixes

Description	Mix Reference		
	C12/15	C20/25	C30/35
Use	Screed Concrete / Blinding	Reinforced Concrete for Slab on Grade without Vehicular Movements	Reinforced Concrete for Framed Structure and Slab – on Grade with Vehicular Movements
Characteristic Strength N/mm^2	15	25	30/35
Nominal max. aggregate size	20	20	20
Cement – Type cement replacements	OPC-SLS 107	OPC-SLS 107 Or BHC – SLS 1247 or OPC with PFA	OPC-SLS 107 or BHC – SLS 1247 or OPC with PFA
Min cement content (kg/m^3) Max cement content (kg/m^3) (including cementations materials)	180 N/A	325*/350** 375*/425**	325*/375** 400*/450**
Water / Cement ratio Absolute max Nominal design	N/A N/A	0.55*0.50** 0.43	0.55*/0.50** 0.43
Type of coarse aggregate	Natural / Crushed	Natural / Crushed	Natural / Crushed
Maximum chloride content by Wt. cement %	N/A	0.20% - general	0.20% - general
Workability Slump (mm)	N/A	Refer table below	
Max Temperature at placing (C^0)	N/A	32	32
Maximum sulphate content by Wt. cement	N/A	4%	4%
Maximum alkali content by mix kg/m^3	N/A	$3kg/m^3$	$3kg/m^3$
Maximum drying shrinkage %	N/A		
Fineness modulus for fine aggregate	Refer CIDA SCA/4/1	Refer CIDA SCA/4/1	Refer CIDA SCA/4/1
Rate of sampling	(1 set of cubes / $30m^3$)	(1 set of cubes / $30m^3$)	(1 set of cubes / $30m^3$)

NOTE : *For OPC and **for Blended Hydraulic Cement or OPC with PFA

Recommended Range of Slump

Portion of Structure	Recommended Range of slump (mm)
Pavement and slabs on ground	25 - 75
Heavily reinforced foundations, walls and footings, cast in situ piles (Concreting in dry condition)	100
Thin reinforced walls and columns	50 - 100

However sump will be adjusted be per mixed design proposed by the Contractor & approved by the Engineer.

IF, during the progress of the Works, the Contractor desires to use materials other than those approved originally, or if the materials from the sources originally approved change in characteristics, the Contractor shall, at his expense, carry out new acceptance tests of material to establish new basic mixes and obtaining the approval of the Engineer prior to use. Objectionable changed in colour of the structure shall not result from these modifications.

Chapter 3.0 – STEEL FOR REINFORCEMENT

3.1 Standards and Codes of Practice

Provisions of following specifications and code of practice shall be generally applicable.

SLS 375: 2009	Rib Steel bars for the reinforcement of concrete
SLS 26: 1993	Plain Steel bars for the reinforcement of concrete
BS 8110: 1997 Construction	Structural use of concrete: Code of Practice for Design and
BS 8666: 2005 Reinforcement for Concrete	Scheduling, Dimensioning, Bending and Cutting of Steel
BS EN ISO 17660-1:2006 Welded	Welding : Welding of Reinforcement Steel : Load Bearing Joints
BS EN ISO 17660-2:2006 Bearing	Welding : Welding of Reinforcement Steel : Non-Load Welded Joints

3.2 Materials

3.2.1 Quality

All steel for concrete reinforcement shall be entirely free from mill scale, excessive surface rust, pitting, oil, grease, paint and other deleterious matter before being used in reinforced concrete work

3.2.2 Test Certificates

The Contractor shall supply to the Engineer/Consultant a manufactures test certificate for each consignment of reinforcement delivered to the site, together with a delivery note stating the weight, number, length, dimension and place of origin of the bars or fabric in each consignment.

3.2.3 Samples for Testing

The Contractor shall, under the supervision of the Engineer/Consultant, cut samples from any of the reinforcing bars from each batch of the material delivered to the site before fixing of the reinforcement starts, and shall dispatch such samples for testing. Test should be carried as per specified in ICTAD (CCIDA) specification SCA/4/1

3.2.4 Testing

Testing (Mechanical properties and chemical properties) to be done from a recognized Organization and all the test report to be submitted to Engineer /Consultant for approval

3.2.5 Non-Compliance

1) A batch of reinforcement bars shall be considered as not complying with the specified requirement for characteristic strength if the tensile tests results cannot meet the requirements specified in specification.

2) If the result of any test for elongation, tensile strength, bending, re-bending unit mass of reinforcement bar does not comply with the specified requirements for the property, additional samples shall be provided from the same batch and additional tests for the property shall be carried out as specified in the specification.

3.2.6 Binding Wire

All binding wire shall be 0.9 tol.6mm diameter mild steel wire. The mild steel binding wire shall be finished tight, using the correct tools, with free ends bent inwards away from formwork**.**

3.2.7 Storage

All reinforcement shall be stored off the ground on level supports and in a manner which will not result in damage or deformation to the reinforcement or in contamination of the reinforcement.
Reinforcement bar shall be stored in suitable racks. Reinforcement shall be kept in a clean condition until it is required to be used.

3.3 Bar Bending Schedules

The Contractor shall derive the shapes and dimensions of the steel reinforcement from the Drawings and prepare Bar Bending Schedules in accordance with BS8666:2005. The required anchorage and lap length shall comply with BS 8110:1997. The contractor shall' submit Bar Bending Schedules to the Consultant. Notwithstanding any comments or absence of comments by the Engineer, the Contractor shall be entirely responsible for the correctness of the Bar Bending Schedules that have been prepared by him.

3.4 Cutting and Bending

1) Bars shall be cut and bent to the dimensions shown on the schedules prepared by the Contractor

2) All bars shall be cold bent by the gradual and uniform application of pressure so that they are not damaged. Heating of bars will not be permitted without the prior agreement of the Engineer.

3) In addition to this Specification, Reinforcement Notes in the General Notes for Building Works drawing shall be followed.

3.4.1 Tolerances

1) Cutting and bending tolerances shall be as specified in BS 8666:2005.

2) The cover to reinforcement shall be within - 5mm and +5mrn of the cover shown ondrawings.

3.4.2 Re – bending

As specified in the ICTAD (CIDA) specification SCN411

3.5 Fixing

3.5.1 Placing

1) The size, form, spacing and location of all reinforcement shall be in accordance with the Drawings. The Contractor shall ensure that the reinforcement is placed and fixed correctly, within a tolerance of ± 5 mm of the correct position.

2) All ties, links, stirrups etc. shall be tight. And the bars properly braced and tied. The ends of tying ties, tying devices and clips shall not encroach into the cover to reinforcement.

3) The Contractor shall provide all spacer bars, chairs and distance pieces necessary to retain the reinforcement in the correct position and to maintain a rigid reinforcement cage during concreting. Cementations spacers shall be of similar strength, durability, porosity and appearance to the surrounding concrete.

3.5.2 Splices and Laps

No splices or overlapping of reinforcement shall be made except where shown on the Drawings or Stated in the General Notes Drawing or as agreed by the Engineer. The gap between pairs of lapped bars shall not be less than the diameter of the larger bar or the maximum size of the concrete aggregate.

3.5.3 Welding of Reinforcement

Reinforcement shall not be welded except with the written agreement of the Engineer. Any welding shall be carried out in strict accordance with BS EN ISO 17660 - 1: 2006 and BS EN ISO 17660 - : 2006.

3.5.4 Cover

Concrete cover to the reinforcing steel shall be as specified, or indicated on the drawings.

3.5.5 Starter Bars

Starter bars shall be provided as approved by the Design Consultant.

3.5.6 Inspection

No concreting shall commence until the Construction Supervisory Staff has been approved the reinforcement fixed prior to concreting, the reinforcement shall be washed with fresh water to remove any surface contamination and the formwork shall be free of surplus water before concrete is placed.

The Contractor shall give adequate reasonable prior notice to the Construction Supervisory staff to carry out an inspection prior to commencement of concerting.

Chapter 4.0 – FORMWORK AND SURFACE FINISHES

4.1 General

Formwork shall include all temporary and permanent concrete shuttering with associated supports. It shall comply generally with the provisions of BS 8110: part 1

The Contractor shall be entirely responsible for the sufficiency and stability of the formwork and for its removal so that after hardening the concrete shall be in the position and of the shape, dimensions and surface finish required. The Contractor shall submit drawings for comment by the Engineer/Consultant before commencing work.

4.1.1 Standard and Code of Practice

Standards and other codes and documents relevant to this section include:
BS 8110: Part 1 Structural use of concrete: Code of practice for design and Construction

4.1.2 Construction

Formwork shall be constructed of metal, sound well - seasoned clean timber, plywood or other suitable materials and shall be constructed to remain rigid during the casting of concrete. Materials used as formers for profiled formwork, chamfers, splays, rebates and other features shall be such that they produce the same finish as the main formwork.
Formwork shall be propped, braced and fixed in the correct position and shall be sufficiently strong to resist the pressure of wet concrete and the action of vibrators without displacement, distortion or leakage and to carry any constructional loading.

Where curved or domed concrete surface are specified, the formwork shall be curved or domed accordingly. The alternative of replacing a curved or domed concrete surface with a series of small connecting planar surface will not be permitted unless.

a) The concrete surface will be covered by tiles;

b) The Contractor has demonstrated to the satisfaction of the Construction Supervisory Staff that the irregularities on the concrete surface due to such alternative will not affect the final smoothness of the tiled surface and

c) The Consultants' Staff approval is given.

4.1.3 General Requirement

Formwork and false work shall be designed and constructed in accordance with BS 5975:1982 to withstand with adequate safety factors the worst combination of self weight, reinforcement weight, wet concrete weight, concrete pressure, construction wave and wind loads, together with all incidental dynamic effects by placing vibrating and compacting concrete, in order to maintain the position and shape of the formwork such that the hardened concrete surface complies with the characteristic of finish.

Allowance shall be made for cambers, and the finished in - situ Work shall comply the tolerances stated in the relevant Specifications. Forms for pre - cast elements shall be constructed such that the finished units are within the tolerance given in BS 811 0 Part 1 Clause 6. II.

False work and formwork shall be capable of being dismantled and removed without shock, disturbance, and damage or loading to the concrete and in such a manner that the specified requirements for, removing or leaving in position side formwork, soffit formwork and props will be achieved without disturbing other formwork or props.

4.1.4 Re – Use

1) Where it is intended that formwork is to be re - used it shall be thoroughly inspected, cleaned and made good between uses and to be approved by the Consultant's Staff before re-using.

2) Formwork which in the opinion of the Consultant's Staff has deteriorated to an extent such that it will not produce the specified finish shall not be used for that Class or a higher Class of finish.

4.2 Concrete Finish

As per the clause 5.4.8 specified in ICTAD (CIDA) specification SCA /4/1.

4.2.1 Chamfers and Fillets

Chamfers and fillets shall be formed on all external and internal comers to the sizes as shown on the Drawings or as agreed by the Construction Supervisory Staff.

4.2.2 Fixing and Holes

The Contractor shall obtain all information from Subcontractors and Suppliers relating to holes, mortices, chases, ducts and fixing required by the Works.

Holes, mortices, chases etc., shall be formed by the provision of inserts before casting concrete. These and all other items to be permanently embedded in the Concrete shall be firmly secured in position. Formwork shall be neatly cut and fitted to prevent the escape of grout. Any inserts incorporated into both unreinforced and reinforced concrete shall be inert.

4.2.3 Tie – Bolts

Where internal metal tie - bolts are permitted, removable parts shall be easily movable without damage to the concrete when the formwork is removed. Holes remaining shall be filled with mortar of the same fine aggregate and cement as the concrete, mixed in the proportions of 1 :2 cement/stand by weight, and shall provide a watertight seal. The mix shall contain a non – shrink admixture. Except where internationally protruding through a concrete surface no permanently embedded, non
– inert, metal part shall have less concrete surface no permanently embedded, non – inert, metal part shall have less concrete cover

4.2.4 Release Agents

Release agents shall be a proprietary type approved by the Engineer. Release agents containing mineral oils shall not be used. Barrier paint, polyurethane varnish, wax or other materials shall not be used instead of a release agent.

Release agent shall be a type which will not stain or colour the concrete and which will not affect the bond between the concrete and subsequent coverings.

Release agents used on steel formwork shall contain rust - inhibiting agent.

On areas of formwork which in the opinion of the Engineer are likely to be affected by pedestrian traffic, rain or dust, release agents shall be a type which evaporates to leave a dry film on the formwork, unless protection from such effects is provided.

PreparationThe inside surfaces of formwork shall, except for permanent formwork, or unless otherwise agreed
by the Engineer, be coated with an approved release agent to prevent adhesion of the concrete to the formwork. Release agents must not touch the reinforcement of fixing devices. Different release agents shall not be used in formwork to what shall become adjacent areas of visible concrete.

4.2.5 Cleaning

Before any concreting commences, all formwork shall be cleaned of dirt, shavings, sawdust, loose tie wire, nails and other debris. Formwork shall, in general, be cleaned using compressed air when formwork is ready for concreting, to permit the Construction Supervisory Staff to check if required, before concrete is placed.

Opening for inspection of the inside of the formwork and, where agreed for the removal of water used for washing out, shall be formed so that they can be properly sealed before

4.2.6 Removal of Formwork

Formwork shall not be loosened or removed before the minimum times stated in Table 5.3.I in ICTAD (CIDA) Publication SCA/4/1 and system form work that can be based on manufacture specifications approved by the design Consultant. If other conditions apply, particulars of proposed changes to the minimum times shall be submitted to the Engineer/ Consultant's for approval.

The Contractor shall note that the use of low heat concrete mixes, with their slower rate of strength gain, will require more time before removal of formwork than OPC mixes.

Formwork shall be removed without hammering or levering to the concrete and in such a manner that there is no shock, disturbance, damage or loading to the concrete. Side formwork shall be removed without disturbing soffit formwork and soffit formwork shall be removed without disturbing props that are required to remain in place for structural support.

4.3 Storage of Materials

4.3.1 Formwork

Formwork shall be stored off the ground on level supports and in a manner which will not result in damage or deformation to the formwork or in contamination of the formwork.

Formwork shall be covered and protected from exposure to conditions that may affect the formwork.

4.3.2 Release agents

Release agents shall be stored in sealed containers marked to identify the contents and protected from exposure to conditions which may affect the material. The materials shall be stored in accordance with manufacture's recommendations and shall not be used after the recommended shelf life has been exceeded.

4.4 Remedial Treatment

4.4.1 Treatment

Any remedial treatment to surfaces shall be agreed with the Engineer/ Consultant after removing formwork and shall be carried out as soon as possible thereafter. Remedial or repair work shall not be carried out on concrete surface unless permitted by the Engineer. Any such work carried out without permission may be rejected.

Honeycombed or otherwise defective concrete shall be cut out to its full extent and made good with concrete of the appropriate grade.

Any concrete surface which has been treated without notifying the Engineer and obtaining his approval shall be liable to rejection and subsequent replacement by the Contractor at no extra cost.

4.4.2 Stains and Marking

The Contractor shall ensure that exposed concrete surfaces are protected from rust marks, stains, and marking of any kind, including those arising from construction and from weather conditions.

Chapter 5.0 – SPECIFICATION FOR STRUCTURAL METAL WORK FOR STEEL IN FRAMED STRUCTURES

Content

5.1 General

(a) Structural steel should be of Gr. 43 to conform to BS 7668: 1994

(b) All welding consumable should conform to BS 5135: 1984

(c) All bolts & nuts should conform to BS 4190: 1967 or BS 3692: 1967. Washers should comply to BS 4320: 1968.

(d) After fabrication, all steel components should be wire brushed to remove any surface rust. The surfaces of the components should also be thoroughly cleaned to be free of dirt, oil, grease etc, Bolts, nuts, washers, cleats, shoe plates etc. should be wire brushed and cleaned in the same manner.

(e) All fabricated steel components including Bolts, nuts, washers cleats, shoe plates etc. should be applied with 2 coats of quick drying Zinc Phosphate metal primer.

(f) Lipped Channel Purlin shall conform to British standard specification to cold rolled steel section to BS 2994: 1976.

In general, shop joints shall be made by welding and site joints by bolting. Site welding will not be permitted without the express approval of the Engineer.

Steel members for purlins, side and sheeting rails shall be of cold formed steel sections.

1.1 All materials and workmanship shall be in accordance with the relevant British or Sri Lankan standards with current amendments.

1.2 Live loads are taken as per BS 6399: part 1:1984.

1.3 Wind loads shall be calculated according to CP3: chapter v:part 2:1972 basic wind speed shall be assumed as 38m/s or use Sri Lankan wind code.

1.4 The horizontal and vertical dimensions of the structure shall be verified during the construction. Any variations or discrepancies in the dimensions shall be brought to the consultant's attention immediately.

1.5 Dimensions and elevations are in both SI units and metric units. Do not scale drawings.

1.6 The contractor shall co-ordinate the structural details and with other disciplines such as architectural, mechanical, electrical, and plumbing conflicts or discrepancies to the consultant prior to fabricating or installing or constructing structural members.

See architectural drawings for the following.

A. Size and location of all non-load bearing partitions.

B. Size and location of all concrete curbs, floor drains, slopes, depressed areas, changes in levels chamfers, groves insert, etc.

C. Size and location of all floor and roof openings.
D. Dimension not shown on structural drawings.

See mechanical plumbing and electrical drawings for the following.

A. Pipe runs, sleeves, hangers, trenches, wall, roof and floor openings, etc. Not shown or noted.

B. Electrical conduit, runs, boxes outlets in walls and slabs.

C. Anchorage and bracing for electrical, mechanical or plumbing equipment.

D. Anchor bolts for motor mounts.

E. Size and location of machine and equipment bases.

1.7 Openings, pockets, etc. Shall not be placed in structural members unless specifically detailed on the structural drawings. When drawings by others show openings, pockets etc. Not shown on the structural drawings, but which are located in structural members such items shall be brought to consultant's attention for approval prior to fabrication or construction of structural members

1.8 The contract document represents the finished structure. They do not indicate the method of construction. The contractor shall provide and shall be responsible for all measures necessary to protect the works during construction. Such measures shall include, but not be limited to, bracing, shoring, form work, props and sequencing of the removal of the same.

1.9 DS do not exceed the designed live loads indicated and that these loads are not put on the structural members prior to the time that the concrete reaches the full design strength and all framing members, and their connections are in place.

1.10 Contractor shall be responsible for preparing and submitting the following documents for the consultant's approval at least two weeks before the commencement of works.

Architectural drawings

Structural design with necessary calculations and drawings

Method statement of the work.

Co-ordination drawing.

Shop drawings (for formwork, masonry work including the stiffener column/beam arrangement, zinc-alum roofing system including framework structural steel works etc.)

Bar - bending schedules for R.C. works.

Construction drawings for all temporary works.

Drawings for pouring patterns,

Construction Schedule

1.11 Assume soil bearing capacity 150KN/M2. It should be confirmed by the geologist with the bore holes test result before starting the work. Ground improvement should be done as

per the soil investigation report with engineers' knowledge. Allowance should be made for soil fill and ground improvement.

1.12 Standards

For the structural steelwork the following codes and standards will be applicable BS 5950 –

Specification for the use of structural steel in building

BS 4360 – Specification for weldable structural steels

Unless otherwise specified the structural steel to be used shall be mild steel grade 43.

All weld metal shall be suitable steel relative to the parent metal of the structure and all electrodes use for manual welding shall conform to BS 639.

Continuous electrodes for machine welding shall be to the approval of the Engineer. All welding must conform to BS 5135.

Site bolted joints will normally be made using grade 4.6 conform to BS 5950 and BS4190. Hot-dip

galvanizing of steel shall conform to the requirements of BS 729.

a) All structural steel exposed to whether shall be painted with marine paint and color approved by the Engineer.

b) All tube & pipe sections exposed to whether shall have open ends capped with ¼" plate

c) For exposed interior structural steel, refer to architectural drawings and specifications for surface specifications for surface preparation and finish requirements.

All the structural steel works for buildings shall be in accordance with BS 5950 – 2000 and Steel grade is S 275

5.2 Drawings and Calculations

5.2.1 Contractor's obligations, etc.

The contractor shall check dimensions on all shop drawings with the dimensions on the contract drawings before start of manufacturing of the relevant items.

Structural drawings shall be used in conjunction with architectural drawings, mechanical drawings and drawings related to other trades. The general contractor is responsible to check and coordinate dimensions, clearance etc., with the work of the other trades.

Should any discrepancies occur between the contract's drawings and the specification, the matter is to be referred immediately to the Engineer for a decision.

All steel members shown on the contract drawings are based on British Standards, dimensions, weights and strengths. In case of specified sizes should not be available, the contractor shall submit alternative which shall be to the approval of the Engineer in all respects.

The Contractor shall prepare and submit for the Engineer's approval detailed working drawings for the structural steelwork if an alternative is to be offered to the Engineers Design. In that case the Contractor shall bare the cost of design review need to be done by the Engineer and the reviewing will be undertaken only after agreeing to make the payment for Engineer's input requiring for such.

Alternate connections will be accepted only with written approval of the engineer. However, the engineer shall be the sole judge of the acceptability and the contractor's bid shall anticipate the

use of those specific details shown on the drawings. In any event the contractor shall be responsible for the design of such alternate details which they propose

Detailed design, fabrication, erection etc. shall comply with all requirements of BS 5950 including amendments.

When not specifically detailed elsewhere on the drawings, all beam to beam and beam to column connections shall be detailed as shown in the typical beam connection details.

The contractor shall prepare and submit for the Engineer's approval before manufacturing, all calculations and shop drawings, for all parts of steel structures and all detail drawings of all connections in welded or bolted constructions. The Engineer's approval does not release the Contractor from his responsibilities for the structure and the dimensions on such shop drawings.

The Contractor shall prepare assembly drawings showing the location, position and reference numbers of all components including fixing materials and sequences of erection and installation to the approval of the Engineer.

Any damage to material on the site or other storage areas due to inadequate precautions being taken during the erection of steelwork shall be made good as required by the Engineer at the Contractor's expense.

5.3 Scope of Work

The steel works to be supplied and delivered according to drawings and specifications comprises all structural steel works including the necessary anchors, base plates, connecting plates, stiffening plates, bolts, nuts, washers, temporary bracings and any additional rails required for the fixing of the roofing and cladding etc.

The Contractor shall supply and fix all mild steel profiles such as mild steel angles, to be welded to various structural steel frame members to receive blockwork, mild steel plates at columns at corners etc., all according to the structural and architectural drawings.

All structural steel to be metalized.. Damages to the layer shall be touched-up immediately upon discovery. All excess to be removed carefully. The finished surfaces shall be clean. To be included in the supply and delivery are the holding-down bolts as indicated on the drawings.

The Contractor shall supply the Engineer with test certificates obtained from the rolling mills with each delivery of structural steel and reinforcement steel. The Engineer may order additional tests to be carried out, as may be required, the costs of which shall be borne by the Contractor.

5.4 Welding

5.4.1 Materials and workmanship etc.

Machine welding shall be carried out using approved machines sufficiently supervised by qualified operators and hand welding shall be executed in an efficient manner by fully qualified workmen equipped with plant suitable for the purpose. All welding tests shall comply with BS 4870 and 4871 so far as applicable and except as modified in this specification.

The manipulators and the sequence of welding shall be suitable for the work, and shall be subject to the Engineer's approval before welding is commenced.

Welding procedure shall be such that distortion is reduced to a minimum and local distortion is rendered negligible in the final structure.

Surfaces to be welded shall be properly prepared in accordance with accepted standards and during welding shall be kept clean and free from all extraneous matter.

All welds shall be finished full and made with the proper number of runs, the welds being kept free of slag intrusion and all adhering slag being carefully removed from the exposed surfaces immediately after each run.

Approval of any welding procedure shall not relieve the Contractor of his responsibility for correct welding and for the minimizing of distortion in the finished structure.

Only skilled welding operators who satisfy the appropriate welding tests specified in the relevant standards shall be employed on welding.

Notwithstanding any routine testing of operators by the Contractor, the Engineer reserves the right to have any welding operator re-tested at any time.

In addition to the Contractor's normal supervision and testing procedure, radiographic and other non-destructive examination shall be carried out, as and when required by the Engineer, on butt or fillet welded joints and/or on test specimens. Prepared etched sections of welds may be required for examination. The Contractor shall, at his own cost, provide all equipment necessary for such test and shall cut out and remove any portion of the steelwork which the Engineer shall decide is defective.

The acceptance of the welded work shall depend upon correct dimensions and alignment, absence of distortion in the structure, satisfactory results from the examination and testing of the joints and the test specimens, soundness of the welds, and upon general good workmanship.

5.5 Bolted Fixings

5.5.1 General

All bolts and nuts shall be complete with washers and shall be galvanized where specified. If washers are not shown on the drawings, they shall be provided in accordance with best current practice to the approval of the Engineer.

The bolt holes shall be drilled full size to a diameter not more than 2mm greater than the shank diameter of the bolt unless otherwise specified and all burrs shall be removed.

Any type of bolts which the contractor may wish to supply, and use shall be submitted to the Engineer for approval and must comply with BS 5950 and BS 4190

All Shop or field bolted connections shall be bolted connections using ¾ inch diameter A325 N bolts in standard holes, unless specifically noted otherwise.

Oversized or slotted holes shall not be made used for any connections unless specifically indicated on drawings or approved in writing by Engineer.

5.6 Erection of Steel work

5.6.1 General

The Contractor shall ensure that all component parts of the structures will fit correctly and that the holes of adjoining members correctly register with one another. The Contractor shall temporarily erect at his works such proportion of the component parts as is necessary to verify to the satisfaction of the Engineer the accuracy of fabrication. The verification will not however relieve the Contractor of his responsibility in ensuring correct fit etc.

The Contractor shall include in his rates all costs in respect of temporarily erecting components, the provision of all necessary scaffolding, flooring, staging, bolts and everything else necessary for erection. The Contractor shall be responsible for the stability of the structures as all stages of erection and his attention is drawn to the fact that high winds may occur at the site.

The steelwork shall be lined, levelled and plumbed as the erection proceeds and no cladding or doors shall be fixed to the framework until the bolting up, linin, levelling and plumbing is complete and to the satisfaction of the Engineer.

After steelwork has been plumbed, lined and levelled, all bases shall be grouted with neat non-shrink grout of as dry a consistency as possible compatible with the requirement as regards pouring, raking and ramming of the grout under and through the steel bases. The grout shall be from an approved manufacturer and shall be applied in strict accordance with his instruction.

5.7 Painting works

Painting for structural steel shall be complied to IO 12944

All structural steel exposed to weather shall be Painted.

All tube & pipe sections exposed to whether shall have open ends capped with ¼" plate

All structural steel to be painted with marine paint approved by the Engineer, to comply

with C5 – Very High Corrosivity Condition.

For exposed interior structural steel, refer to architectural drawings and specifications for surface specifications for surface preparation and finish requirements.

All steel surfaces shall be prepared by sand blasting to S. A. 2.5 standards.

Chapter 6.0 – SPECIFICATION FOR WATER PROOFING

6.1 SPECIFICATION "A" 2 COAT, SINGLE LAYER APPLICATION

Water Proofing for Balcony/Dry Bathroom/ Concrete Gutter/ Vertical surfaces & pipe penetrations in other waterproofing applications as required, sump internally - 2 part cementation, Lift pit internally.

6.1.1 Scope of Work

Waterproofing shall be carried out in specified area of the concrete floor slab and up to 300 mm above the finished floor level on thinly plastered masonry/concrete walls.In shower areas, application should be continued up to 2.1 m height.

6.1.2 Material

(a) The material used shall be a **2-part polymer or acrylic-modified cementitious** waterproofing slurry (**Masterseal555 S, Deepseal201, KII Flex, or equivalent approved**) to a minimum of 1.5mm thickness with adequate flexibility and sound bond properties. (2coat, single layer application)

(b) Tensile Strength shall be greater than 1.5 N/mm^2

(c) Adhesive Strength shall be greater than 1.0 N/mm^2

(d) If so instructed, Contractor should furnish test reports from an independent body for technical Data given in Manufacturer's printed documents.

(e) 1.0 mm thick sample of the proposed material should be submitted along with the material approval.

6.1.3 Execution

6.1.3.1 Surface Preparation for Balcony/ Bathroom/ Concrete Gutter/ Vertical Surfaces and pipe penetrations in other water proofing applications as required.

(a) Apply the water proofing slurry under shaded shelter to prevent rapid drying of the coating

(b) Treat all cracks and joints by "V" grooving, filling with non-shrink/repair grouts, and top finish with glass wool reinforcing fabric.

(c) Wash and clean the floor slab thoroughly to be free of dirt, loose mortar particles, paints, films etc.

(d) Provide 20 mm X 20 mm, 45° angle fillet with cement/sand (1 :3) mortar at wall / slab floor joints in shower areas.

(e) Waterproof interface at any pipe penetration through waterproofing surface after reinforcing according to manufacturer's specification.

(f) Waterproof Gully area after reinforcing according to manufacturer's specification.

(g) Sprinkle water in between coatings, and before application of first coat to make surface wet and damp, but without standing water or shiny wet surface.

6.1.3.2 Application

(a) Apply all materials under the direction of the Supplier/ Manufacturer's representative and conforming to the Manufacture's printed literature.

(b) Apply 1st coat by brush in one direction at wet film thickness as recommended, on floor & walls up to 300mm height / 2100mm height. Allow to dry minimum 3 hours.

(c) Lay glass wool reinforcing fabric strip at comers (according to the manufacture's specifications), wall-slab in shower areas. Allow to dry as recommended.

(d) Apply 2nd coat by brush in the other direction at wet film thickness as recommended, on floor & wall as described above. Allow to cure for 2 days.

(e) Carry out water test by ponding the relevant area with water for at least 2 days. If any leaks are observed the application of the membrane shall be repeated.

(f) If no leak or dampness is observed in the floor slab, floor tiling or other finish should follow as soon as possible thereafter, taking care not to disturb or damage the membrane in any way.

6.1.4 Surface Preparation and Application – sump internally,

(i) Internal of floors and walls of all sumps and pits shall be coated with polymer modified cementation water proofing coating. The method of application and quality of material shall be to the approval of the Design Consultant.

(ii) The surfaces to receive the water proofing shall be smooth, free from dust and dirt splayed or rounded fillets shall be provided between horizontal and vertical surfaces and at all junctions of vertical or horizontal surfaces.

(iii) The joints in each application shall overlap one another and shall not coincide with the joints in previous coats.

(iv) The contractor shall ensure that the coatings are not damaged in anyway and will provide protection at all times during the executing of the work.

6.1.5 Certificate & Guarantee

The contractor shall submit prior to acceptance of the work, written certificate starting that all materials and workmanship in connection with specified work have been furnished and installed in complete conformance with these specifications, and with the approved manufacturer's requirements for this work.

The contractor shall jointly with the Manufacturer/Supplier of the specialist waterproofing materials furnish a guarantee to the Employer valid for a period of 1 0 years after handing over of the works, against dampness and/or moisture penetration through treated surfaces due to defective material and/or defective workmanship.

The guarantee shall provide not only the materials necessary to remedy a problem but also the labor and equipment to apply the material, and reinstate adjacent damaged items or finishes.

6.2 SPECIFICATION "AA" (Water Proofing for Bathroom) 4 COAT, TWO LAYER APPLICATION (2 part Cementitious)

6.2.1 Scope of work

Waterproofing shall be carried out in specified area of the concrete floor slab and up to above the finished floor level on thinly plastered masonry/concrete walls. In shower areas, application should be continued up to 2.lm height.

6.2.2 Material

(a) The material used shall be a **2-part polymer or acrylic-modified cementitious** water proofing slurry (**Masterseal 555 S, Deepseal 201, KII Flex, or equivalent approved**) to a minimum of 1.5rom thickness with adequate flexibility and sound bond properties. (**4 coat, two layer application**)

(b) Tensile Strength shall be greater than 1.5 N/ mm^2

(c) Adhesive Strength shall be greater than 1.0 N/ mm^2

(d) If so instructed, Contractor should furnish Test Reports from an Independent Body or Technical Data given in Manufacturer's printed documents.

(e) 1 mm thick sample of the proposed material should be submitted along with the Material approval

6.2.3 Execution

6.2.3.1 Where Applied

(a) 1st layer: on structural slab (drawing to be submitted).

(b) 2nd layer: on concrete fill.

6.2.3.2 Surface Preparation

(a) Apply the water proofing slurry under shaded shelter to prevent rapid drying of the coating.
(b) Treat all cracks and joints by "V" grooving, filling with non-shrink/repair and top finish with glass wool reinforcing fabric.

(c) Wash and clean the floor slab thoroughly to be free of dirt, loose mortar particles, paints, films etc.

(d) Provide 20 mm X 20 mm, angle fillet with cement/sand (1:3).mortar at wall/slab floor joints in shower areas.

(e) Waterproof interface at any pipe penetration through waterproofing surface after reinforcing according to manufacturer's specification.

(f) Waterproof Gully area after reinforcing according to manufacturer's specification.

(g) Sprinkle water in between coatings, and before application of first coat to make surface wet and damp, but without standing water or shiny wet surface.

6.2.4 Application

(a) Apply all materials under the direction of the Supplier/ Manufacturer's representative and conforming to the Manufacture's printed literature.

(b) Apply 1st coat by brush in one direction on structural slab at wet film thickness as recommended, on floor & walls up to 300mm height / 2100mm height. Allow to dry minimum 3 hours.

(c) Lay glass wool reinforcing fabric strip at comers

(according to the manufacture's specifications), wall-slab in shower areas. Allow to dry as recommended.

(d) Apply 2nd coat by brush in the other direction at wet film thickness as recommended, on floor & wall as described above. Allow to cure for 2 days.

(e) Carry out water test by ponding the relevant area with water for at least 2 days. If any leaks are observed the application of the membrane shall be repeated.

(f) If no leak or dampness is observed in the floor slab, as soon as possible, carryout concrete fill taking care not to disturb or damage the membrane in any way.

6.2.5 Certificate & Guarantee

The contractor shall submit prior to acceptance of the work, written certificate stating that all materials and workmanship in connection with specified work have been furnished and installed in complete conformance with these specifications, and the approved manufacturer's requirements for this work.

The contractor shall jointly with the Manufacturer/Supplier of the specialist waterproofing materials furnish a guarantee to the Employer valid for a period of 10 years after handing over of the works, against dampness and/or moisture penetration through treated surfaces due to defective material and/or defective workmanship.

The guarantee shall provide not only the materials necessary to remedy a problem but also the labor and equipment to apply the material.

6.3 SPECIFICATION "B" (Water Proofing for Concrete Roof Slab/ Terraces) (membrane type)

6.3.1 Scope of Work

Waterproofing shall be carried out in specified area of the concrete roof slabs/ terraces

and up to 350 mm (minimum) above the finished floor level on concrete / thinly plastered masonry walls. Work includes cutting of grooves, supply & fixing aluminum strips to vertical faces with stainless steel screws etc.

6.3.2 Surface Preparation and Description of Work

(a) The concrete surfaces on which the waterproofing application is made shall be laid to the given grade, even and free of localized depressions or humps. It shall also be thoroughly cleaned to be free of dust, dirt, debris, oil or grease.

(b) Any walls which rise above the roof slab shall be thinly plastered smooth to receive the waterproofing membrane as detailed.

(c) Provide 40mm X 40mm angle fillet with cement/sand (1 :3) mortar as per drawing/ manufacture's literature.

6.3.3 Materials

The waterproofing system should consist of the following and should be subjected to the approval of the Engineer/Consultant.

A **prefabricated multi-layer sandwich type membrane** conforming to the following specifications

(a) Have a minimum nominal thickness of **4mm** for torch applied membranes.

(b) Shall consist of a minimum of 2 layers of polymeric bitumen having a softening temperature not less than 100 C as per ASTM D 36 and penetration at 25^0 C not less than 15mm as per ASTM D-5.

(c) Shall consist of a polyester-reinforcing mat of minimum weight 140 g/m^2

(d) Shall consist of flammable polyethylene films on either side for torch applied membranes and in the case of self adhesive membranes, release paper on one side and polyethylene/ polypropylene film on the other.

(f) Tensile strength as per ASTM D-147. Longitudinal & transverse directions 500N/cm^2 minimum.

(f Elongation as per ASTM-D5147. Longitudinal & transverse directions 35%

(g Impermeable to water vapors as per ASTM

(h) Resistance to Aging due to U- V Radiation to ASTM G 53 should show no signs of deterioration after test.

(i) Water absorption to ASTM D-5748 not greater than 1%

(j) Flexibility at low temperature to ASTM D 146-0 C .

(K) Suitable for application at ambient temperatures between 15 C to 40 C.

The contractor shall with his submittal furnish the details of the waterproofing membrane he proposes to use together with the relevant literature.

6.3.4 Procedure for Laying

(a) Typical details as given in the sketch details attached are suggested to be adopted. The Contractor's submission furnishes the details he proposes to adopt with his submission of method of statement.

(b) The laying procedure and over laps etc. prescribed by the waterproofing

membrane manufacture shall be followed subject to the approval of the Engineer.

6.4 Certificate & Guarantee

The contractor shall submit prior to acceptance of the work, written certificate stating that all materials and workmanship in connection with specified work have been furnished and installed in complete conformance with these specifications, and with the approved manufacturer's requirements for this work.

The Contractor shall jointly with the Manufacturer/Supplier of the specialist waterproofing materials furnish a guarantee to the Employer valid for a period of 10 years after handing over of the works, against dampness and/or moisture penetration through treated surfaces due to defective material and/or defective workmanship.

The guarantee shall provide not only the materials necessary to remedy a problem but also necessary the labor and equipment and reinstate adjacent damaged items or finishes.

6.5 SPECIFICATION "E" (Water proofing for Retaining Walls/Sump (externally) / Lift Pit (externally) (bituminous application type)

6.5.1 Scope of Work

Waterproofing shall be carried out in specified areas of the concrete surfaces or plastered masonry walls.

(a) The surfaces on which the waterproofing application is made shall be laid to the given grade/ slope, even and free of localized depressions or humps. It shall also be thoroughly cleaned to be free of dust, dirt, debris, oil or grease.

(b) Provide 40mm X 40mm angle fillet with cement/sand (1 :3) mortar as per drawing/ manufacture's literature.

6.5.2 Material

Material used shall be joint-less bituminous waterproofing compound (Aquashield BX or equivalent approved)

6.5.3 Application

(a) General – Apply all material under the direction of the Manufacturer's representative and conforming to the Manufacture's printed literature.

(b Apply 1st coat by brush in one

(C Apply 2nd coat by brush in the other

6.5.4 Protection

(a) Allow material to set minimum 12 days before filling the structure with water (in the case of water sumps)

Protect treated surfaces from damage-due to wind, sun, rain and temperatures below 32 degrees F for a period of 48 hours after application.

6.5.5 Certificate & Warranty

The contractor shall submit prior to acceptance of the work, written certificate stating that all materials and workmanship in connection with specified work have been furnished and installed in complete conformance with these specifications, and with the approved manufacturer's requirements for this work.

The contractor shall jointly with the Manufacturer/Supplier of the specialist waterproofing materials furnish a warranty to the Employer valid for a period of 10 years after handing over of the works, against dampness and/or moisture penetration through treated surfaces due to defective material and/or defective workmanship.

The guarantee shall provide not only the materials necessary to remedy a problem but also necessary the labor and equipment and reinstate adjacent damaged items or finishes.

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N FOR

ALUMINIUM WORKS

SPECIFICATION FOR ALUMINUM WORKS DOORS & WINDOWS & FANLIGHTS

- **General**

  Aluminum glazed units shall be supplied with all hardware furniture and fittings.

  The Contractor shall submit to the Engineer/Consultant the shop drawings and technical data and other relevant information for approval of the Engineer/Consultant.

  The Contractor shall be carried out tests generally required for ascertaining the suitability of aluminum extrusion, and weather stripping, strength of joints and air water infiltration.

- **Wind Loading**

  The fabricated aluminum doors and windows shall be capable of withstanding a wind pressure to be submitted by the Contractor.

  Physical Properties ;

  I. Design to be done considering of wind pressure as per the design code
  II. Elongation- 7 %

- **Whether Stripping**

  The weather stripping shall be vinyl or other plastic materials which are dimensionally stable and are resistant to ultra Violet trays, water absorption and are suitable to be used in marine atmosphere.

- **Screws Nuts etc.**

  All screws, nuts, washers, bolts, rivets and other fastening devices should be of stainless steel. Aluminum alloy fasters may be used in lieu of stainless steel fasteners with the written approval of the Engineer/Consultant.

- **Ironmongery**

  Ironmongery used shall satisfactorily perform the function for which it is intended. They shall be of aluminum die cast alloy, stainless steel or other non - corrosive materials compatible with aluminum. The Engineer shall duly approve all items of ironmongery before fixing in position.

- **Glass**

  Glass shall be a float glass suitable for single glazing and having a thickness minimum of 5 mm or as specified. Glass shall conform to the relevant British Standards including following,

  The classification of glass for glazing and terminology for work Contractor to be submitted glass calculation.

- **Assembly**

The design of windows should permit free movement of air from exterior environment to the immediate spaces between the window frame and ventilator to achieve pressure equalization. The windows should have snap on reusable extruded aluminum glazing beads and easily removable bottom rails.

The glazing beads should not extend underneath the glass. The design of windows should permit re - glazing without disassembly all ventilators extrusions from the frame.

All openable window sash comers should be mitered angle reinforced or mechanically staked and Epoxy painted. If frames with incompatible extrusions are used, ther theses extrusions should be mortised and tongue. A permanent watertight joint should be made to the junctions of the side frame members with all horizontal members. Sliding window panels must be provided with minimum five weep holes, at the center and one each between the jam and the setting block. Fixing of aluminum units to concrete shall be done with high quality wall plugs with stainless steel screws and other approved fixing devices. When weather friction stays are used the shop drawings shall clearly indicate the size of such stays. The joint between window frames, external door frames and concrete or masonry work shall be adequately caulked with a suitable caulking compound. Polysulphide or silicon sealant may be used for this purpose. The Contractor shall furnish all literature. Only caulking compound approved by the Engineer in writing shall be used.

- **Air and Water Infiltration**

The Contractor shall submit test certificates from the manufacture of aluminum extrusions guaranteeing that the products comply with standards applicable to the country of origin of these materials. Fabrication and installation of aluminum units shall be thoroughly water and air tight.

Aluminum Extrusions

(a) All selections shall be extruded from AA 6063 Aluminium alloy and section shall be designed to give rebated internal and external faces.

Aluminum sections for mullion, frames, heads the sills and the other members should strictly comply with the requirements laid down in the following stranded.

BS–1161 - 1977 (1991) Specifications for Aluminium all section for structure purpose BS–1470 - 1987 Wrought Aluminium and Aluminium alloys plate, sheet and strip.

BS–1474 - 1987 Wrought Aluminium and Aluminium alloys for general engineering purpose and external Architectural application bars, extruded down tube and sections.

SPECIFICATION FOR

FIRE PROTECTION & FIRE FIGHTING SYSTEM

FIRE PROTECTION AND FIRE FIGHTING SYSTEM

GENERAL TECHNICAL SPECIFICATION

1) FIRE PROTECTION SYSTEM

General

Electricity operated pumps and a Jockey pump for the wet riser system shall be supplied and installed. The inlet side of the pump shall be connected to main inlet header pipe. The inlet header shall be connected to the sump tank via valves.

The wet riser system for the building will consist of 2 ½''(65mm) hydrant type landing valves with two outlets located in each floor and shall feed the fire hose reel located adjacent to the landing valve. The valves shall be of the instantaneous coupling type to BS 336 to ensure compatibility with Fire Department.

Fire hose reels shall be connected to the wet riser system by flanges of heavy duty galvanized steel pipe to BS 1387. The diameter of hose reels shall be 19 mm or 25 mm and the length shall be according to the design requirement but not exceeding 45 m.

The wet riser pipe work within the building shall be heavy duty galvanized steel pipes conforming to BS 1387.

Also fitted to the wet riser system at ground floor level shall be a breaching inlet with non – return valve connection to accept standard hose pipe from a fire regulation of the Fire Department, Colombo Municipal Council.

The distribution pipe network shall be kept pressurized at all times.

The work shall conform to BS EN 72 (All Parts) except where otherwise required by this specification.

2) FIRE SERVICES PUMPS FOR WET RISER SYSTEM

The pumps shall be capable of being started and stopped manually by an auto - manual selector switch in the pump control panel. Pumps shall be of the type approved for use as fire service pumps.

Warranty period for the fire pump & valves with the manufacture and / or supplier not less than three years.

Motors shall be designed for operation on 3 - phase, 50Hz, 400 v supply system and shall be of the totally enclosed, fan cooled types protected to IP 54. Insulation shall to Class F. Motors shall be continuously rated and shall comply with the appropriate parts of BS 5000 or equipment EN or ICTAD regulation (ICTAD (CIDA) Publication No. ICTADIDEVI14).

The fire shall be connected to inlet (suction) manifold line from the storage tank. The delivery pipes of the main, and pumps shall be connected to a common main fold with valves and gauges before joining the riser main.

The pumping set shall be complete with inlet pipe, delivery main folds, isolating valves, non-return valves, test - cocks, flow switch, pressure switch and frame mounted control panel, all fitted on a combination bed plate. Pumps shall be end suction horizontal type centrifugal pumps, Jockey pumps shall be of vertical type, multi stage centrifugal pumps .

The control panel, which shall be dust and damp proof to IP 54 shall incorporate all the necessary switches isolators, starters, indicator lamps, fuses, relays and wiring for automatic operation right up to the pump motors and controls in the manifolds. Protection against running dry shall be provided. Phase indicator lamps shall be provided and they shall be in duplicate or with duplicate filaments. The control panel, shall be frame or wall mounted type, shall incorporate ammeters and voltmeters to register current and voltage.

The starters shall be of the star - delta type for the larger pumps and direct - on - line type for the jockey pump. They shall not incorporate under - voltage trips or magnetic trips.

High rupturing capacity fuses shall be provided and they shall be capable of,

(a) Protecting the cable connection to the motor.

(b) Carrying the stalled current of the motor for a period of not less than 75% of the period during which such a current would cause the motor windings to fail.

All electrical equipment shall be fully tropicalised and suitable for use in ambient temperatures up to 40C^{o} and relative humidity varying between 70 and 90 over any 24 hour period. The control cubicle shall be protected against entry of dust, vermin and period. The control cubicle shall be protected against entry of dust, vermin and insects. Where control or main circuits are protected by fuses, two complete sets of spare fuses shall be supplied in a fuse holder provided for that purpose within the cubicle

The control panel shall incorporate the following alarm/ status indication.

a) Sump low level alarm
b) Sump high level alarm (if fire sump and main sump is a common sump, this alarm shall be eliminate.)
c) A full in water pressure in the system which is intended to initiate the automatic starting of the pump set
d) The starting of a pump
e) The failure of the power supply to the pump sets on any phase

3) FIRE HOSE

Hose shall be light weight and flexible, with woven synthetic and zone resistant, seamless rubber, smooth - bore lining suitable for fire brigade use. They shall be certified by markers to withstand an internal water pressure of not less than 35 bar (500 psi) without leakage or undue sweating. The fire hoses shall be fire service department approved type.

The coupling shall be of light alloy and of the instantaneous spring lock type, the hose shall attached to the couplings in a manner approved by the Fire Department so that they do not become dislodged under pressure and finished overall in leather or synthetic guards which should be carried beyond the tail of the coupling to prevent kinking of the hose.

The branch pipes shall be light alloy, complete with spray / jet diffuser nozzle, (25 mm orifice) and 2 ½'' male instantaneous British inlet.

Each hose length shall be indelibly marked to identify the fire station or wall to which it belongs.

4) HOSE REELS

Hose reels shall be provided internally at each fire cabinet on each floor.

PRV to be provided for each Hose Reel to maintain required Discharge Pressure.

Hose reel shall be of the recessed pattern swing type (according to location and as scheduled) complete with 45m of 19mm (internal diameter) non - kink reel hose and nylon spray /jet shut - out nozzle. Internal diameter shall be 19 mm or 25 mm and the length shall be according to the design requirements but not exceeding 45 m. .

All water passage shall be in non - ferrous corrosion resistant materials.

The side plates of the hose reel shall be of pressed steel and all metal work shall be finished in enameled signal red .

To facilitate ease of installation and maintenance, gate valve and union shall be fitted between the rising main and the hose reel.

Reels shall be of sufficient size to carry the length of hose fitted, excluding the nozzle within the space defined by the end plates.

The hose shall conform to BS 5274, 1985 or equivalent EN standard or ICTAD (CIDA) specification and fire service department approved type.

The hose shall comply with the requirements for type A (design working pressure of 15 bar) hose specified in BS 3169.

Each length of hose shall be durably marked at the nozzle end and at intervals not exceeding 10m, with the following information:

a) Manufacturer's name or identification

b) The number of the specified BS with the type letter suffix eg. BS 3169/A
c) The nominal bore size, g. 20mm
d) Month and year of manufacture eg. 10/95
e) The design and working pressure

Hose reel brackets shall be firmly fixed to the wall so that casual knocks received during normal use of the building and the stresses incurred during use for fire - fighting will not prevent the unimpeded use of the hose reel.

5) LANDING VALVES

The landing valves shall be gunmetal construction with 2 *12"* BST flanged inlet and oblique 2 ½'' female British Standards Instant outlet to ensure compatibility with the Local Fire Department's requirement. A blank cap, of plastic and a chain shall be fitted to each landing value

The landing valves shall be of the controlled pressure type, designed to enable a uniform firefighting pressure to be maintained at any hydrant, irrespective of its location in the building. The blank cap of plastic and chain shall be fitted to each landing value.

The value shall be so designed that the seal may be replaced or the gland re packed when under pressure with the valve fully closed.

The value shall be provided with a means for attaching a strap so that the hand wheel is secured to prevent unauthorized use.

A purpose made strap made of leather or reinforced plastics materials not less than 12 mm thick and a small non - ferrous padlock to secure the two ends of the strap shall be supplied with each valve. In landing valves are installed outside of the fire cabinet.

The manufacturer of the valves shall be provided a test certificate to confirm that the valves have been submitted to the tests described in BS 5041. Part 1 and shall certify that they have satisfactorily achieved the performance required.

The landing valve shall be installed with its lowest point between 750 - 1200 mm above floor level.

Fire cabinets shall be fabricated out of 1.5 mm thick steel sheet and protected with a coat of epoxy based zinc chromate enamel red paint. The doors shall have wired glass or tempered glass with panel and shall be hung on piano hinges to be openable through 180^0 swing. The door shall also be fitted with a break glass type cubical, and the key shall be kept in it. The door should bear the word "FIRE HOSE CABINET" in red letters at least 50 mm high on a white background.

6) PORTABLE FIRE EXTINGUISHERS

GENERAL

Portable fire extinguishers shall be of the re - chargeable, metal bodied type containing an extinguishing agent expelled by the action of internal pressure. They shall be manufactured to BS 5423 or equivalent ICTAD (CIDA) specification or EN standard and approved by the Fire Services Department of the Colombo Municipal Council, Sri Lanka.

The extinguishers shall be Colour Coded to BS for easy identification and shall be fitted with a visual "discharged" indicator (except CO_2 extinguishers) to prevent accidental use of an empty cylinder.

The extinguisher shall be operated by piercing, opening and / or breaking a sealing device and thus releasing the contents. The method of operation shall be readily apparent. It shall for any movement of the actuating mechanism or mechanisms to be repeated in order to initiate discharge of the extinguisher.

All portable Fire Extinguishers shall comply with ICTAD (CIDA) specification and extinguisher media shall be released by means of a lever operated valve provided with a safety pin. The extinguisher shall be capable of controlled partial discharge.

All extinguisher marked with clear instructions for use in the English Language.

MOUNTING

All internal extinguishers shall be wall mounted and attached in a manner affording quick release from the supporting bracket. They shall be installed so that the top of the extinguisher is not more than 1.5 m above the floor and in no case shall the clearance between the bottom of the extinguishers and the floor is less than 1m. The extinguishers shall be positioned so that the instruction for operation faces outward.

7) AIR VENTS

Automatic air vents shall be used at the top of each riser.

They shall have gunmetal or brass bodies, non - ferrous or stainless steel floats and guides and non – corrodible valves and seats. An air outlet, tapped to accept a drain line shall be provided.

A manual test cock fitted to the automatic air vent so that it is possible to check the vent is not air bound due to the orifice being clogged and to enable manual venting should the automatic vent fail.

The automatic vent shall be isolated from the system with a gate valve to permit cleaning and repair if necessary.

Air release pipes shall be run to discharge at the nearest visible point to be agreed with the Engineer and where maintenance personal can regularly check for leakage.

8) EXPANSION BENDS AND ANCHORS

Any continuous straight pipe run in excess of 30 meters on one side of an anchor point shall be fitted with expansion bends or flexible connections.

9) PRESSURE GAUGES

Diameters of pressure gauges that shall install in the following locations are given against the item.

a) Pump set manifold – 100mm diameter
b) Top – most point of wet riser – 50mm diameter
c) In the positions shown in the drawings and where deemed necessary

The gauges shall be provided with a device to dampen pulsations and the fixing of the gauge shall be such that it may be removed and re - fitted without shutting down the line.

10) FIRE DOOR

Fire rating of fire door shall be acceptable to Fire Service Department and installment shall be follow ICTAD (CIDA) regulations.

Steel fire door shall be provided and door closer and door lock shall be fire rated.

Latest for test report submitted for fire door and test shall be conducted in accordance with BS 476 or equal.

11) AUTOMATIC ADDRESSABLE TYPE FIRE ALARM SYSTEM

The master alarm and control panel and other equipment shall comply with the requirements of the Fire Service Department and L.P.C.B or D.L testing standards for automatic Fire detection and Alarm installation.

12) PIPE WORK – GENERAL

The whole of the installation, including all valves and fittings, should be satisfaction to the local fire authority. Before any work starts plans showing details of the arrangements proposed shall be submitted to the fire authority and its approval obtained.

13) PIPES

Pipes shall be steel conform to BS 1387, medium gauge and galvanized iron to BS 4772 as appropriate.

All pipes and fittings shall be new, of approved manufacture and the right grades. Each length of pipe shall be thoroughly cleaned and blown out to remove all scale and dirt before erection. Rusting pipes and fittings piping and fittings of classes other than specified will be rejected.

14) PIPE WORK JOINTS AND FITTINGS

Pipes of 50mm diameter and smaller be screw jointed. At dismantling points or where pipe work is

connected to an appliance (eg. Hose reel), ground in spherical seated unions shall be

used.

Joints in pipe work 65 mm and above shall be connected by the arc welding. Coupling and fittings shall be capable of withstanding a test pressure of 10 bar or 1 ½ the working pressure, whichever is greater.

Pipe work shall be supported so as to permit free movement due to expansion and contraction. Pipe work supports shall be arranged as near as possible to joints and changes in direction, and each support shall take its due proportion of the load. The spacing of the supports shall be in conformity with the recommendations of the grooved coupling manufacturer but shall not exceed the centers given below. Where there are two or more pipes, the spacing shall be based on the centers required by the smallest bore pipe work.

Size of pipe (mm)	Intervals for Horizontal runs (m)	Intervals for Vertical runs (m)
20	2.4	3.0
25	2.4	3.0
32	2.7	3.0
40	3.0	3.7
50	3.0	3.7
65	3.7	4.6
80	3.7	4.6
100	4.0	4.6
125	4.5	5.5
150	5.5	5.5

Vertical rising pipe work shall be supported at the base to withstand the total weight of the riser. Branches from riser shall not be used as a means of support for the riser.

Brackets screwed to walls shall be secured by expanding plugs or other purpose designed fixing devices to suit the material of the wall (eg. Brick, concrete, hollow block etc.); Wooden or plastic plugs will not be permitted.

Pipe work of 65 mm size and above subject to expansion and contraction and hung from supports shall be suspended on swivel hangers unless otherwise agreed with the Engineer.

For horizontal pipelines, hangers shall be of split ring adjustable type hung on mild steel roads. Caliper hooks may not be used. Where pipelines run along walls, columns or ceilings, bracket may be used.

A support shall be installed not more than 600 mm from each change of direction.

Special care shall be taken when making piping connections to equipment (eg. Pump set) to ensure that the connections are properly aligned and that no stresses and strains are imposed on the equipment.

15) INSTALLATION

All equipment shall be installed in accordance with BS 5839 and the equipment Manufacturer's guide lines to ensure the overall

functional reliability of the system.

The Contractor shall be responsible for the correct location of all equipment in consultation with Engineer.

Sprinkler System

Sprinkler Pump Set

Fire Pump Set completely assembled for sprinkler system shall consist of followings

1. 02 Nos. of end suction type centrifugal pumps (duty/standby) with electric motors 400V/50 Hz. Capacity and the head of the pumps shall be according to the design conditions.
2. The sprinkler alarm valves shall be provided as shown on drawings and it shall have a water motor alarm gong conforming to BS 5302 - Part 2 and relevant other standard.

Sprinkler head shall approved by LPCB, UL, FM.

Either upright or pendant position side wall or concealed types with the finish shall be approved by the Engineer.

Valves

All valves shall be approved manufacture applying with the appropriate British Standard and approved for working pressure.

Pressure Reducing Stations

Each PRV shall be completed with pipe work, stop valve, PRY, Pressure gauges and the like.

Main Stop Valves

The valves should comply with the appropriate standard and should have provision to be strapped and padlocked in the open position.

Flexible Connectors

Flexible Connector shall be stainless steel or equal and working pressure shall be not less than twice that of the system pressure involved.

Drain Points

Drain valves shall be provided to ensure that all sections of pipe work and plant can be drained.

Flow Switches

Flow switch shall be installed in each zone of the sprinkler distribution pipe to indicate which section of the sprinkler installation is operating and for the fire hydrant pump discharge in order to identify its operation

16) COMMISSIONING AND TESTING

The Fire System shall be commissioned and tested to BS 5306: Part 1-5

The Fire Protection System and its performance must satisfy the requirements of the Local Fire Authority and the requirements of all other interested Authorities and the Contractor shall include for separate approval tests, inspection etc. as may be required by such Authorities, and any fees in connection with these requirements.

17) GENERAL

a. All fixed fire fittings installation systems should be in accordance with B.S or Relevant, Reputed Standard acceptable to this department.

b. Intermediate site inspection shall be arranged consultation with this department as follows.

(i) Before completion of ceiling and plastering

(ii) After laying out piping and wiring for fire protection system

(iii) On completion of entire construction and fire fighting system

c. Contractor to be complied with the entire fire protection requirement issued by Fire Service Department.

TECHNICAL SPECIFICATIONS FOR FIRE EQUIPMENT

1.0 SCOPE OF WORK

This section specifies the requirements for the design, manufacture, transport, delivery to site, unloading, complete erection, site testing, setting to work and maintenance for a period of one year of the fire protection system for the protection of goods, personnel, buildings etc. in the Construction of Traction Motor Cleaning and Vacuum Drying Plant with Stores at Ratmalana Railway Workshop

The work covered in this section shall include, but not to be limited to all labour, materials, equipment and services required in connection with the Fire Protection System and related work as stipulated in the specifications, drawings and the equipment list for the Construction of Traction Motor Cleaning and Vacuum Drying Plant with Stores at Ratmalana Railway Workshop

To meet the requirements of the Local Fire Department regulations the following services shall be provided in the premises complying with BS standard and Fire Offices Committee (FOC) regulations.

Supply and Installation of portable Fire Extinguishers at the locations approved by the engineer.

The following portable fire extinguishers shall be installed in each Building:

- 2 Nos. of 5 kg CO_2 fire extinguisher fully charged complete with metal bracket fixed on to the wall.
- 1 No. of 6kg ABC Dry Powder portable fire extinguisher fully charged complete with metal bracket fixed on to the wall.
- 2 Nos. of 9 litre water CO_2 fire extinguisher fully charged with metal bracket fixed on to the wall.

Contractor should obtain all approvals and compliance from the Fire Regulation Authorities/Fire Services Department of Sri Lanka before commencement of installation, during and after completion of the installation.

2.0 STANDARDS

The installation shall comply with the following regulations:

British Standard Specifications

BS 5306

Part 3 - Portable Fire Extinguishers

3.0 DESIGN CONDITIONS

water quantity at furthest hose reel connection	-	0.5 l/s
minimum pressure required at hose reel nozzle	-	1.5 bar

4.0 OTHER REQUIREMENTS

4.1 If the specification, capacities and sizes given are not adequate or have to be changed to suit an equipment of any manufacturer for producing required design conditions the Contractor shall include his charges for these with the quotation. Once the contract is awarded no extra cost will be made to the Contractor for such changes.

4.2 All the materials shall be new without any defects and to be approved by the Engineer.

4.3 All the approvals required to be obtained prior to the installation and after the completion shall obtained by the Contractor from the respective Local Bodies.

5.0 PORTABLE FIRE EXTINGUISHERS

5.1 GENERAL

Portable fire extinguishers shall be of the re-chargeable, metal-bodied type containing and extinguishing agent expelled by the action of internal pressure. They shall be manufactured to BS EN 3 or equivalent and approved by the Fire Service Department.

The extinguishers shall be Colour Coded to BS for easy identification and shall be fitted with a visual "discharged" indicator to prevent accidental use of an empty cylinder. The extinguisher shall be operated by piercing, opening and/or breaking a sealing device and thus releasing the contents. The method of operation shall be readily apparent. It shall not be necessary for any movement of the actuating mechanism or mechanisms to be repeated in order to initiate discharge of the extinguisher.

All portable Fire Extinguishers shall comply with BS Codes and extinguish shall be released by means of a lever-operated valve provided with a safety pin. The extinguisher shall be capable of controlled partial discharge. All extinguishers marked with clear instructions for use in the English language.

5.2 MOUNTING

All internal extinguishers shall be wall mounted and attached in a manner affording quick release from the supporting bracket. They shall be installed so that the top of the extinguisher is not more than 1.5m above the floor and in no case shall the clearance between the bottom of the extinguishers and the floor be less than 1m. The extinguishers shall be positioned so that the instructions for operation face outward.

5.3 SUBMISSIONS

The Contractor shall submit for approval the following documents and samples in quantities as indicated:

5.4 Technical Literature of Equipment

Technical literature of all equipment proposed to be used in the system inclusive of dimensional drawings, capacity tables, test reports and other relevant information shall be supplied in triplicate for the Engineer to determine the adequacy and suitability of the equipment for the proposed fire protection system.

5.5 Maintenance & Operating Manuals

Maintenance and operating manuals of all equipment supplied shall be furnished in triplicate with detailed wiring of the equipment, piping & valving arrangements and instructions of the regular maintenance of the equipment. Frequency of lubrication and specifications of the lubricants recommended shall also be provided. All manuals should be printed, and ring bound with.
A schedule which may be in the form of a material list giving all particulars together with ordering references of all replaceable parts for all the equipment which will be supplied.

5.6 Samples

Samples of all materials to be supplied under the contract such as pipes and multiple fittings such as valves, strainers, electric components shall be supplied to the Engineer for approval. Such samples shall be kept with the Engineer until completion of the Works and same will be released to the Contractor on completion of work. The items of supplies used for the project shall be at least equal in quality to the approved sample.

5.7 As-Built Drawings

On completion of the installation, the Contractor shall prepare a set of As-built drawings incorporating all changes made to the original design and drawings, which drawings shall represent an accurate description of the installed systems. These drawings shall be bound with covers in to an album and handed over to the Engineer.

5.8 HANDING OVER DOCUMENTS

The final handing over documents to be submitted by the Contractor on completion of the installation shall comprise the following:

a) Operation and maintenance manuals (3 copies)
b) Commissioning sheets (3 copies)
c) Test reports (3 copies)
d) As built drawings (3 copies)

These documents in required number of copies specified should be supplied to the Engineer within 30 days on issue of taking over certificate.

5.9 TESTING AND COMMISSIONING

Bidders shall submit with the bids, a complete proposal with time schedule for testing and commissioning of the fire protection system. The program shall include a trial operation of all main equipment with any necessary adjustments to ensure that the system is working correctly. The Contractor shall provide all instruments and equipment together with commissioning engineers and adequate assistance for carrying out the commissioning and testing activity which shall be done in accordance with the recommendations of relevant Standards. If any portion of the works fails to pass the tests, the Contractor shall, at his own expense carry out such alterations or replacements as are required to the satisfaction of the Engineer. The Engineer shall be at liberty to call for further commissioning when such alterations have been completed to their satisfactory. The Contractor shall provide commissioning spares at his own expense.

Spare parts earmarked for maintenance shall not be used during this period.

5.10 MAINTENANCE CONTRACT

Bidder shall submit the terms and charges for service and maintenance contract along with the bid.

SPECIFICATION FOR

ELECTRICAL INSTALLATION

SPECIFICATION FOR ELECTRICAL INSTALLATION

01. General

1.1 The electrical Installation shall comply with the latest requirements of the Electricity Supply Authority, Standard specification of the Sri Lanka standards Institution and/ or British standard Institution or the regulations for Electrical Installation issued by the Institution of Electrical Engineers, London (IEE wiring regulation), the current edition, 17th edition.

1.2 The works shall be executed in accordance with "Specifications for Electrical and Mechanical works Associated with the Building and Civil Engineering (ICTAD (CIDA) publication No: SCA/8)".

1.3 The electrical Installation shall be 400V, 3 Phase, 4 wirel230V, single phase 2 wire at 50Hz. The distribution system together with the consumer installation shall form a ***TT*** system.

1.4 All materials shall confirm to the appropriate Sri Lanka standard or British Standard specifications and the Consultant/Client reserve the rights to inspect the material on the site and to reject any materials not complying with the specification. The cost /delay due to dismantling the material rejected by the Consultant / Client shall be by the contractor.

1.5 All materials shall be reputed make and sufficient number of samples shall be provided to Consultant/Client for approval including manufactures data sheet indicating type reference, performance characteristics, dimensions, weight, installation Instruction, wiring diagram etc. However In addition to that, the contractor shall submit the list of the Project executed proving minimum of 5 years of supplying of these materials. For all imported materials shall have the country of origin and British standard number marked.

1.6 When procuring main cables contractor shall take into account the actual physical measurement to avoid joints. Special order shall be placed with the manufactures for cable length more than 100 meters.

1.7 Prior to commencement of any work the Contractor shall prepare and submit the drawings (which shall indicate conduit & wire ways, joints, pull boxes, and all features and position of other switch gear that are to be installed) for the approval of the Consultant/Client. The position of electrical fittings, switch gears, etc. shown in the drawings are approximate and exact position to be decided at site. The drawings shall provide all relevant details and layout arrangements of conduit, cable wiring and equipment.

1.8 In addition to the drawings, the Contractor shall provide the

necessary electrical design calculations (Load calculation,

Lighting calculation, fault level calculation, Voltage drop

calculation, cable selection calculation, etc.)

1.9 The Contractor shall submit the 'As Installed' drawings and shall submit

the operation and maintenance manual for the Consultant/Client approval. The contractor shall get the approval from the Consultant/Client prior to completion certificate being issued.

1.10 Prior to commencement of commissioning a detailed procedure schedule is to be provided by contractor for the approval of the Engineer, All test and commission records shall be bound into the operation and maintenance manual when the system has been successfully completed and witnessed by the consultant/Client.

1.11 All equipment shall be maintained and keep in full working order in accordance with the contract for the period of maintenance stated in the main contract. The Contractor shall take full responsibility of the service installation during defect liability period.

1.12 Rate shall include,

a. Material, Labor, Transport & profit.

b. All accessories such as clips, screws, junction boxes, 3 core flexible cable, ceiling roses, GI chains, fan hooks etc.

c. Testing & commission

d. For items in Bill of quantities where the units are L.Ft (L. meter) payment will be made accordance to the length measure after the installation at the rate quoted in the BOQ.

1.13 Fixing Height of Electrical Accessories

Fixing height from finished floor level to the center of the fitting, unless Directed, Otherwise shall be as follows,

a) Unit Distribution Boards 1800mm to the bottom

b) Bell Push 1350mm to the bottom

c) Power socket (Living Room & Bed Room) 300mm to the bottom

d) Switches, Fan regulator 1350mm to the bottom

e) TV outlet (Living Room) 300mm to the bottom

f) Power Socket (Kitchen) 300 mm to the bottom from working surface

e) Minimum clearance for ceiling fan 2700mm from FFL

1.14 The warranty for all electrical accessories (light fittings, switches, power socket & circuit breaker, etc;)shall be for a minimum period of one year starting from the date of handing over to the client. The warranty document shall be submitted with Contractor's proposal including details on inclusions and exclusions.

02. Equipment Specifications

2.1 Distribution Boards

Shall be PVC molded flush mounted type and be of a reputed make conforming to BS 5486 or equivalent. It shall be with a hinged door and bus bars (neutral bar and earth bar) shall be of hard drawn copper.

2.2 Miniature Circuit Breakers (MCB)

MCB shall be of a reputed make having thermal over load and magnetic short circuit protection and shall conform to BS 3871 DIN rail type. The breaking capacity shall be more than 6 K.Amps. and type B shall be used for the lighting circuits and motorcircuits type C shall be used.

2.3 Residual Current Devices

Residual current devices (RCDS) (ELCB's) RCD's shall be current balance type complying with BS 4293 sensitivity shall be 30Amps for domestic purposes or as specified in the drawing.

2.4 Switch Fuses

Switch shall be of reputed make conforming to BS 5419 moulded case type for single phase and iron clade type for 3 phase having re-wirable fuses conforming to BS 3036.

2.5 Moulded Case Circuit Breakers (MCCB)

MCCB’s shall be of reputed make conforming to BS 4752. It shall have on breaking capacity more than 25 KA and shall have fixed thermal type for below 63

· Amp and adjustable thermal over load and magnetic circuit protection for above 63 Amp. Individual MCCB's shall be enclosed in a metal enclosure with a suitable neutral link. Operating handle shall project outside the enclosure. It shall be of fixed type having bus bar connecting type terminals to fix cables with crimped cable end sockets.

2.6 P.V.C Cables

All cables shall be *4501750* Volt grade PVCIXLPE insulated PVC sheathed copper (without Aluminium) complying with SLS 733 (BS 6004). Red/Brown colour shall be used for the phase conductor and Black/Blue colour shall be used for the neutral conductor. For the protective conductor (earthling) PVC insulated copper wire shall be used, which is green or green and yellow colour. Minimum size of the protective conductor shall be 2.5 sq. mm. jointing of cables shall not be accepted.

2.7 15 Amps. Switches and 20 Amp. D.P Switches

They shall be white colour complying with BS 1363 or relevant SLS standards

2.8 13 Amp. Socket Outlets

They shall be flush type with switch, white in colour complying with BS 1363.

2.9 PVC Conduit Pipes, Switch Boxes, Round Blocks and Junction Boxes

They shall be complied with BS 4607 or relevant SLS standards. Switch boxes, junction boxes, shall be PVC junction moulded type and handmade boxes shall not be used. Switch boxes shall be brass fixing screws. In places where pipes are not buried they shall be clipped at 500mm. Intervals.

2.10 Screws and Panel Pins

All screws and panel pins shall be brass, plated items shall not be used.

2.11 Ceiling Roses

Ceiling roses shall be plate type and shall conform to BS 67 or relevant SLS standards. Connections to all lamps, fans shall be through a ceiling rose unless otherwise instructed.

2.12 Lamp Holders

All lamp holders shall be bayonet cap type conforming to BS 5042 or relevant SLS standard.

2.13 Fluorescent Lamp Fittings

Florescent lamp fittings shall be of approved design and of a reputed make generally comply with BS 4533. It shall be made with 24 SWG MS sheet and painted with one coat of anti- corrosive paint and finish with 2 coats of white stove enameled paint. It shall have electronic ballast (HPF > 0.9) maximum leakage current shall be 0.5 mA with one year warranty. Batton type fitting shall be fixed direct on to the support by the end of plugs or any other approved method. All Fluorescent fittings shall be earthed.

All accessories shall confirm with;

Tubes BS 1853

Holders BS 5042

All fluorescent fittings shall be earthed.

2.14 Electrical Duct

Electrical duct arrangement shall be in complying with fire regulation and the duct landing of each floor shall be properly sealed (compatible with maintenance works) to avoid the spreading out of smoke

2.15 Underground Cables

Underground cables shall be 60011 000 volts grade PVC or XLPE insulated PVCsheathed single wire armored. PVC overall sheathed copper cable conforming to BS 6346 or 65467. It shall be laid minimum 600 below ground level and covered with concrete cable tiles cables trench shall not be closed without the consent of the client / Consultant. When there is more than one cable in the same trench the distance between the cables shall be at least 50mm. Rate shall include cost of cable and sockets, cable glands PVC taps etc. when procuring underground cables B.O.Q. quantities shall not be taken. No extra payments will be paid for underground joints. Underground cable trenches shall be properly water proofed where necessary.

2.16 Main Switch Board

The switch board shall be metal clad rigid freestanding cubical type conforming to BS5486 or equivalent. It shall be provided with all the equipment as indicated in the drawings together with all current transformers. Auxiliary fuses protection relays, serge protective devices, labels, small wiring etc. The final painting shall be powdered epoxy paint.

The switchboard shall be flush fronted with front and rear access, suitable for indoor use, sectionalized as necessary to facilitate transport and erection. The height shall not be more than 2 meters.

The Bus Bars shall be bare copper. The phase and neutral bars shall have the same cross- section areas, with current carrying capacity not less than that of the incoming circuit breaker. They shall be supported to withstand the short circuit currents as indicated.

A copper earthing bar complying with BS 1432 sized to withstand the short time current of the switch

board shall be provided for the full length of the switch board, all metal work other than the current carrying parts shall be bonded to the earthing bar including the cable armouring of all the incoming and outgoing cables.

All internal wiring shall be carried out neatly and shall wherever possible be housed in wiring trunking. All live terminals and components within the panel shall be shielded in such a manner to prevent contact with them. All the wiring shall be numbered and labeled for easy identification.

2.17 Earth Fault Relay

Earth fault relay shall be an electronic or electromechanical type having adjustable time and current settings. It shall have buttons for testing purposes. The time and current setting rangers are subjected to the approval of the client. A separate core balance type current transformers shall be provided to direct the earth leakage circuit.

2.18 Cable Trays / Ladders

Cable trays and ladders shall be slotted type and minimum thickness shall be 1.0 mm. Cable trays shall be reverse flange type and shall be with lid / cover plate. All cable trays and ladders shall be earthed.

2.19 Emergency Generator

The emergency generator set shall be factory fitted and properly sound proofed. Emergency generator shall be utilized according to the requirements as a back-up. power source and shall comply with following IECIBS specifications.
Generator IEC 341, BS 4999
Engine & Governor BS 5541 and BS 6514 respectively. Generator set shall be with electronic governor.
The sound level of the generator should be within the specified limits as per Central Environment Authority.

2.20 Lighting Protection System

Lighting protection system shall be designed & installed as per BS BN 62305. Material shall be provided as per the specification given by BS EN 50164. The resistance of the lightning protection system shall not exceed 10 ohms and number of earth rods shall be decided to get the above resistance.

1. Air terminals (finals) shall be of Phosphor bronze having four sharp points, three of which are equally around one vertical point, total height not less than 100 cm and diameter of rod not less than 10 rom.

2. Roof conductor shall be soft annealed copper tape of size not less than 25 mm width and 3 mm in thickness to the required length.

3. Down Conductor shall be soft annealed copper tape of size not less than
25 mm in width and 3 mm in thickness to the required length. This exposed down conductors shall be clipped to the surface at 600 mm intervals by means of copper saddle and brass screw.

4. A combination of strip and rod conductors, reinforcing bars, structural steel sections etc., can be used as all or part of down conductor system provided proper electrical bonding (Exothermic welding) is assured from air terminals to earth point. Exothermic welding shall be used for each bonding.

5. Earth rod shall be hard drawn copper of diameter not less than 12 mm. and down conductor shall be provided with a testing joint while not accessible for unauthorized interface shall be convenient for testing.

6. Factory made standard earth pit shall be used.

SPECIFICATION

FOR

SANITARY FITTINGS

SPECIFICATION FOR SANITARY INSTALLATIONS

1. General

Sanitary installation shall be carried out as per approved drawings/sample and in accordance with the regulations of the local authority. With the regulation of local authority, pipes, appliances and fittings shall be of approved manufacture conformity to the relevant Sri Lanka ICTAD (CIDA) specification SCAi4/II.BSEN British Standards. Associated appliances and fittings for ego Flushing devices and pans shall be compatible. Relevant tests to be done at such time and in such manner as the Engineer /consultant shall direct and to his satisfaction

All toilet fittings selection, installation and requirements of appliances shall conform to BS 6465 Part I or to be as specified in specification of ICTAD SCA/4/II and according to the Engineers' approval and the supplied by a registered Supplier having a minimum of 5 years continuous business.

2. Appliances

2.1 GENERAL

Selection, installation and requirement of appliances shall conform to specified in specification given in ICTAD CCIDA) Publication No. SCA/4/II

2.2 WATER CLOSET & CISTERN

White colour, fire clay ceramic closed coupled with seat with down / suction type cistern (6 liter capacity) to Engineer's approval, complete with all necessary fittings and fixtures for flushing, securely fixed to wall.

Closets conformity as specified in ICTAD (CIDA) specification SCA/4/II to be used with the approval of the Engineer/Consultant.

2.3 PEDESTAL TYPE WASH BASIN

White colour, fire clay ceramic pedestal type wash basin with one tap hole to Engineer's/Consultant's approval, complete with Pillar tap and captive waste.

Wash basin should be secured to the wall by two screws through holes located in the rear of the Wash Basin and two screws to the floor through holes located at the bottom of the pedestal.

Wash basin shall be approved manufacture conformity to SLS B77 or as specified in ICTAD specification SCA/4/II.

2.3.1 kitchen sink

Single bowl with drain Kitchen sink to be stainless steel sinks and shall be approved of manufacture conformity to BS 1244 as per the specified on ICTAD specification SCA/4/II.

2.4 HAND SPRAY UNIT SHOWER ROSES TAPS & TRAPS

Hand spray units, shower roses, taps shall be submitted for Engineer's/ Consultant's approval. Traps shall be of such designs that do not allow accumulation of deposits.

2.5 VALVES, COCKS

Valves, Cocks etc. Shall be approved by the Engineer / Consultant and in accordance with the ICTAD Publication SCA/4/II.

3.0 INSTALLATION

As per the specified on ICTAD specification SCA/4/II.

4.0 INSPECTION AND TESTING

As per the specified on ICTAD specification SCA/4/II.

5.0 WORKMANSHIP

As per the specified on ICTAD specification SCA/4/II.

6.0 WATER SUPPLY

Pressure test pipes after fixing taps and stop clocks and fitting prior to concealing under the supervision of the engineer or his representative.

The Contractor shall provide to the Engineer with the manufacture's certificates of the standards quality of the materials.

All water pumps should be mounted on inertia bases fitted with anti-vibration mountings. Flexible connections should be provided on connection between pump units and pipe work. Water pumps supplier to be recognized in local market and after sales services and 3 year warranty to be required.

Water Board approved water meters to be supplied and fixing details according to the Water Board specification. Where the pipes pass through wall or slabs these shall be wrapped with a layer of insert material. For pipes exceeding 50mm dia. Sleeve pipes shall be used. For the thickness of the slab, walls, beams, retaining walls through which the pipe passes.

All tapes shower appliances, cocks and floor waste covers used in the plumbing installation shall be stainless Steel. Five year warranty period to be considered.

All cold water piping should be provided with flexible connections in pipe work and provided with the required. Pipe supports & anchoring as per the manufacture's specifications.

Valves shall be approved by Water Regulation Advisory Scheme (WRAS).

SPECIFICATION
FOR
SUPPLY & INSTALLATION OF PASSENGER ELEVATOR

GENERAL TECHNICAL SPECIFICATION FOR LIFT INSTALLATION

1.0 INTRODUCTION

This section consists of the general rules that apply to the' design, manufacture, shop testing, delivery to site, erecting, commissioning, site testing, maintaining and handing over the material, equipment plant and services required for passenger elevator for Proposed Fort Railway station

The manufacturer of the lift equipment shall have at least fifteen (15) years experience in the design, manufacturing. The lift manufacturer shall have a local agent who has at least three years experience in particular make and equipped with workshop facilities backed by experience technical staff.

All equipment being supplied shall be suitable for operation under tropical conditions with ambient temperature up to 36°C and relative humidity up to 90 but not both simultaneously.

1.1 LOCATION OF

Fort Railway station

1.2 STANDARDS

Unless otherwise specified, the whole of the works shall conform to the following standards:

- Passenger elevators - BS EN 81 (All Parts)
- Flexible cables for lifts - EN 50214
- Specification for ropes of lifts -BS 302 part 4
- Rotating Electrical machines -BS 4999, 5000 part 99
- Identical switch gears & control gear - BS EN 60947
- Electrical installation of Buildings - IEC 60364
- Specification for low voltage - IEC 60947
- Regulations and Recommendations of the Ceylon Electricity Board and the Sri Lanka Standards Institution.

Other recognized national or international specifications, not less exacting than those above may be used, provided the latest edition of such specification (in English) had been furnished with the tender and accepted.

1.3 DRAWINGS

The Contractor shall furnish the following documents, drawings, diagrams and schedules for approval by the Engineer.

(I) General arrangement drawings showing layout of lift well positions of all plant and equipment, ancillaries, cable trunking, conduits etc.

(ii) Loads on machine room floor slab, beams and pedestals.

(iii) Details of landing entrances.

(iv) Details of block-outs, holes and built-in fixing devices to be incorporated in the civil works.

(v) Details of car enclosure design, finishes, car and landing station panels, interior lighting and ventilation.

(vi) Electrical wiring diagrams, schematics, layouts for the entire installation.

(vii) Co-ordinated wiring/connection details between equipment and cables, showing terminal block coding, cable core size and identification.

(viii) Operation and maintenance manuals.

Working diagrams shall be provided in respect of all electrical equipment and/or systems, which form part of the works. Under this contract, schematic layouts shall be presented in ladder or similar format such that it is possible to comprehend the operation of a particular system, the interconnections between various systems, and to identify the components, wiring/connections shown on the diagrams.

1.4 STEEL

i) The Contract shall include supply and erection of the steel work required for the support of machines, sheaves, guides, door tracks, gear etc. complete.

ii) 3 Ton lifting hooks in the machine room will be provided by the civil contractor and will be positioned generally as shown in the Tender drawings but precisely as indicated by the lift contractor's installation drawings.

iii) A substantial galvanized steel cat ladder shall be provided as per BS Codes and fixed by the Contractor to give easy means of access to the pit. All guard rails and ladders in the lift machine rooms shall be supplied and fitted by the Contractor.

1.5 GEARLESS TRACTION MACHINE WITH PERMANENT MAGNET MOTOR

The motor shall be specially designed to meet the severe load conditions encountered in lift Service. It shall be suitable for local ambient conditions and shall have a high starting torque and Low starting current characteristics.

The starting current shall not exceed 2.5 times the rated full load current of the motor and tenderes shall specify in the tender specification, the rated full load current and the starting currant of the offered motor.

The drive system shall incorporate all accessories and equipment to produce smooth starting, acceleration, running, deceleration and stopping characteristics for maximum riding comfort.

The motor shall be fitted with a forced ventilation unit and thermistors shall be incorporated in windings to give protection against overheating.

The continuous duty cycle rating shall be as stated in the Appendices and the motor shall have a minimum of class F insulation.

The speed of motors driving lift machines shall not exceed 1000 rpm. The machines shall run at all loads appreciable noise or hum

1.6 CONTROLLER

The lift controller shall be of vertical, totally enclosed, sheet steel cubicle type with hinged door in front and screwed panels at the rear providing easy access to all components inside the controller. The enclosure shall be well ventilated by means of louvers or other means devised by the lift manufacturer. Adequate protection shall be provided to prevent the entry of harmful insects and vermin into the cubicles.

The panels shall contain contactors, relays selectors, timers, transformers, fuses rectifiers and all apparatus associated with the control of the lift in the machine room.

The controller shall provide protection against the following:

- No-volt and sustained under voltage
- Phase reversal of the power supply
- Overload
- Failure of anyone phase

The Controller shall cut-off the current automatically, apply the brake and bring the car to a standstill in the event of the failure of any of the electrical safety devices. The controller circuits shall be designed to prevent the lift being operated by the main motor until all car and landing doors are closed, except within the leveling zone of the floor at which the lift is stopping.

The solenoids magnetic brake and other magnetic devices shall operate on d.c. obtained through a full-wave rectifier. All operating coils shall be adequately rated, insulated and vacuum impregnated against moisture and shall be capable of withstanding a minimum of 10 over- current and 20 over- voltage.

The contactors and switches shall be mounted on panels of approved non-inflammable and non-hygroscopic insulating material supported on steel frame. All switches and contactors shall be of adequate rating of non-wieldable wiping type. Heavy current relays shall be provided with are deflectors.

1.7 ELECTRICAL WORK - GENERAL

i) Power Supply to the lift machine rooms is terminated on a 40 ampere 3 phase 1 No. circuit breaker for lift machine room. The contractor shall draw the power supply for the lift installation from this breaker. The supply shall include all required cables, fuses, electrical power panel, and other accessories. The installation shall be protected against over voltages and power surges by surge arrestors

ii. PVC insulated cables shall be 450/750 Volt grade, manufactured in accordance with BS 6004 or equivalent.

iii. All electrical wiring shall be run in galvanized steel conduit and/or trunking, all as specified below. Trunking shall be used wherever possible instead of multitude of conduits

iv. Ventilation method shall be included for room

1.8 CONDUITS

i. The conduits shall be of sufficiently large section and so arranged with draw-in boxes to allow either and easy drawing or out of the cables which must not exceed the number set out in the appropriate table of the IEE. Regulations for electrical installations and no conduit bearing rust or damage shall be used.

ii. Surface runs shall be fixed by means of galvanized distance saddles at intervals not exceeding 1200 mm.

iii. Conduits shall be mechanically and electrically continuous throughout.

iv. No conduit shall be less than 25mm outside diameter.

v. No cables shall be drawn into conduit before fixing and the conduit shall be cleaned and free from oil before erection.

1.9 CONDUITS - BOXES

i. Conduit boxes shall be fixed direct to the structure apart from the support provided by the conduits.

ii. Boxes lids where required shall be heavy gauge secured by means of screws.

iii. Adaptable boxes and lids of the same size shall be interchangeable.

1.10 TRUNKING

i. The outer case, lid and internal partitions, if appropriate, of the trunking shall be manufactured of galvanized sheet steel enameled finished in manufacturer's standard colour.

ii. The lid of the trunking shall be formed with returned edges and shall be fixed to the cable trunking by means of screws located in bushes set in the edge trim of the trunking, or by other approved securing devices.

iii. Lengths of trunking shall be coupled together by suitable means.

iv. At each joint in the trunking, continuity shall be maintained by the installation of copper links by brass nuts, locking washers and bolts. In addition an earth continuity conductor copper shall be run within the trunking and used to bond all items of equipment.

v. Before cables are drawn into trunking the Contractor is to ensure that all sections of trunking are free from sharp edges, burrs and weld spots which could cause damage to cable insulation.

vi. Where the trunking passes through floor slabs, fire barriers shall be fitted in the trunking.

vii. All trunking required in the floor of the lift machine room shall be installed flush with the floor finish and be fitted with removable chequer plate lid.

viii. Any connection of trunking & trays shall be factory manufactured item such as "T", "L" joints but not site prepared designs.

ix. Any damage to the paint work of the trunking shall be made good by the Contractor before cables are drawn in.

1.11 BONDING

i. Supplementary bonding conductors shall be provided to connect together all exposed conductive parts and extraneous conductive parts of the lift installation in the well and machine room

ii. External conductive parts of the lift installation and exposed conductive parts of all lighting and power installation shall also be bonded.

1.12 TRAVELING CABLES

They shall be flexible and suitably anchored and suspended to relieve strains in the individual conductors.

1.13 SUSPENSION ROPES

i. The suspension ropes shall be from a specialized rope manufacturer and specially manufactured for elevators, each capable of sustaining the weight of the laden car with safety.

ii. The manufacturer's test certificate for the ropes shall be provided

1.14 COUNTERWEIGHT

i. The counterweight shall be provided consisting of cast iron weights / steel plates / compound materials contained in a structural steel frame with suitable guide shoes.

ii. After balancing the counterweights should be locked in position by bolts to avoid noise and sliding.

iii. A rigid metal screen shall be provided around the counterweight at its lower end of travel.

1.15 SHEAVES AND SUPPORTING BEAMS

Deflector and overhead sheaves shall be provided where necessary to obtain the proper lead of the ropes to the car and counterweight, together with supporting beams for the same.

1.16 HAND GEAR

i. Provision shall be made for moving the car to a floor level by hand in the event of the lift stalling between floors. Hand winding equipment shall be painted yellow.

ii. The brake-lifting device shall be so arranged that it is impossible for the brake to be left in the fitted position

iii. The direction of winding corresponding to the raising and lowering of the lift car shall be clearly indicated

iv. A prominent notice shall be displayed stating that hand winding shall be undertaken only by authorized persons and the notice shall detail the step-by-step procedures to be taken to move the lift in an emergency

v. If special tools are required they shall be retained in a suitable wall mounted fixture.

1.17 SAFETY GEAR AND GOVERNOR

i. The safety gear to BS 5655 shall be mounted on the car frame and shall be operated by a centrifugal over speed governor located over the lift well. The safety device shall be arranged to bring the car to a stop and hold it on the guide rails in the event of excessive descending speed and provision shall be made automatically to shut off the power supply to the motor and apply the brake

ii. Provision shall be made for easy release and resetting of the safety gear after it has been operated

iii. Governor ropes shall be of steel not less than 8 mm in diameter

iv. For elevator speeds of 1.75 mps and above, gradual safety should be used

1.18 BUFFERS

i. Buffers to BS 5655 shall be provided

ii. Where buffers are installed in the pit they shall be mounted on continuous channels or other structural member fastened to the guide rails.

iii. Energy dissipation type should be used for speed up to 1.75 mps for speed above 1.75 mps.

1.19 COMPENSATION ROPES

Where required by BS 5655, compensating ropes shall be provided between the car and counterweight, passing rounds a pulley in the pit. The ropes shall be tensioned by gravity and a safety switch shall be provided.

1.20 GUIDES AND FIXINGS

Guides for car and counterweight shall consist of steel "tee" section machined rails or formed rails erected plumb and securely fastened to the lift well by heavy steel brackets to suit the lift well already constructed. The ends of guides shall be tongued and grooved or forming matched joints and shall be connected with steel fish plates and bolts necessary for fixing the guide rails to the building structure.

1.21 GUIDE RAIL LUBRICATION & GUIDE SHOES

(i) Self-lubricating type of guide shoe shall be provided for the car and counterweight.

(ii) Guide shoes shall be provided with replaceable nylon liners to absorb the shocks and to give good riding comfort.

(iii) Where wicks lubrication is used, a drip pan shall be provided below the guides in the pit to catch surplus oil.

1.22 CAR FRAMES

(i) The car frame shall be constructed of steel members reinforced and braced to relieve the car enclosure of undue strains in the event of the operation of the safety gear or by the

lift being arrested in its travel by impact with the buffers.

(ii) Adjustable guide slippers shall be fixed on the top and bottom of the frame.

(iii) The steel suspension ropes shall be attached to the car frame with provision for taking up any inequalities between the ropes. Rope should be connected to thimble rod by habit metal

(iv) molding and springs should be fixed between thimble rod and car frame to avoid transmission of vibrations to the car

1.23 CAR PLATFORM

An adequate floor of steel construction shall be provided. The floor covering will be provided as part of this sub-contract and secured to the flooring. The platform shall be equipped with a sill of finish as indicated in schedule of requirements.

1.24 CAR ENCLOSURE

The design shall in general conform to the following requirements.

(i) The car shall be of metal construction, with the walls and doors, car fittings in a finish indicated in schedule of requirements attached herewith.

(ii) The car shall include a fitted stainless steel finished handrails on rear wall.

(iii) The panel housing, the car operating micro touch buttons and other car controls together with the cabinet for housing the telephone/intercom inside the car shall all be finished in stainless steel. Micro touch buttons should not have mechanical displacement of more than 0.5 mm.

(iv) Lighting shall be provided by means of fluorescent lamps concealed above a dropped ceiling. Power supply for the lighting circuit shall be taken from the lift machine room.

(v) Mechanical means of ventilation shall be provided in the design of the car enclosure consistent with the designated occupancy of the lifts.

(vi) The roof of the car shall be sufficiently reinforced to withstand the distributed weight of two men.

(vii) Each car shall be fitted with emergency hatchway on the roof for emergency purposes. It shall have a minimum size of 450mm x 500mm and open outwards

(viii) Toe guard to be provided for full entrance opening width

1.25 LANDING DOORS AND ENTRANCES

The Contractor shall furnish and install at all landing openings, complete metal entrances consisting of frames, architraves, doors, sills and facia plates, in accordance with the following:-

1.26 ARCHITRAVES

The frames shall consist of head and wide jamb sections with integral trim. On the well side the frames shall be carried back far enough to present a neat appearance, and shall be secured to the sill and door hanger supports, or structure. Finish should be as indicated in schedule of requirements.

1.27 SILLS

The sills shall be of finish as indicated in schedule of requirement with approved non- slip wearing surface. They shall be in one piece of sufficient length to suit the two supporting struts and grooved for the door guides. The door tracks shall be self-clearing

1.28 LANDING DOORS

Doors shall be of the type specified in the schedules. The door panels shall be formed to match the unit frames. The bottom of the doors shall be provided with guides to run in the sill slots with minimum clearance. Door hanger rollers to have non-metallic contact with the header track for smooth door operation.

1.29 TOE GUARDS

All landing entrances to be provided with "Toe Guards" for the full width of the entrance opening.

1.30 CAR DOORS

i) The entrances shall be protected by horizontal sliding metal doors with finish as indicated in schedule of requirements. The opening arrangements are detailed in the schedule of requirements. Panel rigidity shall be obtained by suitable steel reinforcement.

ii. The doors shall be hung on sheave hangers running on a polished steel track and guided at the bottom by non-metal shoes sliding in a smooth threshold groove. Door hanger sheave to have non-metallic contact with the track for smooth and noiseless door operation.

iii. Suitable means shall be used to transmit motion from one door panel to the

other.

1.31 CAR AND LANDING DOOR MECHANISM

i. An automatic door operating mechanism shall be provided to open and close the car and landing doors when the car is at a landing. The car door and landing door at any landing shall be opened and closed simultaneously. They shall be power opened and closed. Door movements shall be cushioned or checked at both limits of travel.

ii. The doors shall be automatically opened when the car is level at the respective landing and shall again close after a pre-determined time interval has lapsed. A 'door open' button shall be provided in the car the momentary pressure on which shall reverse the motion, reopen the doors and reset the time interval.

iii. The car door shall be provided with a protective device extending the full height and projecting beyond the front edge of the door. This device shall be so arranged that should it touch a person or any obstruction in its path while the door is closing, it shall automatically cause both the car door and the landing door to return to the open position. The doors shall remain open until the expiration of a time interval and then close automatically. The pressing of a car button, once the doors are fully open shall cause the doors to close immediately

iv. Mechanical safety edges shall be retractable. In centre opening doors, both doors shall have safety shoes.

v. The device is to be arranged so as to ensure the doors exerting the absolute minimum force on a person obstructing the closing operation.

vi. In addition, photoelectric detector type of door safety device shall be provided. So that there is no need to continue to press the door opening button while.

1.32 CAR AND LANDING DOOR INTERLOCKS

i. Each landing door and the car door gate shall be equipped with an electro- mechanical interlock, which shall prevent the operation of the lift unless the doors are closed and positively locked. The interlock shall also prevent the opening of any door until the car has reached the respective landing zone with the operating circuits open.

ii. Emergency opening of the door and gates from the landings shall be possible by means of key operation. Two keys shall be provided.

1.33 EMERGENCY BACK-UP SYSTEM

In the event of a microprocessor malfunction, another discrete circuit is energized to maintain the functioning of the system and assure operational safety.

1.34 LANDING AND CAR CONTROLS

The lift shall be controlled from micro buttons in the car, numbered to correspond to the landing served, and by two buttons on the landing.

The operating device shall give the person in the car uninterrupted use of the lift until the car door has reached the desired landing, and the car has been opened and again closed. Momentary pressure of a landing button shall bring the car to that landing.

After the car stops at a landing response to a landing call; a time delay shall render the car inoperative from the landing buttons for a pre-determined interval.

1.35 TOP OF CAR INSPECTION CONTROLS

i. Inspection controls shall be fitted to all passenger-carrying lifts in accordance with BS codes.

ii. A 13 Ampere 3 Pin switched socket outlet and a permanent light of the protected bulkhead or wall glass type with controlling switch, shall also be provided on top of the car. The supply for this socket outlet and lamp shall be independent of the lift machine supply.

1.36 EMERGENCY OPENING

i. Each lift car shall be provided with emergency opering m the roof for emergency purposes.

ii. Panels for emergency openings shall:

- Not open inwards;
- Be clear of any apparatus mounted above the roof of lift car;
- Be held by suitable fasteners, which can be opened only from outside the lift car i.e. without key.
- Be provided with a switch, which will prevent operation of the lift when the panel is open, and which will restore operation of the lift only when the fastenings have been manually restored.

1.37 TERMINAL STOPPING DEVICES

Each lift shall be fitted with upper and lower normal stopping devices and upper and lower final stopping devices each of which shall independently be capable of stopping the car through its own switch. If the lift has passed a final limit switch it shall not be possible to clear the circuit until the lift has been moved back by hand into its normal running position.

1.38 CONTROL SWITCH IN LIFT PIT

A switch shall be provided in the pit for each lift in accordance with BS 5655 which, when placed in the "STOP" position, will cause the lift to stop and prevent its being started until placed in the "RUN" position.

1.39 ALARM BELL

A push button shall be fitted on the control panel in car arranged to ring a battery- operated bell situated near the entrance to the lift on the ground floors, the precise position to be agreed on site. Bell, trickle charger, lead acid (planet type) battery and all interconnecting wiring shall be supplied and installed as part of this contract.

1.40 EMERGENCY LIGHTING

Passenger carrying car shall be provided with an emergency light, which will operate for not less than three hours duration on mains failure. The battery to be rechargeable type. The light shall consist of a self-contained unit with its own batteries and a small florescent tube.

1.41 INDICATOR

All indicators will be fitted with neon lamps instead of filament type bulbs to enhance the life and sharpness of the indicator.

1.42 CAR LOAD WEIGHING DEVICE, AUTOMATIC BY-PASS

i. The lift car shall be fitted with a car-weighing device to render the lift inoperative should the contract load be exceeded. Visual and audible indication that the car is overloaded shall be fitted within the car. When the overload has been removed, the lift shall resume normal operation.

ii. In the event of the car being loaded to its full capacity, than it will not stop to answer any hall calls and will stop only at the registered car hall. This will continue until such time the loading is reduced from its full capacity. This operation shall be in both directions of travel.

1.43 INTERPHONE SYSTEM

An intercommunication system between the car, ground floor lift entrance and the respective machine room shall be provided in the lift.

The station within the lift car shall be mounted above the car-operating panel having a perforated speaker grille. Pressing the interphone alarm push button in the car-operating panel shall cause the buzzer to operate and initiate an audible and illuminated signal in the Machine.

In the event of a failure of the normal electrical supply, the intercom system shall be automatically switched onto an emergency battery supply system provided with an automatic battery charger capable of fully recharging a discharged battery within 72 hours.

The entire installation and wiring of this shall be carried out by the lift sub-contractor.

1.44 ARRIVAL GONG & VOICE ANOUNCEMENT

Arrival Gong, which strikes, indicating arrival of the cabin at a particular floor. Also Voice announcement whether lift going up or down, arrival floor names & emergency operation etc.

1.45 PAINTING

i. All iron except where finished bright or plated shall be thoroughly cleaned of all scale and rust and painted two coats of oil resistant paint at maker's works. On completion of the work on site the paintwork shall be touched up to make good any damage sustained during installation. All bright and plated parts should be greased or otherwise protected against corrosion and discoloring during erection.

ii. Cellulose and other special finishes shall be protected so that they are handed over in perfect conditions.

1.46 VIBRATION

All lift gear including traction motor and controllers shall be as silent in operation as possible and in addition are to be effectively insulated from the structure so that in the opinion of the Engineer no noise or vibration is transmitted to other parts of the building.

1.47 TESTING AND COMMISSIONING

i. When the lift is completely installed it shall be subject to the complete range of tests to demonstrate to the Engineer the following:

   (a) Insulation test, earth continuity and impedance test.

   (b) That the lift operates at specified speed at loads varying between no load and 110 load.

   (c) That the brake sustains the car with 125 contract load.

   (d) Satisfactory operation of the safety gear and over-speed governor under over-speed conditions (drop test).

   (e) That the various safety devices, locks and other safety provisions operate as intended.

(f) That the operation of the lift and doors in response to the car switches and push buttons is as intended.

(g) That the leveling is correctly adjusted for each floor and remains so after extended use.

(h) The car shall be loaded to the full specified load and the lift run from top to bottom continuously, for the full travel of the lift, allowing the normal time interval at each terminal, during which the doors are to be opened and closed. The test shall be continued for 2 hour during which the motor, motor generator and gearbox shall be assumed to have attained their maximum operating temperatures.

(i) Any other test specified in BS 5655 - Part 1 (Specification for testing and inspection of electric and hydraulic lifts).

(j) All instruments required for the tests shall be provided by the Contractor.

1.48 SERVICING AND MAINTENCE ON PROVISIONAL ACCEPTANCE

(a) After provisional acceptance, when the lift is put into service, the Contractor shall maintain lifts as necessary, for a period of twelve months.

b) All necessary stores, spares, tools and other material required for such work shall be provided by the Contractor.

(c) An efficient local breakdown call-out organization whereby the services of an engineer can be obtained immediately at any hour of the day or night will be deemed to fulfill the above requirements

All equipments and installations provided under the Contract shall be continuously maintained free of charge by the Contractor throughout the whole maintenance period of twelve months including routine service and maintenance, periodic checking, inspection, adjustment etc., as deemed necessary to guarantee smooth and uninterrupted service.

The Contractor shall replace or repair with utmost speed and at his own expense any point of the plant or equipment or material or work performed or furnished under lifts works in the contract which may prove defective in design, installation and erection, operation, performance workmanship or from any act of omission of the Contractor that may develop, under the conditions provided by the contract and under proper use in the works or any section thereof during the maintenance period after the work.

The Contractor shall obtain and submit to the Engineer any guarantee or certificates of warranty available from the manufacturers but only as supplementary to the Contractors own guarantees and in no way invalidating them.

1.49 INSTRUCTIONS TO EMPLOYER'S STAFF

The Contractor shall, at times agreed with the Engineer/Consultant, instruct the Employer's staff in the correct use, operation and routine maintenance of the works and shall satisfy himself and the Engineer that the staffs is competent to take over and operate the Works.

1.50 INSTRUCTIONS

The final handing over documents to be submitted by the Contractor on completion of the installation shall comprise the following.

(a) Operation and Maintenance Manual (03 copies)
(b) Testing and commissioning sheets (03 copies)
(c) As Built Drawings (03 copies)

These documents should be supplied to the Engineer within 30 days on the issue of taking over certificate.

DETAILED TECHNICAL SPECIFICATION FOR LIFTS INSTALLATION

2.0 SCOPE OF WORK

This section specifies detailed requirements for design, manufacture, transport, delivery to site, unloading, complete erection, site testing, setting to work and maintenance for a period of 1 year of Passenger elevators to be installed at Fort railway station

2.1 DRAWINGS AND SPECIFICATIONS

The Contractor shall furnish with his tender drawings the general arrangement of elevator equipment, depth of pit, overhead height, minimum required dimensions of hoist way and machine room and necessary specification. A set of detailed drawings must be submitted for approval as soon as possible after the order is placed showing detailed general arrangements, wiring details, and holes to be provided in walls and floors. It will be necessary for these to be supplied at the earliest for allowing time for building work to be arranged. All the drawings must be approved- by the Engineer before the work commences.

2.2 POWER SUPPLY

The power supply for the apparatus will be 400 Volts AC, 50 cycles, 3-phase 4 wire with neutral earthed at the supply source. The main beams, runaways and the steel structure should be connected to the main earthing system.

2.3 ELECTRICAL INSTALLATION

The electrical installation for the Lift including all trunkings in the shaft and machine room shall be executed by the Contractor. In the machine room a switchboard with 3- phase supply will be provided. He should also supply and install any other switchboards or panels required for a complete installation.

2.4 FIREMAN'S EMERGENCY SERVICE

Fireman's switch shall be provided and located in the ground floor close to entrance of the lift and when activated during an emergency the lifts should come to the ground floor and doors shall immediately open. Thereafter it shall be suitable for operation by fireman. Further provision shall be made in the lift control system to receive signals from the fire detection system and activate lifts to travel automatically to ground floor and doors shall be immediately opened in a fire situation.

2.5 MAINTENCE CONTRACT

Together with his tender the tenderer shall submit a draft contract for complete maintenance, regular inspections of the installations and equipment after the expiry of the Defect Liability Period. Details shall be given for a comprehensive scheme inclusive of all replacement spares. Charges shall be given for a period of 5 years after the Defects Liability Period.

2.6 LOCATION OF LIFT

The Lift shall be installed at the position shown on the drawing and details of which could be referred to in the schedules.

2.7 SCHEDULE OF REQUIREMENTS FOR PASSENGER LIFT

2.7.1 PASSENGER LIFT

Capacity of lift minimum - 15 passengers, Can vary as per supplier's specification and Traffic calculation

Speed - - 1.0 m/s minimum
Can vary as per Tragic calculation

Automatic Re-leveling Accuracy - +/- 5 mm

Drive - AC Variable Voltage Variable

Control

Operatio - Selective collective with or without service Or Group control

Stops & Openings
Service floor - Ground, 1st, 2nd

Over Head clearance - 4600 mm (Uh min)

Vertical distance between finished floor of the highest landing and soffit of the lift shaft.
Can vary as per supplier's specification, subject to Engineer's/ Consultant's Approval

Pit Depth - 1600 mm minimum
Can vary as per supplier's specification, subject to Engineer's/ Consultant's Approval

Hoist way Size constructed - 2600 mm (L) x 1800 rnm (W) minimum

Can vary as per supplier's specification, subject to Engineer's/Consultant's Approval

Entrance (wall to wall - 1300 mm (W) x 2250 mm (H) minimum from FFL
Structural opening)

Can vary as per supplier's specification, subject to Engineer's/Consultant's Approval

Machine Room - Machine room less

Minimum Car Internal Dimensions: 1800mm (W) x 1400mm (D)

i) <u>Elevator Car</u>

Car ceiling, Lighting & Ventilation : shall be of baked enamel painted steel sheet with bright fluorescent lighting through milky white plastic cover and ventilation by electric blower through slip vents. Separate Circuit Breaker to be provided for lighting.

Car Walls & Doors	: Stainless steel hairline finished.
Car Sill	: Stainless steel
Car Floor	: Vinyl flooring with stainless steel toe Guard along three sides of cabin
Hand rails	: Stainless steel (not less than 75mmx6mm) on rear lift car wall
Hoist way Door on all floors	: 900mm (W) x 2100mm(H) Center Opening automatic doors in hairline finish stainless steel sheet

ii) Landings

Landing Entrances : el & wide Jam stainless steel finish.

Hoist way Doors at all floors (Clear entrance)	: As per Supplier specification subject to Engineer's approval.
Landing sills at all entrances	: stainless steel

Entrance Indications

Typical floor Landing : Vertical combined unit comprising Digital car position indicator, direction indicators, and micro touch type hall call buttons which will illuminate on registration of call shall be installed at every floor landing served by the lifts. All metal exposed parts of the indicators unit shall be made of stainless steel with matt finish.

iii) Car Operating Panels

Signals in the Cabin : The following features shall be incorporated in the car-operating panel located at one side of the entrance.

- Emergency stop switch with alarm
- Up / Down travel direction indicators
- Digital floor position indicator
- Floor buttons of micro touch type with lights, for registration of commands
- Door open and door close button
- Interphone

The following switches shall be fixed inside a lockable compartment provided below the panel.

- Car light switch and Ventilator switch fan

- Lift 'OFF' switch

- Attendant operation switch

Car operating panel mounted in front comer of the cabin at 45 degree diagonally for better operational convenience with call buttons of micro touch type, which will illuminate on registration of a call.

Floor position indicator shall be installed on the top comer of the front panel of the car, which also should indicate up/down direction.

Separate Horizontal car operating panel to be provided as per EN 81-70 for disable persons.

iv) Special Features : Safety door edge running full height of car
- Multibeam Door sensors (MBS)
- DC Alarm bell
- Arrival gong
- Floor arrival announcement (English)
- Emergency car light. (This may be passed by a rechargeable battery, which could serve the Alarms too)
- Interphone
- Overload protective device with audible plus visible indicators
- Emergency over ride switch
- All required limit switches and interlocks as specified in BS 5655 or equivalent recognized standards

v) Operating during power Failure : Automatic rescue device CARD) must be included with the elevator.
The lift shall be equipped with a rechargeable battery bank for emergency operation of the lift during power failure. In the case of power failure, car emergency light shall come on automatically and rescue system shall slowly guide the elevator to the nearest floor and then open both car door and respective landing door automatically, to prevent passengers being locked in the car. When power is restored, the elevator shall resume its normal operation.

vi) Emergency Provisions : An emergency exit complies with BS 5655 Part 1 shall be provided on the car ceiling. These exits shall incorporate the following features.
- Be secured by suitable fasteners for hand use, which can be released only from outside the car

- The hinged or removable emergency panel shall open outwards of the elevator car.

- The emergency opening shall be clear and no equipment on the elevator car top shall obstruct this opening

- With the emergency exit opened, it shall nor be possible to operate the lift.

Next Landing Device : If the hoist way doors become jammed by a pebble, Debris, etc. Preventing opening of the doors, passengers will not be able to alight from the car. In order that the passengers. Do not get stranded at the affected floor, the elevator shall proceed to next immediate floor and the doors shall open out automatically.

Low speed automatic Rescue operation : In the unlikely event that the elevator should stop between floors, the cause of the malfunction shall be checked out automatically and when the safety has been confirmed, the elevator will proceed at low speed to the next immediate floor, so that the passengers can alight from the car.

Multiprocessor Backup System : This system shall assure complete functional backing between the group controller and individual car controller as well as between microprocessor components in the controller. Thus safe elevator functioning is assured even if localized malfunctions occur.

Buffers : Spring type / Hydraulic or As per EN standards

Safety : Gradual type

Guide rails : As per specification

Counterweight: Cast – iron blocks enclosed in a steel frame

Escalator Specification – Railway Station Application

The escalator/s shall be suitable for Railway station public transport applications. The Escalator/s shall be manufactured by internationally reputed Escalator manufacturers such as Schindler, Otis, Hitachi, Mitsubishi, Thyssenkrupp and KONE. The country of manufactured shall be Europe, USA or Japan. The elevator brands which have local agents in Sri Lanka for at least 5 years are only considered. Past supply record for five years for the same escalator brand shall be submitted along with the bid. The local agent shall have technical expertise and capability to carry out after sales services including warranty services/repairs and as well as post warranty services and repairs.

1. General Requirements

- **Application** : Public transport / Railway station
- **Type** : Heavy-duty escalator, designed for high footfall and extended operation
- **Usage** : Continuous (20+ hours/day), peak traffic capability
- **Location** : Suitable for outdoor environments.
- **Speed** : 0.5 m/s with optional variable-speed operation
- **Step Width** : 1800 mm (suitable for public transport which can accommodate luggage. Anyway to be decided by considering the inclination and horizontal available space)
- **Vertical Rise** : 6 m
- **Traffic Flow** : Unidirectional or reversible operation as needed

2. Structural and Mechanical Design

- **Drive System**:
  - Type: Gearless or high-efficiency geared motor
  - Power: Depending on vertical rise and load
  - Brake: Electrically released, spring-applied brake with manual override
  - Energy-saving VFD (Variable Frequency Drive)
- **Step Chain**:
  - High-tensile strength roller chain
  - Lubrication system: Automatic or semi-automatic chain lubrication
- **Steps**:
  - Material: Die-cast aluminum or stainless steel
  - Surface: Anti-slip pattern with yellow demarcation lines
- **Handrails**:
  - Material: Synthetic rubber over steel tension member
  - Anti-static, UV-resistant, and weatherproof
- **Balustrade**:
  - Material: Tempered laminated safety glass (minimum 10 mm thickness)
  - Frame: Stainless steel or powder-coated steel
  - Height: ≥ 1100 mm

3. Control & Electrical System

- **Control System**:
  - PLC of SIEMENS or MITSUBISHI
- **Operation Modes**:
  - Continuous
  - Standby (energy-saving) with passenger detection via sensors
  - Peak direction control based on crowd flow (optional)

- **Power Supply**: 3-phase, 400 V ±10%, 50 Hz
- All motors, switchgears, sensors, limit switches shall be reputed brand of European, USA or Japanese make. Details shall be provided along with the offer

- **Lighting & Visual Aids :**

    - Step demarcation lighting (LED)
    - Comb and skirt lighting
    - Direction indicators (green arrow/red cross)
    - Voice alerts or chimes for movement start

4. Safety Features (Compliant with EN 115)

- Emergency stop buttons at top and bottom
- Step chain tension monitor
- Step motion and alignment detection
- Skirt intrusion sensors
- Comb plate impact switches
- Brake monitoring and overspeed protection
- Handrail speed monitoring
- Anti-reversal device
- Missing/broken step detection
- Safety signage in multiple languages or icons

5. Weather Protection

- **Waterproofing** : IP65 for motors and control cabinets
- **Corrosion Resistance** : Corrosion resistive materials or epoxy-coated metal surfaces
- **UV Resistance** : All plastics, handrails, and rubber components

6. Compliance

- **Standards**: EN 115-1, ISO 22201-1
- **Certifications**:CE marked (Europe)
- **Fire Safety**: Fire-retardant cables and low-smoke halogen-free materials

7. Documentation & Delivery

- Commissioning and handing over to be done by the supplier
- **Drawings**: General Arrangement (GA), electrical schematics and wiring diagrams
- **Manuals**: O&M manual, safety compliance certificates, Spare parts catalogues
- **Spare Parts**: Initial spare parts kit + recommended 2-year list
- **Warranty**: Minimum 24 months warranty starts from the acceptance by SLR
- **Training**: Provided to maintenance crew and operators

8. SERVICING AND MAINTENCE ON PROVISIONAL ACCEPTANCE

(a) After provisional acceptance, when the lift is put into service, the Contractor shall maintain lifts as necessary, for a period of twelve months.

(b) All necessary stores, spares, tools and other material required for such work shall be provided by the Contractor.

(c) An efficient local breakdown call-out organization whereby the services of an engineer can be obtained immediately at any hour of the day or night will be deemed to fulfill the above requirements

All equipments and installations provided under the Contract shall be continuously maintained free of charge by the Contractor throughout the whole maintenance period of twelve months including routine service and maintenance, periodic checking, inspection, adjustment etc., as deemed necessary to guarantee smooth and uninterrupted service.

The Contractor shall replace or repair with utmost speed and at his own expense any point of the plant or equipment or material or work performed or furnished under lifts works in the contract which may prove defective in design, installation and erection, operation, performance workmanship or from any act of omission of the Contractor that may develop, under the conditions provided by the contract and under proper use in the works or any section thereof during the maintenance period after the work.

The Contractor shall obtain and submit to the Engineer any guarantee or certificates of warranty available from the manufacturers but only as supplementary to the Contractors own guarantees and in no way invalidating them.

9. INSTRUCTIONS TO EMPLOYER'S STAFF

The Contractor shall, at times agreed with the Engineer/Consultant, instruct the Employer's staff in the correct use, operation and routine maintenance of the works and shall satisfy himself and the Engineer that the staffs is competent to take over and operate the Works.

10. INSTRUCTIONS

The final handing over documents to be submitted by the Contractor on completion of the installation shall comprise the following.

(d) Operation and Maintenance Manual (03 copies)
(e) Testing and commissioning sheets (03 copies)
(f) As Built Drawings (03 copies)

These documents should be supplied to the Engineer within 30 days on the issue of taking over certificate.

Environment, Health and Safety Management Requirement

Health and safety management plan, and Environmental management plan shall be submitted by bidder.

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN
Improvement of Passenger Facilities at Colombo Fort Railway Station

No	Activities with potential for negative environmental or operational consequences	Mitigation Measure	Implementation Responsibility	Supervision Responsibility	Cost of Mitigation
1	Material Transport.	1.1 Haulage Material Loading and Covering All haulage material shall be loaded **within permissible weight limits** to prevent overloading and shall be properly covered to prevent spillage, dust emissions, or loss during transit. 1.2 Driver Awareness of Road Safety Drivers of all project vehicles shall be thoroughly briefed and made aware of the **importance of road user and commuter safety**. Emphasis shall be placed on defensive driving practices and **adherence to all traffic laws**. 1.3 Speed Limit Enforcement and Traffic Management Appropriate **speed limits shall be enforced for material transport vehicles operating on public roads**. Transportation activities shall be scheduled to avoid peak traffic hours to minimize congestion and disruption around Pettah. 1.4 Public and Commuter Awareness Signage **Clearly visible warning signs** shall be strategically displayed at locations around the railway station, as determined and approved by SLR Officers. These signs shall inform the public and commuters of increased vehicle movements associated with the project. 1.5 Material Storage and Public Safety No construction material shall be placed or stored in, or in close proximity to, areas utilized by the public, commuters, or SLR officers. The designated storage site(s) shall be selected and approved in writing by the Superintendent – Fort Railway Station, ensuring safety and accessibility. 1.6 Prompt Cleaning of Mud and Debris	Contractor	SLR PMU PIC	1.1 At no expense 1.2 At no expense 1.3 At no expense 1.4 Construction cost 1.5 At no expense 1.6 Construction cost 1.7 Construction cost 1.8 At no expense 1.9 Construction cost

		Any mud patches or debris deposited by material transport vehicles on access roads or within the station premises shall be **cleaned thoroughly**. 1.7 Construction Material Storage Safety All construction materials shall be stored under strict adherence to required safety measures and standards. Storage shall be under the recommended supervision of the Superintendent – Fort Railway Station to ensure orderly and safe conditions. 1.8 Designated Access Gates for Construction Vehicles Only the designated gate(s) or entrance(s), as officially approved by the Superintendent – Fort Station, shall be utilized for the ingress and egress of all construction vehicles. Unauthorized access points are strictly prohibited. 1.9 Dust emissions resulting from material transport on public roadways and within Fort Railway premises **must be immediately suppressed.**			
2.	Demolishing works	2.1 Noise and Vibration Management During Demolition & Construction Prior to commencing any demolition or construction activities that generate significant noise or vibration, **formal written consent regarding approved operating timeframes must be secured** from the Superintendent – Fort Station. 2.2 Night Work Noise Level Compliance Should it become necessary to extend work into nighttime hours, **all efforts will be made to maintain noise levels below 50 dB**, in strict adherence to the noise control regulations set forth by the Central Environmental Authority. 2.3. Equipment and Machinery Maintenance. All plant, equipment, and machinery utilized on-site must be maintained in optimal working condition to minimize operational noise and ensure efficiency. 2.4. Qualified Personnel for Operations Only trained and certified personnel shall be employed for the operation of machinery and equipment, and for all material handling processes, to ensure safety and operational compliance. 2.5. Contractor Responsibility for Accidents and Damages The contractor shall be **solely responsible for any accidents or damages to commuters resulting from demolition or construction activities**. This includes bearing all associated expenses for treatment, hospitalization, and any other related costs.	Contractor	SLR PMU PIC	2.1 At no expense 2.2 At no expense 2.3 At no expense 2.4 Construction cost 2.5 Reimbursable Cost Contract 2.6 At no expense 2.7. Construction cost 2.8 At no expense

		2.6. Noise Minimization by Laborers All labourers will receive instructions and ongoing supervision to ensure their work practices minimize noise generation. Strict oversight shall be implemented to enforce compliance with this directive. 2.7. Suppression of dust Suppression and cleaning of dust on the ground, commuter seating areas, walkways and office areas require immediate attention. Dedicated laborers and readily available and water must be on-site continuously to manage dust throughout the demolishing works. Dust barriers shall be erected covering the demolishing area. 2.8. Debris Management and Removal Demolished materials should be reused by Sri Lanka Railways (SLR) if feasible. Before any debris is removed from the site, permission must be obtained from the SLR Engineer. The removal process itself will be supervised by an authorized SLR officer. To minimize disruption, debris removal will occur during off-peak hours for both the Fort Station and nearby public roads. All material loads transported off-site must strictly adhere to the regulations set in Sri Lanka.			
3.	**Safety and Work Area Management**	3.1. Workforce Safety Awareness **The entire workforce shall receive comprehensive safety briefings** regarding the **worksite's inherent hazards and the severe potential for fatal accidents. These briefings will emphasize the importance of adhering to all safety protocols and procedures.** 3.2. Work Area Demarcation and Access Control To prevent unauthorized access, **all active work areas must be clearly demarcated as a primary safety measure.** This initial demarcation shall be achieved using high-visibility tape. Additionally, Sri Lanka Railways (SLR) will recommend and oversee the **installation of appropriate signage** to deter individuals and commuters from entering restricted areas. This signage will be strategically placed to clearly communicate the risks of unauthorized entry into the demarcated zones. 3.3. Operational Hours and Extensions **Working hours for the contract shall be established and strictly adhered to in accordance with the guidance and approval of SLR.** However, recognizing the absence of residential properties and significantly reduced railway user traffic within	SLR, PIC & Contractor	PMU	3.1. Construction cost 3.2. Construction cost **3.3.** At no expense 3.4. Construction cost

		the premises during late evening and night hours, **working hours under the contract may be extended** into these periods under written approval of the SLR. 3.4. Work Area Barricading Personnel As directed by the Superintendent – Fort Station, **one or more dedicated personnel shall be strategically positioned to actively barricade and manage access to the work area**, specifically preventing commuters from inadvertently entering the hazardous zone.			
4.	Occupational Health & Safety	4.1. Personal Protective Equipment (PPE) The contractor **must provide all workers with appropriate Personal Protective Equipment (PPE)**. This includes, but isn't limited to, **safety goggles, helmets, insect repellent, long-sleeved shirts and pants, and safety boots** . 4.2. Worker Welfare All workers shall be provided with **access to clean food and potable water**, appropriate sanitary facilities and ventilated sleeping area. 4.3. Insect Control and Awareness A **ready supply of insect repellent/spray** must be maintained in the work area and in the labour quarters. **4.4**. First Aid Provisions A **fully stocked first aid kit** must be kept in a readily accessible and convenient location within the workplace. This kit must always be available to a **responsible person trained in providing first aid**. A **competent first aid officer shall be employed on site**. 4.5. Child Labor Prohibition **Children under 14 years of age shall not be hired** for any project activity. Individuals **under 18 years of age shall not be hired for any hazardous or heavy work**. 4.6. Accident and Incident Reporting **Regular documentation and reporting of all occupational accidents, diseases, and incidents** are mandatory. An **accident register shall be maintained on site**. 4.7. Emergency Preparedness **Emergency prevention, preparedness, and response arrangements** shall be established and maintained. The SLR and Occupational Health and Safety Specialist of the PIC[1] shall guide the contractor in this regard.	Contractor	SLR PMU PIC	4.1 Construction cost 4.2 Construction cost 4.3 Construction cost 4.4. Construction cost 4.5. At no expense 4.6 Construction cost 4.7 Construction cost

[1] Project Implementation Consultant-REIP

5.	Archaeological Considerations	5.1. Protecting Colonial Architecture Proposed and newly designed structures must not detract from the archaeological appearance of existing colonial buildings. 5.2. Demolition Protocol Demolition activities and their externalities shall not impact archeologically protected structures within the fort station. When demolition takes place, extreme care must be exercised, and **low-vibration equipment** must be used.	Contractor	PIC SLR PMU	5.1. At no expense 5.2 At no expense
6.	Accessibility and Safety for Persons with Disabilities	6.1 Construction activities and staff must not impede or disturb persons with disabilities or their access. 6.2 Special attention will be given to ensuring easy access for persons with disabilities to the station. 6.3 The safety of persons with disabilities will be a priority and appropriately managed.	Contractor	SLR PMU PIC	6.1 At no expense 6.2. At no expense 6.3**.** At no expense
7.	Tree removal	7.1 Flora Damage and Replanting In the event that any plant or tree is damaged or removed, **compensatory replanting shall be undertaken**. Replanting locations will be recommended by the SLR at a **ratio of 1:2**.	Contractor	SLR PMU PIC	7.1. Construction cost
8.	Grievance redress	8.1. The **Grievance Redress Mechanism (GRM)**, as outlined in the REIP, applies to this work. An awareness session detailing the GRM-REIP shall be conducted for the contractor and all project personnel. A designated **grievance receiving point** shall be established within the station premises, and a comprehensive **grievance registry** maintained on-site.	PIC Contractor	PMU	8.1 Construction cost
9.	Site-specific Environmental Management plan. (SEMP)	9.1. The Contractor is responsible for preparing a SEMP before starting any physical work. This SEMP shall be submitted to the client and should include: • Definition of boundaries for each civil activity. • Identification of environmental values and sensitive receptors on the site and in its surrounding areas. • **Risk assessment** related to environmental and social impacts. • Assignment of social and environmental management measures to mitigate identified risks. • Preparation of environmental work plans. • Development of a monitoring plan & etc.	Contractor PIC	PMU SLR	9.1. Construction cost

Drawings

Provided separately as Annexure

PROPOSED RENOVATION FOR
COLOMBO FORT RAILWAY STATION

TYPE	DESCRIPTION
	To be carefully removed & material shall be handed over to the client. Alternative facilities during construction shall be provided by the contractor.

Mawatha

PLATFORM No.2
PLATFORM No.3
PLATFORM No.3
PLATFORM No.4
PLATFORM No.5
PLATFORM No.6
PLATFORM No.7
PLATFORM No.8
PLATFORM No.9
PLATFORM No.10
PLATFORM No.11

COLOMBO FORT RAILWAY STATION

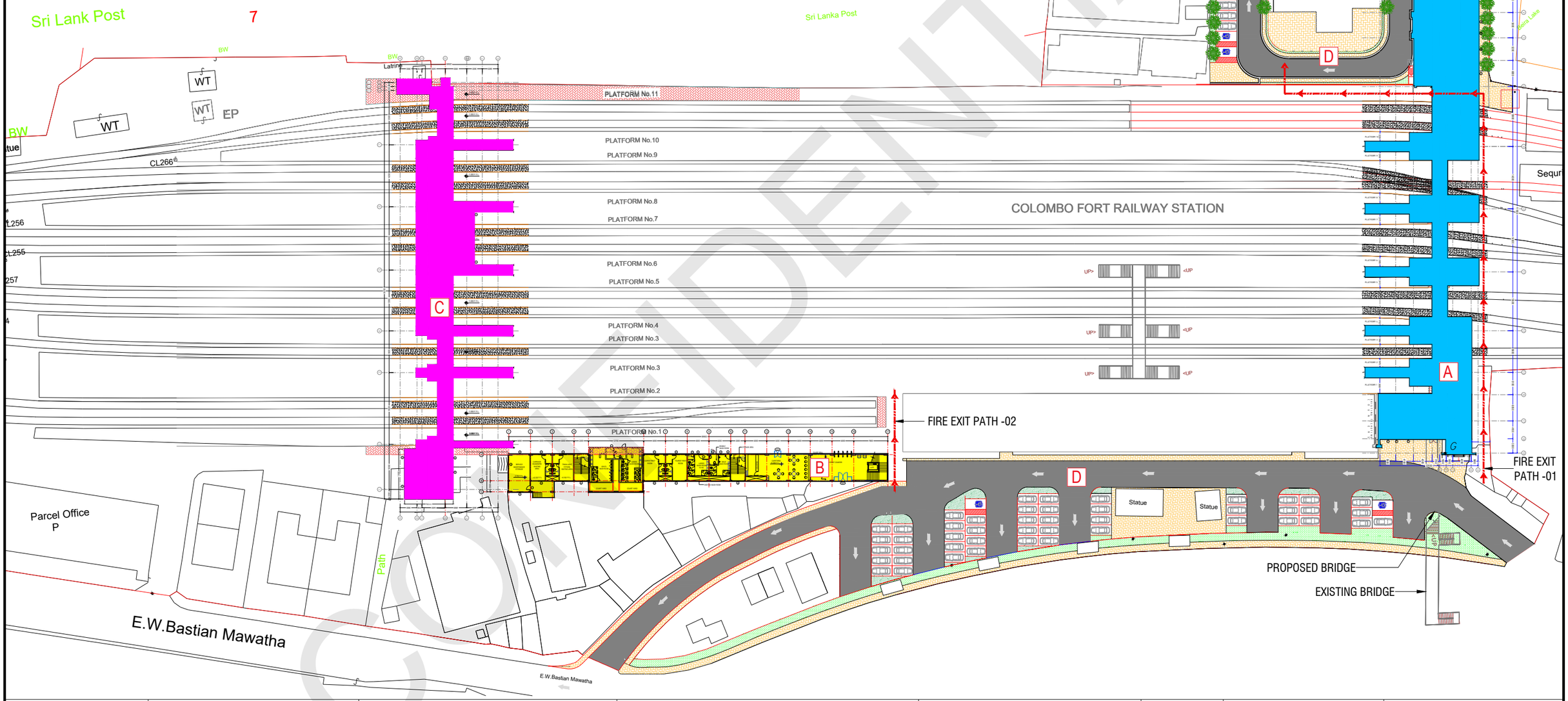
TICKETING
ATM
SEC
RAILWAY ENGINE
UTILITY CENTER
sampath bank
people's bank
Sri Lank Post
Latrine
Road

EXISTING BRIDGE MARADANA SIDE
CAREFULLY REMOVED AND MATERIAL
SHOULD BE HANDED OVER TO THE CLIENT.

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	Project Management Unit No. 217, Cotta road, Colombo 08, Sri Lanka	PROJECT NAME : RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : DEMOLISHING LAYOUT DRAWING NO : REIP/FORT/TD-ARC-01	DESIGN BY DRAWN BY CHECKED BY APPROVED BY	PRIYANGA ASANKA LALITH DEEGALA	SCALE: NTS FORMAT: A3 REV : R0 DATE : 04/06/2025

SCHEDULE OF BUILDING

TYPE	DESCRIPTION	AREA (m²)				TOTAL AREA (m²)
		GROUND FLOOR	1ST FLOOR	2ND FLOOR	ROOF TERRACE	
A	CONSTRUCTION OF NEW PASSENGER BRIDGE AND ENTRANCE PORCH AT BAMBALAPITIYA END	962.54	1092.40	—	864.56	2919.5
B	CONSTRUCTION OF NEW SERVICE BUILDING	678.00	813.00	813.00	842.00	3146.00
C	CONSTRUCTION OF NEW PASSENGER BRIDGE AT MARADANA END	380.50	693.00	—	352.00	1425.50
D	LANDSCAPE AND ROAD WORK	6292.50	—	—	—	6292.50
						13783.50



ADB
ASIAN DEVELOPMENT BANK

MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION

SRI LANKA RAILWAY

Project Management Unit
No. 217, Cotta road,
Colombo 08, Sri Lanka

PROJECT NAME :
RAILWAY EFFICIENCY IMPROVEMENT PROJECT

DRAWING TITLE :
PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION

SUB TITLE :
PROPOSED BUILDING LAYOUT

DRAWING NO :
REIP/FORT/TD-ARC-02

DESIGN BY	PRIYANGA	SCALE:	NTS
DRAWN BY	ASANKA	FORMAT:	A3
CHECKED BY	LALITH	REV :	R0
APPROVED BY	DEEGALA	DATE :	04/06/2025

TYPE	DESCRIPTION
	ASPHALT CONCRETE
	TURFING
	INTERLOCKING PAVING (100mm x 50mm)
	CURB

COLOMBO FORT RAILWAY STATION

PLATFORM No.5

PLATFORM No.4

PLATFORM No.3

PLATFORM No.3

PLATFORM No.2

PLATFORM No.1

UP>

<UP

UP>

<UP

UP>

<UP

FIRE EXIT PATH -02

FIRE EXIT PATH -01

Statue

Statue

Existing Bus Halt

Existing Bus Halt

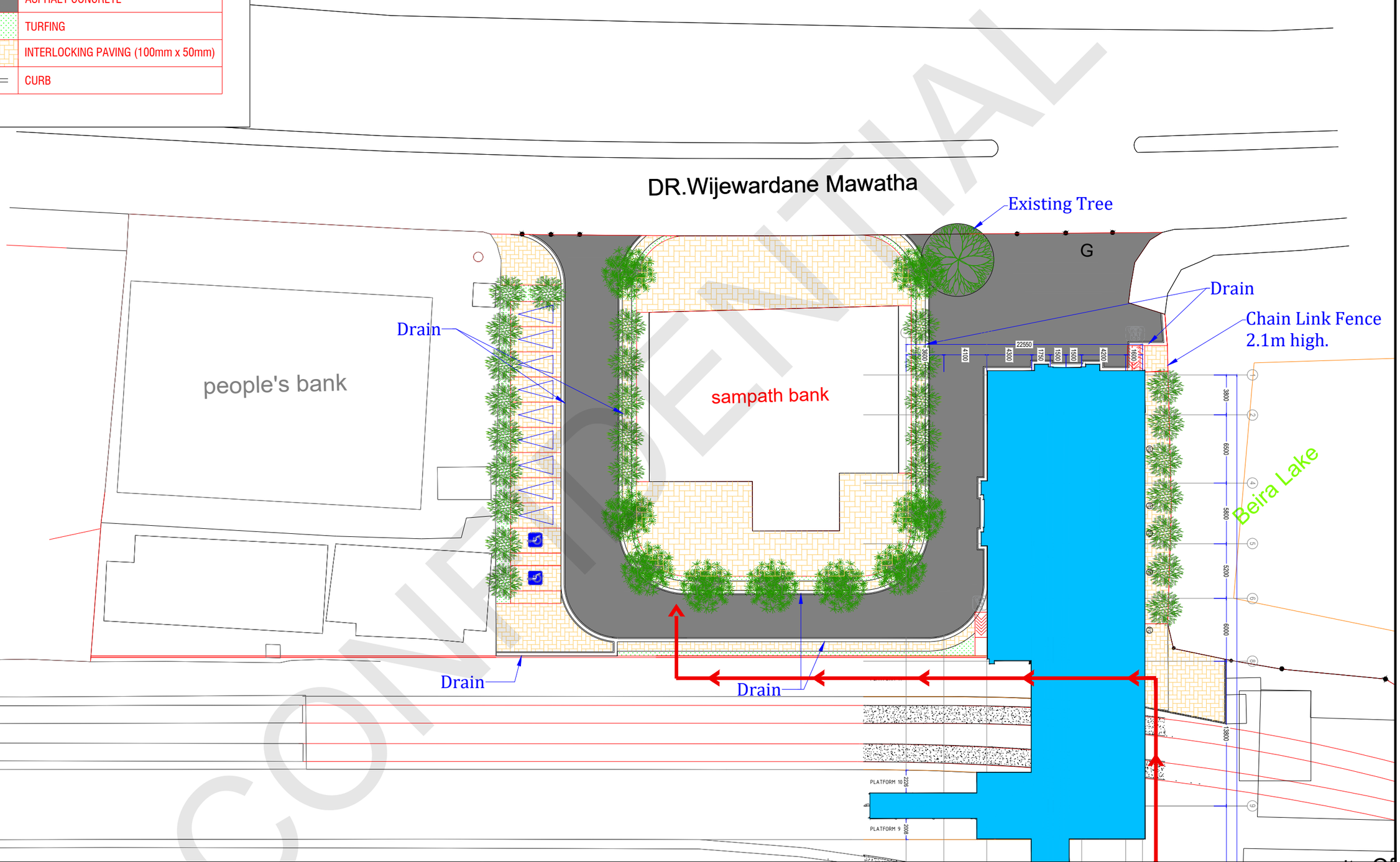
Existing Bus Halt

Existing Bus Halt

OlcOtt Mawatha

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	Project Management Unit No. 217, Cotta road, Colombo 08, Sri Lanka	PROJECT NAME : RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : PROPOSED LANDSCAPE LAYOUT (OLCOTT MAWATHA SIDE) DRAWING NO : REIP/FORT/TD-ARC-03	DESIGN BY	PRIYANGA	SCALE: NTS
					DRAWN BY	ASANKA	FORMAT: A3
					CHECKED BY	LALITH	REV : R0
					APPROVED BY	DEEGALA	DATE : 04/06/2025

TYPE	DESCRIPTION
	ASPHALT CONCRETE
	TURFING
	INTERLOCKING PAVING (100mm x 50mm)
	CURB



ADB

ASIAN DEVELOPMENT BANK

MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION

SRI LANKA RAILWAY

Project Management Unit
No. 217, Cotta road,
Colombo 08, Sri Lanka

PROJECT NAME :
RAILWAY EFFICIENCY IMPROVEMENT PROJECT

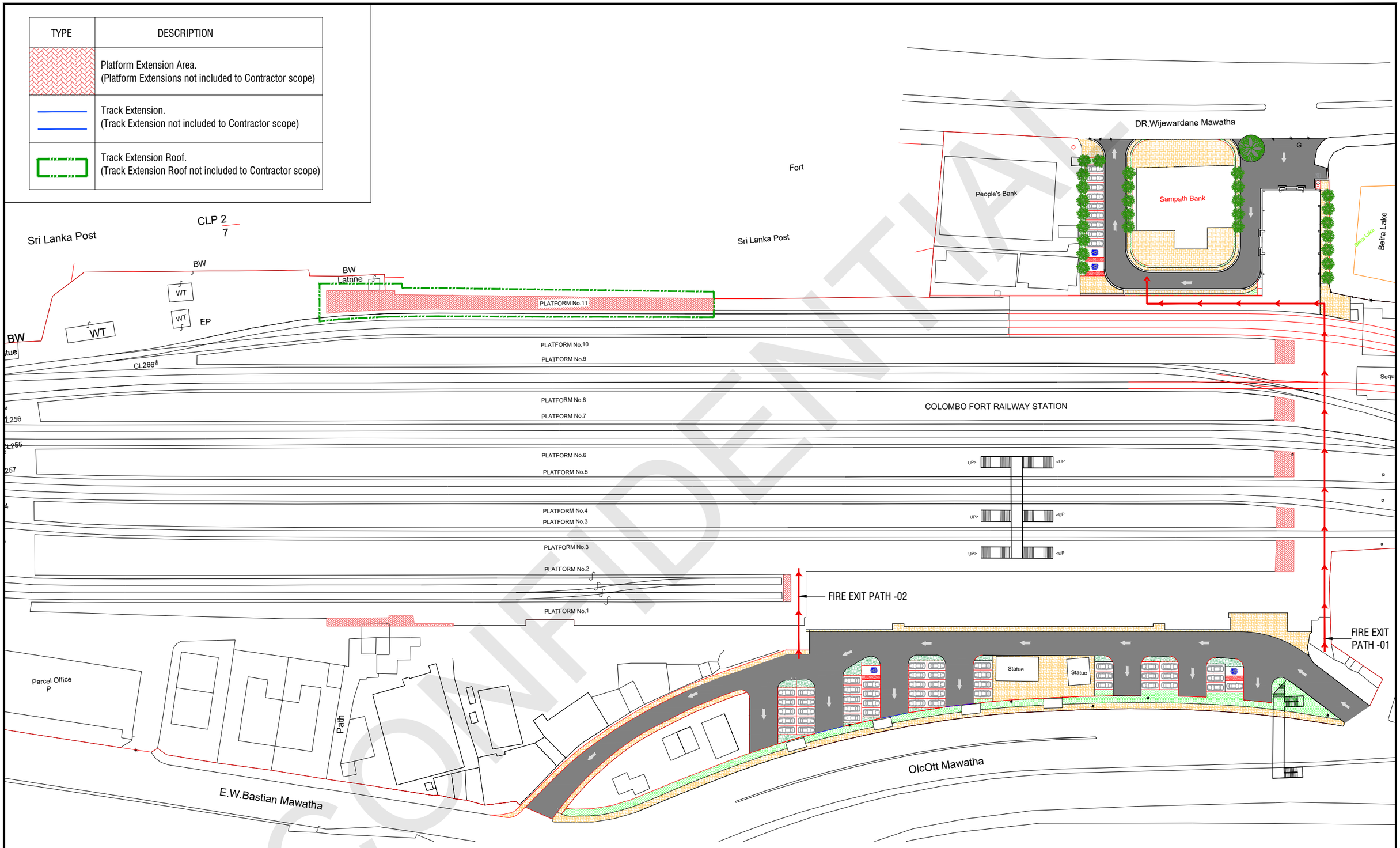
DRAWING TITLE :
PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION

SUB TITLE :
PROPOSED LANDSCAPE LAYOUT (ENTRANCE PORCH AT BAMBALAPITIYA END)

DRAWING NO :
REIP/FORT/TD-ARC-04

DESIGN BY	PRIYANGA	SCALE:	NTS
DRAWN BY	ASANKA	FORMAT:	A3
CHECKED BY	LALITH	REV :	R0
APPROVED BY	DEEGALA	DATE :	04/06/2025

TYPE	DESCRIPTION
	Platform Extension Area. (Platform Extensions not included to Contractor scope)
	Track Extension. (Track Extension not included to Contractor scope)
	Track Extension Roof. (Track Extension Roof not included to Contractor scope)



ADB
ASIAN DEVELOPMENT BANK

MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION

SRI LANKA RAILWAY

Project Management Unit
No. 217, Cotta road,
Colombo 08, Sri Lanka

PROJECT NAME :
RAILWAY EFFICIENCY IMPROVEMENT PROJECT

DRAWING TITLE :
PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION

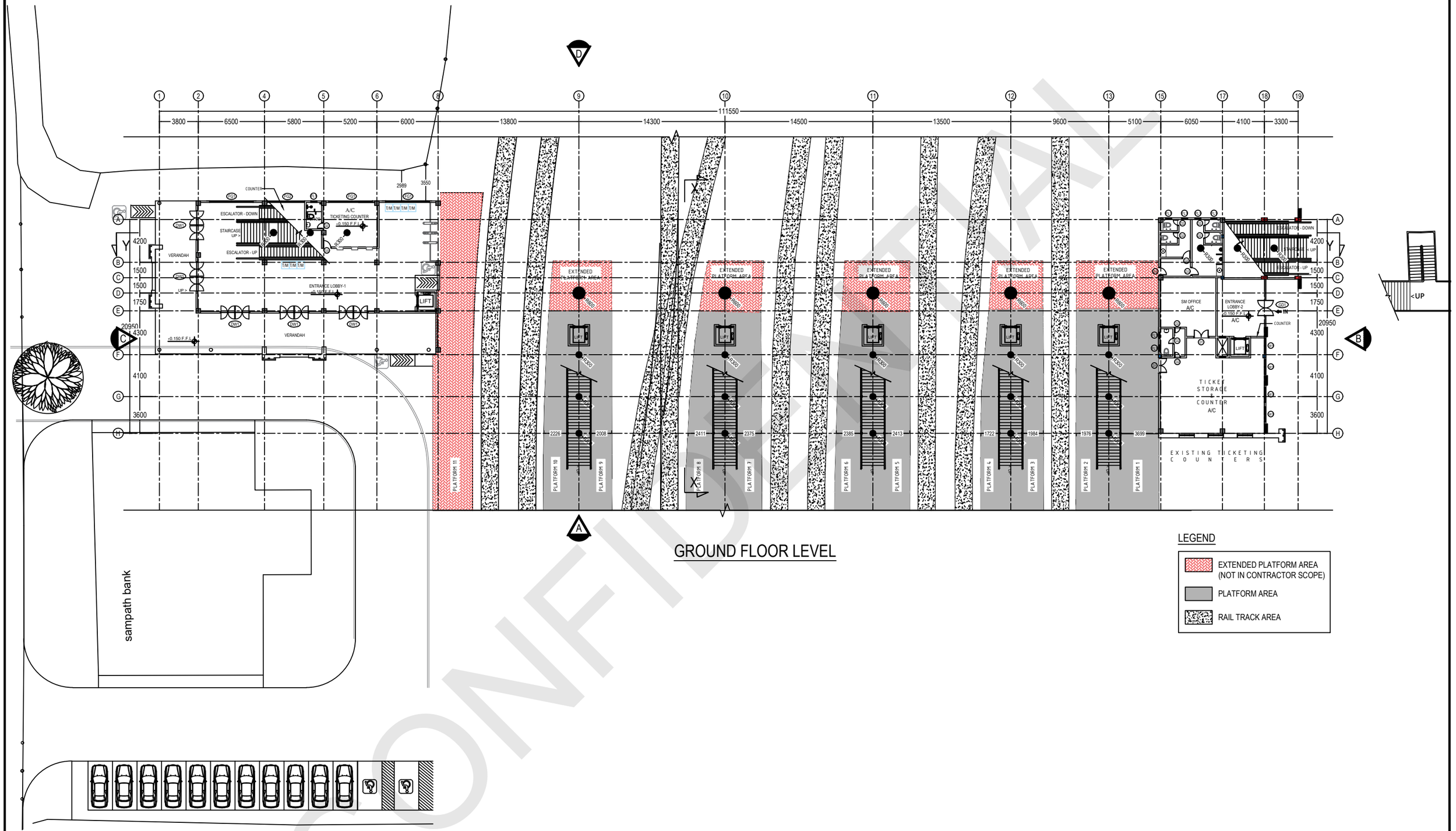
SUB TITLE :
PLATFORM EXTENSION LAYOUT

DRAWING NO :
REIP/FORT/TD-ARC-06

DESIGN BY	PRIYANGA	SCALE:	NTS
DRAWN BY	ASANKA	FORMAT:	A3
CHECKED BY	LALITH	REV :	R0
APPROVED BY	DEEGALA	DATE :	04/06/2025

A

CONSTRUCTION OF NEW PASSENGER BRIDGE AND ENTRANCE PORCH AT BAMBALAPITIYA END

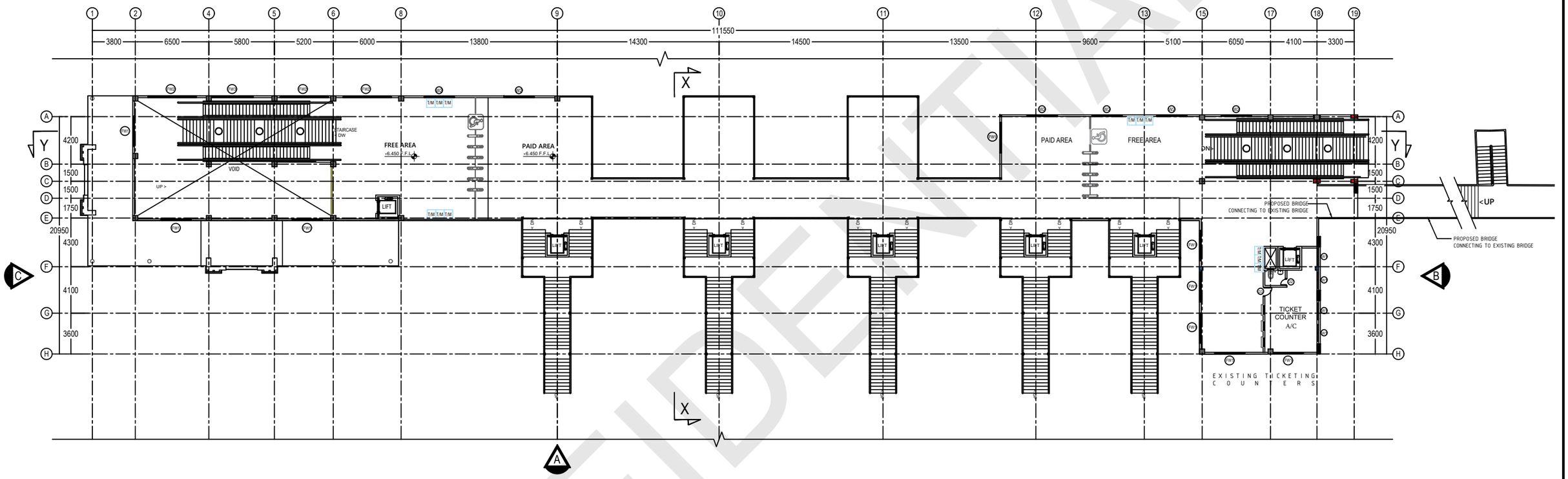


GROUND FLOOR LEVEL

LEGEND

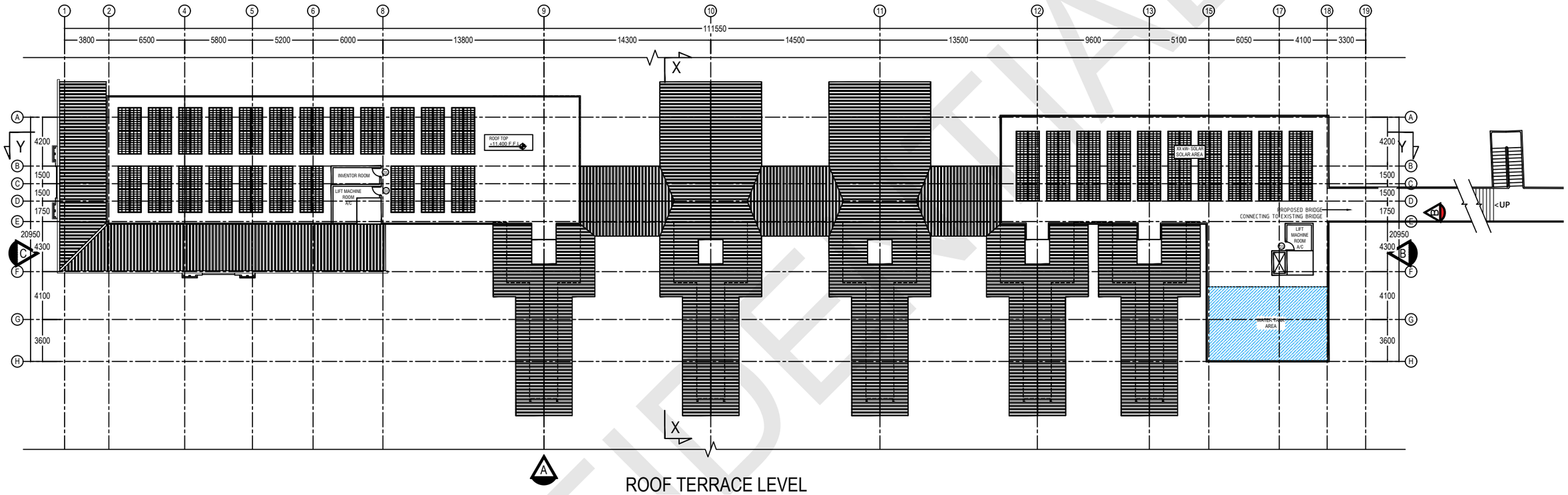
- EXTENDED PLATFORM AREA (NOT IN CONTRACTOR SCOPE)
- PLATFORM AREA
- RAIL TRACK AREA

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW PASSENGER BRIDGE AND ENTRANCE PORCH AT BAMBALAPITIYA END GROUND FLOOR PLAN DRAWING NO : REIP/FORT/TD-ARC-A-01	DESIGN BY : PRIYANGA DRAWN BY : ASANKA CHECKED BY : LALITH APPROVED BY : DEEGALA	SCALE : N T S FORMAT : A3 REV : R0 DATE : 04/06/2025



UPPER FLOOR LEVEL (BRIDGE LEVEL)

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW PASSENGER BRIDGE AND ENTRANCE PORCH AT BAMBALAPITIYA END UPPER FLOOR PLAN (BRIDGE LEVEL) DRAWING NO : REIP/FORT/TD-ARC-A-02	DESIGN BY : PRIYANGA DRAWN BY : ASANKA CHECKED BY : LALITH APPROVED BY : DEEGALA	SCALE : N T S FORMAT : A3 REV : R0 DATE : 04/06/2025



ROOF TERRACE LEVEL

NOTE:

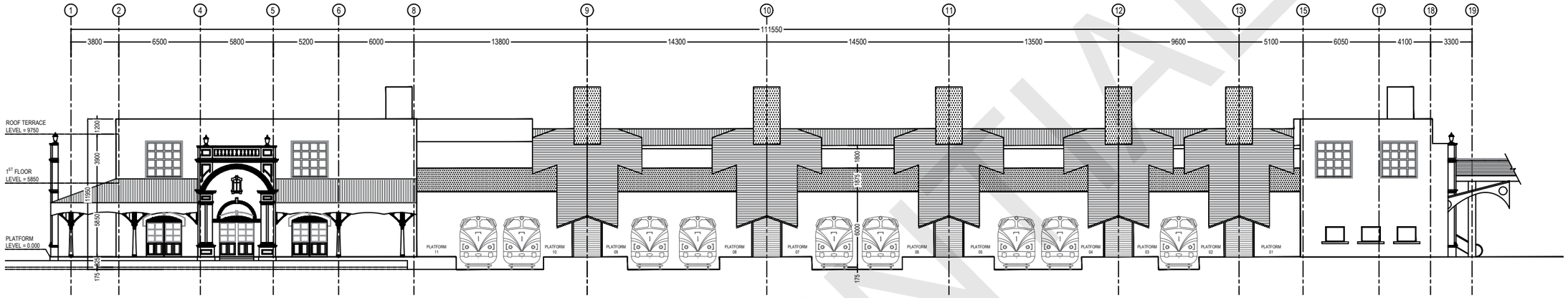
PROVIDE PROVISIONS FOR FUTURE INSTALLATION OF SOLAR PANELS.

NEWLY CONSTRUCTED OVERHEAD BRIDGE SHOULD BE CONNECTED TO THE EXISTING OVERHEAD BRIDGE. WHILE CONNECTING IF ANY IMPROVEMENTS REQUIRED TO EXISTING BRIDGE, IT HAS TO BE BORN BY THE CONTRACTOR.

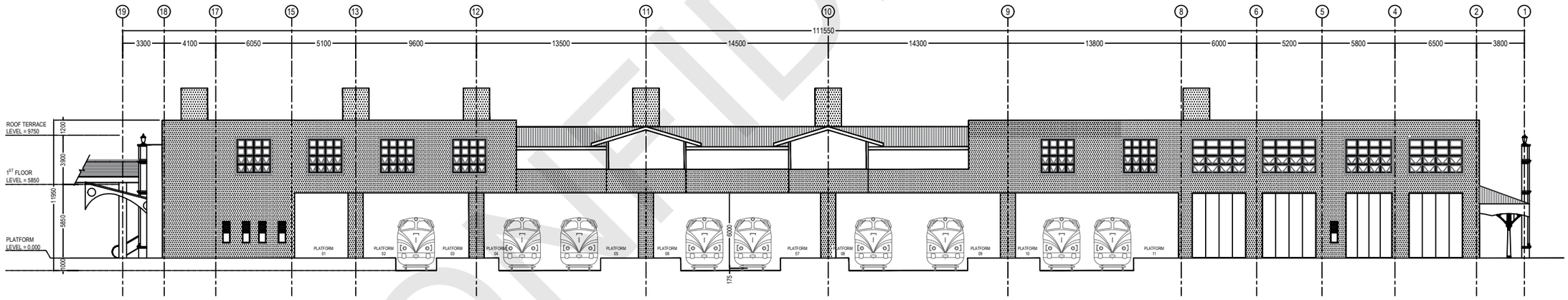
MEASUREMENTS CAN BE CHANGED ACCORDING TO SITE CONDITIONS.

T/M - TICKETING MACHINE

ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW PASSENGER BRIDGE AND ENTRANCE PORCH AT BAMBALAPITIYA END ROOF TERRACE LEVEL DRAWING NO : REIP/FORT/TD-ARC-A-03	DESIGN BY : PRIYANGA DRAWN BY : ASANKA CHECKED BY : LALITH APPROVED BY : DEEGALA	SCALE : N T S FORMAT : A3 REV : R0 DATE : 04/06/2025	

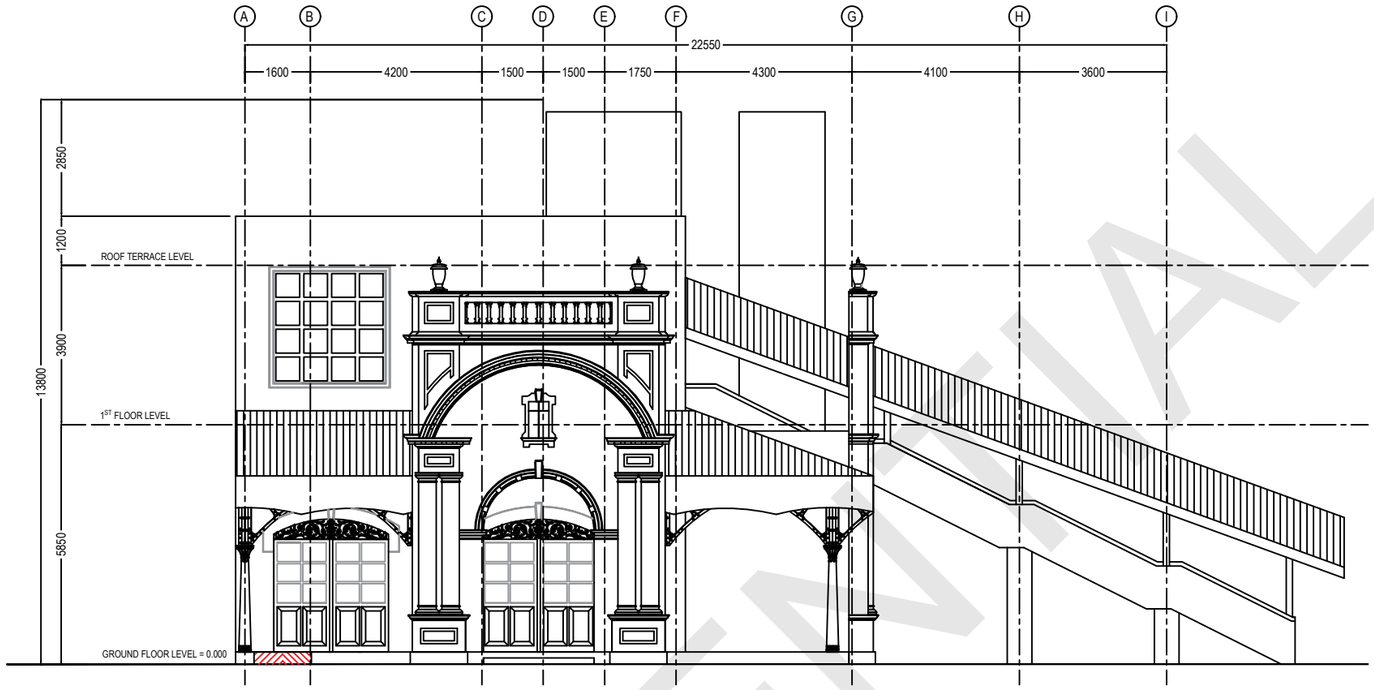


ELEVATION - A

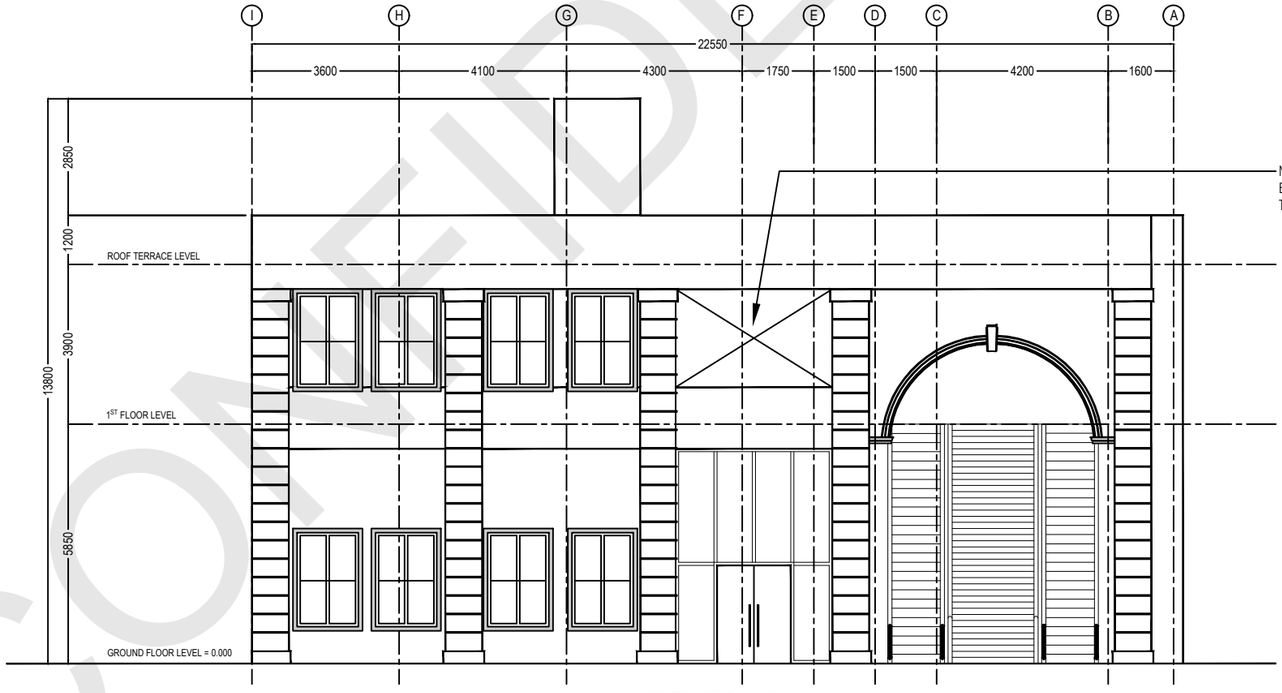


ELEVATION - D

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW PASSENGER BRIDGE AND ENTRANCE PORCH AT BAMBALAPITIYA END ELEVATION -A & ELEVATION -D DRAWING NO : REIP/FORT/TD-ARC-A-04	DESIGN BY : PRIYANGA DRAWN BY : ASANKA CHECKED BY : LALITH APPROVED BY : DEEGALA SCALE : N T S FORMAT : A3 REV : R0 DATE : 04/06/2025

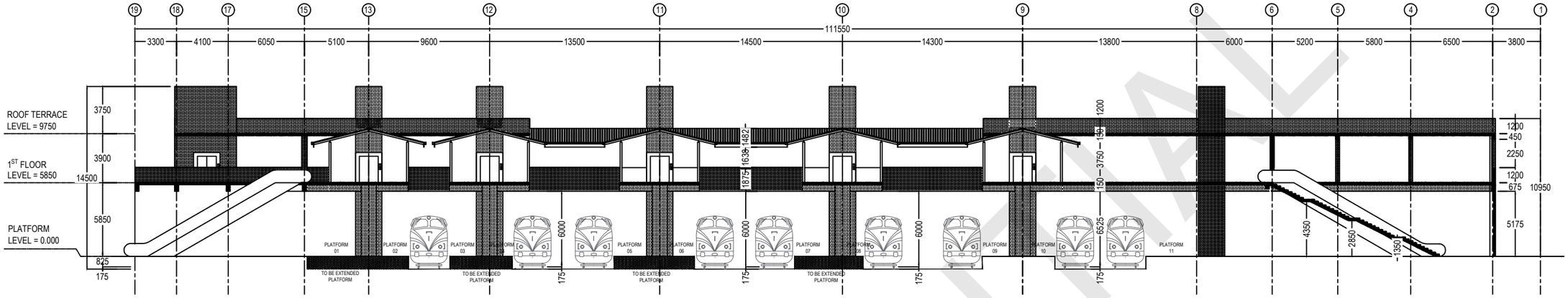


ELEVATION - C

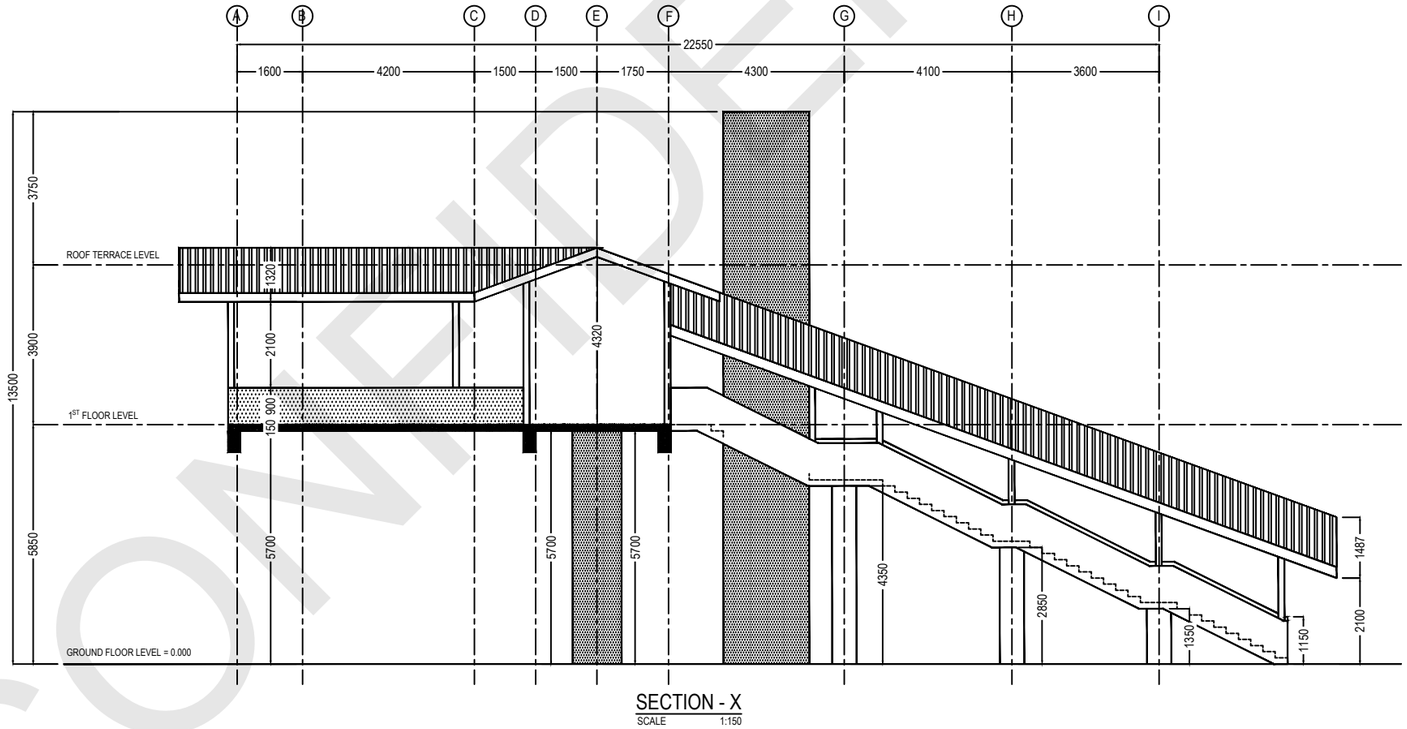


ELEVATION - B

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW PASSENGER BRIDGE AND ENTRANCE PORCH AT BAMBALAPITIYA END ELEVATION -B & ELEVATION -C DRAWING NO : REIP/FORT/TD-ARC-A-05	DESIGN BY : PRIYANGA DRAWN BY : ASANKA CHECKED BY : LALITH APPROVED BY : DEEGALA	SCALE : N T S FORMAT : A3 REV : R0 DATE : 04/06/2025



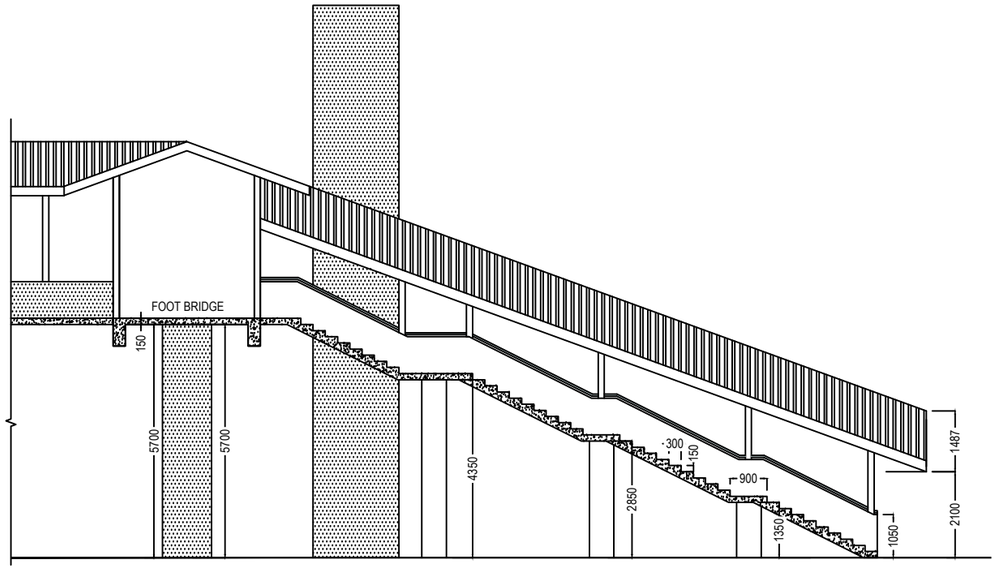
SECTION - Y



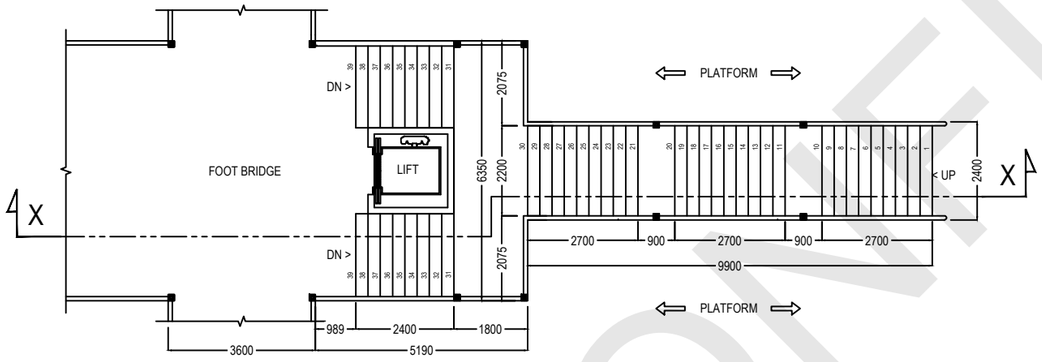
SECTION - X

SCALE 1:150

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW PASSENGER BRIDGE AND ENTRANCE PORCH AT BAMBALAPITIYA END SECTION -X & SECTION -Y DRAWING NO : REIP/FORT/TD-ARC-A-06	DESIGN BY : PRIYANGA DRAWN BY : ASANKA CHECKED BY : LALITH APPROVED BY : DEEGALA SCALE : N T S FORMAT : A3 REV : R0 DATE : 04/06/2025



STAIRCASE DETAIL
SCALE 1:150



STAIRCASE DETAIL
SCALE 1:150

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW PASSENGER BRIDGE AND ENTRANCE PORCH AT BAMBALAPITIYA END STAIRCASE DETAILS DRAWING NO : REIP/FORT/TD-ARC-A-07	DESIGN BY :	PRIYANGA	SCALE : N T S
					DRAWN BY :	ASANKA	FORMAT : A3
					CHECKED BY :	LALITH	REV : R0
					APPROVED BY :	DEEGALA	DATE : 04/06/2025

SCHEDULE OF FINISHING - CONSTRUCTION OF NEW PASSENGER BRIDGE AND ENTRANCE PORCH AT BAMBALAPITIYA END

SPACE	VENTILATION	FINISHES			
		FLOORING	CEILING	WALL	SKIRTING
Ground Floor Entrance Lobby-1 Ground Floor Entrance Lobby-2 Upper Floor (Bridge Area - Free and Paid Area)	Natural Ventilation	Anti-slip vitrified tiles (10mm tk 600mm x 1200mm non skid homogenous tiled floor with 2~3mm grout)	False metal ceiling with grid tile (600mm x 600mm) to accommodate services and distribute light uniformly for the working staff.	Smooth plastered walls to be finished with 2 coats of skim coat interior and 2 coats of alkali resistant plaster primer and 2 coats approved Internal paint as per manufactures specifications.	Anti-slip vitrified tiles (10mm tk 100mm x 600mm non skid homogenous tiled floor with 2~3mm grout)
SM Office	Natural Ventilation and Mechanical Ventilation	Anti-slip vitrified tiles (10mm tk 600mm x 600mm non skid homogenous tiled floor with 2~3mm grout)	False metal ceiling with grid tile (600mm x 600mm) to accommodate services and distribute light uniformly for the working staff.	Smooth plastered walls to be finished with 2 coats of skim coat interior and 2 coats of alkali resistant plaster primer and 2 coats approved Internal paint as per manufactures specifications.	Anti-slip vitrified tiles (10mm tk 100mm x 600mm non skid homogenous tiled floor with 2~3mm grout)
Wash Room Ticket Storage & Counter	Natural Ventilation and Mechanical Ventilation	Anti-slip vitrified tiles (10mm tk 600mm x 300mm non skid homogenous tiled floor with 2~3mm grout)	Grid false ceiling (Calcium silicate)	600mm x 300mm Glased Ceramic wall tile in approved color up to 1500mm high with (shower area tile and water proofing up to 2100mm high.) 12mm thick Cement and Sand (1:3) screed backing. Rest of the wall smooth plastered wall to be finished with 2 coats of skim coat Exterior and 2 coats of Dampseal exterior primer and approved external paint as per manufacturers specification.	–
Staircases steps and Side walls	Natural Ventilation	Anti-slip vitrified tiles (10mm tk 300mm x 600mm non skid homogenous tiled floor with 2~3mm grout)	False metal ceiling with grid tile (600mm x 600mm) to accommodate services and distribute light uniformly for the working staff.	Galvanized GI Handrail with Marine paint at 1100mm from F.F.L	Anti-slip vitrified tiles (10mm tk 100mm x 600mm non skid homogenous tiled floor with 2~3mm grout)
Lift Machine Room Store	Mechanical Ventilation	Cement rendering	RCC slab to be finished with 2 coats of skim coat, 2 coats of filler and 2 coats of approved paint colour as per manufacturers specifications.	Smooth plastered walls to be finished with 2 coats of skim coat interior and 2 coats of alkali resistant plaster primer and 2 coats approved Internal paint as per manufactures specifications.	100mm tk Cement rendering
Roof Terrace	–	Cement rendering including Water proofing	–	Semi rough plastered walls to be finished with 2 coats of Exterior filler 2 coats of Alkali resistant primer and to be painted with 2 coats of approved external (weather shield) paints as per manufactures specifications.	400mm tk Cement rendering + Water proofing

NOTE:

Tactile should be provided for suitable area for disabled person.

EXTERNAL FINISH - Semi rough plastered walls to be finished with 2 coats of Exterior filler 2 coats of Alkali resistant primer and to be painted with 2 coats of approved external (weather shield) paints as per manufactures specifications.

Material schedule and all the finishes specified in this schedule to be approved by the client representative and the consultants before construction.

Lift wall is clad in black glossy granite including architrave.

Due to bridge column construction by the contractor, The damaged area of the existing platform need to be rectified.

ADB
ASIAN DEVELOPMENT BANK

MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION

SRI LANKA RAILWAY

PROJECT MANAGEMENT UNIT
No.217, Cotta road,
Colombo 08, Sri Lanka.

PROJECT NAME:
RAILWAY EFFICIENCY IMPROVEMENT PROJECT

DRAWING TITLE :
PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION

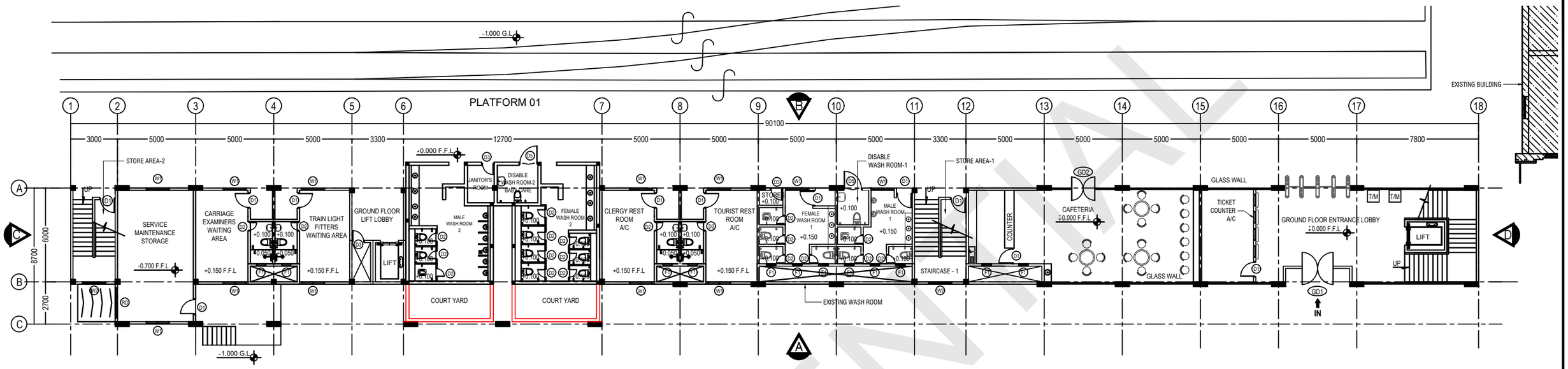
SUB TITLE :
CONSTRUCTION OF NEW PASSENGER BRIDGE AND ENTRANCE PORCH AT BAMBALAPITIYA END
SCHEDULE OF FINISHING

DRAWING NO :
REIP/FORT/TD-ARC-A-08

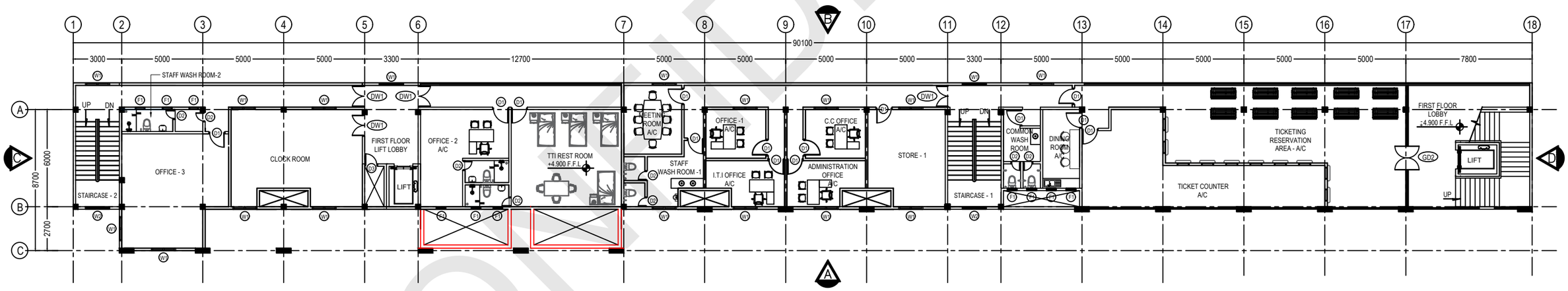
DESIGN BY :	PRIYANGA	SCALE :	N T S
DRAWN BY :	ASANKA	FORMAT :	A3
CHECKED BY :	LALITH	REV :	R0
APPROVED BY :	DEEGALA	DATE :	04/06/2025

B

CONSTRUCTION OF NEW SERVICE BUILDING



GROUND FLOOR PLAN



1ST FLOOR PLAN

NOTE:

MEASUREMENTS CAN BE CHANGED ACCORDING TO SITE CONDITIONS.

T/M - TICKETING MACHINE

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW SERVICE BUILDING GROUND FLOOR & FIRST FLOOR DRAWING NO : REIP/FORT/TD-ARC-B-01	DESIGN BY :	PRIYANGA	SCALE : N T S
					DRAWN BY :	ASANKA	FORMAT : A3
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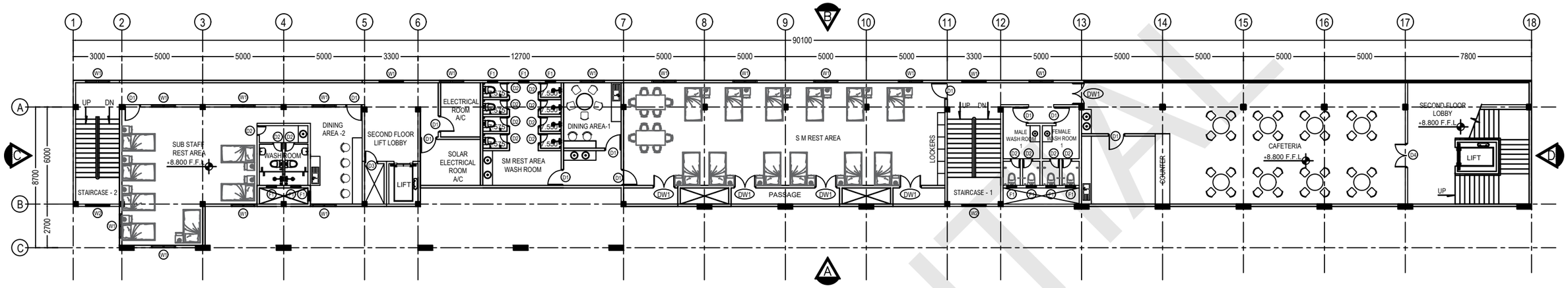
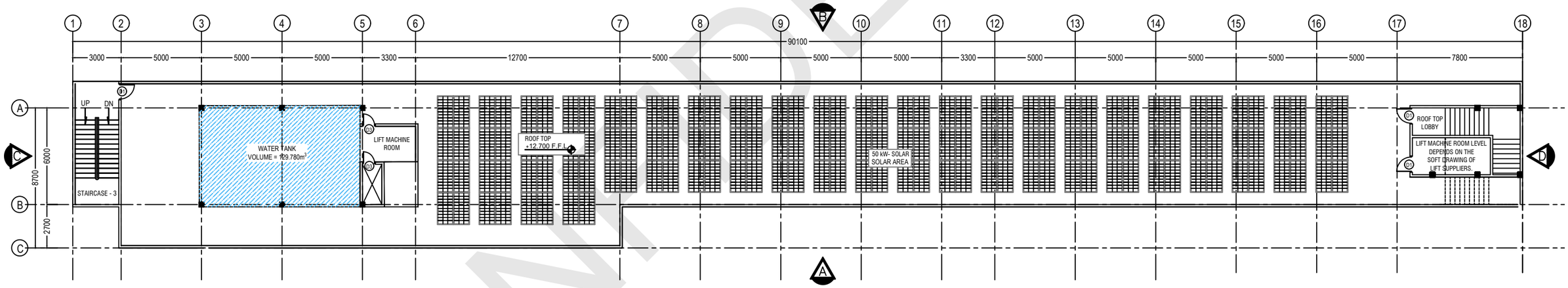
					APPROVED BY :	DEEGALA	DATE : 20/08/2025



2ND FLOOR PLAN

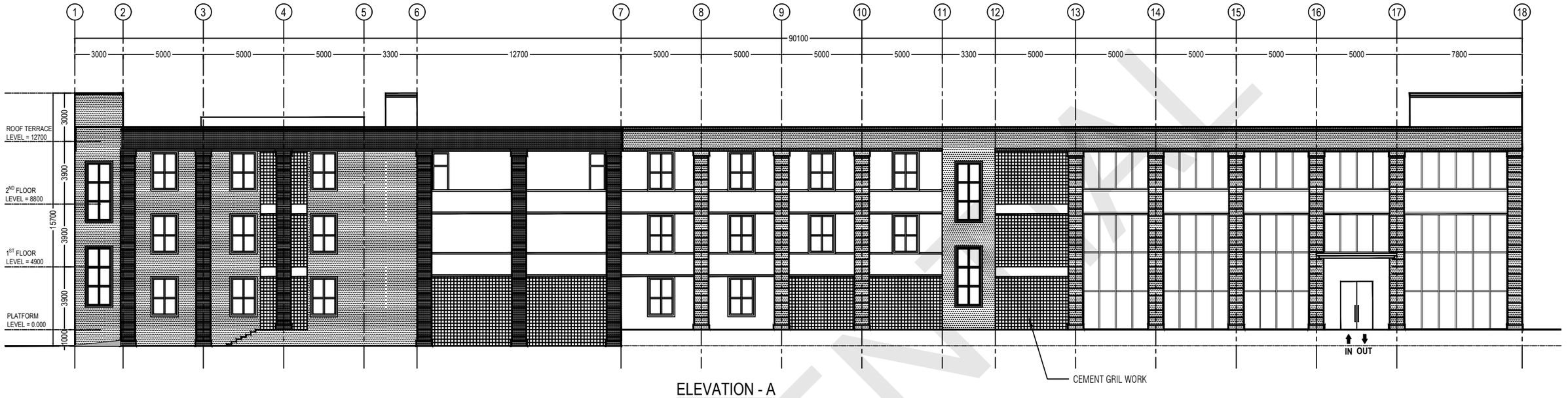


ROOF TERRACE PLAN

NOTE:

PROVIDE PROVISIONS FOR FUTURE INSTALLATION OF SOLAR PANELS.
MEASUREMENTS CAN BE CHANGED ACCORDING TO SITE CONDITIONS.

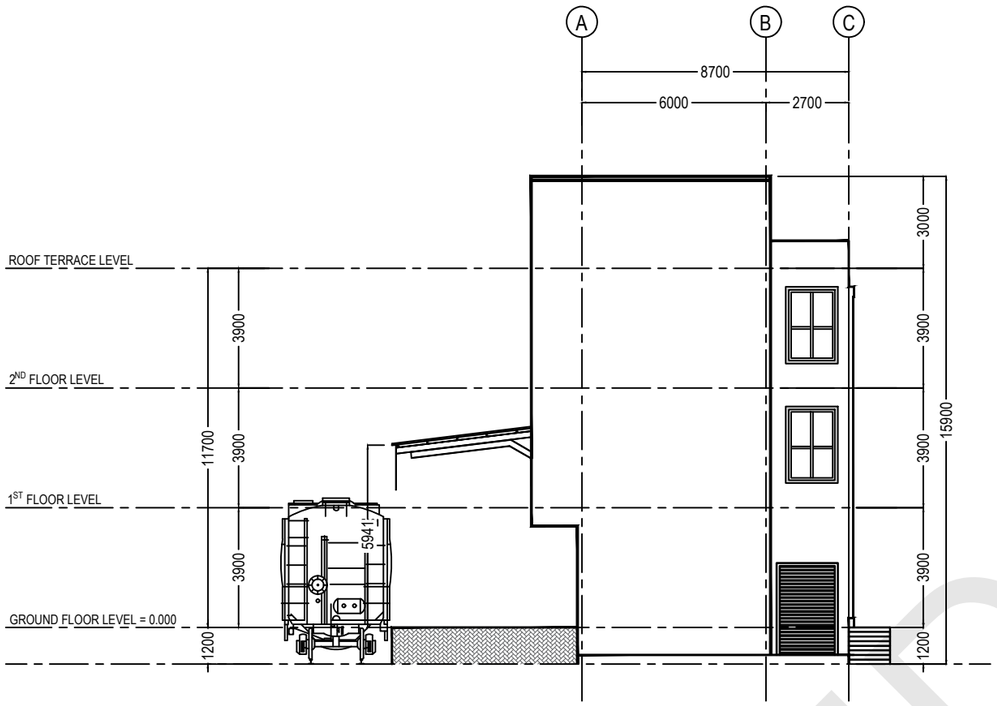
ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW SERVICE BUILDING SECOND FLOOR & ROOF TERRACE PLAN DRAWING NO : REIP/FORT/TD-ARC-B-02	DESIGN BY :	PRIYANGA	SCALE : N T S
					DRAWN BY :	ASANKA	FORMAT : A3
					CHECKED BY :	LALITH	REV : R0
					APPROVED BY :	DEEGALA	DATE : 20/08/2025



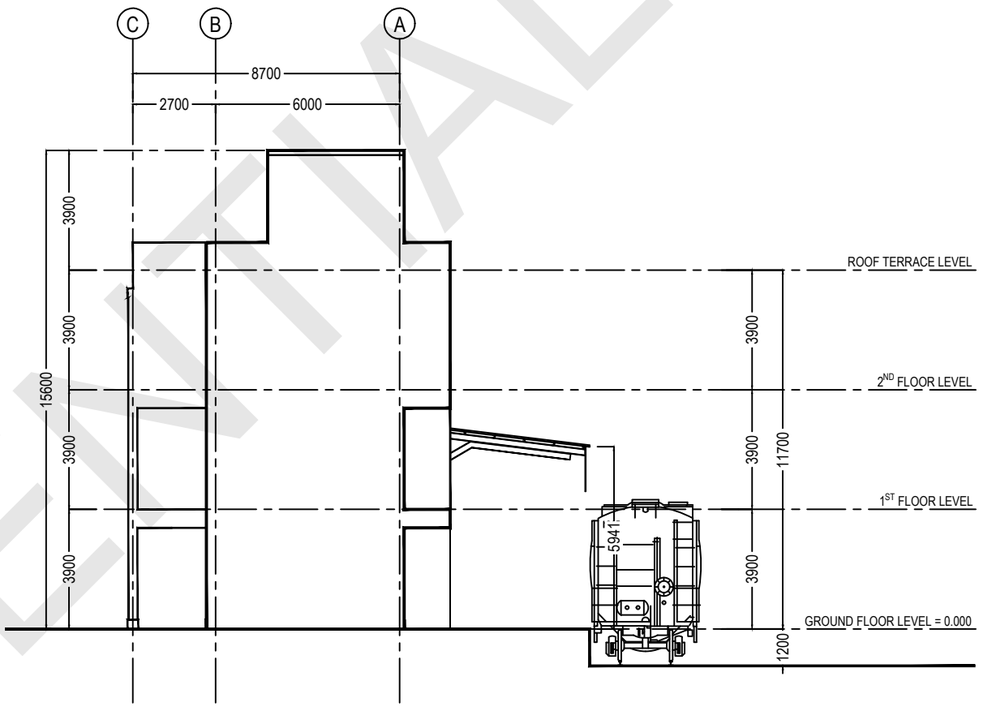
ELEVATION - A

ELEVATION - B

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW SERVICE BUILDING ELEVATION - A & ELEVATION - B DRAWING NO : REIP/FORT/TD-ARC-B-03	DESIGN BY : PRIYANGA DRAWN BY : ASANKA CHECKED BY : LALITH APPROVED BY : DEEGALA	SCALE : N T S FORMAT : A3 REV : R0 DATE : 20/08/2025



ELEVATION - C



ELEVATION - D

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW SERVICE BUILDING ELEVATION - C & ELEVATION - D DRAWING NO : REIP/FORT/TD-ARC-B-04	DESIGN BY :	PRIYANGA	SCALE : N T S
					DRAWN BY :	ASANKA	FORMAT : A3
					CHECKED BY :	LALITH	REV : R0
					APPROVED BY :	DEEGALA	DATE : 20/08/2025

CONSTRUCTION OF NEW SERVICE BUILDING - SCHEDULE OF FINISHING

FLOOR	SPACE	VENTILATION	FINISHES			
			FLOORING	CEILING	WALL	SKIRTING
SECOND FLOOR	Second Floor Lobby, Cafeteria and counter Second Floor Lift Lobby	Natural Ventilation	Anti-slip vitrified tiles (10mm tk 600mm x 1200mm non skid homogenous tiled floor with 2~3mm grout)	False metal ceiling with grid tile (600mm x 600mm) to accommodate services and distribute light uniformly for the working staff.	Smooth plastered walls to be finished with 2 coats of skim coat interior and 2 coats of alkali resistant plaster primer and 2 coats approved Internal paint as per manufactures specifications.	Anti-slip vitrified tiles (10mm tk 100mm x 600mm non skid homogenous tiled floor with 2~3mm grout)
	S M Rest Area, Dining Area -1&2, Electrical Room, Solar Electrical Room, Sub Staff Rest Area	Natural Ventilation	Anti-slip vitrified tiles (10mm tk 600mm x 600mm non skid homogenous tiled floor with 2~3mm grout)	False metal ceiling with grid tile (600mm x 600mm) to accommodate services and distribute light uniformly for the working staff.	Smooth plastered walls to be finished with 2 coats of skim coat interior and 2 coats of alkali resistant plaster primer and 2 coats approved Internal paint as per manufactures specifications.	Anti-slip vitrified tiles (10mm tk 100mm x 600mm non skid homogenous tiled floor with 2~3mm grout)
	Male Wash Room -1, Female Wash Room -1 SM Rest Area Wash Room Sub Staff Rest Area Wash Room	Natural and Mechanical Ventilation	Anti-slip vitrified tiles (10mm tk 300mm x 600mm non skid homogenous tiled floor with 2~3mm grout)	Grid false ceiling (Calcium silicate)	600mm x 300mm Glased Ceramic wall tile in approved color up to 1500mm high with (shower area tile and water proofing up to 2100mm high.) 12mm thick Cement and Sand (1:3) screed backing. Rest of the wall smooth plastered wall to be finished with 2 coats of skim coat Exterior and 2 coats of Dampseal exterior primer and approved external paint as per manufacturers specification.	–
	Balcony / Passages	Natural Ventilation	Anti-slip vitrified tiles (10mm tk 600mm x 600mm non skid homogenous tiled floor with 2~3mm grout)	False metal ceiling with grid tile (600mm x 600mm) to accommodate services and distribute light uniformly for the working staff.	Smooth plastered walls to be finished with 2 coats of skim coat interior and 2 coats of alkali resistant plaster primer and 2 coats approved Internal paint as per manufactures specifications.	Anti-slip vitrified tiles (10mm tk 100mm x 600mm non skid homogenous tiled floor with 2~3mm grout)
	Staircases	Natural Ventilation	Anti-slip vitrified tiles (10mm tk 300mm x 600mm non skid homogenous tiled floor with 2~3mm grout)	RCC slab to be finished with 2 coats of skim coat / 2 coats of filler and 2 coats of approved paint colour as per manufacturers specifications.	Galvanized GI Handrail with Marine Paint at 1100mm from F.F.L and Smooth plastered walls to be finished with 2 coats of skim coat interior and 2 coats of alkali resistant plaster primer and 2 coats approved Internal paint as per manufactures specifications.	Anti-slip vitrified tiles (10mm tk 100mm x 600mm non skid homogenous tiled floor with 2~3mm grout)
ROOF TERRACE	Lift Machine Room	Mechanical Ventilation	Cement rendering.	RCC slab to be finished with 2 coats of skim coat / 2 coats of filler and 2 coats of approved paint colour as per manufacturers specifications.	Smooth plastered walls to be finished with 2 coats of filler and to be painted with 2 coats of approved internal paint as per manufacturers specifications.	100mm tk Cement rendering.
	Roof Top & Terrace	–	Cement rendering including Water proofing.	–	Semi rough plastered walls to be finished with 1 coats of filler 1 coat of primer and to be painted with 2 coats of approved external (weather shield) paints as per manufactures specifications.	400mm tk Cement rendering.

NOTE:

Tactile should be provided for suitable area for disabled person.

External Finish - Semi rough plastered walls to be finished with 2 coats of Exterior filler 2 coats of Alkali resistant primer and to be painted with 2 coats of approved external (weather shield) paints as per manufactures specifications.

Material schedule and all the finishes specified in this schedule to be approved by the client representative and the consultants before construction.

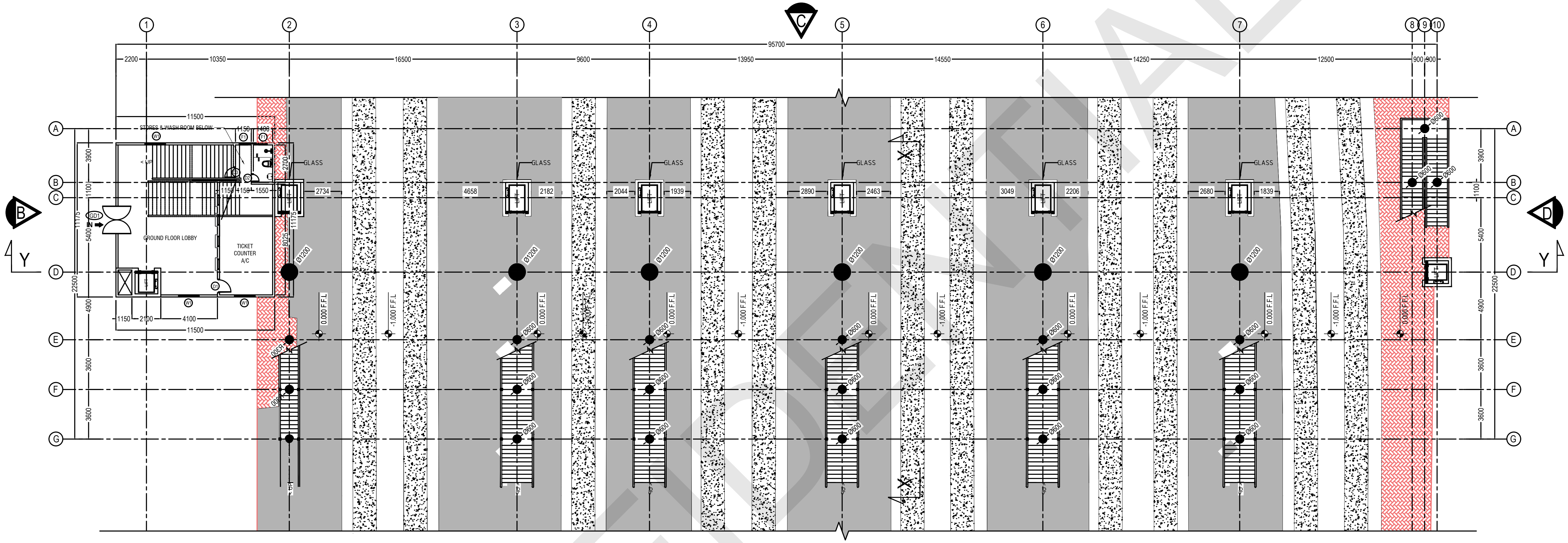
Lift wall is clad in black glossy granite including architrave.

Due to bridge column construction by the contractor, The damaged area of the existing platform need to be rectified.

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW SERVICE BUILDING SCHEDULE OF FINISHING DRAWING NO : REIP/FORT/TD-ARC-B-05	DESIGN BY :	PRIYANGA	SCALE : N T S
					DRAWN BY :	ASANKA	FORMAT : A3
					CHECKED BY :	LALITH	REV : R0
					APPROVED BY :	DEEGALA	DATE : 20/08/2025

C

CONSTRUCTION OF NEW PASSENGER BRIDGE AT MARADANA END



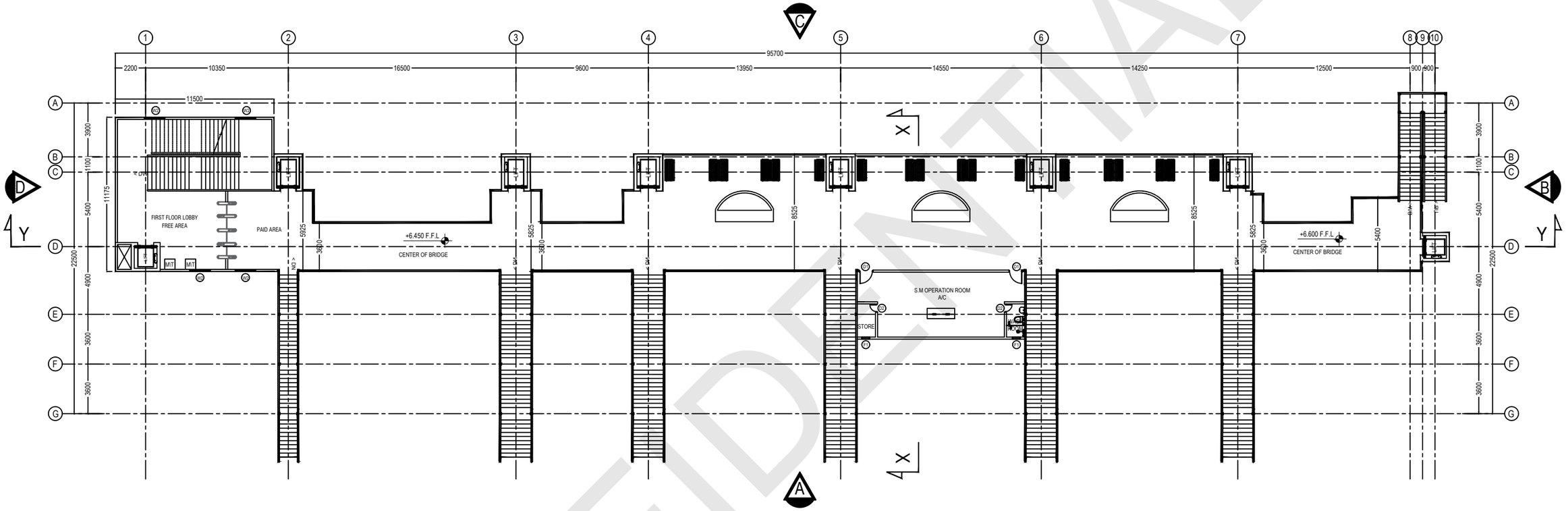
GROUND FLOOR PLAN

LEGEND

- PLATFORM AREA
- RAIL TRACK AREA
- PLATFORM EXTENDED

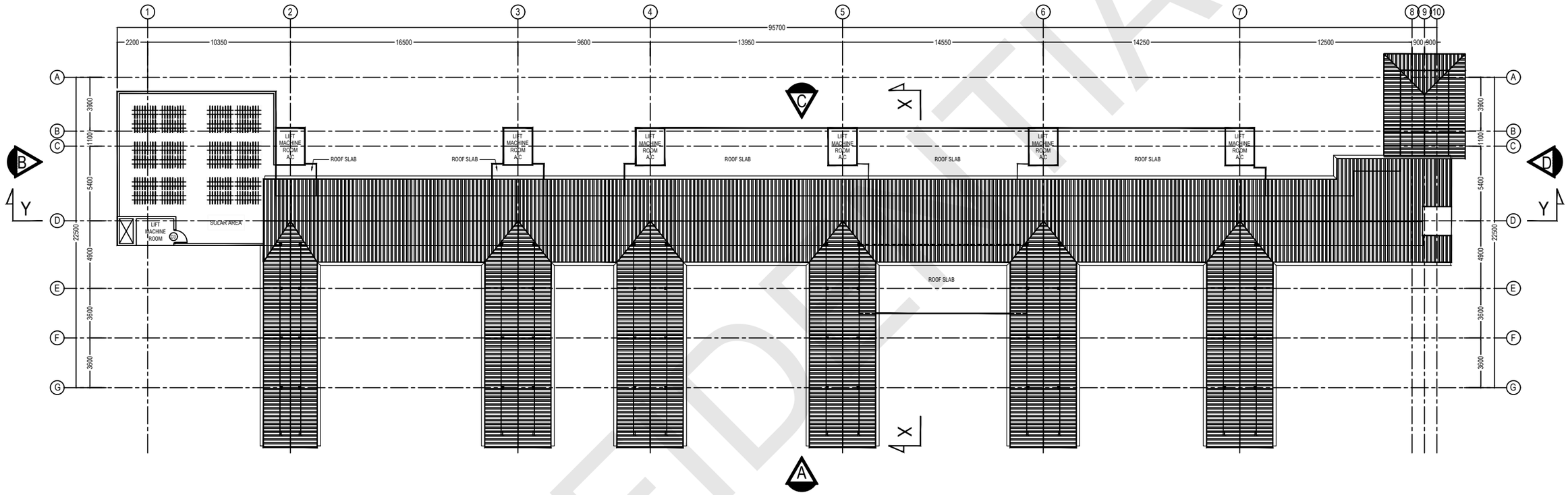
THE LIFT'S REAR WALL IS TEMPERED GLASS IN THE PLATFORM LIFTS AT THE MARADANA END OF THE BRIDGE.

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW PASSENGER BRIDGE AT MARADANA END GROUND FLOOR PLAN DRAWING NO : REIP/FORT/TD-ARC-C-01	DESIGN BY : DRAWN BY : CHECKED BY : APPROVED BY :	PRIYANGA ASANKA LALITH DEEGALA	SCALE : N T S FORMAT : A3 REV : R0 DATE : 04/06/2025



UPPER FLOOR LEVEL (BRIDGE LEVEL)

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW PASSENGER BRIDGE AT MARADANA END UPPER FLOOR PLAN DRAWING NO : REIP/FORT/TD-ARC-C-02	DESIGN BY :	PRIYANGA	SCALE : N T S
					DRAWN BY :	ASANKA	FORMAT : A3
					CHECKED BY :	LALITH	REV : R0
					APPROVED BY :	DEEGALA	DATE : 04/06/2025



ROOF TERRACE LEVEL

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW PASSENGER BRIDGE AT MARADANA END FIRST FLOOR PLAN DRAWING NO : REIP/FORT/TD-ARC-C-03	DESIGN BY :	PRIYANGA	SCALE : N T S
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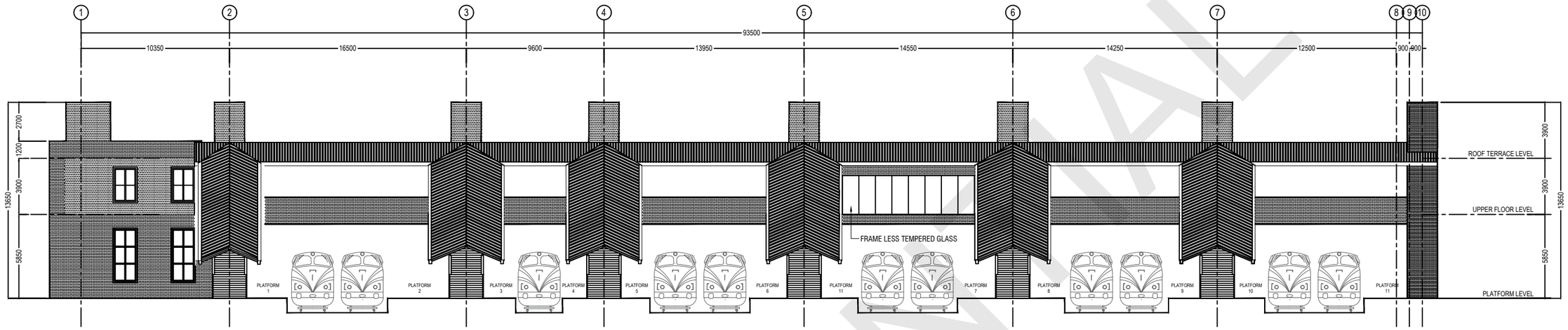
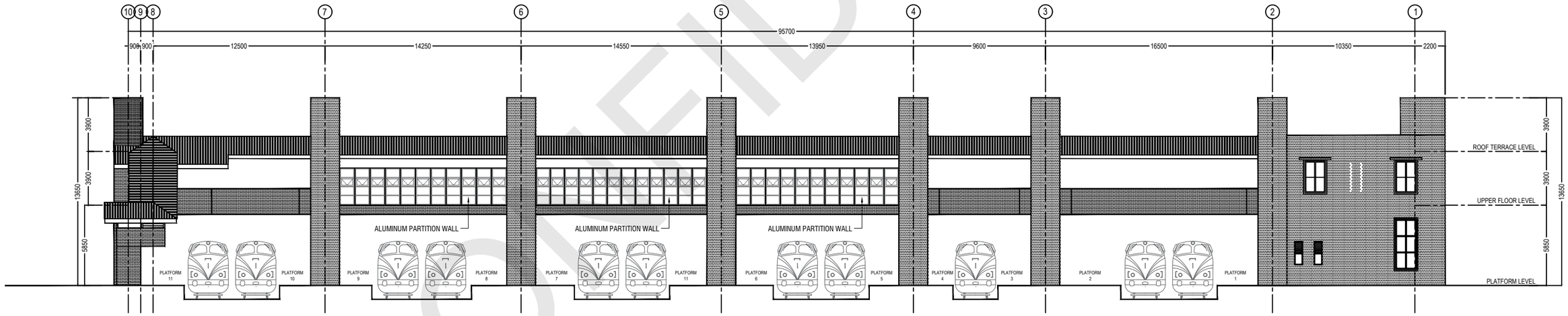
					APPROVED BY :	DEEGALA	DATE : 04/06/2025

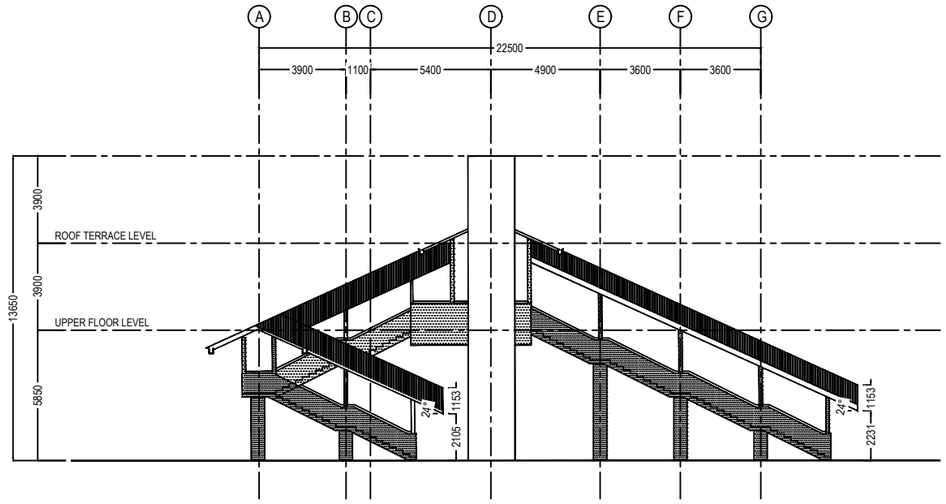


ELEVATION - A

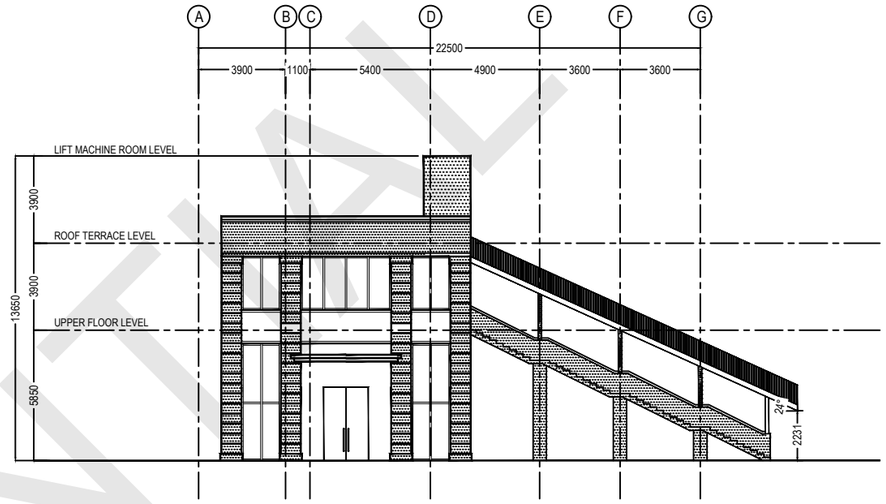


ELEVATION - C

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW PASSENGER BRIDGE AT MARADANA END ELEVATION - A & ELEVATION - C DRAWING NO : REIP/FORT/TD-ARC-C-04	DESIGN BY : PRIYANGA DRAWN BY : ASANKA CHECKED BY : LALITH APPROVED BY : DEEGALA SCALE : N T S FORMAT : A3 REV : R0 DATE : 04/06/2025



ELEVATION - B



ELEVATION - B

ADB ASIAN DEVELOPMENT BANK	MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION SRI LANKA RAILWAY	PROJECT MANAGEMENT UNIT No.217, Cotta road, Colombo 08, Sri Lanka.	PROJECT NAME: RAILWAY EFFICIENCY IMPROVEMENT PROJECT DRAWING TITLE : PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION	SUB TITLE : CONSTRUCTION OF NEW PASSENGER BRIDGE AT MARADANA END ELEVATION - B,D & SECTION - Y DRAWING NO : REIP/FORT/TD-ARC-C-05	DESIGN BY :	PRIYANGA	SCALE : N T S
					DRAWN BY :	ASANKA	FORMAT : A3
					CHECKED BY :	LALITH	REV : R0
					APPROVED BY :	DEEGALA	DATE : 04/06/2025

SCHEDULE OF FINISHING - CONSTRUCTION OF NEW PASSENGER BRIDGE AT MARADANA END

SPACE	VENTILATION	FINISHES			
		FLOORING	CEILING	WALL	SKIRTING
Ground Floor Lobby Bridge Area (Free Area & Paid Area) First Floor Lobby	Natural Ventilation	Anti-slip vitrified tiles (10mm tk 600mm x 1200mm non skid homogenous tiled floor with 2~3mm grout)	False metal ceiling with grid tile (600mm x 600mm) to accommodate services and distribute light uniformly for the working staff.	Smooth plastered walls to be finished with 2 coats of skim coat interior and 2 coats of alkali resistant plaster primer and 2 coats approved Internal paint as per manufactures specifications.	Anti-slip vitrified tiles (10mm tk 100mm x 600mm non skid homogenous tiled floor with 2~3mm grout)
Wash Room	Natural Ventilation and Mechanical Ventilation	Anti-slip vitrified tiles (10mm tk 600mm x 300mm non skid homogenous tiled floor with 2~3mm grout)	Grid false ceiling (Calcium silicate)	600mm x 300mm Glased Ceramic wall tile in approved color up to 1500mm high with (shower area tile and water proofing up to 2100mm high.) 12mm thick Cement and Sand (1:3) screed backing. Rest of the wall smooth plastered wall to be finished with 2 coats of skim coat Exterior and 2 coats of Dampseal exterior primer and approved external paint as per manufacturers specification.	–
Staircases	Natural Ventilation	Anti-slip vitrified tiles (10mm tk 300mm x 600mm non skid homogenous tiled floor with 2~3mm grout)	False metal ceiling with grid tile (600mm x 600mm) to accommodate services and distribute light uniformly for the working staff.	Galvanized GI Handrail with Marine Paint at 1100mm from F.F.L and Semi rough plastered walls to be finished with 1 coats of filler 1 coat of primer and to be painted with 2 coats of approved external (weather shield) paints as per manufactures specifications.	Anti-slip vitrified tiles (10mm tk 100mm x 600mm non skid homogenous tiled floor with 2~3mm grout)
Ticket Counter	Mechanical Ventilation	Anti-slip vitrified tiles (10mm tk 600mm x 600mm non skid homogenous tiled floor with 2~3mm grout)	False metal ceiling with grid tile (600mm x 600mm) to accommodate services and distribute light uniformly for the working staff.	Smooth plastered walls to be finished with 2 coats of skim coat interior and 2 coats of alkali resistant plaster primer and 2 coats approved Internal paint as per manufactures specifications.	Anti-slip vitrified tiles (10mm tk 100mm x 600mm non skid homogenous tiled floor with 2~3mm grout)
Lift machine room Store	Mechanical Ventilation	Cement rendering	RCC slab to be finished with 2 coats of skim coat, 2 coats of filler and 2 coats of approved paint colour as per manufacturers specifications.	Smooth plastered walls to be finished with 2 coats of skim coat interior and 2 coats of alkali resistant plaster primer and 2 coats approved Internal paint as per manufactures specifications.	100mm tk Cement rendering
Roof Terrace	–	Cement rendering including Water proofing	–	Semi rough plastered walls to be finished with 2 coats of Exterior filler 2 coats of Alkali resistant primer and to be painted with 2 coats of approved external (weather shield) paints as per manufactures specifications.	400mm tk Cement rendering + Water proofing

NOTE:

Tactile should be provided for suitable area for disabled person.

EXTERNAL FINISH - Semi rough plastered walls to be finished with 2 coats of Exterior filler 2 coats of Alkali resistant primer and to be painted with 2 coats of approved external (weather shield) paints as per manufactures specifications.

Material schedule and all the finishes specified in this schedule to be approved by the client representative and the consultants before construction.

Lift wall is clad in black glossy granite including architrave.

Due to bridge column construction by the contractor, The damaged area of the existing platform need to be rectified.

ASIAN DEVELOPMENT BANK

MINISTRY OF TRANSPORT, HIGHWAYS, PORTS AND CIVIL AVIATION

SRI LANKA RAILWAY

PROJECT MANAGEMENT UNIT
No.217, Cotta road,
Colombo 08, Sri Lanka.

PROJECT NAME:
RAILWAY EFFICIENCY IMPROVEMENT PROJECT

DRAWING TITLE :
PROPOSED RENOVATION FOR COLOMBO FORT RAILWAY STATION

SUB TITLE :
CONSTRUCTION OF NEW PASSENGER BRIDGE AT MARADANA END
SCHEDULE OF FINISHING

DRAWING NO :
REIP/FORT/TD-ARC-C-06

DESIGN BY :	PRIYANGA	SCALE :	N T S
DRAWN BY :	ASANKA	FORMAT :	A3
CHECKED BY :	LALITH	REV :	R0
APPROVED BY :	DEEGALA	DATE :	04/06/2025

Supplementary Information Regarding Works to Be Procured

1. Description of the Project

The Colombo Suburban Railway Efficiency Improvement Project is funded by the Asian Development Bank and there are many sub projects to provide improvements in the railway sector. Rehabilitation of the Colombo Fort railway station is coming under the OUT PUT 3 – Railway Safety Improved of REIP. With this project it is expected to improve the safety of the railway commuters and the staff of SLR. With this project, Colombo Fort Railway Station will adopt a face lift with modern facilities in order to cater more commuters with quality service. Colombo Fort Railway Station will not lose its colonial architectural values or the traditional Sri Lankan Railway excellence, but will adopt modern facilities where Sri Lankan Railway joins the todays' world latest technologies.

2. Scope of Works

Scope of Work "A" Proposed New Service Building Development		
	Description	Main features
01	i) Design and construction of the service building complying to the given architectural design. ii) This building will accommodate the existing offices located in Colombo Fort railway station, as shown in the architectural drawings. iii) This building will provide facilities to the staff working in Colombo Fort railway station such as office spaces, rest rooms and washrooms.. iv) This building will provide facilities to the railway commuters such as rest rooms, cafeterias Supermarket, and toilets …etc. v) The building should be equipped with suitable disabled access. vi) The existing toilet block that has already been constructed must be renovated. The contractor is required to carry out structural modifications to this building, as the existing roof will be replaced with an RCC slab. vii) The contractor must first identify all existing utilities and ensure their proper relocation. During the initial site setting-out period, temporary facilities must be provided to the station to prevent any disruption to train services. viii) The Contractor must make provisions for the	• Office space should be provided • Toilet facilities for both staff and passengers should be provided • Commercial areas should be provided with easy access to the railway commuters. • All architectural and structural features should be according to the drawings provided by the Employer with annexure – B • Demolition of existing building parts are shown in the drawing. • Roof rainwater down pipes and plumbing, electrical lines roof rainwater down pipes inside and outside the building need to be covered by duct. • Providing roof cover to platform No. 1. • Development of existing toilets shown in the architectural drawings • MEP provisions must be made for solar panel installation. • An overhead water tank is required. Its capacity should be determined based on the building's total water requirement as per the MEP engineer's calculations. • Door signs and key tag signs are required. • Cafeteria furniture, cafeteria counters, and waiting area furniture must be provided. • Ticket counters need to be provided to match the existing counters. These counters are made of teak timber • Platform, balcony, and passenger levels must be designed to properly drain rainwater. • A minimum ceiling height of 3 meters must be maintained.

	installation of ticketing gates and ticketing machines. ix) Raising and widening of existing Platform No. 01 are included. x) Initially, the contractor must identify site level differences, and the design should be adjusted accordingly. These changes are considered part of the original scope and not additional work. xi) Roof terrace heat insulation and waterproofing need to be included. xii) Generator backup is required for all facilities on the service building. xiii) Waiting area furniture and bridge TV displays must be provided, either wall-mounted or suspended from the roof.	• The sizes of the electrical room and inverter room must be determined based on the contractor's MEP engineer's design requirements. If any additional service rooms or service ducts are required, the contractor must make the necessary provisions. • Fire protection system should include fire extinguishers of appropriate type.

Scope of Work "B" Construction Of New Passenger Bridge and Entrance Porch at Bambalapitiya End		
	Description	Main features
02	I. The existing railway bridge, located between the Sampath Bank end and the main entrance, will be demolished. However, this demolition must be carried out in stages to ensure that passenger movement within the station is not disrupted. During the construction period, the existing bridge must remain accessible for passenger use. II. New passenger bridge will be constructed connecting all the platforms and two entrances. III. This new bridge will increase the mobility of the passengers providing the easy access to all the areas of the Colombo Fort railway station. IV. New passenger bridge will increase the disabled access to the station. V. The contractor must first identify all existing utilities and ensure their proper relocation. During the initial site setting-out period, temporary facilities must be provided to the station to prevent any disruption to train services. VI. For building construction near the Beira Lake area, the contractor must consider safety measures during foundation excavation. If necessary, sheet piles may be used to ensure	• Every Platform should be connected with easy access to the passengers. • Staircases and lifts should be provided to every platform and for the entrances with the disabled access facilities. • All architectural and structural features should be according to the drawings provided by the Employer • Two entrance lobbies to constructed at Sampath bank side end and Olcot Mawatha end of the bridge, as per the given architectural drawings, including staircases and lifts ~~and lifts.~~ • Provisions to be made to ticketing gates and ticket machines. • MEP provisions must be made for solar panel installation. • Door signs and key tag signs are required. • An overhead water tank is required. Its capacity should be determined based on the building's total water requirement as per the MEP engineer's calculations • The existing ticket counter must be properly painted and renovated. • The escalator needs to be of the outdoor type. • The height clearance from the top of the rail track to the bottom of the bridge is 6 meters. • The roof eaves must be designed to prevent rainwater from entering the proposed bridge. • Bridge floor rainwater gullies need to be provided to properly drain

	safety. VII. Separate electricity supply must be provided for the cafeterias and rentable spaces.	the water. • Waiting area furniture and bridge TV displays must be provided, either wall-mounted or suspended from the roof. • 0.47 mm thick Zn-Al roofing sheets with sandwich panel insulation and a metal strip ceiling are required, along with a warranty against colour fading. • Expansion joints shall be provided in accordance with the design of the contractor's structural engineer. • Fire protection, PA system, data and telephone system, and advertising system must be incorporated into the design. • Provisions must be made in the SLR central operational area of the bridge for SLR signaling cables.

Scope of Work "D" Proposed Passenger Bridge at Maradana End		
04	I) A new passenger bridge will be constructed at Maradana end to increase the passenger mobility. II) The existing railway bridge, at Maradana end, will be demolished. However, this demolition must be carried out in stages to ensure that passenger movement within the station is not disrupted. During the construction period, the existing bridge must remain accessible for passenger use. III) The contractor must first identify all existing utilities and ensure their proper relocation. During the initial site setting-out period, temporary facilities must be provided to the station to prevent any disruption to train services.	• All architectural and structural features should be according to the drawings provided by the Employer • The bridge should be equipped with and elevators to provide access to platforms, as per the drawings. • Station Master (Operating) room to be provided on the bridge, as shown in the drawing • Provisions to be made to ticketing gates and ticket machines. • MEP provisions must be made for solar panel installation. • The height clearance from the top of the rail track to the bottom of the bridge is 6 meters. • The roof eaves must be designed to prevent rainwater from entering the proposed bridge. • Bridge floor rainwater gullies need to be provided to properly drain the water. • Waiting area furniture and bridge TV displays must be provided, either wall-mounted or suspended from the roof. • 0.47 mm thick Zn-Al roofing sheets with sandwich panel insulation and a metal strip ceiling are required, along with a warranty against colour fading. • Expansion joints shall be provided in accordance with the design of the contractor's structural engineer. • Fire protection, PA system, data and telephone system, and advertising system must be incorporated into the design. • Provisions must be made in the SLR central operational area of the bridge for SLR signaling cables.

Scope of Work “E” Landscaping Work and passenger facility building		
04	I) Station frontage and the entrance at Sampath bank side to be landscaped as per the landscape design drawings. II) Existing road asphalt, drains, pavements, road curbs, trees, existing sculptures painting, chain link fence 3m Hight, road signs, and road markings are included. III) As the railway station will remain operational during construction, the contractor must ensure that all necessary safety measures are strictly implemented. The construction plan shall be developed and executed in coordination with the ongoing station operations. IV) Newly planted trees of at least 3 m height are required (Employer to decide) V) Landscape lights and street lights must be provided.	• Parking facilities, entrance and exit gates, and two security huts must be provided and included • Vehicle paths to be finished with asphalt concrete surfacing. • All road markings and sign boards to be made as shown in drawings and relevant standards. • Planting trees as shown in drawings. • Barrier gate poles must be installed at the entrance and exit gates. • A rainwater harvesting system needs to be used for watering the landscape area plants. • During construction, if any existing utilities are damaged, the contractor must rectify them at their own cost. Existing utilities must be identified prior to starting construction. If relocation of any utilities is required, the contractor shall carry out the relocation at their own cost. These costs must be included in the contractor's bid. • Rainwater drains constructed by the contractor must be properly aligned with the existing road drains within the premises. Clearance for rainwater discharge must also be obtained from the CMC

a. Excavation for Foundation should include shoring, dewatering and other protection
b. The contractor shall consider the safety of disabled persons in the railway station. The following aspects should be included in the design construction of the railway station.
c. Provide Braille general signs for public areas (e.g. ticket counters, male-female toilets rest rooms, canteen ...etc.).
d. Provide reflective strips at stairs for people with low vision. Provide Braille maps of the station.
e. Provide low height enquiry counters and ticketing counters for disabled persons.
f. The stair steps also need to be renovated, and the damaged steps need to be replaced with new steps. Structural soundness is also considered by the contractor during renovation.
g. Filtered rainwater reuse for landscaping and flushing.
h. Provisions for Generator backup power must be provided for both bridges and the service building.
i. A lightning protection system and aircraft warning lights must be provided in accordance with airport aviation requirements.
j. All new constructions must achieve a minimum of Certified level under the Green Building rating system.
k. Emergency and escape route lighting with battery backup and Energy-efficient LED lighting for all areas.
l. Integration with public address (PA) and emergency evacuation systems.
m. CCTV system
n. structures require expansion joints to accommodate movements due to thermal changes
o. Fire protection, PA system, data and telephone system, and advertising system must be incorporated into the design.
p. Sewer and wastewater must be directed to the Colombo Municipal Council sewer line, and connection charges and CMC payments must be included in the contractor's proposal
q. Dialog and SLT connection charges, along with the relevant ducting and trench work, must also be included in the contractor's scope.
r. All washrooms must be provided with mechanical ventilation (exhaust fans).
s. Door signs and key tag signs are required.

COVID-19 Related Health & Safety requirements

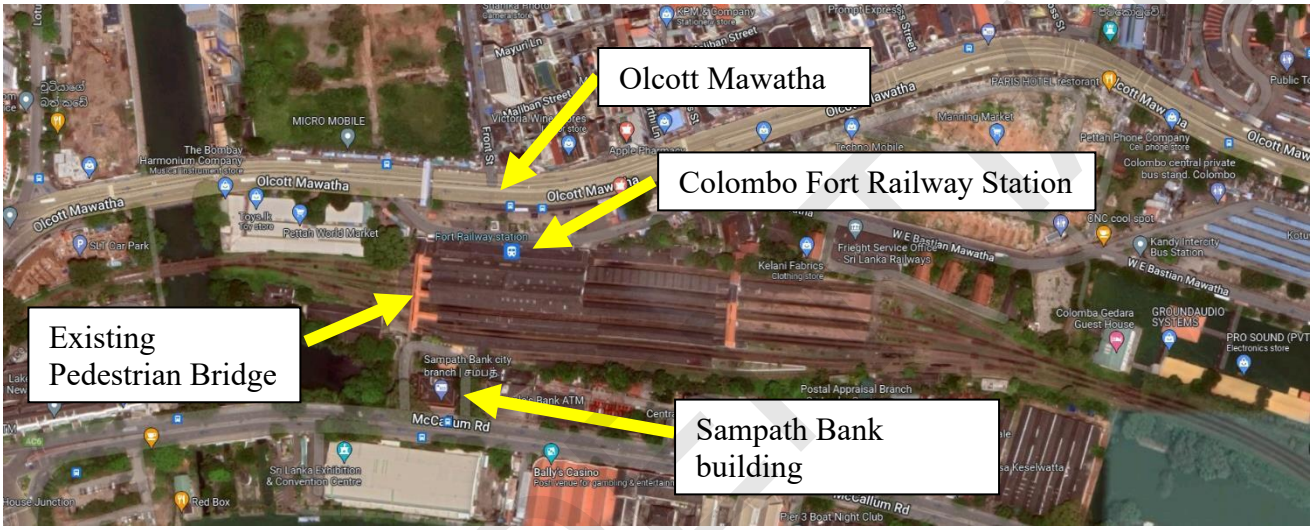
Local regulations and guidance specific to COVID-19 prevention and controls

- Quarantine and prevention of diseases ordinance (chapter 222) Extraordinary Gazette no.:2197/25, Date :2020-10-15 published by Ministry of Health - Corona Virus Disease 2019 (Covid 19) (Preventive Measures) Regulations

The Environmental Management Plan is referenced in Section 6.6. The Initial Environmental Examination.

3. Location Map

The project site is accessible from both rail and road and situated in the land belonging to the Employer, Sri Lanka Railways. A map showing the proposed location is indicated below as a guide to the Contractor. The Contractor is responsible to locate and arrange suitable material, quarries and other resources necessary for the Contract. Contractor shall also be responsible to locate suitable disposal areas, for demolished or unsuitable excavated materials in consultation with the Engineer, Employer and municipal authorities.



4. Safety

Railway operations will be continued throughout the construction period. Therefore, always maintain maximum safety procedures to ensure the safety of the railway passengers and others who will use the Colombo Fort railway station. Safety barriers and caution sings should be displayed according to the safety standards acceptable by the Engineer.
Safety barriers and caution signs should be provided to ensure the safety of the commuters.

All the permanent and temporary structures should be with no interruption to the railway operations and ensure safety of railway commuter's and railway property. Maintain SLR provided vertical and horizontal clearance measures from the railway tracks to any permanent or temporary structure.
Continuous coordination should be maintained with railway appointed officer to ensure smooth execution of work of contractor and SLR.

5. General instructions

Any metal element found during the exaction or any other activity inside the site premises belongs to the client, therefore shall be handed over to the client as soon as possible. The excavation or any other demolition work shall always be supervised by the engineer, or a representative appointed by Sri Lanka Railway

Execution of the construction work shall not be any interruption to the to the train operations. Daily train schedule shall be continued with minimum disturbance from the constructions. Train commuters shall bare minimum disturbance from the constructions work.

Work execution shall be arranged in a sequence where minimum disturbance happens to the day today railway operations. For that some facilities given in buildings which are to demolish has to be shifted and resettle in temporary locations. Due to limited space available in the Fort station area, the Employer suggest to the employer following order of construction of buildings.

1. Construction of temporary toilet block in the area reserved for proposed toilet complex to be built by railway department. (withing service building area)
2. Construction of Service building and Construction of new passenger bridge from platform no 1 to platform no 11.
3. Construction of main passenger bridge from D.R. Wijewardana Mawatha to Olcott Mawatha. (At Bambalapitiya end)
4. Demolition of existing passenger bridges at Bambalapitiya end and Maradana end.
5. Landscaping work

Personnel Requirements

Using Form PER - 1 and PER - 2 in Section 4 (Bidding Forms), the Bidder must demonstrate that it has personnel who meet the following requirements:

No.	Position	Total Work Experience [years]	Total Experience (Years)	Experience In Similar Work [years]	Experience In Design ofSimilar Work within 10 years (Projects)	Minimum time on-site
DESIGN STAFF						
1	Senior Architect	B.Sc (BE) with MSc. Architecture or B.Arch (Hons) with Professional Qualification (Chartered Architect) and with capabilities to design Green Buildings.	10	05	05	
2	Senior Structural Engineer	B.Sc., (Eng.) with Professional Qualification (Charter)	15	05	05	
3	MEP Engineer	B.Sc., (Eng.) with Professional Qualification (Charter) and with capabilities to design Green Buildings.	10	05	05	
SITE STAFF						
4	Project Manager	B.Sc., (Eng.) with Professional Qualification (Charter)	15	05	-	Part time
5	Construction Manager	B.Sc., (Eng.) with Professional Qualification (Charter)	15	05	-	Full time
6	Senior Building Engineer	B.Sc., (Eng.) with Professional Qualification (Charter)	15	05	-	Full time
7	Senior Material and Quality Control Engineer	B.Sc., (Eng.)	10	05	-	Part time
8	Senior Engineer (Health, Safety & Environment)	B.Sc., (Eng.)	10	05	-	Full time
9	Site Engineer	B.Sc., (Eng.)	10	-	-	Full time

Equipment Requirements

Using Form EQU in Section 4 (Bidding Forms), the Bidder must demonstrate that it has the key equipment listed below:

No.	Equipment Type and Characteristics	Minimum Number Required
1	30 Tonn mobile Crane	1
2	Concrete Batching Plant (100 Cum/day)	1
3	Concrete Mixer Truck: (6 m3)	5
4	Concrete pump cars (yard and site)	1

APPENDIX 1

OFFICE FOR THE ENGINEER

The offices shall be provided in accordance with the following schedules and at the end of the project furniture and equipment will be the prosperity of the Employer.

Main Office for Engineer

Item No	DESCRIPTION	Qty.
1.	**A. Office Type 1 – Fully Air Conditioned**	
	Main Office minimum gross floor area of 100sq.m. located as directed by the Engineer	
	Office rooms	2
	Bathrooms – male	1
	Bathrooms – female	1
	Pantry & Lunchroom	1
	Storeroom	1
2.	**B. Furniture (for each office)**	
	Office desks, 150x75cm with 130x45 cm computer credenza and each having at least 3 drawers, one of which is lockable	1
	Office desks, 120x70cm with 120x45 cm computer credenza and each having at least 3 drawers, one of which is lockable	1
	Computer desks	2
	Executive chairs, gas lift height adjustment, arm rests	2
	Typist chairs, gas lift height adjustment, arm rests	2
	Visitor's chairs	5
	Steel filing cabinets with four drawers	2
	Melamine board Book shelves, 1mx2m with 3 shelves and lockable cupboard at base	2
	Storage cabinets 1mx2m, two doors, lockable (4 Rack inside)	1
	White marker board 1.2mx0.8m	1
	Waste paper baskets	10
	Window blinds for all windows (PVC, Vertical Blinds)	1 set
	Drawing rack (accommodate up A1 size)	2

Section 7 - General Conditions of Contract

The Conditions of Contract comprise two parts, this Section 7 - General Conditions of Contract (GCC) and the following Section 8 - Particular Conditions of Contract (PCC).

The General Conditions shall be the **'Conditions of Contract for Plant and Design-Build for ELECTRICAL AND MECHANICAL PLANT and Design-Build FOR BUILDING AND ENGINEERING WORKS, DESIGNED BY THE CONTRACTOR'** 1st Edition 1999, prepared and published by the ***Fédération Internationale des Ingénieurs-Conseils*** **(FIDIC)**.

Copies of the said FIDIC Conditions of Contract can be obtained from:

FIDIC Secretariat
PO Box 86
1000 Lausanne 12
Switzerland.
Facsimile: +41 21 653 5432
Telephone: +41 21 654 4411
E-mail: fidic@pobox.com

or electronically from the FIDIC website:

http://fidic.org/books/plant-and-design-build-contract-1st-ed-1999-yellow-book

The standard text of the General Conditions chosen must be retained intact to facilitate its reading and interpretation by Bidders and its review by ADB. Any amendments and additions to the GCC, specific to the contract in hand, should be introduced in Section 8 (Particular Conditions of Contract), Part A (Appendix to Tender) and Part B (Special Provisions). Clause numbers in the PCC correspond to those in the GCC. As per PCC 1.5 (Priority of Documents), the PCC takes precedence over the GCC.

APPENDIX

General Conditions of Dispute Board Agreement

1. Definitions

Each “Dispute Board Agreement” is a tripartite agreement by and between:

(a) the “Employer”;

(b) the “Contractor”; and

(c) the “Member” who is defined in the Dispute Board Agreement as being:

(i) the sole member of the "DB" and, where this is the case, all references to the “Other Members” do not apply, or

(ii) one of the three persons who are jointly called the “DB” (or “dispute board”) and, where this is the case, the other two persons are called the “Other Members.”

The Employer and the Contractor have entered (or intend to enter) into a contract, which is called the "Contract" and is defined in the Dispute Board Agreement, which incorporates this Appendix. In the Dispute Board Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Contract.

2. General Provisions

Unless otherwise stated in the Dispute Board Agreement, it shall take effect on the latest of the following dates:

(a) the Commencement Date defined in the Contract,

(b) when the Employer, the Contractor, and the Member have each signed the Dispute Board Agreement, or

(c) when the Employer, the Contractor and each of the Other Members (if any) have respectively each signed a dispute board agreement.

This employment of the Member is a personal appointment. At any time, the Member may give not less than 70 days’ notice of resignation to the Employer and to the Contractor, and the Dispute Agreement shall terminate upon the expiry of this period.

3. Warranties

The Member warrants and agrees that he/she is and shall be impartial and independent of the Employer, the Contractor, and the Engineer. The Member shall promptly disclose, to each of them and to the Other Members (if any), any fact or circumstance, which might appear inconsistent with his/her warranty and agreement of impartiality and independence.

When appointing the Member, the Employer and the Contractor relied upon the Member’s representations that he/she is

(a) experienced in the work, which the Contractor is to carry out under the Contract;

(b) experienced in the interpretation of contract documentation; and

(c) fluent in the language for communications defined in the Contract.

4. General Obligations of the Member

The Member shall

(a) have no interest, financial or otherwise, in the Employer, the Contractor or Engineer, nor any financial interest in the Contract except for payment under the Dispute Board Agreement;

(b) not previously have been employed as a consultant or otherwise by the Employer, the Contractor, or the Engineer, except in such circumstances as were disclosed in writing to the Employer and the Contractor before they signed the Dispute Board Agreement;

(c) have disclosed in writing to the Employer, the Contractor, and the Other Members (if any), before entering into the Dispute Board Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer, or employee of the Employer, the Contractor or the Engineer, and any previous involvement in the overall project of which the Contract forms part;

(d) not, for the duration of the Dispute Board Agreement, be employed as a consultant or otherwise by the Employer, the Contractor, or the Engineer, except as may be agreed in writing by the Employer, the Contractor, and the Other Members (if any);

(e) comply with the annexed procedural rules and with Subclause 20.4 of the Conditions of Contract;

(f) not give advice to the Employer, the Contractor, the Employer's Personnel or the Contractor's Personnel concerning the conduct of the Contract, other than in accordance with the annexed procedural rules;

(g) not, while a Member, enter into discussions or make any agreement with the Employer, the Contractor, or the Engineer regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under the Dispute Board Agreement;

(h) ensure his/her availability for all site visits and hearings as are necessary;

(i) become conversant with the Contract and with the progress of the Works (and of any other parts of the project of which the Contract forms part) by studying all documents received, which shall be maintained in a current working file;

(j) treat the details of the Contract and all the Dispute Board's activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Employer, the Contractor, and the Other Members (if any); and

(k) be available to give advice and opinions, on any matter relevant to the Contract when requested by both the Employer and the Contractor, subject to the agreement of the Other Members (if any).

5. General Obligations of the Employer and the Contractor

The Employer, the Contractor, the Employer's Personnel and the Contractor's Personnel shall not request advice from or consultation with the Member regarding the Contract, otherwise than in the normal course of the Dispute Board's activities under the Contract and the Dispute Board Agreement. The Employer and the Contractor shall be responsible for compliance with this provision, by the Employer's Personnel and the Contractor's Personnel

respectively.

The Employer and the Contractor undertake to each other and to the Member that the Member shall not, except as otherwise agreed in writing by the Employer, the Contractor, the Member, and the Other Members (if any),

(a) be appointed as an arbitrator in any arbitration under the Contract;

(b) be called as a witness to give evidence concerning any dispute before arbitrator(s) appointed for any arbitration under the Contract; or

(c) be liable for any claims for anything done or omitted in the discharge or purported discharge of the Member's functions, unless the act or omission is shown to have been in bad faith.

The Employer and the Contractor hereby jointly and severally indemnify and hold the Member harmless against and from claims from which he is relieved from liability under the preceding paragraph.

Whenever the Employer or the Contractor refers a dispute to the Dispute Board under Subclause 20.4 of the Conditions of Contract, which will require the Member to make a site visit and attend a hearing, the Employer or the Contractor shall provide appropriate security for a sum equivalent to the reasonable expenses to be incurred by the Member. No account shall be taken of any other payments due or paid to the Member.

6. Payment

The Member shall be paid as follows, in the currency named in the Dispute Board Agreement:

(a) a retainer fee per calendar month, which shall be considered as payment in full for

(i) being available on 28 days' notice for all site visits and hearings;

(ii) becoming and remaining conversant with all project developments and maintaining relevant files;

(iii) all office and overhead expenses including secretarial services, photocopying and office supplies incurred in connection with his duties; and

(iv) all services performed hereunder except those referred to in sub-paragraphs (b) and (c) of this Clause.

The retainer fee shall be paid with effect from the last day of the calendar month in which the Dispute Board Agreement becomes effective; until the last day of the calendar month in which the Taking-Over Certificate is issued for the whole of the Works.

With effect from the first day of the calendar month following the month in which the Taking-Over Certificate is issued for the whole of the Works, the retainer fee shall be reduced by one third. This reduced fee shall be paid until the first day of the calendar month in which the Member resigns or the Dispute Board Agreement is otherwise terminated.

(b) a daily fee, which shall be considered as payment in full, for

(i) each day or part of a day up to a maximum of 2 days' travel time in each direction for the journey between the Member's home and the site, or another location of a meeting with the Other Members (if

any);

(ii) each working day on Site visits, hearings, or preparing decisions; and

(iii) each day spent reading submissions in preparation for a hearing.

(c) all reasonable expenses, including necessary travel expenses (air fare in less than first class, hotel and subsistence, and other direct travel expenses) incurred in connection with the Member's duties, as well as the cost of telephone calls, courier charges, faxes and telexes: a receipt shall be required for each item in excess of five percent (5%) of the daily fee referred to in sub-paragraph (b) of this Clause;

(d) any taxes properly levied in the Country on payments made to the Member (unless a national or permanent resident of the Country) under this Clause 6.

The retainer and daily fees shall be as specified in the Dispute Board Agreement. Unless it specifies otherwise, these fees shall remain fixed for the first 24 calendar months, and shall thereafter be adjusted by agreement between the Employer, the Contractor, and the Member, at each anniversary of the date on which the Dispute Board Agreement became effective.

If the parties fail to agree on the retainer fee or the daily fee, the appointing entity or official named in the Contract Data shall determine the amount of the fees to be used.

The Member shall submit invoices for payment of the monthly retainer and air fares quarterly in advance. Invoices for other expenses and for daily fees shall be submitted following the conclusion of a site visit or hearing. All invoices shall be accompanied by a brief description of activities performed during the relevant period and shall be addressed to the Contractor.

The Contractor shall pay each of the Member's invoices in full within 56 calendar days after receiving each invoice and shall apply to the Employer (in the Statements under the Contract) for reimbursement of one-half of the amounts of these invoices. The Employer shall then pay the Contractor in accordance with the Contract.

If the Contractor fails to pay to the Member the amount to which he/she is entitled under the Dispute Board Agreement, the Employer shall pay the amount due to the Member and any other amount which may be required to maintain the operation of the Dispute Board; and without prejudice to the Employer's rights or remedies. In addition to all other rights arising from this default, the Employer shall be entitled to reimbursement of all sums paid in excess of one-half of these payments, plus all costs of recovering these sums and financing charges calculated at the rate specified in Subclause 14.8 of the Conditions of Contract.

If the Member does not receive payment of the amount due within 70 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice under Clause 7.

7. Termination

At any time, (i) the Employer and the Contractor may jointly terminate the Dispute Board Agreement by giving 42 days' notice to the Member; or (ii) the Member may resign as provided for in Clause 2.

If the Member fails to comply with the Dispute Board Agreement, the Employer and the Contractor may, without prejudice to their other rights, terminate it by notice to the Member. The notice shall take effect when received by the Member.

If the Employer or the Contractor fails to comply with the Dispute Board Agreement, the Member may, without prejudice to his other rights, terminate it by notice to the Employer and the Contractor. The notice shall take effect when received by them both.

Any such notice, resignation and termination shall be final and binding on the Employer, the Contractor, and the Member. However, a notice by the Employer or the Contractor, but not by both, shall be of no effect.

8. Default of the Member

If the Member fails to comply with any of his obligations under Clause 4 (a)-(d) above, he shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses received by the Member and the Other Members (if any), for proceedings or decisions (if any) of the Dispute Board which are rendered void or ineffective by the said failure to comply.

If the Member fails to comply with any of his obligations under Clause 4 (e) - (k) above, he shall not be entitled to any fees or expenses hereunder from the date and to the extent of the noncompliance and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses already received by the Member, for proceedings or decisions (if any) of the Dispute Board, which are rendered void or ineffective by the said failure to comply.

9. Disputes

Any dispute or claim arising out of or in connection with this Dispute Board Agreement, or the breach, termination, or invalidity thereof, shall be finally settled by institutional arbitration. If no other arbitration institute is agreed, the arbitration shall be conducted under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with these Rules of Arbitration.

Procedural Rules

Unless otherwise agreed by the Employer and the Contractor, the Dispute Board 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 Dispute Board, 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 Dispute Board, the Employer, and the Contractor, or in the absence of agreement, shall be decided by the Dispute Board. The purpose of site visits is to enable the Dispute Board 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 endeavor 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 coordinated by the Employer in cooperation 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 Dispute Board 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 Dispute Board one copy of all documents which the Dispute Board 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 Dispute Board 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 Dispute Board in accordance with Subclause 20.4 of the Conditions of Contract, the Dispute Board shall proceed in accordance with Subclause 20.4 and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the Dispute Board 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 Dispute Board 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 Dispute Board 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 Dispute Board 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 Dispute Board, among other things, to

(a) establish the procedure to be applied in deciding a dispute;

(b) decide upon the Dispute Board'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 Guidelines;

(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 Dispute Board shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the Dispute Board shall make and give its decision in accordance with Subclause 20.4, or as otherwise agreed by the Employer and the Contractor in writing. If the Dispute Board 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 to not make a decision.

Section 8 - Particular Conditions of Contract

The following Particular Conditions of Contract (PCC) shall supplement the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

Part A – Contract Data

Ref. GCC	Subject	Data
1.1.2.2 and 1.3	**Employer's name and address**	Ministry of Transport, Highways, Ports and Civil Aviation, 7th Floor, "Sethsiripaya", Stage II, Battaramulla, Sri Lanka.
1.1.2.4 and 1.3	**Engineer's name and address**	To be advised by the Employer
1.1.2.11	**Bank's name**	Asian Development Bank (ADB)
1.1.2.12	**Borrower's name**	Democratic Socialist Republic of Sri Lanka
1.1.3.3	**Time for Completion**	450 days from the Date of Commencement
1.1.3.7	**Defects Notification Period**	365 days.
1.1.5.6	**Sections**	Not applicable
1.3	**Electronic transmission systems**	Fax /email are acceptable subject to subsequent confirmation by the original.
1.4	**Governing Law**	The law of Democratic Socialist Republic of Sri Lanka
1.4	**Ruling language**	English
1.4	**Language for communications**	English
2.1	**Time for access to the Site**	Within 28 days from the Date of Commencement
3.1(B)(ii)	**Engineer's Duties and Authority**	Employer's approval is required for the issue of: 1. Any single variation resulting in an increase in excess of 0.1% of the Accepted Contract Amount 2. any Variation issued after the aggregate of such Variations has reached 2% of the Accepted Contract Amount.
4.2	**Performance Security**	The performance security shall be in the form of an unconditional bank guarantee, issued by a reputable bank, as per form included in Section 9: Contract Forms in the amount of 10% of the Contract Price in the currency/ies stated in the bid of the successful bidder. In case the

		institution issuing the security is located outside the Employer's country, it shall be counter guaranteed by a commercial bank established in the Employer's country
6.5	**Normal working hours**	8.00 to 17.00 hrs. – Monday to Friday 8.00 to 13.00 hrs. – Saturday Barring Mercantile holidays
6.25	**Respectful Work Environment**	The following sentence shall apply: The Contractor shall ensure that its employees and sub-contractors observe the highest ethical standards and refrain from any form of bullying, discrimination, misconduct and harassment, including sexual harassment and shall, at all times, behave in a manner that creates an environment free of unethical behavior, bullying, misconduct and harassment, including sexual harassment. The Contractor shall take appropriate action against any employees or sub-contractors, including suspension or termination of employment or sub-contract, if any form of unethical or inappropriate behavior is identified. The Contractor shall conduct training programs for its employees and sub-contractors to raise awareness on and prevent any form of bullying, discrimination, misconduct and harassment including sexual harassment, and to promote a respectful work environment. The Contractor shall keep an up to date record of its employees and subcontractors who have attended and completed such training programs and provide such records to the Employer or the Engineer at their first written request.
8.1	**Date of Commencement**	Within 28 days of the Letter of Acceptance
8.7 & 14.15(b)	**Delay damages for the Works**	0.05 % of the Accepted Contract Price per day, in the currencies and proportions in which the Contract Price is payable.
8.7	**Maximum amount of delay damages**	10% of the Contract Price.

13.5.(b)(ii)	**Provisional Sums**	Adjustment of Provisional Sums shall be as follows; Works executed by Utility Authorities-10% Works executed by Sub-Contractors - 10% Works executed by Nominated Sub-Contractors-10% Works directly executed by the Contractor - 15% For Employer's portion of the payments made to Dispute Adjudication Board - 5% Supply Items (stationery) – 15%
13.8	**Adjustments for Changes in Cost**	Cost adjustments for payments in local currency shall be In accordance with the Sub-Clause 13.8 of the Section 8 - Particular Conditions of Contract Part B – Special Provisions. No adjustment for foreign currency component.
14.2	**Total advance payment**	20% of the Accepted Contract Amount less Provisional Sums and Contingencies payable in the currencies and proportions in which the Accepted Contract Amount is payable. Advance payment will be paid in two installments as follows; 1st installment of 10% upon fulfillment of conditions stated in Sub-Clause 14.2 (I) of Section 8 - Particular Conditions of Contract Part B – Special Provisions 2nd installment of 10% upon fulfillment of conditions stated in Sub-Clause 14.2 (II) of Section 8 - Particular Conditions of Contract Part B – Special Provisions. Each of the above payments shall be made only after submission of an acceptable on-demand unconditional Bank Guarantee to the Employer through the Engineer as per the advance payment security format included in the bidding document.
		Advance shall be payable in the currencies and proportions in types and proportions of the currencies mentioned in 'Schedule of Currencies.

14.2(b)	**Repayment amortization of advance payment**	In accordance with the formula $Y = \frac{(X/A - 0.3) \times Z}{(0.8 - 0.3)}$ Y = Cumulative repayment Z = Total amount of Advance X = Cumulative payments certified A = Contract Amount considered for Advance Payment
14.3(c)	**Percentage of Retention**	10% of certified value of Works
14.3(c)	**Limit of Retention Money**	5% of the Accepted Contract Amount.
14.5(b)(i) 14.5(c)(i)	**Plant and Materials**	Not Applicable Materials (complying with relevant specifications) for payment of 80% of their value when delivered to the Site 1. Cement 2. Sand 3. Metal 4. Reinforcement steel 5. Structural Steel 6. Aluminum Doors & Windows 7. Roofing Sheets
14.6	**Minimum Amount of Interim Payment Certificates**	2 % of the Accepted Contract Amount.
15.6	**Corrupt and Fraudulent Practices**	The following sentence shall apply: For the purposes of this Subclause: ADB's Anticorruption Policy requires Borrowers (including beneficiaries of ADB-financed activity), as well as Contractors, Subcontractors, manufacturers, and Consultants under ADB-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, ADB (a) defines, for the purposes of this provision, the terms set forth below as follows: (i) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party; (ii) "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; (iii) "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; (iv) "collusive practice" means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party; (v) "obstructive practice" means (a) deliberately destroying, falsifying, altering, or concealing of evidence material to an ADB investigation; (b) making false statements to investigators in order to materially impede an ADB investigation; (c) failing to comply with requests to provide information, documents, or records in connection with an Office of Anticorruption and Integrity (OAI) investigation; (d) threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or (e) materially impeding ADB's contractual rights of audit or access to information; and (vi) "integrity violation" is any act which violates ADB's Anticorruption Policy, including (i) to (v) above and the following: abuse, conflict of interest, violations of ADB sanctions, retaliation against whistleblowers or witnesses, and other violations of ADB's Anticorruption Policy, including failure to adhere to the highest ethical standard. (b) will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations in competing for the Contract; (c) will cancel the portion of the financing allocated to a contract if it determines at any time that representatives of the borrower or of a beneficiary of ADB-financing engaged

		in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations during the procurement or the execution of that contract, without the borrower having taken timely and appropriate action satisfactory to ADB to remedy the situation; and (d) will impose remedial actions on a firm or an individual, at any time, in accordance with ADB's Anticorruption Policy and Integrity Principles and Guidelines (both as amended from time to time), including declaring ineligible, either indefinitely or for a stated period of time, to participate[1] in ADB-financed, -administered, or -supported activities or to benefit from an ADB-financed, -administered, or -supported contract, financially or otherwise, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations.
17.6	**Maximum total liability of the Contractor to the Employer**	The product of 1.15 times the Accepted Contract Amount
18.1	**Periods for submission of insurance:** **a. evidence of insurance.** **b. relevant policies**	 Within 21 days Within 21 days
18.2(d)	**Maximum amount of deductibles for insurance of the Employer's risks**	Sri Lankan Rupees 250,000.00
18.3	**Minimum amount of third party insurance**	Sri Lankan Rupees 10 Million per occurrence without limitation to the number of occurrences per year.
18.5	**Professional Indemnity Insurance**	The Professional indemnity insurance shall be for a limit of not less than the cost or amount of such works so designed by the Contractor. The professional indemnity insurance shall be maintained for a period of five (5) years beyond the date of Performance Certificate.

[1] Whether as a Contractor, Nominated Subcontractor, Consultant, Manufacturer or Supplier, or Service Provider; or in any other capacity (different names are used depending on the particular Bidding Document). A Nominated Subcontractor is one which either has been (i) included by the Bidder in its prequalification application or bid because it brings specific and critical experience and know-how that are accounted for in the evaluation of the bidder's prequalification application or the bid, or (ii) appointed by the Employer.

20.2	**Date by which the Dispute Board shall be appointed**	28 days after the Commencement
20.2	**The Dispute Board shall be comprised of**	Three Members
20.2	**List of potential Dispute Board sole members**	None
20.3	**Appointment (if not agreed) to be made by**	The President, Institution of Engineers, Sri Lanka
20.6 (a)	**International arbitration shall be administered by**	International arbitration shall be (a) With Foreign Contractor; (i) administered by: Singapore International Arbitration Centre (SIAC). (ii) conducted in accordance with the UNCITRAL Arbitration Rules. (b) With Local Contractor; (i) administered by: Sri Lanka National Arbitration Center (SLNAC). (ii) conducted in accordance with Laws of Sri Lanka as per the Arbitration Act No.11 of 1995 (as amended).
20.6	**Place of Arbitration**	(a) With Foreign Contractor; Colombo, Sri Lanka (b) With Local Contractor; Colombo, Sri Lanka

Part B – Specific Provisions

Sub-Clause 1.1 Definitions	**Insert the following at the end of subparagraph 1.1.1.8 of Sub-Clause 1.1:** "The words 'Letter of Tender' are synonymous with 'Letter of Technical Bid' and 'Letter of Price Bid' and the word 'Tender' is synonymous with 'Bid'." Insert the following Sub-Clause 1.1.1.11 after existing Sub-Clause 1.1.1.10 as under:- 1.1.1.11: **"Safety, Health and Environmental Management Plan"** means the Employer's manuals containing the requirements and conditions to be met during the execution of the Works by the Contractor." Insert the following Sub-Clause 1.1.2.11 after existing Sub-Clause 1.1.2.10 as under:- 1.1.2.11: "**Bank**" means the Asian Development Bank" 1.1.6.8; "**Unforeseeable"** means a not reasonably foreseeable and against which adequate preventive precautions could not reasonably be taken by an experienced contractor by the Base Date.
Sub-Clause 1.5 Priority of Documents	**Delete existing sub-sections (a) to (h) in entirety and replace with the following**: (a) the Contract Agreement, (b) the Letter of Acceptance, (c) the Letter of Technical Bid (d) the Letter of Price Bid (e) the Addenda & Clarifications, if any (f) the Particular Conditions – Part A (g) the Particular Conditions – Part B (h) the List of Eligible Countries that was specified in Section 5 of the Bidding Document (i) the General Conditions (j) the Employer's Requirements (k) the Completed Schedules including Bill of Quantities (l) the Contractor's Proposal and any other documents forming part of the Contract.
Sub-Clause 1.6 Contract Agreement	**Replace the first sentence with the following**; "The parties shall enter into a contract agreement within 21 days of the Contractor submitting a performance security acceptable to the Engineer."
Sub-Clause 2.2 Permits, Licences or Approvals	**Delete the Sub-Clause in its entirety and replace with the following;** "It shall be Contractor's exclusive responsibility to get approvals, permits or license required for the performance of the Contract. However, the Employer may (where he is in a position to do so) provide reasonable assistance to the Contractor at the request and cost of the Contractor in getting Permits, License or Approvals required during currency of the Contract. Rendering of such assistance by the Employer shall not be interpreted as a pretext by the Contractor as condoning of any delay or non-performance of any

	of the Contractor's obligations. The following-up of all such applications shall be the responsibility of the Contractor."
Sub-Clause 4.4 Subcontractors	**Add the following at the end of the Sub-Clause**; The sub-contracting, excluding design work shall be limited to 50% of the Contract Price. The value of a sub-contract, other than for Design work and Provisional Sums items as and when awarded, should be intimated by the Contractor to the Engineer and it should also be certified that the cumulative value of the sub-contracts awarded so far is within the aforesaid limit of 50%.
Sub-Clause 4.7 Setting Out	**Add the following as the 2nd paragraph**; "The Contractor shall give to the Engineer not less than Forty-Eight (48) hours prior written notice of his intention to set out or establish levels for any part of the Works so that timely arrangement may be made for checking or issuing instructions. Contractor shall indicate in his written notice the date by which the information, if any, is required by them".
Sub-Clause 4.8 Safety Procedures	**The existing Sub-Clauses shall be read in conjunction with following:** Within 4 weeks of the Commencement Date, the Contractor shall submit a detailed and comprehensive contract-specific Site Safety Plan, which shall be included in the technical documents to be provided under Sub-Clause 5.2 [Contractor's Documents] for review by the Engineer. The Site Safety Plan shall be in accordance with international best practice. It shall include detailed policies, procedures and regulations which, when implemented, will, inter alia, ensure compliance with Sub-Clauses 4.8 and 6.7 of monitoring of the implementation of the Site Safety Plan prepared by a fulltime qualified Safety Officer shall be provided by the Contractor. The Contractor shall, from time to time and as necessary or required by the Engineer, produce supplements to the Site Safety Plan such that it is at all times a detailed, comprehensive and contemporaneous statement by the Contractor of his site safety arrangements. In particular, these shall include: 1. Traffic management. 2. Temporary Works - design and methodology. 3. Construction works If at any time the Site Safety Plan is, in the opinion of the Engineer, insufficient or requires revision or modification to ensure the security of the Works and the safety of all Employer's Personnel and Contractor's Personnel and visitors to the Site, the Engineer may instruct the Contractor to revise the Site Safety Plan. The Contractor shall, within 14 days, submit the revised plan to the Engineer for review. Any omission, inconsistency or error in the Site Safety Plan or the Engineer's concurrence or rejection of the Site Safety Plan and/or supplements thereto shall be without prejudice to the Contractor's obligations with respect to site safety and industrial health and shall not excuse any failure by the Contractor to adopt proper and internationally recognized safety practices throughout the execution of the Works. The Contractor shall adhere to the Site Safety Plan and shall ensure that all sub-contractors of all tiers have a copy of the Site Safety Plan and comply with its provisions.

	The Contractor shall provide all necessary access, assistance and facilities to enable the Engineer to monitor and supervise the implementation of the Site Safety Plan.
Sub-Clause 4.9 Quality Assurance	**Delete paragraphs 1 and 2 and substitute;** "The Contractor shall establish and implement a documented Quality Management /Assurance System (QMAS) in accordance with ISO 9000: 2000 standard requirements, within 28 days after the Commencement Date and submit evidence for the same for Engineer's review and approval. The Contractor shall also prepare and submit for Engineer's approval a Project Quality Plan (PQP) for the project based on requirements of the Contract, Contractor's site organization, Contractor's method of construction and statutory requirements, within 28 days after the Commencement Date. PQP shall include Inspection and Test Plans/Schedules for works and materials or Material Quality Plans and Work Quality Plans, which have to be prepared to reflect the contractual requirements stipulated in the Specifications, such as test and inspections required, hold points, testing / inspection frequencies, acceptance / approval criteria, quality records to be maintained and applicable standards. All monthly payment applications for work or material submitted to the Engineer shall be adequately supported by summary of tests and inspection carried out and other relevant QMAS paperwork to show that relevant work or material have been checked by the QMAS and in accordance with PQP. The Engineer shall be entitled to audit any aspect of the system and order any additional tests to be carried out in his presence. The Contractor shall submit for Engineer's review, Audit Reports for Internal and third-party audits, Quality records for Inspection and testing, Corrective Action Requests and Non-Conformance Reports as evidence for effective implementation of his Quality Management/Assurance System. The Contractor shall be responsible for ensuring that all Sub-Contractors and Suppliers comply with the requirements of the Contractor's Quality Management System and the PQP. The entire cost of maintaining quality assurance and quality control systems including testing carried out by the Contractor shall be deemed to be included in the rates and prices tendered for the related items of work, except where otherwise specifically provided for in the Contract. The Contractor's attention is drawn to the provisions of the various sections of the Specification regarding the minimum frequency of testing that will be required for quality control. If frequencies are not available, the Contractor shall suggest appropriate frequencies for the approval of the Engineer. The Contractor shall, at his own initiative, increase this frequency where necessary to ensure adequate control. The Employer may carry out audits on the Contractor's Quality Management/Assurance System either jointly with a third party or jointly with the Engineer, to determine the effectiveness of implementation of the Contractor's QMAS and Quality Assurance Plan and the Contractor shall provide every assistance required to carry out an effective audit."
Sub-Clause 4.10 Site Data	**Add the following at the end of the Sub-Clause;** "The Contractor shall conduct further investigations considered necessary by him and any error, discrepancies if found in Employer's data at any stage will not constitute ground for any claim for extra time and costs. The Geotechnical and other related data provided by the Employer are based

	on the investigation conducted by the Employer/Engineer and are for reference purposes only. Tenderer should satisfy himself with the data furnished and make his own investigations if required for submitting his offer. Any change in design or construction methodology later during execution on account of change shall be borne by the Contractor. The Contractor shall not be relieved from any risk or obligation imposed on or undertaken by him under the Contract on any such ground or on the ground that he did not or could not foresee any matter which may affect or have affected the execution of the Works, or compliance with his other obligations under the Contract."
Sub-Clause 4.12 Unforeseeable Physical Conditions	**Add the following at the end of the Sub-Clause;** In addition to notice of any unforeseeable physical conditions, the Contractor shall provide the Engineer with a written notice of any unanticipated environmental or resettlement risks or impacts that arise during construction, implementation or operation of the Plant or Permanent Works, which were not considered in the environmental management plan attached hereto as Section 6.7;
Sub-Clause 4.16 Transport of Goods	**Add the following at the end of the Sub-Clause;** The Contractor shall adequately record the condition of roads, agricultural land and other infrastructure prior to the start of transporting materials, goods and equipment, and construction**.**
Sub-Clause 4.17 Contractor's Equipment	**Add the following as paragraph 2;** Immediately upon bringing an item of Contractor's Equipment to the Site, the Contractor shall notify the Engineer's Representative in writing to this effect and shall provide a description of the equipment giving its type, manufacturer, model and capacity, together with a unique identification number. If an item of Contractor's Equipment is hired/lease, then the Contractor shall provide the name and address of the owner thereof or the name and address of the vendor named in the agreement for hire-purchase thereof. A certified copy of the agreement shall be supplied to the Engineer.
Sub-Clause 4.18 Protection of Environment	**Add the following at the end of the Sub-Clause** All Works shall be carried out without unreasonable noise and disturbance. The Contractor shall indemnify and keep indemnified the Employer from and against any liability for damages on account of noise or other disturbance created when carrying out the Works and from and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in regard or in relation to such liability. The Environmental Management Plan (EMP), provided as Appendix A 1 in Section 6.8 of Part II Volume II (Employer's Requirements), is an integral part of the contract documents. The Contractor shall, within 28 days from the signing of the Contract, submit to the Engineer for his approval an Environmental Management Action Plan (EMAP), which shall be in compliance with the requirements of the EMP. All Works shall be carried out in accordance with the Initial Environmental Examination, the EMP, and the Contractor's EMAP. The Contractor shall (a) establish an operational system for managing environmental impacts, (b) carry out all of the monitoring and mitigation measures set forth in the EMP, and (c) allocate the budget required ensuring that such measures are carried out. The Contractor shall submit monthly reports on the carrying out of such measures to the Employer.

	More particularly, the Contractor shall comply with (i) the measures and requirements set forth in the environmental management plan attached hereto as Annex 6.1; and (ii) any corrective or preventative actions set out in safeguards monitoring reports that the Employer will prepare from time to time to monitor implementation of the environmental management plan. The Contractor shall allocate a budget for compliance with these measures, requirements and actions in Item No. 12 of Bill Bo.1. The costs of tests required to implement the EMP are given in the Environmental Monitoring Plan attached to Annex 6.2 of this document, for guidance purposes.
Sub-Clause 4.21 Progress Reports	**Delete the 1st sentence of 1st paragraph and add** "Monthly progress report shall be prepared by the Contractor and submitted to Engineer in 3 hard copies and 3 CD soft copies in MS windows editable format. **Add the following to the item (b);k** Photographs shall be taken to cover all areas and all stages of construction and submitted monthly or as instructed by the Engineer. The Contractor shall supply digital photographs with soft copy and three (3) sets of 125x175mm size colour prints. **Add the following item at the end of the Sub-Clause;** (i) Monitoring of the obligations in Sub-Clause 4.18, 6.4 and 6.7.
Sub-Clause 4.25 Utilities	**Add the following Sub-Clause 4.25** "The Contractor shall be fully responsible for the management, co-ordination and execution of all activities associated with the survey, recording, relocation, removal and protection of public utilities including: (a) Liaising with utility authorities, the Employer, Sri Lanka Railways, the Engineer, landowners and any other party concerned, (b) The performance of the relocation, removal or protection work. At the discretion of the public utility concerned part or parts of this work may be performed by themselves. (c) Making payments to public utility authorities of such amounts payable for work performed or to be performed by them after obtaining approval of the Employer for such amounts payable to public utility authorities. It is expressly understood and agreed that the Contractor has made full allowance in his Tender for all risk and consequences of delay, inconvenience, cost or damage associated with above."
Sub-Clause 5.6 As-built Documents	**Add the following after the word "prepare' in the 1st line of the 1st paragraph;** "at his own cost".
Sub-Clause 6.1 Engagement of Staff and Labour	**Add the following item at the end of the Sub-Clause;** The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience from the project area and the region within the Democratic Socialist Republic of Sri Lanka. The Contractor shall be responsible for the return to the place where they were recruited or to their domicile of all such persons as he recruited and employed for the purposes of or in connection with the Contract and shall

	maintain such persons as are to be so returned in a suitable manner until they shall have left the Site or, in the case of persons who are not nationals of and have been recruited outside Socialist Republic of Sri Lanka shall have left the Country.
Sub-Clause 6.4 Labour Laws	**Add the following item at the end of the Sub-Clause;** The Contractor shall comply with all Sri Lanka government regulations with regard to obtaining permits to employ any foreign personnel required for the execution of the Contract, and shall bear all expenses connected with such compliance. The Contractor shall ensure that all expatriate workers adhere to all applicable laws in Sri Lanka. The Contractor shall not make employment decisions based upon personal characteristics unrelated to job requirements. The Contractor shall base the employment relationship upon 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 or retirement, and discipline. The Contractor shall provide equal wages and benefits to men and women for work of equal value or type.
Sub-Clause 6.5 Working Hours	**Add the following item at the end of the Sub-Clause;** Working hours and construction work shall be arranged in consultation with the Sri Lanka Railways. within the allowed duration works shall be carried out with minimum disturbance to Railway operations. Situations may arise where the hours of working within any permitted period may not be continuous. Specific hours available for working shall be scheduled by the contractor in advance to obtain approval of the Engineer. Any deviation to the agreed duration will be informed in advance. The Contractor shall attend regular coordination meetings with the Engineer to facilitate such arrangements. Should the Contractor's requirements in this respect involve the Employer in an increase in supervision costs, such increased costs shall, after due consultation with the Employer and Contractor, be determined by the Engineer and shall be recoverable by the Employer from the Contractor and may be deducted from any payments which may be due or which may become due to the Contractor." The provisions of this clause shall not be applicable in the case of any work which it is customary to carryout multiple shifts as per contract.
Sub-Clause 6.6 Facilities for Staff and Labour	**Add the following item at the end of the Sub-Clause;** The Contractor shall obtain Land Rights or any other permissions required from local authorities for these purposes. On completion of the Contract, unless otherwise agreed with the Employer the temporary camps/housing provided by the Contractor shall be removed and the sites reinstated to its original condition, to the approval of the Engineer.
Sub-Clause 6.7 Health and Safety	**Add the following item at the end of the Sub-Clause;** The Contractor shall prepare and submit to the Engineer for review and approval a Safety Plan based on International safety standards and practices. The Safety Plan should provide methods for: (i) Management of health and safety on Site including promoting an awareness of site safety and industrial health amongst all

	persons directly or indirectly associated with the Works and publicity programmes by way of training classes, posters prominently displayed in relevant areas of the Site, and (ii) Accommodating and controlling public and construction traffic during construction. The Safety Plan is to include those matters referred to in the Specifications and is to be managed and updated by the Contractor. In the event of any outbreak of illness of an epidemic nature, the Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government of Sri Lanka or the local medical or sanitary authorities, for the purpose of dealing with and overcoming the same. The Contractor shall maintain such records and make such reports concerning safety, health and welfare of persons and damage to property as the Engineer may from time to time prescribe. 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.
Sub-Clause 6.8 Contractor's Superintendence	**Add the following item at the end of the Sub-Clause;** The Contractor shall submit to the Engineer for the Engineer's approval the Contractor's proposed organization structure. This structure will only be approved if: (a) It ensures that each individual team of workers is properly supervised by a suitably experienced charge hand, and

	(b) Each appropriately sized group of teams and all subcontractors are supervised by a suitably experienced foreman in the direct employment of the Contractor, and (c) All charge hands and foremen are identified by name and any changes to be notified to the Engineer, and (d) All charge hands have an efficient means of communicating with foremen and all foremen have an efficient means of communicating with the Contractor's Representative, and This approval will be remained effective if the agreed organization structure is implemented on Site.
Sub-Clause 6.9 Contractor's Personnel	**Add the following item at the end of the Sub-Clause;** The Contractor shall submit curricula vitae of all proposed key staff of Contractor's Personnel to the Engineer for approval prior to engagement. Approval would not be granted for substitution of personnel engaged for key staff positions, except under very exceptional circumstances. In such an event the Contractor would be required to propose a replacement with equal or better qualification and experience for approval by the Employer.
Sub-Clause 6.12 Foreign Personnel	**Add new Sub-Clause 6.12** The Contractor may bring in to 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 endeavors 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.
Sub-Clause 6.13 Supply of Foods	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.
Sub-Clause 6.14 Supply of Water	**Add new Sub-Clause 6.14** 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
Sub-Clause 6.15 Measures against Insect and Pest Nuisance	**Add new Sub-Clause 6.15** The Contractor shall at all times take the necessary precautions to protect all staff and labour employed on the Site from insect nuisance, rats, and other pests and reduce dangers to health and the general nuisance caused by the same. The Contractor shall take steps to prevent the formation of stagnant pools of water. Special care shall be taken to prevent spreading of the mosquito-borne disease, dengue fever by keeping working areas clean and preventing collection of stagnant water in any form within and outside the Site,

	houses, offices etc. The Contractor shall comply with all the regulations and laws of the local health authorities in these respects and shall in particular arrange to spray thoroughly with approved insecticide all buildings, working areas erected on the site. Such treatment shall be carried out regularly as required by the Health Authorities or the Engineer
Sub-Clause 6.16 Alcoholic Liquor and Drugs	**Add new Sub-Clause 6.16** 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.
Sub-Clause 6.17 Arms and Ammunition	**Add new Sub-Clause 6.17** 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.
Sub-Clause 6.18 Festivals and Religious Customs	**Add new Sub-Clause 6.18** The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.
Sub-Clause 6.19 Funeral Arrangements	**Add new Sub-Clause 6.19** 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.
Sub-Clause 6.20 Forced Labour	**Add new Sub-Clause 6.20** 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
Sub-Clause 6.21 Child Labour	**Add new Sub-Clause 6.21** 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. "Child" means a child below the statutory minimum age of 16 years (specific under national, provincial or local law) The Contractor shall not violate any prohibitions against child labour under international treaty obligations

Sub-Clause 6.22 Employment Records of Labour	**Add new Sub-Clause 6.22** 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].
Sub-Clause 6.23 Worker's Organizations	**Add new Sub-Clause 6.23** In countries where the relevant labour laws recognize workers' rights to form and to join workers' organizations of their choosing without interference and to bargain collectively, the Contractor shall comply with such laws. Where the relevant labour laws substantially restrict workers' organizations, 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' organizations 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 organizations and bargain collectively. The Contractor shall engage with such workers' representatives. Workers' organizations are expected to fairly represent the workers in the workforce
Sub-Clause 6.24 Non-Discrimination and Equal Opportunity	**Add new Sub-Clause 6.24** "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 nondiscrimination 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."
New Sub-Clause 6.25	The Contractor shall ensure that its employees and sub-contractors observe the highest ethical standards and refrain from any form of bullying, discrimination, misconduct and harassment, including sexual harassment and shall, at all times, behave in a manner that creates an environment free of unethical behavior, bullying, misconduct and harassment, including sexual harassment. The Contractor shall take appropriate action against any employees or sub-contractors, including suspension or termination of employment or sub-contract, if any form of unethical or inappropriate behavior is identified. The Contractor shall conduct training programs for its employees and sub-contractors to raise awareness on and prevent any form of bullying, discrimination, misconduct and harassment including sexual harassment, and to promote a respectful work environment. The Contractor shall keep an up to date record of its employees and subcontractors who have attended and

	completed such training programs and provide such records to the Employer or the Engineer at their first written request.
Sub-Clause 7.1 Manner of Execution	**Add the following item at the end of the Sub-Clause;** "At least 14 days in advance of his programmed commencement of each principal item of work, the Contractor shall furnish for the Engineer's concurrence, the method of working he intends to adopt for execution of such item giving full details of the method of working, equipment to be deployed and measures to be adopted for ensuring the quality of construction and the safety of his workers as well as third parties. He shall also inform the Engineer as a good practice, at least 24 hours in advance of its intended commencement of any work / operation requiring Engineer's inspection and/or approval by forwarding the relevant details, including the resources intended to be deployed - preferably on an agreed format."
Sub-Clause 7.7 Ownership of Plant and Materials	**Add the following paragraph 2** "The Contractor shall not sell or otherwise dispose of or remove off the Site, except for the purpose of the Works, any sand, stone, clay, ballast, rock or other substances or materials which he obtains from any excavation made for the purpose of the Works or any buildings or produce upon the Site at the time of the delivery of the possession of the Site, and all such substance, material, buildings and produce shall be the property of the Employer. Provided that the Contractor may with the permission in writing of the Employer dispose of them off the Site at approved locations."
Sub-Clause 8.1 Commencement of Work	**Delete the first paragraph and replace with following;** "The Commencement Date shall be within 28 days of receipt of the Letter of Acceptance by the Contractor as given in Part-A Contract Data"
Sub-Clause 8.3 Programme	**Delete the first sentence of the paragraph 1 and replace with following;** "The Contractor shall submit a detailed and comprehensive program to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1." **Delete sub-paragraph (a) and replace with the following;** • The order in which the Contractor intends to carry out the Works including; (i) a detailed works programme indicating the anticipated timing of each stage of design and construction. The work programme shall be prepared using Primavera, MS Project or similar Project Management Software indicating critical path and clear logic in sequencing of activities and shall be capable of considering as the base plan and regular updating. (ii) a detailed mobilization programme with all principal mobilization events including the anticipated timing of procurement, delivery to site, construction, erection and commissioning, provision of Contractor's and Engineers facilities, mobilization of key personnel, key equipment, etc. This programme will provide the basis for the stage release of advance payments as prescribed under Clause 14.2. **Add following sub-item (iii) to item (d) of sub-paragraph 1** (iii) a detailed cash flow estimate, in monthly periods, including S-curve showing the cumulative cost of all works completed

	Add following item (e) after item (d) of sub-paragraph 1 (e).The submission to, and consent by, the Engineer of such programme, or the provision of such general descriptions of cash flow estimates, shall not relieve the Contractor from any of his duties or responsibilities under the Contract. **Add the following at the end of the Sub Clause** The Contractor shall also submit, for Engineer's approval, weekly and monthly work schedules before commencement of work, considering all site conditions with minimum disturbance to the railway operations.
Sub-Clause 8.4 Extension of Time for Completion	**Add following paragraphs;** "For the purposes of Sub-Clause 8.4 (c), it is agreed that "exceptionally adverse climatic conditions" shall be exclusively where: (i) On any single day, the rainfall measured at the relevant meteorological station as given in Contract Data exceeds the 98 percentile value of the daily rainfall for that calendar month for that station, as calculated using the last 120 calendar months of that station's rainfall records or, in the case where the station's rainfall records do not extend back as far as 120 months, then that station's available records, and (ii) The rainfall measured at that meteorological station exceeds 10 mm (ten millimetres) for the day in question, and (iii) Work activities are affected on that day in that station's zone of influence as judged by the Engineer. Any delay caused by exceptionally adverse climatic conditions will be "no fault delay" and costs will be deemed to lie where they fall. That is, in the case of such delay, pursuant to the Contract the Contractor is entitled to an extension of time, the Engineer will approve an extension of time for the period of delay and the Contractor agrees to forgo any right to claim additional costs or profits arising from such delay."
Sub-Clause 10.1 Taking Over of the Works and Sections	**Add the following at the end of paragraph 2;** Such notice shall be submitted to the Engineer together with the snag list comprising of all outstanding work and the defects and a program for the intended completion / rectification of outstanding work /defects. Defects shall be identified jointly by the Engineer and the Contractor. The Contractor shall complete all outstanding works in the snag list within 28 days of such notice to the satisfaction of the Engineer for the purpose of issuing of the Taking-Over Certificate for construction.
New Sub-Clause 11.12	Upon the completion of construction, the Contractor shall fully reinstate pathways, other local infrastructure, and land to at least their pre-project condition as recorded by the Contractor in consonance with its obligation in Clause 4.16
Sub-Clause 13.5 Provisional Sums	Add the words "or not at all" after the word "part" in the first line of para 1 of the Sub-Clause.

Sub-Clause 13.8 Adjustment for Changes in Cost	**Delete the entire Sub- Clause and substitute the following** No price adjustment shall apply to foreign currency portion of the value of work done payable to the Contractor. For the local currency component the following shall apply. The amounts computed from the formula given under this Sub-Clause in respect of the rise or fall in the cost of Labour, Material, Plants and other inputs to the works, shall be added to or deducted from the payment to the Contractor if the Contract Price is subjected to adjustment due to fluctuation of prices and stated in Appendix to Tender. (a) The adjustment to the Contract Price in respect of changes in Cost and Legislation for local Currency shall be determined from following formula, $F = \frac{0.966\,(V - Vna)}{100} \sum_{\text{all inputs}} \frac{Px\,(Ixc - Ixb)}{Ixb}$ Where; F = Price adjustment for the period concerned V = Current valuation of work done for the period Vna = Valuation of non-adjustable element Px = Input percentage of input named x Ixc = Current CIDA indices of input x Ixb = Base CIDA indices of input x No other adjustment of the Contract Price on account of fluctuations of inputs shall be made, notwithstanding the fact that the contractor has to pay additional amount under specific circumstances. **(b)** The "Input Percentage" means the percentage proportionate contribution of any input in terms of cost of the construction based on the prices prevailing on one month prior to submission of the tender and listed under Tables of Adjustment Data or any other adjustment data acceptable as per the Bid submission. The indices applicable for the operation of this formula are those compiled and published by the Institute for Construction Training and Development, Sri Lanka, in the ICTAD Bulletin of Construction Statistics. **(c)** "Non Adjustable Elements" means The work done under the following items, which shall not be considered for computation of price adjustment: (i) All items of work listed in Bill No. 01 – Preliminary and General items (ii) Extra works and additional work done by order of the Engineer and valued in terms of Clause 12.3 based on prices prevailing at the time such works were executed;

	and (iii) All works on Provisional Sums where new rate is adopted. **(d)** The "Current Valuation" means the gross value of permanent work duly executed during the current valuation period being reviewed, plus the cost of 80% of necessary materials delivered to Site but not incorporated in the permanent work done. Calculation as follows: V= (Vc+Mc) - (Vp+Mp) Where; Vc = Value of work done in current month Mc = Value of 80% material delivered to site in current month but not incorporated in the permanent work. Vp = Value of work done in previous month Mp = Value of 80% material delivered to site in previous month but not incorporated in the permanent work of the previous month. (a) "Base Indices" means the indices for the input, prevailing one month prior to the latest date for submission of Bids. (b) In the case of first interim bill the Current Indices for the purpose of calculation of price adjustment shall be taken as the indices prevailing on the first month after the commencement of the Contract. For any other interim claim or for the final claim the current indices shall be taken as the indices prevailing for the calendar month, one month after the previous valuation was done. **Adjustment after the Date of Completion** If the Contractor fails to complete the whole of the Works within the Time for Completion, prescribed under clause 8.2 (Time for Completion) or 8.4 (Extension of Time for Completion) the price adjustment for the work performed after the due date of completion as described above shall be made using the current indices prevailed at the due date for completion.
Sub-Clause 14.1 Contract Price	**Replace bullet point (a) with following,** (a) The Contract Price shall be the Accepted Contract Amount and be subject to adjustments in accordance with the Contract. **Add following paragraph to bullet point (b):** In the event of exemption of custom duties, excise duties, VAT or any other cess/levy being granted by the Government in respect of the Works, the benefit of the same shall be passed on to the Employer. The Contractor shall therefore maintain meticulous records of all the taxes and duties paid and provide the same as and when required by the Engineer/Employer. (i) Foreign Taxes - The bid price by the bidder shall include all taxes, duties and other charges imposed outside the Employer's country on the production, manufacture, sale, assemble and transport of the contractor's Equipment, Plant, Materials and supplies to be used on or furnished under the contract, and on the services performed under

	the contract. (ii) Local Taxation - All duties, taxes, custom duty subject to sub clause 14.1 b(iv) and other levies excluding Value Added Tax (VAT) payable by the Contractor under the Contract, or for any other cause, as of the days 28 days prior to the latest date for submission of bid, shall be included in the rates and prices and the total bid price submitted by the bidder. Nothing in the Contract shall relieve the Contractor from his responsibility to pay any tax that may be levied in Sri Lanka on profits made by him in respect of the Contract. VAT payable by the Contractor shall be shown separately in the summary of the bid. (iii) Personal Income Tax – The Contractor's staff, and labour will be liable to pay personal income taxes in Sri Lanka is respect of their salaries and wages as are chargeable under the laws and regulations from 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 and regulations. (iv) Custom Duties – Equipment, machinery and vehicles to be used in the civil works, imported to Sri Lanka by the Contractor, will be exempt from custom duties subject to the condition that all such equipment, machinery and vehicles at the end of the contract will be exported by the Contractor **Add following paragraphs after the last paragraph of the Sub-Clause:** "Payment to the Works for measurable Bills of Bill of Quantities (other than the lump-sum portion of the Works) shall be on measurement basis. The Works which are to be measured in detail shall be measured physically for net actual quantities for that item, notwithstanding any local practice, excepting where it may otherwise be directed in the tender documents. The measurements shall be taken jointly by any person or persons duly authorized on the part of the Engineer and by the Contractor or its qualified representative or representatives. The Engineer shall give reasonable notice in writing to the Contractor of appointment for measurement. The Contractor shall, without extra charge, provide assistance with every appliance and other things necessary for measurement.
Sub-Clause 14.2 Advance Payment	**Add the following to paragraph 3 of this Sub-Clause** (I) The Employer shall make the first installment of advance payment to the Contractor exclusively for the costs of mobilization in respect of the Works in an amount equivalent to 10% (Ten percent) of the Accepted Contract Amount named in the Letter of Acceptance less Provisional Sums, Day Works and Physical and Financial Contingencies, payable in proportions of local and foreign currencies. Payment of such advance amount will be due under separate certification by the Engineer after; (i) Provision by the Contractor of the Performance Security in accordance with Sub -Clause 4.2; (ii) Provision by the Contractor of on-demand an unconditional bank guarantee in a form and by a bank acceptable to the Employer in amounts and currencies equal to the advance

payment. The bank guarantee shall be obtained either from a

(a) Bank located in Sri Lanka and approved by Central Bank of Sri Lanka; or

(b) Foreign Bank accepted by the Employer.

The guarantee shall be denominated in types and proportions of currencies in which the Contract Price is payable.

The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been fully repaid, but its amount may 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.

(II) Employer shall make the Second installment of advance payment in an amount equivalent to 10% (Ten percent) of the Accepted Contract Amount less Provisional Sums, Day Works and Physical and Financial Contingencies, after

(i) Submission of Programme, methodology and cash flow estimates as per clauses 8.3 and 14.4, acceptable to the Engineer

(ii) Substantially mobilizes on site and on satisfactory evidence of documentation with regard to the procurement of plant and equipment not yet on site, to the satisfaction of the Engineer, Plant and equipment shall include those required for the execution of works, In the case of such plant and equipment already owned by the Contractor, satisfactory evidence of condition and availability for the project e.g. photographic evidence and certification from the relevant Employer of the current or previous project on which the plant or equipment was deployed.

(iii) Completion of Engineer's facilities and site laboratory.

The issue of this 2nd advance payment shall subject to the same terms and conditions specified for the first installment of the advance payment above, namely 14.2 (ii).

The Contractor shall use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses reasonably required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used for such specific purposes by supplying copies of invoices or other documents to the Employer or Employer's representative. Contractor needs to substantiate the funds utilization for the exclusive purpose of project mobilization, purchase of plants & equipment, materials, establishment of accommodations, crusher plants, batching plants, pre-cast yard and other required facilities for the exclusive use of the project construction and other expenses requirement and their statements with document evidence within the time frame mentioned

	in the Contract. **Replace paragraphs 5 of this Sub-Clause with the following;** The advance payment shall be repaid through percentage deduction stated in the Appendix to Tender as follows; a. Deductions shall commence in the next Interim Payment Certificate following that in which the total of all certified interim payments (excluding advance payments and deductions and repayments of retention) exceeds 30 percent (30%) of the amount considered for advance payment, and b. Deductions shall be made at the amortization rate stated in the Appendix to Tender (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 80 percent (80%) of the amount considered for advance payment has been certified for payment.
Sub-Clause 14.3 Advance Payment	**Add the following at the end of the Sub-Clause** The Advance Payment Security shall be in the form of a bank guarantee, issued by a reputable bank, as per form included in Section 9: Contract Forms in the amounts as specified above (I) and (II) in the currency/ies stated in the bid of the successful bidder. In case the institution issuing the security is located outside the Employer's country, it shall be counter guaranteed by a commercial bank established in the Employer's country
Sub-Clause 14.4 Schedule of Payment	**Add after first paragraph** **Schedule comprises the followings:** • Bill No.1 Preliminaries • Bill No.2 Design Proposal • Bill No.3 Fort Station New Service Building • Bill No.4 Construction of New Passenger Bridge and Entrance Porch at Bambalapitiya End • Bill No.5 Construction of Passenger Bridge at Maradana End • Bill No.6 Landscape • Bill No.7 Provisional Sums • Bill No.8 Dayworks Bill Nos.1 and 8 shall be paid on measure and pay basis and Bill Nos. 2, 3, 4, 5, 6, and 7 shall be paid on a milestone basis.

The schedule of milestones for payment for achieving progress on design and permanent construction work are as follows;

Activity	Details	Percentage/ Milestone
Bill No. 2 Design Proposal	Contractor's Design and Drawings inclusive of all surveys, investigations etc.	• 75% of Bill No.2 on submission of Design and Drawings • 25% of Bill No.2 on approval of design and drawings
Bill No.3 New Service Building	Completion of Fort Station New Service Building	100% of Bill No. 3 at the completion and with approval from the Engineer
Bill No.4 New Passenger Bridge and Entrance Porch at Bambalapitiya End	Construction of Passenger Bridge and Entrance Porch	100% of Bill No. 4 at the completion and with approval from the Engineer
Bill No.5 Passenger Bridge at Maradana End	Construction of Passenger Bridge	100% of Bill No. 5 at the completion and with approval from the Engineer
Bill No.6 Landscape Work	Landscape Work and Road Work	100% of Bill No. 6 at the completion and with approval from the Engineer
Bill No.7 Provisional Sums		100% of Bill No. 7 at the completion and with approval from the Engineer

All interim payments, except advance payments shall subject to the deductions as per Sub-Clause 14.3.

Interim payment of work completed to the satisfaction of the Engineer will be permitted on a pro-rata basis according to the approved design.

Sub-Clause 14.5 Plant and Material intended for the Works

All material paid for under Sub-Clause 14.5 shall be deemed to be owned by the Employer who shall have the full rights of ownership. Any material kept at bonded warehouse shall not be considered for payment for material at site. No credit shall be given for materials delivered to site unless following conditions are met to the satisfaction of the engineer.

(i) the materials are in accordance with the specifications for the Works;

(ii) the materials have been delivered to the Site and are properly stored and protected against loss, damage or deterioration;

(iii) the Contractor's records of the requirements, orders, receipts and use of materials are kept in a form approved by the Engineer, and such records are available for inspection by the Engineer;

(iv) the Contractor has submitted a statement of his cost of acquiring and delivering the materials to the Site, together with such documents as may be required for the purpose of evidencing such cost; and

(v) the origin of the materials and the currencies of payment are those indicated in the Contract documents

	(vi) in case the rate in the invoice is higher than the rate indicated in the Contractor's rate breakdown structure for that item, the rate as stated in the rate breakdown shall be used.
Sub-Clause 14.9 Payment of Retention Money	**Delete the first sentence of the paragraph 1 and replace with following;** When the Taking-Over Certificate has been issued for the Works, and the Works have passed all specified tests (including the tests after completion, if any), all outstanding works as stated in the snag list has been completed and the Statement at Completion has been submitted, the first half of the Retention Money shall be certified by the Engineer for payment to the Contractor.
Sub-Clause 15.6 Corrupt and Fraudulent Practices	[For contracts financed by the Asian Development Bank] For the purposes of this Subclause: ADB's Anticorruption Policy requires Borrowers (including beneficiaries of ADB- financed activity), as well as Contractors, Subcontractors, manufacturers, and Consultants under ADB-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, ADB (e) defines, for the purposes of this provision, the terms set forth below as follows: (i) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party: (ii) "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; (iii) "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; (iv) "collusive practice" means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party; (v) "abuse" means theft, waste or improper use of assets related to ADB- related activity, either committed intentionally or through reckless disregard; (vi) "conflict of interest" means any situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations; (vii) "obstructive practice" means (a) deliberately destroying, falsifying, altering or concealing of evidence material to an ADB investigation, or deliberately making false statements to investigators, with the intent to impede an ADB investigation; (b) 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 (c) deliberate acts intended to impede the exercise of ADB's contractual rights of audit or inspection or access to information; and

	(viii)"integrity violation" is any act, as defined under ADB's Integrity Principles and Guidelines, which violates ADB's Anticorruption Policy, including (i) to (vii) above and the following: abuse, conflict of interest, violations of ADB sanctions, retaliation against whistleblowers or witnesses, and other violations of ADB's Anticorruption Policy, including failure to adhere to the highest ethical standard. (f) will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations in competing for the Contract; (g) will cancel the portion of the financing allocated to a contract if it determines at any time that representatives of the borrower or of a beneficiary of ADB-financing engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations during the procurement or the execution of that contract, without the borrower having taken timely and appropriate action satisfactory to ADB to remedy the situation; and (h) will impose remedial actions on a firm or an individual, at any time, in accordance with ADB's Anticorruption Policy and Integrity Principles and Guidelines (both as amended from time to time), including declaring ineligible, either indefinitely or for a stated period of time, to participate[2] in ADB-financed, -administered, or -supported activities or to benefit from an ADB-financed, -administered, or -supported contract, financially or otherwise, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations. All Bidders, consultants, contractors, suppliers and other third parties engaged or involved in ADB-related activities have a duty to cooperate fully in any screening or investigation when requested by ADB to do so. Such cooperation includes, but is not limited to, the following: (g) being available to be interviewed and replying fully and truthfully to all questions asked; (h) providing ADB with any items requested that are within the party's control including, but not limited to, documents and other physical objects; (i) upon written request by ADB, authorizing other related entities to release directly to ADB such information that is specifically and materially related, directly or indirectly, to the said entities or issues which are the subject of the investigation; (j) cooperating with all reasonable requests to search or physically inspect their person and/or work areas, including files, electronic databases, and personal property used on ADB activities, or that utilizes ADB's ICT resources or systems (including mobile phones, personal electronic devices, and electronic storage devices such as external disk drives); (k) cooperating in any testing requested by ADB, including but not limited to, fingerprint identification, handwriting analysis, and physical examination and analysis; and (l) preserving and protecting confidentiality of all information discussed with, and as required by, ADB. All Bidders, consultants, contractors and suppliers shall ensure that, in its

	contract with its sub-consultants, sub-contractors and other third parties engaged or involved in ADB-related activities, such sub-consultants, sub-contractors and other third parties similarly undertake the foregoing duty to cooperate fully in any screening or investigation when requested by ADB to do so.
Sub-Clause 18.3 Insurance against Injury to Persons and Damage to Property	**Delete Item (c) and substitute the following;** "shall be extended to cover liability for all loss and damage to the Employer's property, Employer's Personnel, their Agents and Employees, Engineer and his employees, (except things insured under Sub-Clause 18.2) arising out of the Contractor's performance of the Contract.
Sub-Clause 18.5 Professional Indemnity Insurance	**Add new Sub-clause 18.5** **Sub-Clause 18.5: Professional Indemnity Insurance** The Contractor shall effect and maintain professional indemnity insurance, preferably in the name of the Employer, for the amount stipulated in Contract Data in respect of any design of the Works to be carried out by, or on behalf of the Contractor. This insurance, which shall ensure the Contractor's liability by reason of professional negligence and errors in the design of the works, shall be valid from the date of commencement of Works, until 5 years after the date of issue of Performance Certificate. Alternatively the Contractor shall redeem the insurance before the expiry of the Yearly Insurance in such a way that the entire validity period is covered.
Sub-Clause 20.1 Contractor's Claims	**Delete the entire Clause and add the following:** 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. Contemporary records shall be kept in both written form and electronic form. The electronic form shall be PDF searchable format unless instructed otherwise by the Engineer. *Such records shall be in following categories:* *a) Programme records, which shall include baseline programme,*

	updated programme, revised programme, sub-network programme and programme narratives *b) Progress records* *c) Resource records, which shall include management, labour, plant, equipment, materials and sub-contractors and their output and productivity rates.* *d) Cost records* *e) Correspondence and administration records, which shall include emails, letters, notices, instructions, submittals, request for information and responses, meeting minutes, claims and any other written between the Employer, the Contractor and the Engineer.* *f) Any other relevant records* 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 Adjudication Board in accordance with Sub-Clause 20.4 [Obtaining Dispute Adjudication 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.
Sub-Clause 20.2 Appointment of the Dispute Adjudication Board	Disputes shall be referred to a Dispute Adjudication Board (DAB) for decision in accordance with Sub-Clause 20.4 [Obtaining Dispute Adjudication Board's Decision]. The Parties shall appoint a DAB by the date stated in the Appendix to Tender. The DAB shall comprise, as stated in the Appendix to Tender, 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 DAB shall comprise three persons. If the Parties have not jointly appointed the DAB 21 days before the date stated in the Appendix to Tender and the DAB 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 DAB. 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 Adjudication Board Agreement contained in the Appendix 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 DAB 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 DAB for it to give its opinion. Neither Party shall consult the DAB 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 DAB (including each member) shall expire when the discharge referred to in Sub-Clause 14.12 [Discharge] shall have become effective.
Sub-Clause 20.3 Failure to Agree on the Composition of the Dispute Adjudication Board	If any of the following conditions apply, namely: (a) the Parties fail to agree upon the appointment of the sole member of the DAB by the date stated in the first paragraph of Sub-Clause 20.2, [Appointment of the Dispute Adjudication 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 DAB 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 DAB 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 Appendix to Tender shall, upon the request of either or both of the Parties and after due consultation with both Parties, appoint this member of the DAB. 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.
Sub-Clause 20.4 Obtaining Dispute Adjudication 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 DAB 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 DAB of three persons, the DAB shall be deemed to have received such reference on the date when it is received by the chairman of the DAB. Both Parties shall promptly make available to the DAB all such additional information, further access to the Site, and appropriate facilities, as the DAB may require for the purposes of making a decision on such dispute. The DAB 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 DAB and approved by both Parties, the DAB 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 DAB'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 DAB 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 Adjudication Board's Decision] and Sub-Clause 20.8 [Expiry of Dispute Adjudication 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 DAB 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 DAB's decision, then the decision shall become final and binding upon both Parties.

Sub-Clause 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.
Sub-Clause 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 DAB'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 Appendix to Tender, and conducted under the rules of arbitration of such institution; or, if so specified in the Appendix to Tender, (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 Appendix to Tender, 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. for contracts financed by the Asian Development Bank: international arbitration (1) with proceedings administered by the arbitration institution specified in the Appendix to Tender and conducted under the rules of arbitration of such institution unless it is specified in the Appendix to Tender that the arbitration shall be conducted under the rules of the United Nations Commission on International Trade Law (UNCITRAL) and if UNCITRAL Rules are so specified then the named arbitration institution shall be the appointing authority and shall administer the arbitration); or (2) if an arbitration institution is not specified in the Appendix to Tender, with proceedings administered by the Singapore International Arbitration Centre (SIAC) and conducted under the SIAC Rules, by one or more arbitrators appointed in accordance with the 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 Appendix to Tender; 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 DAB, 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 DAB to obtain its decision, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction. Any decision of the DAB 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 DAB shall not be altered by reason of any arbitration being conducted during the progress of the Works.
Sub-Clause 20.7 Failure to Comply with Dispute Adjudication Board's Decision	In the event that a Party fails to comply with a final and binding DAB 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 Adjudication Board's Decision] and Sub-Clause 20.5 [Amicable Settlement] shall not apply to this reference.
Sub-Clause 20.8 Expiry of Dispute Adjudication 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 DAB in place, whether by reason of the expiry of the DAB's appointment or otherwise: a) Sub-Clause 20.4 [Obtaining Dispute Adjudication 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].

Section 9 - Contract Forms

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.

Table of Forms

Notification of Award

[on letterhead paper of the employer]

Letter of Acceptance

. . . . . *date*. . . . . .

To: . . . . . *Name and address of the contractor* . . . . . .

Subject: . . . . . *Notification of Award Contract No.* . . . . . .

This is to notify you that your Bid dated . . . . *date* . . . . for execution of the . . . . . *.name of the contract and identification number, as given in the Bid Data Sheet* . . . . . for the Accepted Contract Amount of the equivalent of . . . . . *.amount in words and figures and name of currency* . . . . . ., as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 28 days in accordance with the Conditions of Contract, using for that purpose the Performance Security Form included in Section 9 (Contract Forms) of the Bidding Document.

Authorized Signature: .....

Name and Title of Signatory: .....

Name of Agency: .....

Attachment: Contract Agreement

Contract Agreement

THIS AGREEMENT made the . . . . . .day of . . . . . ., ..., between . . . . . *name of the employer. . . . .* (hereinafter "the Employer"), of the one part, and . . . . . *name of the contractor. . . .* (hereinafter "the Contractor"), of the other part:

WHEREAS the Employer desires that the Works known as . . . . . *name of the contract. . . . .*should be executed by the Contractor, and has accepted a Bid 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 Contract Agreement,

   (b) the Letter of Acceptance,

   (c) the Letter of Technical Bid,

   (d) the Letter of Price Bid,

   (e) the Addenda & Clarifications. . ... *if any*. . .. .

   (f) the Particular Conditions of Contract – Part A,

   (g) the Particular Conditions of Contract – Part B,

   (h) the List of Eligible Countries that was specified in Section 5 of the Bidding Document

   (i) the General Conditions of Contract,

   (j) the Employer's Requirements

   (k) the completed Schedules including Bill of Quantities, and

   (l) the Contractor's Proposal and any other documents forming part of the Contract.[1]

3. In consideration of the payments to be made by the Employer to the Contractor as indicated 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 . . . . . *name of the borrowing country. . . . .*on the day, month and year indicated above.

[1] Tables of Adjustment Data may be added if the contract provides for price adjustment (see GCC 13.8).

Signed by .....

for and on behalf of the Employer
in the presence of

Witness, Name, Signature, Address, Date

Signed by.....

for and on behalf the Contractor
in the presence of

Witness, Name, Signature, Address, Date

Performance Security

..... *Bank's name, and address of issuing branch or office*[1] .....

Beneficiary: ..... *Name and address of the employer* .....

Date: .....

Performance Guarantee No.: .....

We have been informed that . . . . . *name of the contractor. . . . .* (hereinafter called "the Contractor") has entered into Contract No. . . . . *reference number of the contract. . . . .* dated . . . . . .with you, for the execution of . . . . . *name of contract and brief description of works. . . . .* (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 Contractor, we . . . . . *name of the bank. . . . .* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of . . . . . *name of the currency and amount in words*[2] . . . . . (. . . . . *amount in figures. . . . .*) such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your 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 . . . . . , ... [3], and any demand for payment under it must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458 (*or ICC Publication No. 758 as applicable*), except that subparagraph (ii) of Sub-article 20(a) is hereby excluded.[4]

. . . . . .

Signature(s) and seal of bank (where appropriate)

Note to Bidder

If the institution issuing the performance security is located outside the country of the employer, it shall have a correspondent financial institution located in the country of the employer to make it enforceable.

1 All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.

2 The guarantor shall insert an amount representing the percentage of the contract price specified in the contract and denominated either in the currency(ies) of the contract or a freely convertible currency acceptable to the employer.

3 Insert the date 28 days after the expected completion date. 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 [6 months][1 year], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

4 Or the same or similar to this clause specified in the Uniform Rules for Demand Guarantees, ICC Publication No. 758 where applicable.

Advance Payment Security

..... *Bank's name, and address of issuing branch or office*[1] .....

Beneficiary: .....*Name and address of the employer* .....

Date:.....

Advance Payment Guarantee No.: .....

We have been informed that . . . . . *name of the contractor.* . . . . (hereinafter called "the Contractor") has entered into Contract No. . . . . *reference number of the contract.* . . . . dated . . . . . .with you, for the execution of . . . . . *name of contract and brief description of works.* . . . . (hereinafter called "the Contract").

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum . . . . . *name of the currency and amount in words*[2]. . . . . (. . . . . *amount in figures.* . . . .) is to be made against an advance payment guarantee.

At the request of the Contractor, we . . . . . *name of the bank.* . . . . hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of . . . . . *name of the currency and amount in words*[3]. . . . . (. . . . . *amount in figures.* . . . .) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number . . . . . *Contractor's account number.* . . . . at . . . . . *name and address of the bank.* . . . . .

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated 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 percent (90%) of the Contract Price has been certified for payment, or on the . . . day of . . . . . , ... [4], 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, ICC Publication No. 458 (*or ICC Publication No. 758 as applicable*).

. . . . . .

Signature(s) and seal of bank (where appropriate)

Note to Bidder

If the institution issuing the advance payment security is located outside the country of the employer, it shall have a correspondent financial institution located in the country of the employer to make it enforceable.

1 All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.

2 The guarantor shall insert an amount representing the amount of the advance payment 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.

3 Footnote 2.

4 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 [6 months][1 year], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."