Standard Bidding Document

Construction of Houses and Associated Infrastructure Development for ICT Police
(Works)

National

Single Stage-Two Envelope

November 20, 2026

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REQUEST FOR BIDS

PROCUREMENT OF CIVIL WORKS

1. The **National Police Foundation (National Police Foundation)** has reserved Funds for the procurement planned for FY **2026-27**. The **National Police Foundation (National Police Foundation)** intends to apply part of the proceeds of this Fund to cover eligible payments under the contract for the "**Construction of Houses and Associated Infrastructure Development for ICT Police**" with the reference of **"P183357"**

2. The **National Police Foundation (National Police Foundation)** invites electronic Bids from eligible Bidders for procurement of Works **(Construction of Houses and Associated Infrastructure Development for ICT Police)** described in the bidding documents on **EPADS v2.0**.

3. **Single Stage-Two Envelope** will be used by adopting **Least Cost Based Selection (LCBS)** Technique for the subject procurement, in line with the Public Procurement Rules, 2026 and any Regulations, Regulatory Guides, Procurement Guidelines or Instructions issued by the Authority from time to time.

4. All Bids must be accompanied by a Bid Security amounting described in Bid Security Section in Bidding Document in the form of **Pay Order, Banker's Cheque, Call at Deposit, Bank Guarantee, Demand Draft**. Or all bids must be accompanied by bid securing declaration in the format specified in the Bidding documents

5. E-Bidding documents, containing detailed terms & conditions, specifications and requirements etc. are available on **e-Pak Acquisition and Disposal System (EPADS)** at **https://epads.gov.pk/opportunities/federal/procurements/183357** for all the interested bidders registered on **EPADS v2.0**. Bidders are required to get themselves registered on **EPADS v2.0** to participate in Bidding process.

6. The e-bids, prepared in accordance with the instructions in the e-Bidding documents, must be submitted through **EPADS v2.0** on or before **Friday, December 4, 2026 10:00 AM**. E-bids will be opened by using **EPADS v2.0**

on the same day at **Friday, December 4, 2026 10:30 AM**. Manual submission of Bids shall not be entertained. Those vendor who have not yet registered on the new version of **EPADS v2.0**, may register themselves on **https://vendors.epads.gov.pk/**. A tutorial to explain the registration process is available at **https://www.youtube.com/watch?v=MNW6T38v7tc.**

In terms of Rules 65 of Public Procurement Rules, 2026 Grievance Redressal Committee (GRC) is notified for the subject procurement and notification copy is available on the procuring agency's website and on Authority's website at (**www.ppra.gov.pk**).

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Instructions to Bidders

A. INTRODUCTION

1. **Scope of Bid**

1.1. The Procuring agency/Employer (PA), as indicated in the **Bid Data Sheet** (BDS) invites Bids for the execution of Works as specified in the BDS and **Section VI- Works Requirements**. The name, identification, and number of lots (contracts) of this National/ International Competitive Bidding process are specified in the BDS.

2. **Source of Funds**

2.1. Source of funds as referred in Clause 2 of Bid Data Sheet.

3. **Eligible Bidders**

3.1. A bidder may be natural person, company or firm or public or semi-public agency of Pakistan or any foreign country, or any combination of them with a formal existing agreement (on Judicial Papers) in the form of a joint venture or consortium. In the case of a joint venture or consortium, all members shall be jointly and severally liable for the execution of the Contract in accordance with the terms and conditions of the Contract. The joint venture or consortium shall nominate a Lead Member as nominated in the BDS, who shall have the authority to conduct all business for and on behalf of any and all the members of the joint venture or consortium during the Bidding process, and in case of award of contract, during the execution of contract. Verifiable copy of the agreement that forms a joint venture, consortium or association shall be required to be submitted as part of the Bid.

Any bid submitted by the joint venture shall indicate the part of proposed contract to be performed by each party and each party shall be evaluated (or post qualified if required) with respect to its contribution only, and the responsibilities of each party shall not be substantially altered without prior written approval of the Procuring Agency and in line with any instructions issued by the Authority.

(The limit on the number of members of JV or Consortium may be prescribed

in BDS, in accordance with the guidelines issued by the PPRA).

3.2. The invitation for bids is open to all prospective bidders subject to any provisions of incorporation or licensing by the respective national/ international incorporating agency or statutory body established for that particular trade or business. Procuring agencies shall specify the registration/licensing requirements for the foreign bidder keeping in view the requirement of that business.

3.3. A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidders may be considered to have a conflict of interest with one or more parties in this Bidding process, if they:

3.3.1. are associated or have been associated in the past, directly or indirectly with a firm or any of its affiliates which have been engaged by the Procuring agency/Employer to provide consulting services for the preparation of design or technical specifications of the works that are the subject of the bid; or

3.3.2. have controlling shareholders in common; or

3.3.3. receive or have received any direct or indirect subsidy from any of them; or

3.3.4. have the same legal representative for purposes of this Bid; or

3.3.5. have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another bidder, or influence the decisions of the Procuring agency/Employer regarding this Bidding process; or

3.3.6. Submit more than one bid in this bidding process.

3.4. A Bidder may be ineligible if –

3.4.1. he is declared bankrupt or, in the case of company or firm, insolvent;

3.4.2. payments in favor of the bidder is suspended in accordance with the judgment of a court of law other than a judgment declaring bankruptcy and resulting (in accordance with the national laws) in the total or partial loss of the right to administer and dispose of its property;

3.4.3. the bidder is convicted, by a final judgment of a Court of Law or relevant Professional Statuary Body, of any offence involving professional conduct;

3.4.4. The bidder is debarred/ blacklisted by a national level Procuring agency/Employer and hence debarred due to involvement in corrupt and fraudulent practices, or performance failure or due to breach of bid securing declaration.

3.5. As and when required, bidders shall provide to the Procuring agency/Employer evidence of their eligibility, proof of compliance with the necessary legal requirements to carry out the contract effectively.

4. **Eligible Material and Equipment**

4.1. All the material and equipment to be mobilized under the contract shall have their origin in eligible source countries, and all expenditures made under the contract will be limited to such materials and equipment. For this purpose, ineligible countries are stated in the section-IV titled as “Eligible Countries”.

B. BIDDING DOCUMENTS

5. **Contents of Bidding Documents**

5.1. The scope of Works, bidding procedures, and terms and conditions of the contract are prescribed in the bidding documents. In addition to the Invitation for Bids, the bidding documents which should be read in conjunction with any addenda issued in accordance with ITB 7.1 include:

i. Section I Instructions to Bidders (ITBs)

ii. Section II Bid Data Sheet (BDS)

iii. Section III Evaluation and Qualification Criteria

iv. Section IV Bidding Forms

v. Section V Eligible Countries

vi. Section VI Works Requirements

vii. Section VII General Conditions of Contract (GC)

viii. Section VIII Particular Conditions of Contract (PC

ix. Section IX Contract Forms

5.2. The bidder is expected to examine all instructions, forms, specifications, terms and conditions prescribed in the bidding documents. Failure to furnish all the information required in the bidding documents will be at the bidder's risk and may result in the rejection of his bid.

6. **Clarification of Bidding Document, Pre-bid Meeting**

6.1. A prospective bidder requiring any clarification of the bidding document may notify the Procuring agency/Employer through **EPADS v2.0**.

6.2. The Procuring agency/Employer shall respond to the request for clarification in accordance with the Public Procurement Rules 2026, Rule No.38 i.e. **Clarifications of bids**.

6.3. Should the Procuring Agency deem it necessary to amend the BIDDING document as a result of a clarification, it shall do so following the procedure under **ITB 7**.

6.4. If indicated in the **BDS**, the bidder's designated representative is invited at the bidder's cost to attend a pre-bid meeting at the place, date and time mentioned in the BDS. During this pre-bid meeting, prospective bidders may request clarification of the schedule of requirement, the evaluation criteria or any other aspects of the bidding documents.

6.5. Minutes of the pre-bid meeting, if applicable, including the text of the questions asked by bidders, including those during the meeting (without identifying the source) and the responses given, together with any responses prepared after the meeting will be uploaded on **EPADS v2.0**. Any modification to the bidding documents that may become necessary as a result of the pre-bid meeting shall be made by the Procuring agency/Employer exclusively through the use of an Addendum pursuant to **ITB 7**. Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.

6.6. 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.

6.7. The bidder and any of its authorized personnel will be granted permission by the Procuring agency/Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the bidder and its personnel will release and indemnify the Procuring agency/Employer 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. **Amendment of Bidding Documents**

7.1. The procuring agency may issue notification of any change, addition, modification or deletion in accordance with the PP Rules 2026, rule no. 34 i.e. **Bidding Documents**.

7.2. To give prospective bidders reasonable time in which to take an addendum/corrigendum into account in preparing their bids, the Procuring agency/Employer may, at its discretion, extend the deadline for the submission of bids:
Provided that the Procuring agency/Employer shall extend the deadline for submission of bid in pursuance of PP Rules 2026, rule no. 39 i.e. ***Extension of time for submission of bids****, if such an addendum is issued within last*

three (03) days of the bid submission deadline.

C. PREPARATION OF BIDS

8. Language of Bid

8.1. The bid prepared by the bidder, as well as all correspondence and documents relating to the bid exchanged by the bidder and the Procuring agency/Employer shall be written in the English language unless specified in the **BDS**. Supporting documents and printed literature furnished by the bidder may be in another language provided they are accompanied by an accurate translation of the relevant pages in the English language unless specified in the **BDS**, in which case, for purposes of interpretation of the bidder, the translation shall govern.

9. **Documents Comprising the Bids**

9.1. The Bid prepared by the Bidder shall constitute the following components: -

9.1.1. Documentary evidence established in accordance with ITB 9 that the material and equipment to be utilized by the Bidder for the executions of works are eligible material and equipment and conform to the Bidding Documents;

9.1.2. Documentary evidence established in accordance with ITB 10 that the Bidder has been authorized to carry out the Construction works;

9.1.3. Documentary evidence established in accordance with ITB 10 that the Bidder is eligible and/or qualified for the subject Bidding process;

9.1.4. Letter of Bid and Schedules and Bid Prices completed in accordance with ITB 11 and 12;

9.1.5. Completed schedules as required, including priced Bill of Quantities in accordance with ITB 11.

9.1.6. Technical Proposal completed in all aspects in accordance with ITB 14.

9.1.7. Bid security or Bid Securing Declaration furnished in accordance with ITB 16;

9.1.8. Any other Document required in the BDS.

9.2. In addition to the requirements, Bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful Bid shall be signed by all members and submitted with the Bid, together with a copy of the proposed Agreement. Bids submitted by a joint venture of two (2) or more firms specified in Bidding Data, shall comply with the following requirements:

9.2.1. The bid, and in case of a successful bid, the Form of Contract Agreement shall be signed by all members so as to be legally binding on all partners;

9.2.2. One of the joint venture partners shall be nominated as being in-charge; and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the joint venture partners;

9.2.3. For the partner-in-charge shall always be duly authorized to deal with the Employer regarding all matters related with and/or incidental to the execution of Works as per the terms and Conditions of Contract and in this regard to incur any and all liabilities, receive instructions, give binding undertakings and receive payments on behalf of the joint venture;

9.2.4. All partners of the joint venture shall at all times and under all circumstances be liable jointly and severally for the execution of the Contract in accordance with the Contract terms and a statement to this effect shall be included in the authorization mentioned under Sub-Para(b) above as well as in the Letter of Bid and in the Form of Contract Agreement (in case of a successful bid); and

9.2.5. A copy of the agreement entered into by the joint venture partners shall be submitted with the bid stating the conditions under which it will function, its period of duration, the persons authorized to represent and obligate it and which persons will be directly responsible for due performance of the Contract and can give valid receipts on behalf of the joint venture, the proportionate participation and corresponding duties & responsibilities of the several firms forming the joint venture, and any other information necessary to permit a full appraisal of its functioning. No amendments/modifications whatsoever in the joint venture agreement shall be agreed to between the joint venture partners without prior written consent of the Employer.

9.3. The Bidder shall furnish, as part of its Bid, all those documents establishing the eligibility in conformity to the terms and conditions specified in the Bidding Documents for all material, equipment and works which the Bidder proposes to execute.

9.4. The documentary evidence of conformity of the material, equipment and works to the Bidding Documents may be in the form of literature, drawings, and data, and shall consist of:

9.4.1. a detailed description of the work methodology, approach, schedule and resources to be mobilized at site;

9.4.2. any other procurement specific documentation requirement as stated in the BDS.

9.5. The Bidder shall furnish in the Letter of Bid name(s) of the potential DAAB member(s) and attach their curriculum vitae. The list of potential DAAB member(s) proposed by the Employer (Contract Data 21.1) and by the Bidder (Letter of Bid) shall be subject to mutual review and agreement of the Parties in accordance with Sub-Clause 21.1 of the Conditions of Contract, and shall form the basis for the constitution of the DAAB in the event of Contract award.

10. **Documents Establishing Eligibility and Qualification of the Bidder**

10.1. The bidder shall furnish, as part of its bid, all those documents establishing the bidder’s eligibility to participate in the bidding process and/or its qualification to perform the contract if its bid is accepted.

10.2. The documentary evidence of the bidder’s eligibility to bid shall establish to the satisfaction of the Procuring agency/Employer that the bidder, at the time of submission of its bid, is from an eligible country as defined in Section-V titled as “Eligible Countries”.

10.3. The documentary evidence of the bidder’s qualification to perform the contract if its bid is accepted shall establish to the satisfaction of Procuring agency/Employer that:

10.3.1. The bidder has the financial and technical capability necessary to perform the Contract, meets the qualification criteria specified in Section-III, Evaluation and Qualification Criteria and **BDS**.

10.3.2. In the case of a bidder not doing business within Pakistan, the bidder is or will be (if awarded the contract) represented by a local bidder (Joint Venture) in accordance with the PEC works bylaws, and in case of award of works such foreign firm is required to participate in the execution of works to carry out its obligations as prescribed in the Conditions of Contract and /or Technical Specifications.

10.3.3. That the bidder meets the qualification criteria listed in Section-III, Evaluation and Qualification Criteria and **BDS**.

11. **Letter of Bid and Schedules**

11.1. The Bidder shall fill the Form of Bids furnished in the bidding documents. The Bids Form must be completed without any alterations to its format and no substitute shall be accepted.

12. **Bid Prices**

12.1. The bid prices quoted by the bidder in the Bidding Forms, Bill of Quantities and in the Price Schedule to Bid shall conform to the requirements specified below or exclusively mentioned hereafter in the

bidding documents.

12.2. The bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. If a Price Schedule shows items listed but not priced, their prices shall be construed to be included in the prices of other items in the Bill of Quantities and will not be paid for separately by the Procuring agency/Employer.

12.3. The Bid price to be quoted in the Form of Bid in accordance with ITB 11 shall be the total price of the bid

12.4. Unless otherwise specified 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.

12.5. Unless otherwise specified 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.

12.6. If so specified in ITB 1.1, bids may be invited for individual lots (contracts) or for any combination of lots (packages).

12.7. Prices quoted by the Bidder shall either be fixed or adjustable during the Bidder’s performance of the contract if specified in the BDS.

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

13. **Currencies of Bid and Payment**

13.1. The unit rates and the prices shall be quoted by the Bidder entirely Pakistani Rupees. A Bidder expecting to incur expenditures in other currencies for inputs to the Works supplied from outside the Employer’s country (referred to as the “Foreign Currency Requirements”) shall indicate in Table III of Schedule-A to Bid the proportion of the Bid Price (excluding Provisional Sums) needed by him for the payment of such Foreign Currency

Requirements; in such case the unit rates and the prices shall be quoted by the Bidder in Equivalent Pakistani Rupees.Comparison of Bids and tie of Bid shall be treated in accordance with the PP rules 2026, rule no. 42.

14. **Documents Comprising the Technical Proposal**

14.1. The bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section IV– Bidding Forms, in sufficient detail to demonstrate the adequacy of the bidder’s proposal to meet the work requirements and the completion time.

15. **Bid Validity Period**

15.1. Bids shall remain valid for the period specified in the BDS after the bid submission deadline prescribed by the Procuring agency/Employer. A bid valid for a shorter period shall be rejected by the Procuring agency/Employer as non-responsive. The period of bid validity will be determined from the complementary bid securing instrument i.e. the expiry period of bid security or bid securing declaration as the case may be.

15.2. Under exceptional circumstances, prior to the expiration of the initial Bids/Bid validity period, the Procuring Agency may request the Bidders’ consent to an extension of the period of validity of their Bids/Bid. Such request for extension of the period of bid validity shall be carried out in accordance with the PP rules 2026, rule no. 37 i.e. Bid Validity.

16. **Bid Security or Bid Securing Declaration**

16.1. Pursuant to ITB 10.1 unless otherwise specified in the BDS, the bidder shall furnish as part of its bid, a Bid Security in accordance with the PP Rules 2026, rule no. 36 in the amount and currency specified in the BDS or Bid Securing Declaration as specified in the BDS in the format provided in Section IV (Bidding Forms).

In case Procuring agency/Employer is inviting bids in lots / packages, the bidder shall be required to submit his bid security against the respective lot/ package for which he is submitting his bid.

Until the development of functionality of auto verification of financial instrument in **EPADS v2.0**, the scanned copy of bid security or bid securing declaration, as the case may be, shall be uploaded on **EPADS v2.0** whereas the original instrument to be submitted to the procuring agency before closing of bid submission deadline, failing which shall result in rejection of Bid as non-responsive.

16.2. The Bid Security shall be denominated in the local currency or in another freely convertible currency, and it shall be in the form specified in the BDS which shall be in any of the following:

16.2.1. A bank guarantee, an irrevocable letter of credit issued by a Scheduled bank in the form provided in the Bidding Documents or another form acceptable to the Procuring agency/Employer and valid for twenty-eight (28) days beyond the end of the validity of the Bid. This shall also apply if the period for Bid Validity is extended. In either case, the form must include the complete name of the bidder;

16.2.2. A cashier’s or certified cheque; or

16.2.3. Another security as indicated in the **BDS**.

16.3. The Bid Security or Bid Securing Declaration shall be in accordance with the Form of the Bid Security or Bid Securing Declaration included in Schedule to Bid or another form approved by the Procuring agency/Employer prior to the bid submission.

16.4. The Bid Security shall be payable promptly upon written demand by the Procuring agency/Employer in case any of the conditions listed in **ITB 16.9** are invoked.

16.5. Any bid not accompanied by a Bid Security or Bid Securing Declaration in accordance with **ITB 16.1 or 16.3** shall be rejected by the Procuring agency/Employer and shall be declared as non-responsive bid, pursuant to **ITB 25**.

16.6. Unsuccessful bidders’ Bid Security will be discharged or returned as promptly as possible, however in no case later than thirty (30) days after the expiration of the period of Bid Validity prescribed by the Procuring

agency/Employer pursuant to **ITB 15**. The Procuring agency/Employer shall make no claim to the amount of the Bid Security, and shall promptly return the Bid Security document, after whichever of the following that occurs earliest:

16.6.1. The expiry of the Bid Security;

16.6.2. The entry into force of a procurement contract and the provision of a performance security (or guarantee), for the performance of the contract if such a security (or guarantee), is required by the Biding documents;

16.6.3. The rejection by the Procuring agency/Employer of all Bids;

16.6.4. The withdrawal of the bid prior to the deadline for the submission of bids, unless the biding documents stipulate that no such withdrawal is permitted.

16.7. The successful bidder's Bid Security will be discharged upon the bidder signing the contract pursuant to **ITB 38**, or furnishing the performance security (or guarantee), pursuant to **ITB 39**.

16.8. The Bid Security may be forfeited or the Bid Securing Declaration executed:
if a Bidder:

16.8.1. Withdraws its Bid during the period of Bid Validity as specified by the Procuring agency/Employer, and referred by the bidder on the Form of Bid except as provided for in ITB 15.2; or

16.8.2. In the case of a successful bidder, if the bidder fails:

16.8.2.1. to sign the contract in accordance with ITB 38; or

16.8.2.2. to furnish performance security (or guarantee) in accordance with ITB 39.

16.9. In case of Bid Security issued by the foreign bank is allowed by the Procuring agency/Employer, the same should be counter guaranteed by a corresponding bank in Pakistan. Furthermore, in case of joint venture, it

should be in the name of Joint venture to ensure joint responsibility. In case the JV is not legally constituted at the time of bid submission, the bid security or bid securing declaration shall be in the names of Joint Venture or Lead/either Firm of the JV or in ratio of shares of the individual JV partners, submitting the bid.

17. **Withdrawal of Bids**

17.1. The Bidder shall prepare and submit Bids through EPADS with due diligence after carefully reading all the terms and condition before Bid submission deadline.

D. SUBMISSION OF BIDS

20. **Submission of Bids**

20.1. All bids shall be submitted through **EPADS v2.0**.

21. **Deadline for Submission of Bids**

21.1. All bids shall be received through **EPADS v2.0** not later than bid submission deadline as specified in the **BDS**.

21.2. The Procuring agency/Employer may, under exceptional circumstances and at its discretion, extend the deadline for the submission of bids, pursuant to PP Rules 2026, rule no. 39 Extension of Time for submission of bid, by amending the Bidding Documents in accordance with ITB 7, in which case all rights and obligations of the Procuring agency/Employer and bidders previously subject to the deadline will thereafter be subject to the new deadline.

22. **Withdrawal, Substitution and Modification of Bids**

22.1. A bidder may substitute or modify his bid after it has been submitted, provided that written notice of the substitution or modification of the bid, is received by the Procuring agency/Employer prior to the deadline for submission of bids.

22.2. Revised bid may be submitted after the substitution or modification made in the original bid in accordance with ITB 20.1.

E. OPENING AND EVALUATION OF BIDS

23. **Opening of Bids**

23.1. The Procuring Agency will open bids in accordance with the PP rules 2026, rule no.40 as specified in the **BDS**.

24. **Confidentiality**

24.1. Information relating to the examination, clarification, evaluation and comparison of bids and recommendation of contract award shall not be disclosed to bidders or any other persons not officially concerned with such process until the time of the announcement of the respective evaluation report.

25. **Clarification of Bids**

25.1. Clarification of Bidding Documents shall be carried out in accordance with the PP Rules 2026, rule no. 38 i.e. Clarifications.

25.2. The alteration or modification in the bid which in any case affect the following parameters will be considered as a change in the substance of a bid:

25.2.1. evaluation & qualification criteria;

25.2.2. required scope of work;

25.2.3. contract price;

25.2.4. all securities requirements;

25.2.5. tax requirements;

25.2.6. terms and conditions of bidding documents.

25.2.7. change in the ranking of the bidder

26. **Preliminary Examination of Bids**

26.1. Prior to the detailed evaluation of bids, the Procuring agency/Employer will determine whether each bid:

26.1.1. has been prepared as per the format and contents defined by the Procuring agency/Employer in the bidding documents;

26.1.2. has been properly signed;

26.1.3. is accompanied by the required securities; and

26.1.4. is substantially responsive to the requirements of the bidding documents.
The Procuring agency/Employer's determination of a bid's substantial responsiveness will be based on the contents of the bid itself.

26.2. A substantially responsive Bid is one which conforms to all the terms, conditions, and specifications of the Bidding Documents, without material deviation or reservation. A material deviation or reservation is one that: -

26.2.1. affects in any substantial way the scope, quality, or performance of the Works;

26.2.2. limits in any substantial way, inconsistent with the bidding documents, the Procuring agency/Employer's rights or the bidders' obligations under the Contract; or

26.2.3. if rectified, would affect unfairly the competitive position of other bidders presenting substantially responsive bids.

26.3. The Procuring agency/Employer will confirm that the documents and information specified under ITB 9, 10 and 11 have been provided in the bid. If any of these documents or information is missing, or is not provided in accordance with the Instructions to Bidders, the bid shall be rejected.

26.4. The Procuring agency/Employer may waive-off any minor informality, nonconformity, or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Bidder.

Explanation: A minor informality, non-conformity or irregularity is one that is merely a matter of form and not of substance. It also pertains to some of the invitation that can be corrected or waived without being prejudicial to other bidders. The defect or variation is immaterial when the effect on quantity, quality, or delivery is negligible when contrasted with the total cost or scope of the works. The Procuring agency/Employer either shall give the bidder an opportunity to cure any deficiency resulting from a minor informality or irregularity in a bid or waive the deficiency, whichever is advantageous to the Procuring agency/Employer. Examples of minor informalities or irregularities include failure of a bidder to –

26.4.1. Submit the number of copies of signed bids required by the invitation;

26.4.2. Furnish required information concerning the number of its employees;

26.4.3. the firm submitting a bid has formally adopted or authorized, before the date set for opening of bids, the execution of documents by typewritten, printed, or stamped signature and submits evidence of such authorization and the bid carries such a signature.

26.5. Provided that a Technical Bid is substantially responsive, the Procuring agency/Employer may request the bidder to submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the Technical Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any such aspect of the technical Proposal linked with the ranking of the bidders. Failure of the bidder to comply with the request may result in the rejection of its bid.

26.6. Provided that a Technical Bid is substantially responsive, the Procuring agency/Employer shall rectify quantifiable nonmaterial nonconformities or omissions related to the Financial Proposal. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of the missing or nonconforming item or component.

26.7. If a bid is not substantially responsive, it will be rejected by the Procuring agency/Employer and may not subsequently be evaluated for complete technical responsiveness.

27. **Examination of Terms and Conditions; Technical Evaluation**

27.1. The Procuring agency/Employer shall examine the bid to confirm that all terms and conditions specified in the GC and the PC have been accepted by the bidder without any material deviation or reservation.
For this purpose:
"**Deviation**" means departure from the requirements specified in the Bidding Document.
"**Reservation**" means setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document.

27.2. The Procuring agency/Employer shall evaluate the technical aspects of the bid submitted in accordance with ITB 28, to confirm that all requirements specified in Section VI – Works Requirement, Technical Specifications of the Bidding Documents have been met without material deviation or reservation.

27.3. If after the examination of the terms and conditions and the technical evaluation, the Procuring agency/Employer determines that the bid is not substantially responsive in accordance with ITB 25, it shall reject the bid.

28. **Correction of Arithmetic Errors**

28.1. Bids determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows: -

28.1.1. if there is a discrepancy between unit prices and the sub-total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the sub-total price shall be corrected, unless in the opinion of the Procuring agency/Employer there is an obvious misplacement of the decimal point in the unit price, in which the total price as quoted shall govern and the unit price shall be corrected;

28.1.2. if there is an error in a total corresponding to the addition or subtraction of sub-totals, the sub-totals shall prevail, and the total shall be corrected; and

28.1.3. where there is a discrepancy between the amounts in figures and in words, the amount in words will govern.

28.1.4. Where there is discrepancy between grand total of price schedule and amount mentioned on the Form of Bid, the amount referred in Price Schedule shall be treated as correct subject to elimination of other errors.

28.2. The amount stated in the Bid will, be rectified by the Procuring agency/Employer in accordance with the above procedure for the correction of errors and, with, the concurrence of the bidder, shall be considered as binding upon the bidder. If the bidder does not accept the corrected amount, its bid shall be rejected after forfeiture of Bid Security or execution of the Bid Securing Declaration, as the case may be, in accordance with ITB 39.3.

29. **Conversion to Single Currency**

29.1.
Comparison of bids quoted in different currencies and conversion of bids into a single curre
rule no. 42(2) as specified in the BDS.

30. **Evaluation of Bids**

30.1. The Procuring agency/Employer shall evaluate and compare only the bids determined to be substantially responsive, pursuant to ITB 25.

30.2. In evaluating the Technical Proposal of each Bid, the Procuring agency/Employer shall use the criteria and methodologies listed in the BDS and in terms of works requirement. No other evaluation criteria or methodologies shall be permitted.

30.3. The Procuring agency/Employer’s evaluation of a bid will take into account:

30.3.1. the bid price, excluding provisional sums and the provision, if any, for contingencies in the summary bill of quantities, but including day work items, where priced competitively;

30.3.2. converting the amount resulting from applying above, if relevant, to a single currency in accordance with ITB 27;

30.4. 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.

30.5. If these bidding documents allow bidders to quote separate prices for different lots, and the award to a single bidder of multiple lots, the methodology of evaluation to determine the lowest evaluated lot combinations in the Form of Bid, is specified in the BDS.

30.6. If the bid, which results in the Evaluated Bid Price (Successful Bid), 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.

Explanation:

“Unbalanced” or “front-loaded” bids consist of deliberately submitting bids with artificially high prices or unit rates for the early stages of a construction project, offset by artificially low prices or unit rates for the later stages of the project, to improve the contractor’s cash flow.

31. **Domestic Preference**

31.1. If the BDS so specifies, the Procuring agency/Employer will grant a margin of preference to the domestic contractor in line with the rules, regulations, regulatory guides or instructions issued by the Authority from

time to time.

32. **Determination of Successful Bid**

32.1. The Procuring agency/Employer shall compare the evaluated bids in accordance with the predefined bidding procedure, of all substantially responsive bids to determine the Successful bidder.

33. **Qualification of Bidder**

33.1. The Procuring agency/Employer shall determine to its satisfaction whether the bidder is substantially responsive and whose bid is declared as Successful bid either continues to meet (if prequalification applies) or meets (if post-qualification applies) the qualifying criteria specified in Evaluation and Qualification Criteria.
Note: In case of international bidding, the parameters for incorporation or licensing within Pakistan may be fulfilled as part of post qualification.

33.2. The determination shall be based upon an examination of the documentary evidence of the bidder’s qualifications submitted by the bidder, pursuant to ITB 10.

33.3. Prior to contract award, the Procuring agency/Employer will verify that the successful bidder (including each member of a JV) is not blacklisted/debarred. The Procuring agency/Employer will conduct the same verification for each sub-contractor proposed by the successful bidder.

34. **Sub-Contractors**

34.1. The bidder shall provide details regarding any specialized sub-contractor to the Procuring agency/Employer. In case change of sub-contractors, the bidder shall promptly notify the Procuring agency/Employer and obtain approval for replacement of sub-contractors.

34.2. Bidders may propose sub-contracting up to the percentage of total value of contracts or the volume of works as specified in the BDS.

35. **Abnormally Low Financial Bid**

35.1. A procuring Agency may reject abnormally low bids in accordance with the PP Rules 2026, rule no. 43. The decision of the Procuring agency/Employer to reject a bid and reasons for the decision shall be recorded in the procurement proceedings and promptly communicated to the bidder concerned. Moreover, the Procuring agency/Employer shall not incur any liability solely by rejecting abnormally bid

Guidance for Procuring agency/Employer:

An abnormally low Bid means, a Bid containing Bid price that is less or lesser than twenty five percent (25%) of the Procuring agency/Employer's estimate.

35.2. The Procuring agency/Employer will determine to its satisfaction whether the bidder that is selected as having submitted the successful bid is qualified to perform the contract satisfactorily, in accordance with the criteria listed in ITB 10.

35.3. The determination will take into account the bidder's financial and technical capabilities. It will be based upon an examination of the documentary evidence of the bidder's qualifications submitted by the bidder, pursuant to ITB 10, as well as such other information as the Procuring agency/Employer deems necessary and appropriate. Factors not included in these bidding documents shall not be used in the evaluation of the bidders' qualifications.

35.4. Procuring agency/Employer may seek "Certificate for Independent Price Determination" from the bidder and the results of reference checks may be used in determining award of contract.

Explanation: *The Certificate shall be furnished by the bidder. The bidder shall certify that the price is determined keeping in view of all the essential aspects such as raw material, its processing, value addition, optimization of resources due to economy of scale, transportation, insurance and margin of profit etc.*

35.5. An affirmative determination will be a prerequisite for award of the contract to the bidder. A negative determination will result in rejection of the bidder's bid, in which event the Procuring agency/Employer will proceed to the next ranked bidder to make a similar determination of that bidder's capabilities to perform satisfactorily.

F. AWARD OF CONTRACT

36. **Criteria of Award**

36.1. Subject to ITB 34 and 35, the Procuring agency/Employer will award the Contract to the bidder whose bid has been determined to be substantially responsive to the bidding documents and who has been declared as Successful Bidder, provided that such bidder has been determined to be:

36.1.1. eligible in accordance with the provisions of ITB 3;

36.1.2. is determined to be qualified to perform the Contract satisfactorily; and

36.1.3. Successful negotiations have been concluded, if any.

37. **Negotiations**

37.1. The Committee of the Procuring agency/Employer may negotiate with the Successful Bidder in accordance with PP Rules 2026 rule no. 26(3).

38. **Procuring agency/Employer's Right to reject All Bids**

38.1. The procuring agency has the right to reject all bids in accordance with the PP Rules 2026, rule no. 45 However, the Authority (i.e. PPRA) may call from the Procuring agency/Employer the justification of those grounds.

39. **Notification of Award**

39.1. The procuring agency shall announce and publish the evaluation result in accordance with the PP Rules 2026, rule no 48.

39.2. Where no complaints have been lodged, the bidder whose bid has been accepted will be notified of the award by the Procuring agency/Employer prior to expiration of the bid validity period through EPADS. However, the Procuring agency/Employer shall not award any procurement contract at least for five (05) days after the announcement of

final evaluation report. The notification letter (herein after and in the condition of the contract and contract form called “Letter of Acceptance” will specify the sum that the Procuring agency/Employer will pay the successful bidder in consideration for the execution and completion of the works as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price).

39.3. The notification of award will constitute the formation of the Contract, subject to the bidder furnishing the Performance Security (or guarantee) in accordance with ITB 39 and signing of the contract in accordance with ITB 38.

39.4. Upon the successful bidder’s furnishing of the performance security (or guarantee) pursuant to ITB 39, the Procuring agency/Employer will promptly notify each unsuccessful bidder, the name of the successful bidder and the Contract amount and will discharge the Bid Security or Bid Securing Declaration of the bidder(s) pursuant to ITB 16.

40. **Signing of Contract**

40.1. Promptly after notification of award, Procuring agency/Employer shall send the successful bidder the draft agreement, incorporating all terms and conditions as agreed by the parties to the contract.

40.2. Immediately after the Redressal of grievance by the GRC, and after fulfillment of all conditions precedent of the Contract Form, the successful bidder and the Procuring agency/Employer shall sign the contract.

40.3. Where no formal signing of a contract is required, work order issued to the bidder shall be construed to be the contract.

41. **Performance Security (or Guarantee)**

41.1. After the receipt of the Letter of Acceptance, the successful bidder, within the specified time, shall deliver to the Procuring agency/Employer a Performance Guarantee in the amount and in the form stipulated in the BDS and PC, denominated in the type and proportions of currencies in the Letter of Acceptance and in accordance with the Conditions of Contract.

41.2. If the Performance Guarantee is provided by the successful bidder and it shall be in the form specified in the BDS which shall be in any of the following:

41.2.1. certified cheque, cashier’s or manager’s cheque, or bank draft;

41.2.2. irrevocable letter of credit issued by a scheduled bank of Pakistan or in the case of an irrevocable letter of credit issued by a foreign bank, the letter shall be confirmed or authenticated by a scheduled bank of Pakistan;

41.2.3. bank guarantee confirmed by a reputable local bank or, in the case of a successful foreign bidder, bonded by a foreign bank; or

41.2.4. surety bond callable upon demand issued by any reputable surety or insurance company.
Any Performance Guarantee submitted shall be enforceable in Pakistan.

41.3. Failure of the Most Advantageous Bidder to comply with the requirement of ITB 40 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security or declare blacklisted (in case bid securing declaration is submitted) in which event the Procuring agency/Employer may make the award to the next most advantageous bidder or reinitiate the procurement process afresh (as a case may be).

42. **Advance Payment**

42.1. Advance payment will be provided to the bidder in percentage and in the manner as agreed by the both parties in terms of Conditions of the Contract.

42.2. The Procuring agency/Employer will provide an advance payment as stipulated in the Conditions of Contract, subject to a maximum amount, as stated and/or Conditions of the Contract. The advance payment request shall be accompanied by an advance payment security (guarantee) in the form provided in Section X. For the purpose of receiving the advance payment, the bidder shall make and estimate of, and include in its bid, the expenses that will relate to the purchase of equipment, machinery, materials, and on the engagement of labor during the first month beginning

with the date of the Procuring agency/Employer's "Notice to Commence" as specified in the PCC.

43. **General Performance of the Bidders**

43.1. The Procuring agency/Employer reserves the right to obtain information regarding performance of the bidders on their previously awarded contracts / works. The Procuring agency/Employer may seek information / report from the previous employer for consideration. However, the Procuring agency/Employer shall incorporate such parameters in the evaluation criteria and accordingly decide the fate of the bid submitted.

44. **Corrupt & Fraudulent Practices**

44.1. Procuring agencies (including beneficiaries of Government funded projects and procurement) as well as Bidders/Suppliers/Contractors under Government financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts, and will avoid to engage in any corrupt and fraudulent practices.

G. GRIEVANCE REDRESSAL & COMPLAINT REVIEW MECHANISM

45. Grievance Redressal

45.1. Grievance Redressal shall be carried out in accordance with the PPRA, rules i.e. Redressal of grievances by the procuring agency and "Redressal of Grievances Regulations".

H. MECHANISM OF BLACKLISTING

46. Mechanism of Blacklisting

46.1. The Procuring agency/Employer shall proceed Blacklisting of Bidders/Contractors in accordance with PP Rules 2026, rule no. 65 rule i.e. Blacklisting and "Blacklisting and Debarment of Bidders or Contractors.

Bid Data Sheet

Bid Data Sheet (BDS)

The following specific data for the procurement of works shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITBs). Whenever there is a conflict, the provisions herein shall prevail over those in ITBs.

A. Introduction

ITB Number
Amendments of, and Supplements to, Clauses in the Instruction to Bidders

ITB Number1.1

Name of Procuring agency/Employer: **National Police Foundation (National Police Foundation)**

The subject of procurement is: **Construction of Houses and Associated Infrastructure Development for ICT Police**

Period for completion of the works **119 Days**

Commencement date execution of the works: **14 Days**

Type of Procurement**:Local**

ITB Number2.1

Financial year for the operations of the Procuring agency/Employer: **2026-27**
Name of Project :

Name of financing institution:

Name and identification number of the Contract: **P183357**

ITB Number3.1

JV/Consortium or Association Allowed: **No**

Maximum number of members in the joint venture shall be: **Nil**.

B. Bidding Documents

ITB Number6.4

The Bidders may seek clarifications through **EPADS v2.0**: **Last Clarification Date: Tuesday, December 1, 2026**

C. Preparation of Bids

ITB Number8.1

The Language of all correspondences and documents related to the Bid is: **English**

ITB Number 5.1 & 9.1

The following documentsmust be includedto constitute the Bid

No

ITB Number9.4 (b)

Other procurement specific documentation requirements are:

Evidence of Security clearance from ICT Police

PEC Registration License Specialization Codes: CE-01, CE-09, CE-10, CE-11, EE-04, EE-05 and EE-11

Affidavit on Judicial Stamp Paper prepared within the current month of submission of bidding document that the firm has never been blacklisted

Income Tax Registration Certificate

Record of Active Taxpayer for Income Tax

Record of Active Taxpayer for Sales Tax

The applicants must provide Letter of Award and Taking Over/ Completion Certificate of completed projects. No marks will be given to the projects for which above certificates are not provided.

The applicants must provide Award Letter of in-hand projects. No marks will be given to the projects for which above certificate is not provided.

Provide the following for each personnel, failing which, no marks will be awarded: a. verifiable proof of employment with the bidder of the proposed staff b. detailed CV c. valid PEC Registration for Engineers d. Diploma Certificates of DAE staff

Provide an undertaking on stamp paper to the effect that the listed equipment is available with the firm and will be made available, as and when required, for the Project.

The bidder shall submit Audited financial statements for the last three years duly certified by the Chartered Accounts

Firms shall submit copies of Credit Line Facility in specific name of the Project.

ITB Number12.4

The Bid price will be/will not be subject to the price adjustment **Nil**.

ITB Number12.6

The Bid price shall be adjusted in accordance with Schedule-A to Bid – “Schedule of Adjustment Data” if available.

ITB Number13.1

Bidders to quote entirely in**Pak rupees (PKR)**

ITB Number15.1

The Bid Validity period shall be **90 Days** days.

ITB Number16.1

The amount of Bid Security shall be ... *see section itemd and bid security*

The currency of the Bid Security shall be: **PKR**.

ITB Number16.2

The Bid Security shall be in the form of:**Pay Order, Banker's Cheque, Call at Deposit, Bank Guarantee, Demand Draft**

D. Submission of Bids

ITB Number19.1

The deadline for Bid submission is:**Friday, December 4, 2026 10:00 AM**
Address for submission of Original Bid Security:**Mauve Area G-10/4, Islamabad Capital Territory**

ITB Number21.1
The Bid opening shall take place at:**EPADS v2.0**
Day : ***Friday***

Date: ***December 04, 2026***
Time : ***10:30 AM***

ITB Number27.1
The currency that shall be used for Bid evaluation and comparison purposes to convert all Bid prices expressed in various currencies is: **PKR Only**
The source of exchange rate shall be: **Nil**
The date of exchange rate shall be: **Nil**

ITB Number28.2 &28.5
Least Cost Based Selection (LCBS)
see Evaluation Criteria

ITB Number29.1
Domestic preference to apply.
Domestic preference:**No**
Preference to domestic or national suppliers or contractors shall be provided in accordance with policies of the Federal Government and/or in accordance with the regulations issued by the Authority.
If Yes, The percentage for the domestic preference alongwith calculation formula is provided in the evaluation and qualification criteria.

ITB Number32.2
Sub-contracting is allowed? : **No**

No% of the total value of the contract.

39.1 The Performance Security (or guarantee) shall be **0%**
39.2 The Performance Security (or guarantee) shall be in the form of:**Nil**

Eligibility Criteria

All Active Taxpayers shall be eligible to participate in the procurement process, unless expressly excluded or otherwise restricted under the Eligibility Criteria specified by the Procuring Agency.

Required Registration
NADRA CITIZENSHIP (CNIC/NICOP) FBR (NTN) FBR (GSTN) PEC

Eligibility Criteria	Document
Valid registration with PEC in Category C-3 and at least in Specialization Codes: CE-01, CE-09, CE-10, CE-11, EE-04, EE-05 and EE-11	Yes
An affidavit on judicial stamp paper of Rs. 100/- duly notarized, to the effect of not being debarred / blacklisted by any organization / department, prepared within the current month of submission of Bids	Yes
Security Clearance of firm from AIG General ICT Police.	Yes
The bidder must have executed (in last 5 years) , or be currently executing, at least three (03) construction projects for police organizations/departments other law-enforcement/government security institutions (Copy of the contract agreement/work order/completion certificate)	Yes
On Active Tax Payer’s List at the time of submission of Bid	Yes
Non-performance of a contract did not occur as a result of contractor default for last 15 years.	Yes

Bidder’s financial position and prospective long-term profitability sound according to criteria established in Financial Capabilities below and assuming that all pending litigation will be resolved against the Bidder	Yes
No consistent history of court/ arbitral award decisions against the Bidder since 1st January 2011.	Yes
Bidder shall be on the active taxpayer’s list of the Federal Board of Revenue for Income Tax	Yes
Bidder shall be on the active taxpayer’s list of the Federal Board of Revenue for Sales Tax	Yes

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Evaluation Criteria

Least Cost Based Selection (LCBS)

Weightage

Technical Evaluation %
100

Technical Marks	100
Passing Marks	**50**
Experience Record	
Experience as constructor in execution of Building / Roads/Housing Infrastructure development Projects completed during last ten (10) years. (Quantitative)(Doc Required) 12 marks will be awarded for each completed project having project cost ≥ Rs. 350M up to maximum of 24 marks **(24)** 08 marks will be awarded for each completed project having project cost from Rs. 320M to Rs. 349.99 M up to maximum of 24 marks **(8)** 06 marks will be awarded for each completed project having project cost from Rs. 290M to 319.99M up to maximum of 24 marks. **(6)**	24

Experience as Contractor in execution of Building / Roads/Housing Infrastructure development projects currently in hand. (Quantitative)(Doc Required) 08 marks will be awarded for each in-hand project having project cost ≥ Rs. 350M up to maximum of 16 marks **(16)** 06 marks will be awarded for each in-hand project having project cost from Rs. 320M to Rs. 349.99 M up to maximum of 16 marks. **(6)** 04 marks will be awarded for each in-hand project having project cost from Rs. 290M to 319.99M up to maximum of 16 marks. **(4)**	16
Personnel Capabilities	
Project Manager (B.Sc. Civil Engineer registered with Pakistan Engineering Council) 4 Marks Will be awarded for B.Sc. Civil Engineer having at least 06 Years Relevant Experience (Quantitative)(Doc Required)	4
Associate Engineer B-Tech / DAE Civil 3 Marks Will be awarded for B-Tech / DAE Civil having at least 05 Years Relevant Experience (Quantitative)(Doc Required)	3
Associate Engineer B-Tech / DAE (E/M) 3 Marks Will be awarded for B-Tech / DAE E/M having at least 05 Years Relevant Experience (Quantitative)(Doc Required)	3
Quantity Surveyor B-Tech / DAE Civil 3 Marks Will be awarded for B-Tech / DAE Civil having at least 05 Years Relevant Experience (Quantitative)(Doc Required)	3
Surveyor B-Tech / DAE Civil/ Survey Certificate 2 Marks Will be awarded for Surveyor having Survey Certificate and at least 05 Years Relevant Experience (Quantitative)(Doc Required)	2
Equipment Capabilities	
1 X Pneumatic Tyre Roller (Quantitative)(Doc Required)	1
1 X Bull Dozer (200 HP) (Quantitative)(Doc Required)	1
1 X Asphalt Paver Machine (Quantitative)(Doc Required)	1
1 X Vibratory Road Roller (10Ton) (Quantitative)(Doc Required)	1

1 X Sheep Foot Roller (10Ton) (Quantitative)(Doc Required)	1
2 X Excavator (Quantitative)(Doc Required)	1
1 X Grader (Quantitative)(Doc Required)	1
1 X Concrete Mixer Machine (Single Load) (Quantitative)(Doc Required)	1
30,000Rft Scafolding (Quantitative)(Doc Required)	1
20,000 Sft. Shuttering (Quantitative)(Doc Required)	1
2 X Dumpers (Quantitative)(Doc Required)	1
1 X Loader (Quantitative)(Doc Required)	1
1 X Tractor Trolley (Quantitative)(Doc Required)	1
Water Bowser & Steel Cutting/ Bending Machine (Quantitative)(Doc Required)	1
Generator Set (10KVA) & Total Station (Quantitative)(Doc Required)	1
Annual Turnover	
The minimum annual volume of construction work (Annual Turn Over) during any of the last three years shall be as under: (Quantitative)(Doc Required) 15 Marks will be awarded if the Turnover is more than PKR. 250 million. **(15)** 8 Marks will be awarded if the Turnover is in range of PKR. 200 million to PKR. 250 million **(8)**	15
The amount of Working Capital (Current Assets – Current Liabilities) & credit facilities (in specific name of the Project), net of other construction commitments of the construction, shall be as under: (Quantitative)(Doc Required) 15 Marks will be awarded if the Working Capital & credit facilities is more than PKR. 70 million. **(15)** 8 Marks will be awarded if the Working Capital & credit facilities is in range of PKR. 50 million to PKR. 70 million **(8)**	15

Jobs/Lots

Lot Title : Construction of Houses and Associated Infrastructure Development for ICT Police

Bid Security : 7500000 PKR

Job	Delivery Schedule	Quantity
Construction of Houses	**Address:** Mauve Area G-10/4, Islamabad Capital Territory **Schedule:** 120 Days **Quantity:** 4/Qty	4/Qty
Infrastructure Development	**Address:** Mauve Area G-10/4, Islamabad Capital Territory **Schedule:** 120 Days **Quantity:** 1/Qty	1/Qty

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Work Specifications and Market Rates

Lot Title: Construction of Houses and Associated Infrastructure Development for ICT Police

Specifications / Requirements:

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
1	1. ROADS, DRIVEWAYS & PAVED AREAS						
2		GENERAL NOTE					
3		Supply, installation, testing and commissioning of the following items of work, including all labour, tools, plant, accessories, etc. required for completion of each item as per specifications and as approved by the Engineer.					

PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
4	A. SCHEDULED ITEMS						
5	1-1	Carriage of 100 Cft. (2.83 cu.m) of all materials like stone aggregate, spawl, kankar lime (unslaked), surkhi, etc. or 150 Cft. (4.25 cu.m) of timber, by truck or by any other means owned by the contractor.	Cft	619800	464.55	100	2879280.9
6		2nd chain (2nd 30 m)	Cft	619800	85.15	100	527759.7
7		3rd to 10th chain (60 to 300 m)	Cft	4959000	53.15	100	2635708.5
8		1000 to 3000 ft. (300 to 900 m)	Cft	1239500	521.75	100	6467091.2
9		1st Km	Cft	619800	382.5	100	2370735
10		2nd Km	Cft	619800	183.25	100	1135783.5
11		3rd Km	Cft	142100	144.7	100	205618.7
12		4th Km	Cft	142100	103.8	100	147499.8
13		5th Km	Cft	142100	97.1	100	137979.1
14		6th Km	Cft	142100	95.55	100	135776.55
15		7th Km	Cft	142100	89.35	100	126966.35

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
16		8th Km	Cft	142100	88.4	100	125616.4
17		9th Km	Cft	142100	83.25	100	118298.25
18		10th Km	Cft	142100	78.3	100	111264.3
19		11th Kms to 200Kms)(for 11 KM to 20 KM)	Cft	1420500	69.3	100	984406.5
20		11th Kms to 200Kms)(for 20KM to 30 KM)	Cft	1420500	69.3	100	984406.5
21		11th Kms to 200Kms)(for 30KM to 40 KM)	Cft	1420500	69.3	100	984406.5
22		11th Kms to 200Kms)(for 40KM to 50 KM)	Cft	1420500	69.3	100	984406.5
23	3-2	Earthwork excavation in ashes, sand and soft soil or silt clearance, undressed lead upto 50 ft (15 metre).	Cft	338400	8932.7	1000	3022825.6
24	3-4	Borrowpit excavation undressed lead upto 100 ft (30 metre).					
25		a) Ordinary soil	Cft	14700	9006.4	1000	132394.08

PUBLIC PROCUREMENT REGULATORY AUTHORITY PPRA EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
26	3-5	Earthowrk in ordinary soil for embankments lead upto 100ft. (30 m), including ploughing and mixing with blade grade or disc harrow or other suitable equipment, and compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
27		95% to 100% Maximum modified AASHO dry density	Cft	338400	11261.3	1000	3810823.9
28		90% maximum modified AASHO dry density.	Cft	145100	10856.75	1000	1575314.4

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
29	3-7	Earthwork excavation in open cutting upto 5'-0" (1.5 m) depth for storm water channels, drains, sullage drains in open areas, roads, streets, lanes, including under pinning of walls and shoring to protect existing works, shuttering and timbering the trenches, dressed to designed level and dimensions, trimming, removal of surface water from trenches, back filling and surplus excavated material disposed of and dressed within 50 ft. (15 m) lead:-					
30		B) By Mechanical means					
31		Ordinary	Cft	4410	12934.25	1000	57040.042
32		Hard	Cft	1330	14060.05	1000	18699.866
33		gravel & shingle	Cft	740	21310.3	1000	15769.622
34	3-8	Excavation in shingle or gravel formation and rock, not requiring blasting, undressed lead upto 100 f t (30 m)					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
35		dry	Cft	145100	30858.45	1000	4477561.0
36	3-17	Transportati on of earth all types when the total distance,including the lead covered in the item of work, is more than 1000 ft. (300 m)					
37		a) upto ¼ mile (400 m).	Cft	5730	7190.5	1000	41201.565
38		b) for every 330 ft. (100 m) additional lead or part thereof,beyond ¼ mile (400 m) upto one mile. (1.6 Km.)	Cft	5730	86.25	1000	494.2125
39	3-25	Compaction of earthwork with power road roller, includingploughing, mixing, moistening earth to optimum moisture content in layers, etc. complete:					
40		i) 95% to 100% maximum modified AASHO dry density.	Cft	6040	2011.25	1000	12147.95
41	3-32	Turfing slopes of banks or lawns with grass sods including ploughing, laying, setting and watering (Turf got from within a distance of 5 miles (8 Km.) and maintenance for 15 days).	Sft	22000	2706.9	100	595518

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
42	3-47	Cutting and removing trees within a distance of 100 ft. (30 m)					
43		a) upto 2½ ft. (760 mm) girth	Each	5	2426.15	1	12130.75
44		b) above 2½ ft. to 6 ft. (760 to 1800 mm) girth	Each	5	4720.3	1	23601.5
45	3-48	Uprooting stump and removing within 100 ft. (30 m) from 2 ft.to 6 ft. (600 to 1800 mm) girth.	Each	10	3045.25	1	30452.5
46	3-53	Clearing and Grubbing	Sft	14700	5992.2	1000	88085.34
47	3-54	Compaction of natural ground	Sft	105900	3479.6	1000	368489.64
48	3-52	Leveling, dressing and making lawns.	Sft	22000	812.05	1000	17865.1
49	4-46	Dismantling and removing road pavements etc.,including screening and stacking of by products upto one chain (30 m).					
50		B) By Mechnical Mean	Cft	22000	2432.65	100	535183

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
51	6-5	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):					
52		(f) Ratio 1: 2: 4	Cft	147	49085.5	100	72155.685
53		h) Ratio 1:3:6	Cft	147	41542.3	100	61067.181
54		i) Ratio 1:4:8	Cft	2350	36029.5	100	846693.25
55	6-53	Providing and fixing precast Edge Kerb Stone (100mm to 150mm thick) of 3500 PSI Compressive Strength, embeded in PCC 1:2:4 over lean concrete 1:4:8 etc. Complete in all respect.					
56		b) With Painting (i) (300x150x300mm high)	Rft	10700	676.2	1	7235340
57	10-42	Providing and laying Tuffpavers,having 7000PSI, crushing strength of approved manufacturer,over 2"to3"sand cushion i/c grouting with sand in joints i/c finishing to require slope . complete in all respect. (50% Grey / 50% Coloured)					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
58		a) 50-mm thick	Sft	7500	188.2	1	1411500
59	13-36	Painting Traffic L ane M ar ki ng of speci f i ed width (1.5mm thick), with Thermoplastic (TP) Pai nt including Gl ass B eads, compl et e in all respect , as approved and directed by Engineer incharge.					
60		i) 5" wide	Rft	16900	49.45	1	835705
61	18-3	a) Providing and laying sub-base course of stone product of approved quality and grade, including placing, mixing,spreading and compaction of sub-base material to required depth, camber, grade to achieve 100% maximum modified AASHO dry density,including carriage of all material to site of work except gravel and. aggregate.					
62		il) Crushed stone aggregate.	Cft	103000	10874.25	100	11200477

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
63	18-4	a) Providing and laying base course of crushed stone aggregate of approved quality and grade, and supply and spreading of stone screening, including placing, mixing,spreading and compaction of base course material to required depth, camber and grade to achieve 100% maximum modified AASHO dry density, including carriage of all materials to site of work except gravel and aggregate.	Cft	39700	14343.6	100	5694409.2
64	18-6	Providing and laying bituminous priming coat, using 10 lbs. kerosene oil and 10 lbs. binder per 100 Sft. or 0.5 Kg kerosene and 0.5 Kg binder per square metre	Sft	110300	2582.55	100	2848552.6
65	18-10	a) Providing and laying plant premixed bituminous carpet,including compaction and finishing to required camber, grade and density.					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
66		xiii) 4.2% Bitumen	Sft-inch	220700	7377.6	100	16282363
67	18-11	Scarifying old road surface including removal of debris within 1 chain (30 m).	Sft	29400	676.7	100	198949.8
68	Sub-Total Cost (Scheduled Items) - ROADS, DRIVEWAYS & PAVED AREAS =						
69	B. NON-SCHEDULED ITEMS						
70		No non-scheduled items in this section.					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
71	Sub-Total Cost (Non-Scheduled Items) - ROADS, DRIVEWAYS & PAVED AREAS =						
72	2. SANITARY SEWERAGE WORKS						
73		GENERAL NOTE					
74		Supply, installation, testing and commissioning of the following items of work, including all labour, tools, plant, accessories, etc. required for completion of each item as per specifications and as approved by the Engineer.					
75	A. SCHEDULED ITEMS						

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
76		SECTION-A: EARTHWORKS					
77	1-1	Carriage of 100 Cft. (2.83 cu.m) of all materials like stone aggregate, spawl, kankar lime (unslaked), surkhi, etc. or 150 Cft. (4.25 cu.m) of timber, by truck or by any other means owned by the contractor.	Cft	85000	464.55	100	394867.5
78		2nd chain (2nd 30 m)	Cft	85000	85.15	100	72377.5
79		3rd to 10th chain (60 to 300 m)	Cft	680000	53.15	100	361420
80		1000 to 3000 ft. (300 to 900 m)	Cft	170000	521.75	100	886975
81		1st Km	Cft	85000	382.5	100	325125
82		2nd Km	Cft	85000	183.25	100	155762.5

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
83	3-43	Earth work Excavation in open cutting for water supply pipe lines sewer lines and manholes as shown in drawing incl back filling shuttering of wooden vertical planks struts and beams incl dressing to correct section and dimentions according to template and level and removing of surface water in all type of soil except shingle graval and rock complete with all respects.					
84		2) By Mechanical Means					
85		i) 0 ft to 7.0 ft (0 to 2.10 m) depth					
86		i) Sand, ashes or loose soil	Cft	157900.2675	8066.6	1000	1273718.2
87		ii) Ordinary soil	Cft	166736.4	10168.7	1000	1695492.4
88		iii) Hard soil or soft murum	Cft	157896.4	13433.6	1000	2121117.6
89	3-8	Excavation in shingle or gravel formation and rock, not requiring blasting, undressed lead upto 100 ft (30 m)					

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Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
90		Dry	Cft	17559.57375	30858.45	1000	541861.22
91	10-3	Supplying and filling sand under floor; or plugging in wells	Cft	13386.128765625	3556.7	100	476104.44
92	10-4	Providing, laying, watering and ramming brick or stone ballast 1½" to 2" (40 mm to 50 mm) gauge mixed with 25% sand, for floor foundation, complete in all respects.	Cft	5000	14479.4	100	723970
93		SECTION-B: CEMENT CONCRETE & MASONRY WORKS					
94	6-5	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):					
95		Ratio 1:2:4	Cft	3423.7739382813	49085.5	100	1680576.5
96		Ratio 1:4:8	Cft	1600	36029.5	100	576472
97	7-4	Pacca brick work in foundation and plinth in:-					
98		Cement Sand mortar 1:3	Cft	3800	44382.85	100	1686548.1

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
99	11-8	Cement plaster 1:3 upto 20' (6.00 m) height:					
100		(b) ½" (13 mm) thick	Sft	11600	5206.85	100	603994.6
101	13-9	Bitumen coating to plastered or cement concrete surface:					
102		iii) 10 lbs. per 100 Sft. (4.54 Kg per Sq.m)	Sft	5802.72	1670.8	100	96951.845
103	21-1	Providing and laying R.C.C. pipe, moulded with cement concrete 1:1½:3, with spigot socket or collar joint, etc. including cost of reinforcement, conforming to B.S. 5911:Part I: 1981, Class "L" including carriage of pipe from factory to site of work, lowering in trenches to correct alignment and grade, jointing, cutting pipeswhere necessary, finishing and testing, etc., complete.					
104		(iii) 225 mm (9') id	Rft	8280	606.75	1	5023890

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
105	21-11	Providing and fixing 1¼"x1¼"x3/16" (31x31x5 mm) angle iron step, in manhole chambers, including carriage and setting the same in work to correct lines and levels.	Each	170	661.35	1	112429.5
106	21-16	Providing and fixing, 6" (150 mm) thick R.C.C. manhole cover with 3"x3"x¼" (75x75x6mm) angle iron frame, 22"(550 mm) i/d as per standard drawing STD/PD No. 7 of 1977, complete in all respects.	Set	40	11484	1	459360
107	Sub-Total Cost (Scheduled Items) - SANITARY SEWERAGE WORKS =						
108	B. NON-SCHEDULED ITEMS						
109		No non-scheduled items in this section.					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
110	Sub-Total Cost (Non-Scheduled Items) - SANITARY SEWERAGE WORKS =						
111	3. STORM WATER DRAINAGE WORKS						
112		GENERAL NOTE					
113		Supply, installation, testing and commissioning of the following items of work, including all labour, tools, plant, accessories, etc. required for completion of each item as per specifications and as approved by the Engineer.					
114	A. SCHEDULED ITEMS						

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
115	1-1	Carriage of 100 Cft. (2.83 cu.m) of all materials like stone aggregate, spawl, kankar lime (unslaked), surkhi, etc. or 150 Cft. (4.25 cu.m) of timber, by truck or by any other means owned by the contractor. (respective distance shall be used from the schedule)	Cft	54325	464.55	100	252366.78
116		2nd chain (2nd 30 m)	Cft	54325	85.15	100	46257.737
117		3rd to 10th chain (60 to 300 m)	Cft	434600	53.15	100	230989.9
118	3-7	Earthwork excavation in open cutting upto 5'-0" (1.5 m) depth for storm water channels, drains, sullage drains in open areas, roads, streets, lanes, including under pinning of walls and shoring to protect existing works, shuttering and timbering the trenches, dressed to designed level and dimensions, trimming, removal of surface water from trenches, back filling and surplus excavated material disposed of and dressed within 50 ft. (15 m) lead:-					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
119		B) By Mechanical means					
120		Ordinary	Cft	34851.6	12934.25	1000	450779.3
121		Hard	Cft	2904.3	14060.05	1000	40834.60
122		Very hard	Cft	2904.3	15185.85	1000	44104.26
123		gravel & shingle	Cft	5808.6	21310.3	1000	123783.0
124	3-7	2) Earthwork excavation in open cutting 5.01 ft. (1.5 m) to 10.0 ft. (3.0 mm) depth for storm water channels, drains,sullage drains in open areas, roads, streets, lanes, including under pinning of walls and shoring to protect existing works,shuttering and timbering the trenches, dressed to designedlevel and dimensions, trimming, removal of surface water from renches, back filling and surplus excavated material disposed of and dressed within 100 ft. (30 m) lead:-					
125		B) By Mechanical means					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
126		Ordinary	Cft	2904.3	14060.05	1000	40834.60
127		Hard	Cft	2904.3	15748.75	1000	45739.09
128		Very hard	Cft	2904.3	17156	1000	49826.17
129		gravel & shingle	Cft	2904.3	25015.25	1000	72651.79
130	4-19	(a) Dismantling cement concrete Plain 1:4:8	Cft	1500	8932.7	100	133990.5
131	4-20	Dismantling cement concrete reinforced, separating reinforcement from concrete, cleaning and straightening the same.	Cft	1000	29234.3	100	292343
132	6-5	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):					
133		h) Ratio 1:3:6	Cft	500	41542.3	100	207711.5
134		i) Ratio 1:4:8	Cft	3358	36029.5	100	1209870.0

PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
135	6-6	Providing and laying reinforced cement concrete (including prestressed concrete), using coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (but excluding the cost of steel reinforcement, its fabrication and placing in position, etc.):-					
136		(a)(i) Reinforced cement concrete in roof slab, beams,columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects:-					
137		(3) Type C (nominal mix 1: 2: 4)	Cft	5729	773.55	1	4431667.9

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
138		(b)Reinforced cement concrete in retaining / Shear walls laid in situ or precast laid in position,o rprestressed members cast in situ (Formworkon both sides) , complete in all respects:					
139		(3) Type C (nominal mix 1:2:4)					
140		(i) Upto 9" thick (Avg)	Cft	9097	742.45	1	6754067.0
141		(c) Reinforced cement concrete in Pile cap, slab of rafts / strip foundation, base slab of column and retaining walls; etc and footing beams, other structural members other than those mentioned in 6 (a-d) above not requiring form work (i.e. horizontal shuttering) complete in all respects:-					
142		(3) Type C (nominal mix 1: 2: 4)	Cft	6937	618.1	1	4287759.7

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
143	6-12	Fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints and fastenings,including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars):					
144		(b) Deformed bars					
145		(i) (Grade-40)	Cwt	814.8	15315.25	1	12478865
146		(ii) (Grade-60)	Cwt	349.2	15660.55	1	5468664.6
147	Sub-Total Cost (Scheduled Items) - STORM WATER DRAINAGE WORKS =						
148	B. NON-SCHEDULED ITEMS						
149		No non-scheduled items in this section.					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
150	Sub-Total Cost (Non-Scheduled Items) - STORM WATER DRAINAGE WORKS =						
151	4. WATER DISTRIBUTION SYSTEM						
152	A. SCHEDULED ITEMS						
153		SECTION - A					
154		EARTH EXCAVATION					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
155	03-43	Earth work excavation in open cutting for water supply lines, sewers and manholes including backfilling, shuttering of wooden vertical planks, struts and beams, dressing to correct section and dimension according to templates and levels and removing surface water i/c back filling in all types of soil except shingle, gravel and rock, complete in all respect. 1) By Manual i) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	1000 Cft	46.0992	17865.4	1	823580.64
156		SECTION - B					
157		SAND FILING					
158	10-03	Supplying and filling sand under floor; or plugging in wells.	100 Cft	72.4416	3556.7	1	257653.01
159		SECTION - C					
160		HDPE PIPE					

PUBLIC PROCUREMENT REGULATORY AUTHORITY PPRA EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
161	23-30	Providing, laying, cutting, jointing, testing and disinfecting High Density Polyethylene Pipe (HDPE-100) working presure pipe conforming to standard ISO 4427, DIN 8074 / 8075, PS 3580, Beta/ Dadex / Popular/ IIL or approved equivalent manufacturer, including the cost of specials, intrenches, as approved & directed by the Engineer incharge, complete in all respects c) PN-10 (SDR-17)					
162		7) 90 mm	Rft	3890	343.55	1	1336409.5
163		8) 110 mm	Rft	5290	510.05	1	2698164.5
164		10) 160 mm	Rft	303	1055.45	1	319801.35
165		SECTION - D					
166		PLAIN CEMENT CONCRETE					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
167	06-5	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): f) Ratio 1: 2: 4	100 Cft	6	49085.5	1	294513
168		SLUICE VALVE CHAMBER					
169		SECTION - E					
170		EARTHWORK & BACK FILLING					
171	03-43	Earth work excavation in open cutting for water supply lines, sewers and manholes including backfilling, shuttering of wooden vertical planks, struts and beams, dressing to correct section and dimension according to templates and levels and removing surface water i/c back filling in all types of soil except shingle, gravel and rock, complete in all respect.					
172		By Mechanical Means					
173		0 ft. to 7.0 ft. (0 to 2.10 m) depth					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
174		Ordinary soil	1000 Cft	1.433	10168.7	1	14571.74
175		SECTION - F					
176		REINFORCEMENT					
177	06-11	Fabrication of mildsteel reinforcement deformed bar cage of specified yield strength for R.C.C bored piles including cutting bending, lowering of cage with crane in position,welding and fastening, including the cost of binding wire, Cranemachine (also includes removal of rust from the bars) as approved and directed by the Engineer Incharge					
178		Deformed bars					
179		Grade-40	100 Kg	2.99	29352.9	1	87765.17
180		SECTION - G					
181		PCC & RCC CONCRETE					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
182	06-05	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):					
183		Ratio 1: 2: 4	100 Cft	0.21	49085.5	1	10307.955
184		Ratio 1: 4: 8	100 Cft	1.4	36029.5	1	50441.3

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
185	06-06	Providing and laying reinforced cement concrete (including prestressed concrete), using Ordinary Portland Cement / Sulphate resisting cement / Slag cement as may be required; coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (but excluding the cost of steel reinforcement, its fabrication and placing in position, etc.):-					
186		Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects:-					
187		Ratio 1: 2: 4	Cft	82	773.55	1	63431.1

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
188		SECTION - H					
189		BRICK MASONRY					
190	07-04	Pacca brick work in foundation and plinth in:-					
191		Cement, sand mortar:-					
192		Ratio 1:4	100 Cft	5.46	42355.65	1	231261.84
193		SECTION - I					
194		PLASTER WORK					
195	11-09	Cement plaster 1:4 upto 20' (6.00 m) height:-					
196		½" (13 mm) thick	100 Sft	5.83	4958.8	1	28909.804
197		¾" (20 mm) thick	100 Sft	9.61	6641.3	1	63822.893
198		SECTION - J					
199		MANHOLE COVER					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
200	21-16	Providing and fixing, 6" (150 mm) thick R.C.C. manhole cover with 3"x3"x¼" (75x75x6mm) angle iron frame, 22" (550 mm) i/d as per standard drawing STD/PD No. 7 of 1977, complete in all respects.	Each	10	11484	1	114840
201		SECTION - K					
202		VALVES					
203	23-42	Providing and fixing heavy duty Gate valve of specified diameter and material for pressure rating PN-16 mde of Crane (USA), Hatersly (UK), Scon (Pakistan) or approved equivalent manufacturer, i/c the cost of all accessories flanges,nut/bolt and gaskit where required complete in all respect as approved and directed by the Engineer Incharge (b) Flange Ended Ductile Iron Valve					
204		(viii) 3" dia	Each	6	22852.6	1	137115.6

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
205		(ix) 4" dia	Each	3	30780	1	92340
206		(xi) 6" dia	Each	1	49893.6	1	49893.6
207		AIR VALVE CHAMBER					
208		SECTION - L					
209		EARTHWORK & BACK FILLING					
210	03-43	Earth work excavation in open cutting for water supply lines, sewers and manholes including backfilling, shuttering of wooden vertical planks, struts and beams, dressing to correct section and dimension according to templates and levels and removing surface water i/c back filling in all types of soil except shingle, gravel and rock, complete in all respect.					
211		By Mechanical Means					
212		0 ft. to 7.0 ft. (0 to 2.10 m) depth					
213		Ordinary soil	1000 Cft	0.43	10168.7	1	4372.541

PUBLIC PROCUREMENT REGULATORY AUTHORITY PPRA EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
214		SECTION - M					
215		REINFORCEMENT					
216	06-11	Fabrication of mildsteel reinforcement deformed bar cage of specified yield strength for R.C.C bored piles including cutting bending, lowering of cage with crane in position,welding and fastening, including the cost of binding wire, Cranemachine (also includes removal of rust from the bars) as approved and directed by the Engineer Incharge					
217		Deformed bars					
218		Grade-40	100 Kg	0.9	36029.5	1	32426.55
219		SECTION - N					
220		PCC & RCC CONCRETE					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
221	06-05	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):					
222		Ratio 1: 2: 4	100 Cft	0.02	49085.5	1	981.71
223		Ratio 1: 4: 8	100 Cft	0.42	36029.5	1	15132.39

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
224	06-06	Providing and laying reinforced cement concrete (including prestressed concrete), using Ordinary Portland Cement / Sulphate resisting cement / Slag cement as may be required; coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (but excluding the cost of steel reinforcement, its fabrication and placing in position, etc.):-					
225		Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects:-					
226		Ratio 1: 2: 4	Cft	25	773.55	1	19338.75

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
227		SECTION - O					
228		BRICK MASONRY					
229	07-04	Pacca brick work in foundation and plinth in:-					
230		Cement, sand mortar:-					
231		Ratio 1:4	100 Cft	1.64	42355.65	1	69463.26
232		SECTION - P					
233		PLASTER WORK					
234	11-09	Cement plaster 1:4 upto 20' (6.00 m) height:-					
235		½" (13 mm) thick	100 Sft	1.75	4958.8	1	8677.9
236		¾" (20 mm) thick	100 Sft	2.88	6641.3	1	19126.94
237		SECTION - Q					
238		VALVES					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
239	23-42	Providing and fixing heavy duty Gate valve of specified diameter and material for pressure rating PN-16 mde of Crane (USA), Hatersly (UK) Scon (Pakistan) or approved equivalent manufacturer, i/c the cost of all accessories flanges,nut/bolt and gaskit where required complete in allrespect as approved and directed by the Engineer Incharge. (b) Flange Ended Ductile Iron Valve (ix) 4" dia	Each	3	30780	1	92340
240	23-37	Providing and fixing, air valve 2½ (65mm) dia of B.S.S. quality and weight (complete with jointing material).					
241		double	Each	3	14405.2	1	43215.6
242		WASHOUT CHAMBER					
243		SECTION - R					
244		EARTHWORK & BACK FILLING					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
245	03-43	Earth work excavation in open cutting for water supply lines, sewers and manholes including backfilling, shuttering of wooden vertical planks, struts and beams, dressing to correct section and dimension according to templates and levels and removing surface water i/c back filling in all types of soil except shingle, gravel and rock, complete in all respect.					
246		By Mechanical Means					
247		0 ft. to 7.0 ft. (0 to 2.10 m) depth					
248		Ordinary soil	1000 Cft	0.43	10168.7	1	4372.541
249		SECTION - S					
250		REINFORCEMENT					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
251	06-11	Fabrication of mildsteel reinforcement deformed bar cage of specified yield strength for R.C.C bored piles including cutting bending, lowering of cage with crane in position,welding and fastening, including the cost of binding wire, Cranemachine (also includes removal of rust from the bars) as approved and directed by the Engineer Incharge					
252		Deformed bars					
253		Grade-40	100 Kg	0.84	29352.9	1	24656.436
254		SECTION - T					
255		PCC & RCC CONCRETE					
256	06-05	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):					
257		Ratio 1: 2: 4	100 Cft	0.11	49085.5	1	5399.405

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
258		Ratio 1: 4: 8	100 Cft	0.42	36029.5	1	15132.39
259	06-06	Providing and laying reinforced cement concrete (including prestressed concrete), using Ordinary Portland Cement / Sulphate resisting cement / Slag cement as may be required; coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (but excluding the cost of steel reinforcement, its fabrication and placing in position, etc.):-					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
260		Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects:-					
261		Ratio 1: 2: 4	Cft	25	773.55	1	19338.75
262		SECTION - U					
263		BRICK MASONRY					
264	07-04	Pacca brick work in foundation and plinth in:-					
265		Cement, sand mortar:-					
266		Ratio 1:4	100 Cft	1.64	42355.65	1	69463.26
267		SECTION - V					
268		PLASTER WORK					
269	11-09	Cement plaster 1:4 upto 20' (6.00 m) height:-					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
270		½" (13 mm) thick	100 Sft	1.75	4958.8	1	8677.9
271		¾" (20 mm) thick	100 Sft	2.88	6641.3	1	19126.944
272		SECTION - W					
273		MANHOLE COVER					
274	21-16	Providing and fixing, 6" (150 mm) thick R.C.C. manhole cover with 3"x3"x¼" (75x75x6mm) angle iron frame, 22" (550 mm) i/d as per standard drawing STD/PD No. 7 of 1977, complete in all respects.	Each	3	11484	1	34452
275		SECTION - X					
276		VALVES					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
277	23-42	Providing and fixing heavy duty Gate valve of specified diameter and material for pressure rating PN-16 mde of Crane (USA), Hatersly (UK), Scon (Pakistan) or approved equivalent manufacturer, i/c the cost of all accessories flanges,nut/bolt and gaskit where required complete in all respect as approved and directed by the Engineer Incharge (b) Flange Ended Ductile Iron Valve					
278		(viii) 3" dia	Each	1	22852.6	1	22852.6
279		(ix) 4" dia	Each	1	30780	1	30780
280		(xi) 6" dia	Each	1	49893.6	1	49893.6
281	Sub-Total Cost (Scheduled Items) - WATER DISTRIBUTION SYSTEM =						

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
282	B. NON-SCHEDULED ITEMS						
283		REF. SPECS. NO. 5216					
284		SECTION - Y					
285		HOUSE CONNECTION					
286	NSI-01	Providing, laying and Testing House/Service connection, Comprising of saddle clamp of Specified Dia, 32mm Dia male threaded adapter, 32mm Dia equal tee, 32mm Dia HDPE pipe piece with 32mm Dia end cap etc, complete in all respects and as approved by the Engineer. (Excavation, backfilling and carriage of surplus materials will be paid separately) Connection from 110mm dia pipe	No.	25	7880	1	197000

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
287	NSI-02	Providing, laying and Testing House/Service connection, Comprising of saddle clamp of Specified Dia, 32mm Dia male threaded adapter, 32mm Dia equal tee, 32mm Dia HDPE pipe piece with 32mm Dia end cap etc, complete in all respects and as approved by the Engineer. (Excavation, backfilling and carriage of surplus materials will be paid separately) Connection from 90mm dia pipe	No.	30	8025	1	240750
288	Sub-Total Cost (Non-Scheduled Items) - WATER DISTRIBUTION SYSTEM =						
289	5. ELECTRIC BOQ (STREET LIGHTING)						
290		GENERAL NOTES:					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
291		SCOPE : (Applicable to all sections)					
292		Supply, installation, testing and commissioning of the following items of work, including all labour, tools, plant, accessories, etc. required for completion of each item as per specifications and as approved by the Engineer.					
293	A. SCHEDULED ITEMS						

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
294	24-70	Supplying, installation and commissioning of LED Luminaries (street lights) of specified wattage and lumens conforming to IP 66 & IK 08 or above, Philips/Osram/Thorn or approved equivalent manufacturer with corrosion resistant die casted Aluminum housing, silicon gasket in special groove, f1 rated polycarbonate optic complete with LED Chip (Philips Lumiled/Cree/Nichia/Osram make or equivalent approved manufacturer), programmable LED driver (Harvard/TCI/Lumotech/Philips/VOSSLOH Schwabe/Lightech make or approved equivalent manufacturer), minimum 10kv surge protection rating device i/c the cost of all accessories/components required for proper operation, fully flexible for future upgradation and easy replacements for maintenance purposes, i/c bucket elevator charges as approved and directed by the Engineer Incharge.					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
295		140 Lm/Watt					
296		60 Watt with 8400 lumens	Each	85	41643	1	3539655
297		LT CABLES					
298	24-15	Supply and erection of PVC insulated, PVC Sheathed flexible copper conductor cables, in prelaid PVCpipe/MS conduit/GI pipe/wooden strip batten/wooden casing an capping/G.I. wire/trenches (rate for cables only):-					
299		Flexible 3 core, 600/1000 volt non armoured cable:					
300		1.5mm sq (3/0.029")	Rft	2620	131.75	1	345185
301		PVC Conduit					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
302		Providing, laying, testing and commissioning µ-PVC Un (plasticized Polyvinyl Chloride) Pressure pipe of nominal diameter, conforming to PS-3051/BS-3505, Dadex/Popular / Beta or approved equivalent manufacturer, i/c the cost of solvent and specials complete. As approved and directed by the Engineer Incharge. a) Class D					
303	(iii)	2"	Rft	730	242	1	176660
304	(v)	4"	Rft	292	855	1	249660
305		Earth for poles					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
306	24-118	Providing, making & testing/commissioning of Rod type Earth point comprising of 5/8" dia. (16 mm dia) 10 ft long copper coated M.S. rod driven in ground duly fixed with clamp with Tinned earth test link copper plate (300x50x10mm), i/c the cost of brass nuts,spacers, bolts washers lugs etc but excluding the cost of copper strand & manhole. as approved and directed by Engineer Incharge (Rod Type Earthing).	Each	85	21210.95	1	1802930.1
307	Sub-Total Cost (Scheduled Items) - ELECTRIC BOQ (STREET LIGHTING) =						
308	B. NON-SCHEDULED ITEMS						
309		LT DISTRIBUTION BOARD					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
310		(Ref. Spec. 8001 , 8133)					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
311		LT 415V AC weather proof DBs shall be made from 14 SWG sheet steel and LT 415V AC indoor DBs shall be made from 16 SWG sheet steel. These shall be designed, fabricated and manufactured as a free standing floor type and recessed / surface mounted on wall (as per single line diagram shown on drawings). The sheet metal work shall be cleaned down to bare shining metal degreased, derusted and painted with TWO base coats of antirust RED paint. The sheet metal work shall be finished in TWO coats of powder paint. The color and shade shall be as approved by the Engineer. The distribution Board shall be complete with all internal wirings, tags, identification labels, TPN and E copper busbars,Energy analyzer accessories etc. The DB should be provided with the armored glands. The bus-bars shall be insulated in RED, YELLOW, BLUE and BLACK insulations. The insulation shall be heat shrinkable type or as directed by the Engineer.					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
312	NS-01	Light Control Panel (LCP) including MCCB, MCB, Panel Photocell timer, MC Outdoor type	Job	2	200000	1	400000
313		STREET LIGHT POLE					
314		(Ref. Spec. 8001, 8262)					
315		Supplying, installation testing and commissioning of Octagonal shape electric street light pole, made of hot dipped 4.5 mm thick galvanized steel, tappered from bottom and top, with arm for luminaire installation, duly G.I.welded with base plate with the help of 4 no triangular stiffeners of GI sheet, with built in junction box with shutter, i/c the cost of nuts & J-rag bolts, duly fixed in concrete foundation,including price of concrete foundation as per drawings and as approved by the Engineer In charge.					
316	NS-02	6 Meter height Single Arm	Job	85	100000	1	8500000

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
317		LT CABLES					
318		(Ref. Spec. 8001, 8212)					
319	NS-03	Supply and erection of Four core PVC insulated, PVC sheathed Aluminium conductor, 600/1000 volts grade cable, in prelaid G.I. pipe/M.S. conduits/ PVC pipe/G.I. wire/trenches, etc (rate for cable only):					
320	i)	Four core armoured cable: 16mm sq	Rft	1460	410	1	598600
321	ii)	Four core armoured cable: 25mm sq	Rft	13200	510	1	6732000
322		CIVIL WORKS					
323	NS-04	Trench Excavation and backfill with sand refilling and brick laying,compacting etc for LT cable as approved by the Engineer.	Cft	40000	35	1	1400000
324	NS-05	Construction of Road Crossing for LT complete in all respects as per WAPDA standards.	No.	10	10000	1	100000

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
325	Sub-Total Cost (Non-Scheduled Items) - ELECTRIC BOQ (STREET LIGHTING) =						
326	6. HT & LT						
327		GENERAL NOTES:					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
328		Design, fabrication, manufacturing, supply installation, testing and commissioning of the following BOQ items of work (unless stated elsewhere/otherwise), including all material, labours, plants, tools, accessories etc. as required for proper completion of each item per technical specifications of the tender documents & WAPDA specifications, drawings/typical details of the tender documents and as per instructions of Engineer. NOTE: (The contractor/client shall obtain the demand notice from IESCO prior to commencement of the works).					
329	A. SCHEDULED ITEMS						
330		HT CABLES (8.7/15 kV)					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
331	24-14	Supply laying, testing and commissioning of Single Core XLPE Cross linked polyethelene) insulated stranded Aluminium Conductor cable of 8.7/15 KV grade made of Pakistan Cable/Newage with Semiconducting tape screened, Copper tape screen, PVC filler binder, Extruded PVC sheath in trenches/prelaid pipes as per Wapda specifications i/c the cost of ties and cable identification tags (rate for cables only):					
332	(b)	Armoured Cable					
333	vii)	240mm sq.	Rft	1460	1300.55	1	1898803
334	24-13	Supply, installation, testing, commissioning and termination of 8.7/ 15kV, AL/XLPE/UA/PVC three Core (MV cables) of Pakistan cables / Newage or approved equivalent along with cable glands, in already installed cable trench / cable ladder / cable tray / duct bank.					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
335	(b)	Armoured Cable					
336	iv)	120mm sq.	Rft	2920	3014.6	1	8802632
337	23-15	Providing, laying, testing and commissioning µ-PVCUn (plasticized Polyvinyl Chloride) Pressure pipe of nominal diameter, conforming to PS-3051/BS-3505, Dadex/Popular / Beta or approved equivalent manufacturer, i/c the cost of solvent and specials complete. As approved and directed by the Engineer Incharge . a) Class D					
338		(iii) 2"	Rft	730	242.25	1	176842.5
339		(v) 4"	Rft	730	855.15	1	624259.5
340	23-20	Providing, laying, cutting, jointing, testing and disinfecting Asbestos Cement / Fibre Cement pipe line in trenches, with comet joint and rubber ring, complete in all respects:-					
341		B Class Working Pressure					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
342		i) 3" i/d (75 mm)	Rft	2190	278.2	1	609258
343	Sub-Total Cost (Scheduled Items) - HT & LT =						
344	B. NON-SCHEDULED ITEMS						
345		HT SYSTEM					
346	NS-01	Supply, Installation, testing and commissioning of MV termination kit for 1 core 240 mm2 Aluminum conductor 8.7/15 kV cable .	No.	6	31255	1	187530
347	NS-02	Supply, Installation, testing and commissioning of MV joint kit for 1 core 240 mm2 Aluminum conductor 8.7/15 kV cable.	No.	3	32910	1	98730

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
348	NS-03	Supply, Installation, testing and commissioning of MV termination kit for 3 core 120 mm2 (3 core 4/0 AWG Aluminum conductor 8.7/15 kV .	No.	36	31255	1	1125180
349	NS-04	Supply, Installation, testing and commissioning of MV joint kit for 3 core, 4/0 AWG 8.7/15 kV Aluminum conductor cable	No.	6	32910	1	197460
350		TRANSFORMERS					
351	NS-05	Outdoor type 200KVA, three phase, 11/0.415 kV Pad mounted transformer with LT & HT Compartments. The complete unit shall be designed, fabricated commissioned as per latest WAPDA's technical specifications.	No.	5	3687500	1	18437500

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
352	NS-06	Outdoor type 100KVA, three phase, 11/0.415 kV Pad mounted transformer with LT & HT Compartments.The complete unit shall be designed, fabricated commissioned as per latest WAPDA's technical specifications (for street light)	No.	1	2056150	1	2056150
353	NS-07	Earthing set complete including ground conductor (10mm standard GI wire) Clamps, MS Galvanized earth rod 10ftx5/8" and earth rod clampetc.obtain the specified earth resistance ,as per requirement,specifiactions and approval of Engineer In Charge. The earthing shall be carried out as per WAPDA Standards.					
354		Galvanized Steel Wire 10mm (10kg per earth)	Kg	60	657	1	39420
355		Earth Rod	No.	12	3703	1	44436
356		LT CABLES					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
357	NS-08	Supply, installation, testing and commissioning of 4-core 37/083 PVC/PVC Aluminium conductor cable to be buried in ground from Transformer to feeder pillars.	Rft	7290	1946	1	14186340
358	NS-09	Lugs for LT Cables (4/c) 37/083 PVC/PVC Aluminium conductor	No.	180	503	1	90540
359		LV FEEDER PILLARS					
360	NS-10	LV feeder pillars/Service Box for LV distribution system. The LV feeder pillar consists of connectors, insulators, busbars, thimbles, etc. The LV Feeder Pillars shall be completely designed, fabricated, manufactured and installed as per WAPDA's technical specifications and standards.	Job	43	125000	1	5375000

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
361	NS-11	Earthing set complete including ground conductor (10mm standard GI wire) Clamps, MS Galvanized earth rod 10ftx5/8" and earth rod clamp etc.obtain the specified earth resistance ,as per requirement,specifiactions and approval of Engineer In Charge. The earthing shall be carried out as per WAPDA Standards.					
362		Galvanized Steel Wire 10mm (10kg per earth)	Kg	430	657	1	282510
363		Earth Rod	No.	43	3703	1	159229
364		CIVIL WORKS					
365	NS-12	Foundation For Transformer including all types of civil works as per WAPDA Standards	Job	6	120000	1	720000
366	NS-13	Foundation For Feeder Pillar including all types of civil works as per WAPDA Standards	Job	43	7000	1	301000

PPRA EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
367	NS-14	Trench Excavation and backfill with sand refilling and brick laying,compacting etc for HT cable as per WAPDA standards Size (2x4)ft	Rft	5000	400	1	2000000
368	NS-15	Trench Excavation and backfill with sand refilling and brick laying,compacting etc for LT cable as per WAPDA standards Size (1.5x2.5)ft	Rft	5000	200	1	1000000
369	NS-16	Main Hole Size 2x2x4 ft with Bottom slab and top RCC Cover,with plaster complete in all respects as per WAPDA standards	No.	5	25000	1	125000
370	NS-17	Main Hole Size 4x6x4ft with Bottom slab and top RCC Cover,with plaster complete in all respects as per WAPDA standards.	No.	10	50000	1	500000
371	NS-18	Construction of Gate Crossing for LT cables including conduit complete in all respects as per WAPDA standards.	No.	49	8000	1	392000

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
372	NS-19	Construction of Road Crossing for HT cables complete in all respects as per WAPDA standards.	No.	5	15000	1	75000
373	NS-20	Construction of Road Crossing for LT cables complete in all respects as per WAPDA standards.	No.	10	10000	1	100000
374		CONSULTANCY SERVICES - DESIGN BOOK, IESCO APPROVAL & HANDING OVER					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
375	NS-21	Preparation and submission of Design Book for external electrification of the project. Ref: Consultancy quotation No. MEPCE_Quote_PL_311026_01 dated 31-10-2026 submitted to the Director in Chief, National Police Foundation, Islamabad, for 'Consultancy Services for Design Book of External Electrification, IESCO Approval and Handing Over of the Built-up System' (ICT Homes and associated infrastructure). Scope: site survey; load assessment as per NEPRA/IESCO criteria; analysis of 11 kV feeders emanating from the nearby 132 kV grid station; preparation of Bill of Quantities, cost estimate, technical drawings and single line diagram; compilation of the design book and its submission to the Client for vetting by the Client's technical team. Deliverable: complete design book in hard and soft copy (drawings in AutoCAD format). Paid as a lump sum for the stated deliverables; the quoted fee is exclusive of applicable taxes, which shall be paid at prevailing rates against valid invoices. IESCO cost deposits (capital	Job	1	800000	1	800000

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
376	NS-22	Vetting of the Purchase Orders for electrical material from IESCO. Ref: Consultancy quotation No. MEPCE_Quote_PL_311026_01 dated 31-10-2026 submitted to the Director in Chief, National Police Foundation, Islamabad, for 'Consultancy Services for Design Book of External Electrification, IESCO Approval and Handing Over of the Built-up System' (ICT Homes and associated infrastructure). Scope: assistance to the Client in preparation of purchase orders for procurement of material; submission of the purchase orders to IESCO for vetting; follow-up with IESCO until vetting; and obtaining the IESCO vetting letter. Deliverable: IESCO vetting letter for the purchase orders. Paid as a lump sum for the stated deliverables; the quoted fee is exclusive of applicable taxes, which shall be paid at prevailing rates against valid invoices. IESCO cost deposits (capital cost, security, design vetting, bank guarantee, transmission line study and supervision charges) are NOT included and will be paid separately to	Job	1	600000	1	600000

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
377	NS-23	Coordination and follow-up with IESCO for approval of the Design Book. Ref: Consultancy quotation No. MEPCE_Quote_PL_311026_01 dated 31-10-2026 submitted to the Director in Chief, National Police Foundation, Islamabad, for 'Consultancy Services for Design Book of External Electrification, IESCO Approval and Handing Over of the Built-up System' (ICT Homes and associated infrastructure). Scope: processing the case in the office of Chief Engineer (P&E) IESCO; joint survey with the IESCO team for briefing on the site and location of the proposed grid station; vetting of the design book by IESCO; preparation of responses to technical queries raised by IESCO till issuance of the demand notice; processing for issuance of the demand notice; and assistance in submission of payment of demand notices / security deposits to Finance Director IESCO, Islamabad. Deliverable: IESCO design approval and demand notice. Paid as a lump sum for the stated deliverables; the quoted fee is exclusive of applicable	Job	1	1500000	1	1500000

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
378	NS-24	Coordination and follow-up with IESCO for handing over of the built-up system. Ref: Consultancy quotation No. MEPCE_Quote_PL_311026_01 dated 31-10-2026 submitted to the Director in Chief, National Police Foundation, Islamabad, for 'Consultancy Services for Design Book of External Electrification, IESCO Approval and Handing Over of the Built-up System' (ICT Homes and associated infrastructure). Scope: preparation of as-built drawings; preparation of the completion report as per IESCO requirements; submission of the design book to IESCO for handing over; follow-up for formation of the IESCO technical committee; supervision of the joint site visit with the IESCO technical team for taking over; and follow-up for submission of the technical report and issuance of the handing over letter. Deliverable: IESCO handing over letter for the built-up system. Work shall be executed through an IESCO approved contractor. Paid as a lump sum for the stated deliverables; the quoted fee is exclusive of applicable	Job	1	1500000	1	1500000

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
379	Sub-Total Cost (Non-Scheduled Items) - HT & LT =						
380	7. LANDSCAPING & HORTICULTURE WORKS						
381		GENERAL NOTES:					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
382		Landscaping and horticulture works for the whole project area (road verges, medians, open spaces, parks, building surroundings and boundary strips), including supply of all plants, topsoil, manure, fertilizers, pesticides, water, labour, tools, plant and transport, complete in all respects as per the landscape drawings, approved plant schedule and directions of the Engineer. All plants shall be healthy, nursery-grown, true to species and size, and shall be maintained by the Contractor until the end of the establishment period; dead or failed plants shall be replaced at the Contractor's cost.					
383	A. SCHEDULED ITEMS						
384		No scheduled items in this section.					

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
385	Sub-Total Cost (Scheduled Items) - LANDSCAPING & HORTICULTURE						
386	B. NON-SCHEDULED ITEMS						
387		SOIL PREPARATION					
388	NS-01	Supplying, spreading and levelling imported fertile sandy-loam topsoil mixed with well-rotted farmyard manure (FYM) in the ratio 3:1, 6" (150 mm) average thickness, over lawns, plant beds, medians and road verges, including removal of stones/debris, fine grading and dressing to the required levels and slopes as directed by the Engineer.	Cft	70000	90	1	6300000
389		TURFING					

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
390	NS-02	Supplying and planting approved variety lawn grass (Korean / Mexican grass) in rolled turf or plugs at maximum 4" (100 mm) c/c over prepared ground, including top-dressing, rolling, initial watering, fertilizer application and weeding until the grass is fully established and covers the entire area.	Sft	120000	45	1	5400000
391		TREES, PALMS & PLANTS					
392	NS-03	Supplying and planting evergreen/shade trees (Neem, Ashoka, Arjun, Jamun, Sukh Chain or equivalent), 8 ft to 10 ft (2.4 m to 3.0 m) height, in pits 3 ft x 3 ft x 3 ft (0.9 m) filled with topsoil and FYM, including staking, watering and 3 months guarantee against failure.	Each	350	4500	1	1575000

PUBLIC PROCUREMENT REGULATORY AUTHORITY PPRA EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
393	NS-04	Supplying and planting ornamental palms (Washingtonia, Date or Queen palm), 8 ft to 10 ft (2.4 m to 3.0 m) clear trunk height, in prepared pits including soil mixture, staking, anti-termite treatment and watering, complete in all respects.	Each	72	15000	1	1080000
394	NS-05	Supplying and planting ornamental/flowering shrubs and hedge plants (Bougainvillea, Duranta, Hibiscus, Oleander, Ixora or equivalent), 2 ft to 3 ft (0.6 m to 0.9 m) height, in continuous hedges and shrub beds at specified spacing, including soil preparation, watering and trimming to shape.	Each	4800	450	1	2160000
395	NS-06	Providing seasonal flower beds and groundcover plantation (Lantana, Vinca, Portulaca, Marigold or equivalent), including bed preparation with topsoil and manure, planting at specified spacing, mulching and watering.	Sft	18000	120	1	2160000

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
396	NS-07	Providing and fixing galvanized MS tree guards/stakes with ties for newly planted trees, 6 ft (1.8 m) height, painted with two coats of enamel paint over primer, including fixing in ground.	Each	350	1500	1	525000
397		ESTABLISHMENT & MAINTENANCE					
398	NS-08	Maintenance of the entire landscaped area for six (06) months after planting, including regular watering, mowing, weeding, pruning, fertilizing, pest control, replacement of failed plants and keeping the area clean, as directed by the Engineer.	Job	1	800000	1	800000
399	Sub-Total Cost (Non-Scheduled Items) - LANDSCAPING & HORTICULTURE						

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
401	8. HOUSES (4 Nos.)						
402	I. CIVIL WORKS						
403	A. SCHEDULED ITEMS						
404	03-21	Excavation in foundation of building, bridges and other structures, including dagbelling, dressing, refilling in layers around structure with excavated earth, watering and ramming lead upto one chain (30 m) lift upto 5 ft (1.5m) 2) a) By Excavator (iii) Hard soil or Soft murum	1000 Cft	39.04	12788.2	1	499251.32
405	03-15	Filling, watering and ramming earth under floors. i) with surplus earth from foundation, etc.	1000 Cft	27.56	8155.5	1	224765.58
406	ii)	ii) With new earth excavated from outside lead upto one chain (30 m).	1000 Cft	10.2	17545.5	1	178964.1
407	03-54	Compaction of natural ground	1000 Sft	9.86	3479.6	1	34308.856

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
408	06-05	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate) including all lead and lift. Ratio 1:2:4	100 Cft	8.36	49107.58	1	410539.36
409	06-05	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate) including all lead and lift. Ratio 1:3:6	100 Cft	2.52	41565.38	1	104744.75
410	06-05	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate) including all lead and lift. Ratio 1:4:8	100 Cft	70.2	36053.08	1	2530926.2

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
411	06-06	Providing and laying reinforced cement concrete (including prestressed concrete), using coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (but excluding the cost of steel reinforcement, its fabrication and placing in position, etc.). a.) (i) Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects. including all lead and lift. (2) Type B (nominal mix 1:1½: 3)	Per Cft	14752	874.23	1	1289664

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
412	06-06	Providing and laying reinforced cement concrete (including prestressed concrete), using coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (but excluding the cost of steel reinforcement, its fabrication and placing in position, etc.). a.) (i) Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects. including all lead and lift. (3) Type C (nominal mix 1: 2: 4)	Per Cft	248	795.63	1	197316.24

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
413	06-06	Providing and laying reinforced cement concrete (including prestressed concrete), using coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (but excluding the cost of steel reinforcement, its fabrication and placing in position, etc.). (b) (ii) Reinforced cement concrete in retaining/ Shear walls laid in situ or precast laid in position, or prestressed members cast in situ (Formwork on both sides) , complete in all respects:including all lead and lift. (2) Type B (nominal mix 1:1-1/2:3) (i) Upto 9" thick (Avg)	Per Cft	2228	840.73	1	1873146.4

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
414	06-06	Providing and laying reinforced cement concrete (including prestressed concrete), using coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (but excluding the cost of steel reinforcement, its fabrication and placing in position, etc.). (c) (iii) Reinforced cement concrete in slab of rafts / strip foundation, base slab of column and retaining walls; etc and footing beams, other structural members other than those mentioned in 6(a) (i)&(ii) above not requiring form work (i.e. horizontal shuttering) complete in all respects:- including all lead and lift. (2) Type B (nominal mix 1: 1½: 3)	Per Cft	5096	718.58	1	3661883.6

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
415	06-12	Fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars). (b) Deformed bars i) Grade-40	100kg	468.4	30148.15	1	14121393
416	06-32	Providing and embedding 10" (250mm) wide PVC water stopper in expansion joints of RCC structures (Retaining walls, water tanks, Slabs) complete in all respect. ii) 10 mm thick	Rft	328	816	1	267648
417	06-37	Providing and laying damp proof course of cement concrete 1:2: 4(using cement, sand and shingle), including bitumen coating :- (b) with 2 coats of bitumen: ii) 2" thick (50 mm)	100Sft	9.72	14064.3	1	136704.9
418	07-04(i)	Pacca brick work in 1:4 C/S mortar in foundation and upto plinth top:-	100Cft	77.76	42355.65	1	3293575.

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
419	07-05 (i)	Pacca brick work in 1:4 C/S mortar in Ground floor	100 Cft	235.28	43384.35	1	10207469
420	07-06-i	Pacca brick work in 1:4 C/S mortar.'Add extra labour on item No. 5 for brickwork in (i) first floor:-	100 Cft	99.76	1793.45	1	178914.5
421	09-15	Khuras on roof 2'x2'x6" (600 x 600 x 150 mm)	Each	24	1240.85	1	29780.4
422	09-35 (iii)	Providing and laying roof insulation, comprising of single layer of tiles 9"x4½"x1½" (225x113x40 mm) grouted with cement sand mortar 1:3 laid over 2" (50 mm) thick earth (including mud plaster) over thermopore sheet, over polythene sheet 300 gauge over a layer of bitumen, complete in all respects:- iii) Thermopore sheet 1" (25 mm) thick	100 Sft	80.12	18654.85	1	1494626.5

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
423	09-46	Providing and applying torch-on plain water proofing bitumenous membrane of specified thickness (made of Roof-Grip/ Euro Bit) duly lapped/connected by heating with Torch over ps-6 primer i/c preparation/smoothen the surface complete in all respect as approved and directed by the Engineer Incharge a) Plain i) 3 mm thick	Per Sft	8012	126.35	1	1012316.2
424	09-51	P/L false ceiling comprising of 5/8" thick plaster of paris sheet of required size in approved design with one line of 6" wide niche all around , hanging with Copper wire (16 SWG) duly enriched with POP and flaxen i/c the cost of making space for rope light/screws/jute/making holes for lights and rawal plugs complete in all respects as approved and directed by the Incharge.(Measurement will be made as per carpet Area).	Per Sft	10292	130.9	1	1347222.8

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
425	06-02	Dry rammed brick or stone ballast, 1½" to 2"(40 mm to 50 mm) gauge.	100Cft	51.16	14076.5	1	720153.74
426	10-14	Cement concrete tiles laid in 1:2 cement mortar, over 3/4" (20 mm) thick bed of cement mortar 1:2:- (a) 12"x12"x1" (300 x 300 x 25 mm)	100 Sft	10.8	21784.9	1	235276.92
427	10-25	Rubbing and polishing old grit/ mosaic floor, including repairing voids, uneven surface, complete in all respects b) New Grit / Mosaic Floor	100 Sft	103.76	4838.65	1	502058.32
428	10-34	Mosaic dado or skirting with one part of cement and marble powder in the ratio of 3:1 and two parts of marble chips, laid over ½"(13 mm) thick cement plaster 1:3, including rubbing and polishing, complete with finishing: (a) using grey cement: i) 1/2"(13 mm) thick	100 Sft	25.32	20227.25	1	512153.97

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
429	10-35	Providing and laying superb quality Porcelain glazed tiles of Master/ Stile brand or approved equivalent manufacturer, skirting/dado of specified size, Color and Shade with adhesive/ bond over 1/2"thick (1:2) cement plaster i/c the cost of and sealer for finishing the joints, cutting grinding complete in all respect as approved and directed by the Engineer Incharge a) Full body Glazed tiles (iii) 600mm x 600 mm (24"x24")	Per Sft	10392	459.75	1	4777722

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
430	10-35	Providing and laying superb quality Porcelain glazed tiles of Master/ Stile brand or approved equivalent manufacturer, skirting/dado of specified size, Color and Shade with adhesive/ bond over 1/2"thick (1:2) cement plaster i/c the cost of and sealer for finishing the joints, cutting grinding complete in all respect as approved and directed by the Engineer Incharge a) Full body Glazed tiles (iv) 600mmx 1200 mm (24"x48")	Per Sft	3104	510.15	1	1583505.6

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
431	10-38	Providing and laying 1" thick terrazo tile for specified colour & size full body, best quality with minimum 5000 PSI in approved design with adhesive bond over 3/4" thick 1:3 cement plaster i/c the cost of sealer for finishing the joints i/c cutting, grinding, rubbing, filling Complete in all respect as approved and directed by the Engineer incharge. (Without Polishing) b) Size 24"x24"x1" ii) Coloured	Sft	10376	451.45	1	4684245.2

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
432	10-46	Providing and laying superb quality Porcelain glazed tiles flooring of Master/ Stile brand or approved equivalent manufacturer of specified size in approved design,Color and Shade with adhesive/bond over 3/4"thick (1:3) cement plaster i/c the cost of sealer for finishing the joints i/c cutting grinding complete in all respect as approved and directed by the Engineer Incharge. a) Full body Glazed tiles (iii) 600mm x 600 mm (24"x24")	Per Sft	1948	459.6	1	895300.8

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
433	10-46	Providing and laying superb quality Porcelain glazed tiles flooring of Master/ Stile brand or approved equivalent manufacturer of specified size in approved design,Color and Shade with adhesive/bond over 3/4"thick (1:3) cement plaster i/c the cost of sealer for finishing the joints i/c cutting grinding complete in all respect as approved and directed by the Engineer Incharge. a) Full body Glazed tiles (iv) 600mmx 1200 mm (24"x48")	Per Sft	11828	510	1	6032280
434	10-48	Providing and laying 3/4" thick full width Prepolished Marble slab for Vanities / Shelves / Treads/Risers/Window Cills , having Uniform texture (Spotless) with adhesive bond over 3/4" thick (1:2) cement sand mortor i/c the cost of matching sealer complete in all respects as approved and directed by the Engineer Incharge i) 3/4" thick China Verona	Per Sft	1344	642.5	1	863520

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
435	10-50	Extra for Bevelling charges of marble edge in approved design complete in all respects i/c the cost of Carborandam disc as approved and directed by the Engineer Incharge.	Per Rft	552	39.9	1	22024.8
436	10-51	Extra cost for making hole in Marble slab for fixtures, Sink,burners,basin Vanities i/c cost of bevelling of internal edge as approved and directed by the Engineer Incharge.	Each	28	980.7	1	27459.6
437	10-47	Providing and laying Marble flooring / Skirting of required size and specified thickness, with adhesive bond over 3/4" thick bedding of (1:2) cement sand mortor i/c the cost of matching sealer,cutting,grinding and chemical polishing, complete in all respect as approved and directed by the Engineer Incharge. viii) China Verona uniform texture (Spotless) 3/4" thick (size 12"x24"/12"x36")	Per Sft	176	539.3	1	94916.8

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
438	10-19	Extra labour for each storey above ground, for mosaic, conglomerate, tiles, stone and wooden floor.(First floor)	100 Sft	116	1218.1	1	141299.6
439	11-9(b)	Cement plaster 1:4 upto 20' (6.00 m) height: b) ½" (13 mm) thick	100 Sft	319.68	4958.8	1	1585229.1
440	11-9(c)	Cement plaster 1:4 upto 20' (6.00 m) height: c) ¾" (20 mm) thick	100 Sft	229.92	6641.3	1	1526967.6
441	11-29	Extra for lime, mud or cement plaster and pointing from 20' (6.00 m) and above for each additional 10' (3.00 m) height or part thereof. (20'~30')	100 Sft	70	659.45	1	46161.5
442	11-12	Cement plaster 3/8" (10 mm) thick under soffit of R.C.C.roof slabs only, upto 20' height. b) 1:3	100 Sft	49.08	5676.55	1	278605.07
443	11-29	Extra for lime, mud or cement plaster and pointing from 20' (6.00 m) and above for each additional 10' (3.00 m) height or part thereof. (20'~30')	100 Sft	23.96	659.45	1	15800.422

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
444	11-39	Preparing surface and applying Graffiato Weather Coating (Co-polymer emulsion) of approved colour & shade with weather resistant pigment, highly water repellant with Metalic Spatula having top class finish by smoothing with a plastic Spatula, on a base coat (Primer) over well cleaned plastered surface complete in all respect as approved and directed by the Engineer Incharge.	Per Sft	22992	86.45	1	1987658.4
445	13-9	Bitumen coating to plastered or cement concrete surface:- i) 20 lbs. per 100 Sft. (9.07 Kg per Sq.m)	100 Sft	94.8	2825.1	1	267819.48
446	13-31	Preparing surface and painting emulsion paint : a) 1st coat	100 Sft	368.76	1791.6	1	660670.41
447	13-31	Preparing surface and painting emulsion paint : b) 2nd & each subsequent coat.	100 Sft	737.52	1395.55	1	1029246.0

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
448	13-46	Providing and applying wall putty of 2mm thickness over plastered surface (new surface) to prepare the surface even and smooth complete in all respect.	100 Sft	368.76	576.25	1	212497.95
449	12-23	Providing and fixing wooden box type wardrobe 22" (550mm) deep including ¾" (20 mm) thick boxing and shelves, hanger rods hard board back drawers, brass fittings, locking arrangements, handles, internal bolts, shoe rods, etc. including three coats of enamel paint:- i) Partal wood boxing and deodar wood shelves and leaves, etc.	Per Sft	1524	2651.4	1	4040733.6

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
450	12-59	Providing & fixing box type kitchen cabinets consisting of 3/4" thick both side Laminated MDF sheet shutter and boxes and back of 3 mm thick laminated MDF sheet i/c the cost of PVC edge binding duly hot pressed on all edges of the shutters /panels etc., with machine i/c the cost of self closing blum type hinges S.S, handles, screws, Glue and rawal plugs, locking arrangement complete in all respect as approved and directed by Engineer Incharge.	Per Sft	744	1651.3	1	1228567.2
451	12-64	Providing and fixing Imported Mortise Lever Handle Lock with back plate (Machine, Cylinders, Lever Handles (Pair) and backplate (Pair) of approved quality, design & finish, including the cost of all accessories to complete the job as shown on drawing and as per specification, complete in all respect, as approved and directed by the Engineer Incharge	Each	4	4569.55	1	18278.2

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
452	25-51	Providing and fitting all types of glazed aluminium windows of anodised/ powder coated partly fixed and partly sliding using delux sections of approved manufacturer having frame size of 100 x 30 mm (4"x1-1/4") and leaf frame sections of 50 x 20 mm (2"x¾"), all of 1.6mm thickness including 5 mm thick imported tinted glass with rubber gasket using approved standard latches, hardware etc., as approved by the Engineer in-charge	Per Sft.	4456	1290.6	1	5750913.6
453	25-52	Providing and fixing Aluminum Fly screen comprising of fiber/ Aluminum wire guaze (Malasian) fixed in aluminum frame of approved manufacturer / powder coated of size 1-1/2"x1/2" and 1.6mm thick with rubber gasket i/c cost of Hardwares as approved and directed by the engineer incharge. complete in all respect.	Per Sft.	2228	538.3	1	1199332.4

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
454	12-05	Providing and fixing 1st class solid wood wrought joinery in panelled or panelled and glazed doors and windows of specified thickness with 1" thick solid wood panels with step and 1-1/2"x2-1/2" beadings all around the panels i/c the cost of Tower bolt and handles complete in all respect (Excluding the cost of sliding bolt,lock and chowkats (frame), etc.) as approved and directed by the Engineer Incharge b) Ash wood Door (i) 2" thick (50 mm)	Sft	156	3753.45	1	585538.2

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
455	12-13	P/F 1-1/2" thick solid flush door comprising of 2.5 mm thick Deodar/Ash/Oak ply with grooves , compressed over 2.5 mm thick commercial ply over 1" thick packing wood in style and rails under proper pressure i/c the cost of nails, tower bolt , handles, glue, sawing charges and lacquar polishing to show the grains of ply properly, sand papering and 3/8" thick matching wooden lipping as approved and directed by the Engineer Incharge.	Per Sft	2132	909.2	1	1938414.4
456	12-18	Providing and fixing 3"x4-1/2" chowkat for doors, windows and C. windows, including holdfast, etc b) Deodar wood	Per Sft	2288	1075.45	1	2460629.6
457	12-30	Providing and fixing approved quality rim lock adjustable over the style surface	Each	80	1680	1	134400

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
458	25-31	Making and fixing steel grated door with 1/16" thick (1.5mm) sheeting, including angle iron frame 2"x2"x3/8" (50x50x10 mm) and ¾" (20 mm) square bars 4" (100 mm)centre to centre, with locking arrangement.	Per Sft	560	2648.1	1	1482936
459	25-38	Providing and fixing 2'-9" high stair railing comprising of non magnetic (304) Stain less steel 2" dia pipe railing of 18 SWG welded with vertical posts of 2" dia stainless steel round/ Squar pipe/ Tong (chimta) @ 2-ft c/c fixed on alternate steps with 3" long steel screws and brass rawal plugs , 3-Nos diagonal stainless steel pipes of 1/2" dia passes through goties fixed on vertical post, i/c stainles steel welding, fixing & polishing complete in all respects as approved and directed by the Engineer Incharge	Per Rft	144	3387.45	1	487792.8

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
460	25-63	Providing and fixing 5 ft dia MS Spiral Stair comprising of triangular steps made of 1-1/4"x1-1/4"x3/16" duly welded with 3/8"MS squar bars steps, supported/welded with main vertical post of 4" dia GI pipe (Medium Quality) embeded in PCC in ground i/c the cost of pipe railing comprising of 2" dia MS pipe of 16 SWG supportrd with 2 no 5/8" squar bars in each step, i/c fixing & painting complete in all respects as approved and directed by the Engineer Incharge(Measurement will be made above ground level).	Per Rft	100	7664.35	1	766435

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
461	26-43	Spraying termite proofing by using liquid FMC/ Biflex/ Terminex Exin/ Ms Hextar or equivalent @ specified suspension concenterate (SC), Mixing Ability-HEXTAR with Ratio (1:250) = 540 Sft or equivalent approved liquid applying with shower and certificate will be provided by the contractor for 10-years complete in all respect .as approved by the Engineer Incharge	Sft	18900	12.7	1	240030
462	Sub-Total Cost (Scheduled Items) - CIVIL WORKS =						
463	NSI-01	Provide & fix expended metal 1/2" to 3/4", 22 guage fixed walls or on area as required and specified on drawings with steel nails with washers complete in all respects.	Sft.	5372	110	1	590920

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
464	NSI-02	Structural/glazing system with 2 mm thick and 100mm wide powder coated (in approved colour) base frame system as per the recommendations of the specialized facade designer and agreed by the approved manufacturer and stainless steel fittings using insulated glazing unit (IGU) system comprising of 6mm thick imported Low-E glass of approved color/shade having Low-E coating on surface no. 2 (inside the outer glass) and 6mm thick clear tempered glass (inner glass), with 12 mm wide aluminum spacers Low-E glass shall have a maximum of 3.7 U-factor with 0.45 solar heat gain coefficient. The glass to be used shall be from Pilkington/Guardian or an approved equivalent manufacturer. Doors in the curtain wall shall be of 12 mm thick Low-E tempered glass of approved color/shade, having handles 1500 mm long with 38mm dia & 2 mm wall thickness pipes of SS-316 brushed finish. All joints between the panels shall be sealed with minimum clear silicon sealant from Dow Corning of an	Sft	720	3800	1	2736000

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
465	NSI-03	Providing and laying Structural Back fill using Granular Material brought from out site including compaction complete in all respects.	Cft	7880	80	1	630400
466	Sub-Total Cost (Non-Scheduled Items) - CIVIL WORKS =						
467	II. PLUMBING WORKS						
468	A. SCHEDULED ITEMS						

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
469	19 / 3 B iii.	Providing and fitting imported floor mounted Europeon coupled set of Water Closet (WC) and flushing Cistern of PORTA/ Marachi brand (full size) manufacturer i/c the cost of CP/rubber connection, thimble, seat cover and rawal bolts complete in all respects as approved and directed by the Engineer Incharge. One Piece PORTA HD 102N Toilet Cito with Hydraulic Seat Cover	Each	20	59851.1	1	1197022
470	19 / 5	Providing and fitting white glazed earthen ware water closet, squartter type, with separate foot rest.	Each	4	8761.75	1	35047
471	19/12/b-i	Providing and fitting plastic made low down flushing cistern 13.63 litre (3 gallons) capacity, including bracket set, copper connection, etc. complete , white	Each	4	5804.95	1	23219.8

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
472	19/46	Providing, fixing, testing and commissioning of µ-PVC (Unplasticized polyvinyl Chloride) Nikasi/ waste pipe Fittings make of Dadex /Popular/Beta or approved equivalent manufacturer, conforming to BS 4514 / BS 5255 including the cost of Solvents complete in all respect as approved and directed by the Engineer Incharge. P-Trap (i) 4" dia	Each	4	960.2	1	3840.8
473	19 / 4 / ii page 118	Providing and fixing, flushing bend of PVC , 4cm (1-1/2")	Each	4	394.65	1	1578.6
474	19 / 7 (i)	Providing and fitting glazed earthen ware wash hand basin/vanity 56x40 cm (22"x16") including bracket set, waste pipe and waste coupling, etc. white with pedestal	Each	8	12051.55	1	96412.4
475	19 / 7 (v)	Under Counter Vanity Basin	Each	16	13047.55	1	208760.8

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
476	19 / 8	Providing and fixing stainless steel sink with drain board, size 120x60 cm (48"x24") including bracket set, waste pipe and waste coupling.	Each	8	15809.45	1	126475.6
477	19 / 27	Providing and fixing, chromium plated mixing valve, for wash hand basin, sink or shower.	Each	8	3950	1	31600
478	19 / 13	Providing and fixing, chromium plated soap dish.	Each	24	981.6	1	23558.4
479	19 / 15	Providing and fixing, chromium plated toilet paper holder.	Each	20	1271.85	1	25437
480	19 / 16 / i	Providing and fixing, chromium plated towel rail, 60 cm (24") long, and 2 cm (¾") dia	Each	24	1337.2	1	32092.8
481	19 / 17	Providing and fixing looking glass 55x40 cm (22"x16") size and minimum 5 mm thick, first quality.	Each	24	1546.2	1	37108.8
482	19 / 24/ ii	Providing and fixing chromium plated bib cock 1.5cm (1/2")	Each	20	1588	1	31760

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
483	19 / 25	Providing and fixing chromium plated Tee stop cock 15mm (1/2")	Each	76	2068	1	157168
484	19 / 49 i	Providing and fixing CP bath Room Set made of Sonex / Master / Faisal comprising of 3-No Tee stop cocks, lever type Basin Mixer, double Bib Cock, open wall shower, Muslim shower, waste coupling and bottle trap etc. complete in all respect as approved and directed by the Engineer incharge Lever Type Basin Mixer	Each	24	6707	1	160968
485	19 / 49 ii	Double Bib Cock	Each	24	1907	1	45768
486	19 / 49 iii	Open Type Wall Shower	Each	20	18707	1	374140
487	19 / 49 iv	Muslim shower	Each	24	2387	1	57288
488	19 / 49 v	Bottle Trap	Each	24	1487	1	35688
489	19 / 7 / i page 121	Providing and fixing 1.5 cm (½") dia connection, including check nuts, etc, (plastic rubber connection)	Each	24	388.8	1	9331.2

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
490	19 / 53 ii	Supply & Installation of Duel (Electric and Gas Water Heaters) with factory-installed pressure relief valve, adjustable water temperature control thermostate, Copper connections for specific capacity having leaving waterr temprature 140 deg F & working pressure 15 PSI, Ambasador/Canon or approved manufacturer i/c cost of all accessories to complete the job as per specifications and standards & making connection, complete in all respect as approved and directed by Engineer Incharge. 55 Gallons	Each	4	83161.5	1	332646

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
491	23 / 33 / b (ii)	Providing, laying, testing and commissioning of POLYPROPYLENE RANDOM COPOLYMER (PPRC) water supply pipe (Dadex / Popular / Beta or equivalent) with specified pressure rating PN (PRESSURE NOMINAL) and conforming to DIN 8077 - 8078 code i/c cost of solvent, specials, making jharries complete in all respect as approved and directed by Engineer Incharge. (Internal / External Diameters mentioned). PN20 25mm dia	Rft	1200	101.85	1	122220

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
492	23 / 33 / b (iii)	Providing, laying, testing and commissioning of POLYPROPYLENE RANDOM COPOLYMER (PPRC) water supply pipe (Dadex / Popular / Beta or equivalent) with specified pressure rating PN (PRESSURE NOMINAL) and conforming to DIN 8077 - 8078 code i/c cost of solvent, specials, making jharries complete in all respect as approved and directed by Engineer Incharge. (Internal / External Diameters mentioned). PN20 32mm dia	Rft	800	162.1	1	129680

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
493	23 / 33 / b (iv)	Providing, laying, testing and commissioning of POLYPROPYLENE RANDOM COPOLYMER (PPRC) water supply pipe (Dadex / Popular / Beta or equivalent) with specified pressure rating PN (PRESSURE NOMINAL) and conforming to DIN 8077 - 8078 code i/c cost of solvent, specials, making jharries complete in all respect as approved and directed by Engineer Incharge. (Internal / External Diameters mentioned). PN20 40mm dia	Rft	1400	247.3	1	346220
494	23 / 38 (i)	Providing and fixing CP heavy duty brass Ball valve with CP handle of specified diameter made of Faisal/Sonex / Master best quality or equivalent complete in all respect as approved and directed by the Engineer Incharge. 1/2" dia	Each	12	1248	1	14976

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
495	23 / 38 (ii)	Providing and fixing CP heavy duty brass Ball valve with CP handle of specified diameter made of Faisal/Sonex / Master best quality or equivalent complete in all respect as approved and directed by the Engineer Incharge. 3/4" dia	Each	4	1524	1	6096
496	23 / 42 a-ii	Providing and fixing heavy duty Gate valve of specified diameter and material for pressure rating PN-16 mde of Crane (USA), Hatersly (UK) or Scon (Pakistan) or approved equivalent manufacturer, i/c the cost of all accessories flanges, nut/bolt and gaskit where required complete in all respect as approved and directed by the Engineer Incharge. 3/4" dia Brass Threaded Valves	Each	32	3510	1	112320

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
497	23 / 42 a-iii	Providing and fixing heavy duty Gate valve of specified diameter and material for pressure rating PN-16 mde of Crane (USA), Hatersly (UK) or Scon (Pakistan) or approved equivalent manufacturer, i/c the cost of all accessories flanges, nut/bolt and gaskit where required complete in all respect as approved and directed by the Engineer Incharge.1" dia Brass Threaded Valves	Each	20	5025.6	1	100512
498	23 / 42 a-iv	Providing and fixing heavy duty Gate valve of specified diameter and material for pressure rating PN-16 mde of Crane (USA), Hatersly (UK) or Scon (Pakistan) or approved equivalent manufacturer, i/c the cost of all accessories flanges, nut/bolt and gaskit where required complete in all respect as approved and directed by the Engineer Incharge.1-1/4" dia Brass Threaded Valves	Each	8	7039.2	1	56313.6

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
499	23 / 44 a-iii	Providing and fixing heavy duty Check Valve of specified diameter and material for pressure rating PN-16 made of Crane (USA), Hatersly (UK), Scon (Pakistan) or approved equivalent manufacturer i/c the cost of all accessories flanges,nut/bolt and gaskit where required complete in all Providing and fixing heavy duty Check Valve of specified diameter and respect as approved and directed by the Engineer Incharge 1" dia Brass Threaded Valves	Each	4	5269.2	1	21076.8

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
500	23 / 44 a-iv	Providing and fixing heavy duty Check Valve of specified diameter and material for pressure rating PN-16 made of Crane (USA), Hatersly (UK), Scon (Pakistan) or approved equivalent manufacturer i/c the cost of all accessories flanges,nut/bolt and gaskit where required complete in all Providing and fixing heavy duty Check Valve of specified diameter and respect as approved and directed by the Engineer Incharge 1-1/4" dia Brass Threaded Valves	Each	8	7212	1	57696
501	23 / 45 a-ii	Supply & installation of heavy duty Brass PN-16 air Vents of specified size provided at the highest points (Pipe Risers) to expel air as approved and directed by the Engineer Incharge, Automatic 3/4 inches	Each	8	1896	1	15168
502	19 / 8 page 121 iii	Providing and fixing brass ball float valve: 2.5 cm (1") dia	Each	4	1550	1	6200

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
503	19 / 45 iii	Providing, fixing, testing and commissioning of (Unplasticized Polyvinyl Chloride Nikasi /SWV pipe, Dadex /Popular /Beta or approved equivalent manufacturer ,plain/Bell Ended/ ZJoints conforming to BS4514/ BS5255- EN1329 including the cost of specials and Solvents complete in all respects ,as per drawings & specifications and /or as approved and directed by the Engineer Incharge. 50mm	Rft	240	103.95	1	24948

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
504	19 / 45 iv	Providing, fixing, testing and commissioning of (Unplasticized Polyvinyl Chloride Nikasi /SWV pipe, Dadex /Popular /Beta or approved equivalent manufacturer ,plain/Bell Ended/ ZJoints conforming to BS4514/ BS5255- EN1329 including the cost of specials and Solvents complete in all respects ,as per drawings & specifications and /or as approved and directed by the Engineer Incharge. 82mm	Rft	600	160.6	1	96360

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
505	19 / 45 v	Providing, fixing, testing and commissioning of (Unplasticized Polyvinyl Chloride Nikasi /SWV pipe, Dadex /Popular /Beta or approved equivalent manufacturer ,plain/Bell Ended/ ZJoints conforming to BS4514/ BS5255- EN1329 including the cost of specials and Solvents complete in all respects ,as per drawings & specifications and /or as approved and directed by the Engineer Incharge. 110mm	Rft	400	254.3	1	101720

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
506	19 / 45 vi	Providing, fixing, testing and commissioning of (Unplasticized Polyvinyl Chloride Nikasi /SWV pipe, Dadex /Popular /Beta or approved equivalent manufacturer ,plain/Bell Ended/ ZJoints conforming to BS4514/ BS5255- EN1329 including the cost of specials and Solvents complete in all respects ,as per drawings & specifications and /or as approved and directed by the Engineer Incharge. 160mm	Rft	600	493.4	1	296040
507	19 / 46 b-i	Providing, fixing, testing and commissioning of µ-PVC (Unplasticized polyvinyl Chloride) Nikasi / waste pipe Fittings make of Dadex / Popular / Beta or approved equivalent manufacturer, conforming to BS 4514 / BS 5255 including the cost of Solvents complete in all respect as approved and directed by the Engineer Incharge. Multi-Trap 4"	Each	48	1436.1	1	68932.8

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
508	19 / 46 c-ii	Providing, fixing, testing and commissioning of µ-PVC (Unplasticized polyvinyl Chloride) Nikasi / waste pipe Fittings make of Dadex / Popular / Beta or approved equivalent manufacturer, conforming to BS 4514 / BS 5255 including the cost of Solvents complete in all respect as approved and directed by the Engineer Incharge. Vent Cowel 3"	Each	20	386.1	1	7722
509	19 / 46 d-i	Providing, fixing, testing and commissioning of µ-PVC (Unplasticized polyvinyl Chloride) Nikasi / waste pipe Fittings make of Dadex / Popular / Beta or approved equivalent manufacturer, conforming to BS 4514 / BS 5255 including the cost of Solvents complete in all respect as approved and directed by the Engineer Incharge. Clean out 4" Dia	Each	4	441.4	1	1765.6

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
510	19 / 46 d-ii	Providing, fixing, testing and commissioning of µ-PVC (Unplasticized polyvinyl Chloride) Nikasi / waste pipe Fittings make of Dadex / Popular / Beta or approved equivalent manufacturer, conforming to BS 4514 / BS 5255 including the cost of Solvents complete in all respect as approved and directed by the Engineer Incharge. Clean out 3" Dia	Each	4	354.3	1	1417.2
511	19 / 12 page 122 (i)	Providing and Fixing of SS 304 Floor Drain, complete in all respect as approved and directed by Engineer Incharge. 4" Diameter	Each	20	1254.95	1	25099
512	21 / 5 (a)	Constructing gully grating chamber, 12"x12", (300x300 mm) complete in all respects: with C.I. gully trap, weighing 81 lbs. (36.75 Kg.) frame hinged safety type.	Each	20	17360.1	1	347202

PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
513	19 / 45 (v)	Providing, fixing, testing and commissioning of (Unplasticized Polyvinyl Chloride Nikasi /SWV pipe, Dadex /Popular /Beta or approved equivalent manufacturer ,plain/Bell Ended/ ZJoints conforming to BS4514/ BS5255- EN1329 including the cost of specials and Solvents complete in all respects ,as per drawings & specifications and /or as approved and directed by the Engineer Incharge. 110mm	Rft	200	254.3	1	50860
514	19 / 13 page 122 (i)	Providing and Fixing of SS 304 Roof / scupper Drain, complete in all respect as approved and directed by Engineer Incharge. 4" Diameter	Each	8	1284.8	1	10278.4
515	23 / 54 (i)	Providing and fixing of fire extinguishers of following type and capacities complete in all respect as approved and directed by the Engineer Incharge: Dry Chemical Powder capacity 6 Kg	Each	4	13329.6	1	53318.4

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
516	23 / 54 (ii)	Providing and fixing of fire extinguishers of following type and capacities complete in all respect as approved and directed by the Engineer Incharge: K-Type wet chemical capacity 6 Litters.	Each	4	48232.8	1	192931.2
517	19 / 37 (i)	Supply and fitting of cast iron manhole cover square / circular with frame, etc. complete. 30 cm (12")	Each	24	2532	1	60768
518	19 / 37 (ii)	Supply and fitting of cast iron manhole cover square / circular with frame, etc. complete. 45 cm (18")	Each	4	3492	1	13968
519	19 / 37 (iii)	Supply and fitting of cast iron manhole cover square / circular with frame, etc. complete. 60 cm (24")	Each	8	6089.85	1	48718.8
520	Sub-Total Cost (Scheduled Items) - PLUMBING WORKS =						

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
521	B. NON-SCHEDULED ITEMS						
522	NS-01	Triple water filter (10") including inlet and outlet connections, power supply, and all accessories for complete installation	Each.	4	32450	1	129800
523	NS-01	G.I. water pipes conforming to BS-1387, Medium Grade, I/c all fittings, wraping polythene tape, giving anticorrosion treatment, applying protective painting, clamps, hangers & supports, making holes in concrete or masonry and then repairing holes, flushing, disinfecting, testing and commissioning etc. of approved make, of the following diameters,complete in all respects. 3/4 inch	Rft	40	515	1	20600

PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
524	NS-02	G.I. water pipes conforming to BS-1387, Medium Grade, I/c all fittings, wraping polythene tape, giving anticorrosion treatment, applying protective painting, clamps, hangers & supports, making holes in concrete or masonry and then repairing holes, flushing, disinfecting, testing and commissioning etc. of approved make, of the following diameters,complete in all respects. 1 inch	Rft	80	755	1	60400
525	NS-03	G.I. water pipes conforming to BS-1387, Medium Grade, I/c all fittings, wraping polythene tape, giving anticorrosion treatment, applying protective painting, clamps, hangers & supports, making holes in concrete or masonry and then repairing holes, flushing, disinfecting, testing and commissioning etc. of approved make, of the following diameters,complete in all respects. 1-1/4 inches	Rft	80	825	1	66000

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
526	NS-04	G.I. pipes for gas works conforming to BS-1387, Medium Grade, I/c all fittings, wraping polythene tape, giving anticorrosion treatment, applying protective painting, clamps, hangers & supports, making holes in concrete or masonry and then repairing holes, flushing, disinfecting, testing and commissioning etc. of approved make, of the following diameters,complete in all respects. 1/2 inch	Rft	120	425	1	51000
527	NS-05	G.I. pipes for gas works conforming to BS-1387, Medium Grade, I/c all fittings, wraping polythene tape, giving anticorrosion treatment, applying protective painting, clamps, hangers & supports, making holes in concrete or masonry and then repairing holes, flushing, disinfecting, testing and commissioning etc. of approved make, of the following diameters,complete in all respects.3/4 inch	Rft	800	515	1	412000

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
528	NS-06	3/4" diameter Galvanised MS ladder rungs for water tanks; each rung of 18" width, 6" projected outside the wall and 6" embeded in RCC on both ends; including all necessary works for complete installation.	Each	40	1490	1	59600
529	NS-07	Dia 2" u-turned G.I. vent pipes, puddle plate, with insect proof mesh at open end etc., complete in all respects.	Job	4	7545	1	30180

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
530	NS-08	Automatically operated submersible stainless steel centrifugal pump set (in UGWT) for lifting water from Underground water tank to Overhead water tank for potable water, comprising pump with electric motors, Head=03 Bars and discharge=20 gpm, including all accessories, level switches to be installed in overhead & under ground water tank for automatic operation of pumps at set levels, dry running protection, motor control unit, Gate valve, check valve etc manual tools, spare parts etc, complete in all respects as shown in drawings and as directed by the Engineer. Capacity = 20gpm Head = 3 Bar	Job	4	283000	1	1132000

PUBLIC PROCUREMENT REGULATORY AUTHORITY PPRA EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
531	NS-09	Skid mounted, automatically operated fully integrated self priming Pressure Booster pump set for potable water supply comprising 02 pumps (01 working & 01 standby) with electric motors and integrated parts (intelligent controller, speed-controlled drive (VFD), integrated pressure tank, sensors, gate valves, non return valves, strainer etc) including all accessories, Motor control unit, Pressure switches, pressure gauges, manual, tools, spare parts etc, Each pump of the following Capacity and Pumping head. Capacity = 10-30 US gpm Head =02-03 Bars	Job	4	354000	1	1416000
532	Sub-Total Cost (Non-Scheduled Items) - PLUMBING WORKS =						

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
533	III. ELECTRICAL WORKS						
534	A. SCHEDULED ITEMS						
535	2 (ii)	Supply and erection of PVC pipe for wiring recessed in walls, including inspection boxes, pull boxes, hooks, cutting jharries, and repairing surface, etc., complete with all specials. 20 mm i/d	Rft.	20000	120.45	1	2409000
536	2 (iii)	Supply and erection of PVC pipe for wiring recessed in walls, including inspection boxes, pull boxes, hooks, cutting jharries, and repairing surface, etc., complete with all specials. 25 mm i/d	Rft.	10000	140.15	1	1401500

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
537	2 (iii)	Supply and erection of PVC pipe for wiring recessed in walls, including inspection boxes, pull boxes, hooks, cutting jharries, and repairing surface, etc., complete with all specials. 50 mm i/d	Rft.	120	241.95	1	29034
538	2 (viii)	Supply and erection of PVC pipe for wiring recessed in walls, including inspection boxes, pull boxes, hooks, cutting jharries, and repairing surface, etc., complete with all specials. 100 mm i/d	Rft.	600	385.55	1	231330
539	105 (a) i	P/F PVC doublelayer Switch kit Faceplate with specified switch holes i/c the cost of switches / sockets / dimmer made of Hi-Life / Bush / Schenider or approved equvilent manufacturer, screws complete as approved and directed by the Engineer Incharge One way Gange Switch (Small) 01 Gange	Each	20	463.2	1	9264

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
540	105 (a) ii	P/F PVC doublelayer Switch kit Faceplate with specified switch holes i/c the cost of switches / sockets / dimmer made of Hi-Life / Bush / Schenider or approved equvilent manufacturer, screws complete as approved and directed by the Engineer Incharge One way Gange Switch (Small) 02 Gange	Each	40	704.4	1	28176
541	105 (a) iii	P/F PVC doublelayer Switch kit Faceplate with specified switch holes i/c the cost of switches / sockets / dimmer made of Hi-Life / Bush / Schenider or approved equvilent manufacturer, screws complete as approved and directed by the Engineer Incharge One way Gange Switch (Small) Three pin Light Plug 10/13 Amp	Each	184	754.45	1	138818.8

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
542	105 (a) iv	P/F PVC doublelayer Switch kit Faceplate with specified switch holes i/c the cost of switches / sockets / dimmer made of Hi-Life / Bush / Schenider or approved equvilent manufacturer, screws complete as approved and directed by the Engineer Incharge One way Gange Switch (Small) Telephone / TV/Datacable socket	Each	24	662.45	1	15898.8
543	105 (a) vi	P/F PVC doublelayer Switch kit Faceplate with specified switch holes i/c the cost of switches / sockets / dimmer made of Hi-Life / Bush / Schenider or approved equvilent manufacturer, screws complete as approved and directed by the Engineer Incharge One way Gange Switch (Small) Fan Dimmer	Each	64	740.6	1	47398.4

PUBLIC PROCUREMENT REGULATORY AUTHORITY PPRA EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
544	105 (a) vii	P/F PVC doublelayer Switch kit Faceplate with specified switch holes i/c the cost of switches / sockets / dimmer made of Hi-Life / Bush / Schenider or approved equvilent manufacturer, screws complete as approved and directed by the Engineer Incharge One way Gange Switch (Small) Bell push	Each	4	598.2	1	2392.8
545	105 (a) viii	P/F PVC doublelayer Switch kit Faceplate with specified switch holes i/c the cost of switches / sockets / dimmer made of Hi-Life / Bush / Schenider or approved equvilent manufacturer, screws complete as approved and directed by the Engineer Incharge One way Gange Switch (Small) Three Pin Power Plug 15-32 Amp	Each	44	924.55	1	40680.2

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
546	105 (b) i	P/F PVC doublelayer Switch kit Faceplate with specified switch holes i/c the cost of switches / sockets / dimmer made of Hi-Life / Bush / Schenider or approved equvilent manufacturer, screws complete as approved and directed by the Engineer Incharge One way Gange Switch (Large) 04 Gange	Each	40	981.25	1	39250
547	105 (b) ii	P/F PVC doublelayer Switch kit Faceplate with specified switch holes i/c the cost of switches / sockets / dimmer made of Hi-Life / Bush / Schenider or approved equvilent manufacturer, screws complete as approved and directed by the Engineer Incharge One way Gange Switch (Large) 05 Gange	Each	40	1151.35	1	46054

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
548	105 (b) iii	P/F PVC doublelayer Switch kit Faceplate with specified switch holes i/c the cost of switches / sockets / dimmer made of Hi-Life / Bush / Schenider or approved equvilent manufacturer, screws complete as approved and directed by the Engineer Incharge One way Gange Switch (Large) 06 Gange	Each	8	1405.85	1	11246.8
549	105 (c) i	P/F PVC doublelayer Switch kit Faceplate with specified switch holes i/c the cost of switches / sockets / dimmer made of Hi-Life / Bush / Schenider or approved equvilent manufacturer, screws complete as approved and directed by the Engineer Incharge Two way Gange Switch Small 01 Gange One Way/ Two Way	Each	8	775.85	1	6206.8

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
550	8 c (ii)	Supply and erection of single core PVC insulated copper conductor cables, in prelaid PVC pipe/M.S. conduit/G.I pipe/wooden strip batten/wooden casing an capping/G.I. wire/trenches (rate for cables only):- 450/750 volts, PVC insulated: 1.5 mm sq (3/0.029")	Per Rft.	60000	42.75	1	2565000
551	8 c (iii)	Supply and erection of single core PVC insulated copper conductor cables, in prelaid PVC pipe/M.S. conduit/G.I pipe/wooden strip batten/wooden casing an capping/G.I. wire/trenches (rate for cables only):- 450/750 volts, PVC insulated: 2.5 mm sq (7/0.029")	Per Rft.	12000	63.1	1	757200
552	8 c (iv)	Supply and erection of single core PVC insulated copper conductor cables, in prelaid PVC pipe/M.S. conduit/G.I pipe/wooden strip batten/wooden casing an capping/G.I. wire/trenches (rate for cables only):- 450/750 volts, PVC insulated: 4 mm sq (7/0.036")	Per Rft.	12000	83.4	1	1000800

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
553	10(v)	Supply and erection of single core PVC insulated, PVC sheathed copper conductor, 600/1000 volts grade cable, in prelaid G.I. pipe/M.S. conduits/PVC pipe/G.I. wire/trenches, etc (rate for cable only):- 6 mm sq (7/0.044")	Per Rft.	120	102.6	1	12312
554	10(vi)	Supply and erection of single core PVC insulated, PVC sheathed copper conductor, 600/1000 volts grade cable, in prelaid G.I. pipe/M.S. conduits/PVC pipe/G.I. wire/trenches, etc (rate for cable only):- 10 mm sq (7/0.052")	Per Rft.	600	159.5	1	95700
555	11 c (v)	Supply and erection of copper conductor cables for service connection, in prelaid pipe/G.I. wire/trenches, etc. (rate for cable only):- PVC insulated, PVC sheathed 4 core, 600/1000 volt non armoured cable:- 6 mm sq (7/0.044")	Per Rft.	120	391.45	1	46974

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
556	11 c (vi)	Supply and erection of copper conductor cables for service connection, in prelaid pipe/G.I. wire/trenches, etc. (rate for cable only):- PVC insulated, PVC sheathed 4 core, 600/1000 volt non armoured cable:- 10 mm sq (7/0.052")	Per Rft.	600	621.9	1	373140
557	11 c (vii)	Supply and erection of copper conductor cables for service connection, in prelaid pipe/G.I. wire/trenches, etc. (rate for cable only):- PVC insulated, PVC sheathed 4 core, 600/1000 volt non armoured cable:- 16 mm sq (7/0.064")	Per Rft.	40	951.05	1	38042
558	102 a-(i)	Providing and fixing Copper winded Exhaust fan with louver and shutter made of Pak/Younas/G.F.C. i/c the cost of necessary cable and hardware for connection from ceiling rose complete as approved and directed by Engineer Incharge. Plastic body - 10" dia	Each	20	5235.5	1	104710

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
559	102 a-(ii)	Providing and fixing Copper winded Exhaust fan with louver and shutter made of Pak/Younas/G.F.C. i/c the cost of necessary cable and hardware for connection from ceiling rose complete as approved and directed by Engineer Incharge. Plastic body - 12" dia	Each	4	5685.5	1	22742
560	102 b-(i)	Providing and fixing Copper winded Exhaust fan with louver and shutter made of Pak/Younas/G.F.C. i/c the cost of necessary cable and hardware for connection from ceiling rose complete as approved and directed by Engineer Incharge. Plastic body - 12" sweep	Each	4	5516.75	1	22067
561	103 ii	Providing and fixing Pakistan Energy Label NEECA approved Copper winded wall bracket Fan i/c the cost of necessary cable and hardware for connection as approved and directed by Engineer Incharge. 24" Sweep dia	Each	4	10703	1	42812

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
562	104 iii	Providing and fixing Pakistan Energy Label NEECA approved Copper winded Ceiling Fan i/c the cost of necessary cable and hardware for connection as approved and directed by Engineer Incharge. 56" dia	Each	64	10180.2	1	651532.8
563	123	Supply, Installation and commissioning of wiring with 4-pair data Cable, 23AWG UL/ EN listed cable *Conforming to following standards: TIA/EIA568/ISO/IEC11801, in prelaid conduit/ cable tray from including all accessories, Manufacturer/ OEM Authorization, Make: Schneider/ i-connect UK/ 3M Corning USA/ D-Link/ Pollo Australian or equivalent complete in all respect as approved and directed by Engineer Incharge.					
564	a-ii	UTP (Unshielded Twisted pair) CAT-6A (Min.1G/ 10G @ 500MHz or higher)	P.Rft	4000	69.6	1	278400

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
565	131	Supply and installation of Cable Metal Organizer, 19" Rack mounted with high graded epoxy powder coating and slideable top-UL Listed. Made of Schneider/ i-Connect UK/ 3M Corning :Pollo Australia or equivalent approved manufacturer and directed by the Engineer Incharge.	Each	4	4108.8	1	16435.2
566	85 a iii	Suppling,Installation and comissioning of MCB (Miniature Circuit Breaker) of specified rating made of LEGRAND FRANCE/ GE U.S.A / SCHNEIDER GERMANY /SIEMEN GERMAN/TERASAKI JAPAN/ SWITZERLAND or approved equivalent manufacturer in prelaid DBs and Panels i/c the cost of screwes,necessary wire complete in all respect as approved and directed by the Engineer Incharge Single Pole 6-63 Amp (10 KA)	Each	140	1459.05	1	204267

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
567	85 b ii	Suppling,Installation and comissioning of MCB (Miniature Circuit Breaker) of specified rating made of LEGRAND FRANCE/ GE U.S.A / SCHNEIDER GERMANY /SIEMEN GERMAN/TERASAKI JAPAN/ SWITZERLAND or approved equivalent manufacturer in prelaid DBs and Panels i/c the cost of screwes,necessary wire complete in all respect as approved and directed by the Engineer Incharge Double Pole iii) 6-63 Amp (10 KA)	Each	8	5621.55	1	44972.4

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
568	85 b iv	Suppling,Installation and comissioning of MCB (Miniature Circuit Breaker) of specified rating made of LEGRAND FRANCE/ GE U.S.A / SCHNEIDER GERMANY /SIEMEN GERMAN/TERASAKI JAPAN/ SWITZERLAND or approved equivalent manufacturer in prelaid DBs and Panels i/c the cost of screwes,necessary wire complete in all respect as approved and directed by the Engineer Incharge Double Pole 63 Amp (Incoming Breaker)	Each	8	5621.55	1	44972.4

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
569	90 a i	P/F wall mounted DB (Distribution Board) made with 16SWG sheet (Recessded/Surface mounted Type), Powder coated Paint, i/c the cost of Lock, Indication lights,Thimble, Copper Comb, Wiring, Netural & Earth Bar, Door Earthing, Digital Voltmeter,Digital Ammeter,Volt Selector Switch,Ammeter selector switch,Current Transformers and Controles Complete in all respect as approved and directed by the Engineer P/F wall mounted DB (Distribution Board) made with 16SWG Sheet Incharge (Breakers will be Paid Separately). 6" deep 20~60A	P.CFT	400	2436.7	1	974680
570	94 i	Providing and fixing DB/Panel accessories of required rating and size i/c copper screws of approved brand Complete in all respect as approved and directed by the Engineer Incharge Selector Switch	Each	8	1228.8	1	9830.4

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
571	94 iii	Providing and fixing DB/Panel accessories of required rating and size i/c copper screws of approved brand Complete in all respect as approved and directed by the Engineer Incharge Digital Voltmeter (0-600 Volt)	Each	8	1012.8	1	8102.4
572	94 iv	Providing and fixing DB/Panel accessories of required rating and size i/c copper screws of approved brand Complete in all respect as approved and directed by the Engineer Incharge Digital Ammeter (0-9999 Amp)	Each	8	1228.8	1	9830.4
573	94 v	Providing and fixing DB/Panel accessories of required rating and size i/c copper screws of approved brand Complete in all respect as approved and directed by the Engineer Incharge LED Phase Indicator	Each	24	622.8	1	14947.2

PUBLIC PROCUREMENT REGULATORY AUTHORITY PPRA EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
574	94 vi	Providing and fixing DB/Panel accessories of required rating and size i/c copper screws of approved brand Complete in all respect as approved and directed by the Engineer Incharge Push Button ON/OFF (Make: Schneider/Himal/Eqv.)	Each	24	631.15	1	15147.6
575	76 b i	Supply and erection of electric energy meter, including meter testing fee, etc b) Three phase, 4 wires: i) 3x50 Amp, 400 volts	Each	4	20909.45	1	83637.8
576	B. NON-SCHEDULED ITEMS						

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
577	NS-01	Supply, installation, testing & commissioning of following LED Light fixtures complete with Electronic ballast (unless mention otherwise), lamps, lamp holders,SPD, Earth Protection and mounting accessories etc., as per specification, complete in all respects, as per drawings and specification, complete in all respect. Lighting fixtures sample must be submitted to consultant for approval. PF> 0.9, CRI>80, 110 Lumens/watt. Operating Life 30,000hrs, IEC Certified. Note: Refer light fixtures drawings/Schedule for complete light fixtures details. 40 watt Surface mounted Damp proof LED Light Fixture with 4400 lumens min., 30000 Life Hrs. fixed output LED driver, IP20 rated, PF=.95 complete in all respects.	No.	76	9500	1	722000

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
578	NS-02	Supply, installation, testing & commissioning of following LED Light fixtures complete with Electronic ballast (unless mention otherwise), lamps, lamp holders,SPD, Earth Protection and mounting accessories etc., as per specification, complete in all respects, as per drawings and specification, complete in all respect. Lighting fixtures sample must be submitted to consultant for approval. PF> 0.9, CRI>80, 110 Lumens/watt. Operating Life 30,000hrs, IEC Certified. Note: Refer light fixtures drawings/Schedule for complete light fixtures details. (16-20) Watt Surface mounted LED batten Light Fixture with 2000 lumens min., 30000 Life Hrs. fixed output LED driver, IP20 rated, complete in all respects.	No.	60	2500	1	150000

PUBLIC PROCUREMENT REGULATORY AUTHORITY PPRA EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
579	NS-03	Supply, installation, testing & commissioning of following LED Light fixtures complete with Electronic ballast (unless mention otherwise), lamps, lamp holders,SPD, Earth Protection and mounting accessories etc., as per specification, complete in all respects, as per drawings and specification, complete in all respect. Lighting fixtures sample must be submitted to consultant for approval. PF> 0.9, CRI>80, 110 Lumens/watt. Operating Life 30,000hrs, IEC Certified. Note: Refer light fixtures drawings/Schedule for complete light fixtures details. 15-20 W Surface/ ceiling Mounted LED downlight with bult in integrated driver and frosted glass diffuser	No.	344	3500	1	1204000

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
580	NS-04	Supply, installation, testing & commissioning of following LED Light fixtures complete with Electronic ballast (unless mention otherwise), lamps, lamp holders,SPD, Earth Protection and mounting accessories etc., as per specification, complete in all respects, as per drawings and specification, complete in all respect. Lighting fixtures sample must be submitted to consultant for approval. PF> 0.9, CRI>80, 110 Lumens/watt. Operating Life 30,000hrs, IEC Certified. Note: Refer light fixtures drawings/Schedule for complete light fixtures details. 7-10 W Surface/ ceiling Mounted LED downlight with bult in integrated driver and frosted glass diffuser	No.	40	1950	1	78000

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
581	NS-05	Supply, installation, testing & commissioning of following LED Light fixtures complete with Electronic ballast (unless mention otherwise), lamps, lamp holders,SPD, Earth Protection and mounting accessories etc., as per specification, complete in all respects, as per drawings and specification, complete in all respect. Lighting fixtures sample must be submitted to consultant for approval. PF> 0.9, CRI>80, 110 Lumens/watt. Operating Life 30,000hrs, IEC Certified. Note: Refer light fixtures drawings/Schedule for complete light fixtures details. Outdoor type LED bulkhead wall light of minimum 1500 lumens light output, IP-55 or better rated	No.	76	6500	1	494000

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
582	NS-06	Supply, installation, testing & commissioning of following LED Light fixtures complete with Electronic ballast (unless mention otherwise), lamps, lamp holders,SPD, Earth Protection and mounting accessories etc., as per specification, complete in all respects, as per drawings and specification, complete in all respect. Lighting fixtures sample must be submitted to consultant for approval. PF> 0.9, CRI>80, 110 Lumens/watt. Operating Life 30,000hrs, IEC Certified. Note: Refer light fixtures drawings/Schedule for complete light fixtures details. Schliender as approved by the Engineer/Architect	No.	12	20000	1	240000
583	NS-07	305 mm long, 50 mm wide and 6mm thick copper busbar as ECP (Earth Connecting Point) complete with insulators, washers, nuts, bolts mounting installation and operational accessories as per site requirements.	Job	4	95500	1	382000

Sr. No	ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	RATE PER (unit basis)	AMOUNT
584	Sub-Total Cost (Non-Scheduled Items) - ELECTRICAL WORKS =						
585	Sub-Total Cost - HOUSES =						
586	OVERALL TOTAL (Infrastructure + Houses) =						
						GRAND TOTAL:	Rs385,764

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Scope of Work

The scope of works mainly comprises Civil, Electrical, Plumbing for Buildings, Infrastructure Development and related Ancillary Works lying within the boundaries and limits as shown on the drawings and any such additional areas adjacent thereto as may be designated by the Engineer from time to time for the construction to be performed under the Contract, and all such areas and additional areas shall comprise the Site.

Brief Description

The scope of works mainly comprises Civil, Electrical, Plumbing for Buildings, Infrastructure Development and related Ancillary Works lying within the boundaries and limits as shown on the drawings and any such additional areas adjacent thereto as may be designated by the Engineer from time to time for the construction to be performed under the Contract, and all such areas and additional areas shall comprise the Site.

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Price Schedule

For Individual Jobs

#	Job Title	Quantity	Unit Price (PKR)	Total Price (PKR)	Delivery Location	Delivery Period / Year	Country of Origin
1							
2							

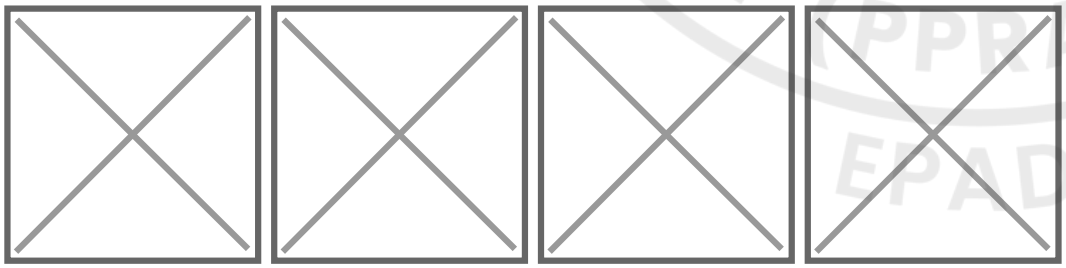
For Lots

#	Lot Title	Total Lot Price (PKR)	Country of Origin
1	[Lot 1 Title]		

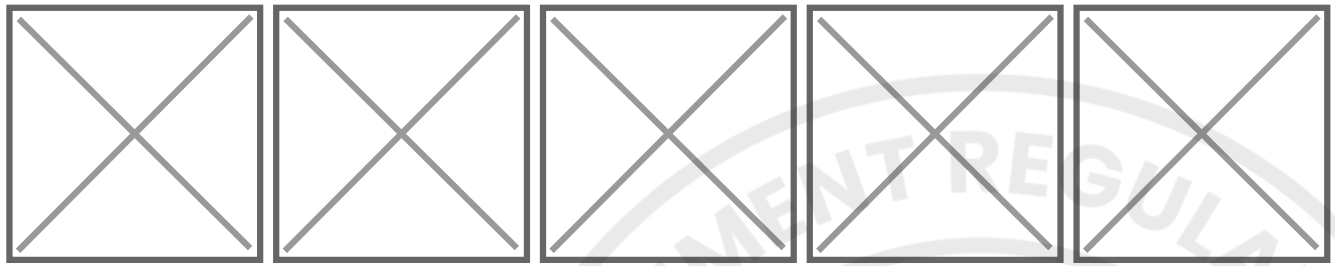
Lots Media

Lot Title : Construction of Houses and Associated Infrastructure Development for ICT Police

Job: Construction of Houses



Job: Infrastructure Development



PUBLIC PROCUREMENT REGULATORY AUTHORITY
(PPRA)
EPADS

General Conditions of Contract

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Red Book:
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The Conditions of Contract are the “General Conditions” which form part of the “Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer (“Red book”) Second edition 2017” published by the Federation Internationale Des Ingenieurs – Conseils (FIDIC) and the following “Particular Conditions” which shall complement the General Conditions of the Contract.

The successful Bidder, upon contract award, shall be required to furnish two (02) copies of aforementioned “General Conditions” for incorporation in the Works Contract.

International Federation of Consulting Engineers (FIDIC) FIDIC
Bookshop – Box- 311 – CH – 1215 Geneva 15, Switzerland
Fax: +41 22 799 49 054
Telephone: **+41 22 568 0500**
E-mail: **fidic@fidic.org**
Website: www.fidic.org
FIDIC code: ISBN13: 978-2-88432-084-9

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Special Conditions of Contract

PARTICULAR CONDITIONS OF CONTRACT (PCC)

Particular Conditions
(Mandatory Provisions not to be amended/substituted)

The Particular Conditions (PCC) complement the General Conditions (GCC) to specify dates, contractual requirements, and special circumstances related to the Works. The PCC consists of two parts, Part A - Contract Data and Part B - Special Provisions. The provisions to be found in the Special Provisions (Particular Conditions - Part B) take precedence over the equivalent provisions found under the same Sub-Clause number(s) in the General Conditions, and the provisions of the Contract Data (Particular Conditions - Part A) take precedence over the Special Provisions (Particular Conditions - Part B).

PART A - Contract Data

Sub-Clause 1.1.27
Defects Notification Period (DNP): **365** Days

Sub-Clause 1.1.31
Employer's name & address: **National Police Foundation (National Police Foundation), Assistant Director Admin Mauve Area G-10/4, Islamabad Capital Territory**

Sub-Clause 1.1.35
Engineer's name & address: National Engineering Services Pakistan (Pvt.) Limited (NESPAK)

NESPAK House, Sector-G, 5/2, P.O. Box 2461, Islamabad, Pakistan

Sub-Clause 1.1.84
Time for Completion: **119** days for whole of the works

Sub-Clause 1.3 (a)(ii)
Agreed method of electronic transmission: Not Agreed

Sub-Clause 1.3 (d)
Address of Empoyer for Communications: **Mauve Area G-10/4, Islamabad Capital Territory**
Address of Engineer for Communications:

NESPAK House, Sector-G, 5/2, P.O. Box 2461, Islamabad, Pakistan

Address of Contractor for Communications: ----------

Sub-Clause 1.4
Contract shall be governed by the law of: **Islamic Republic of Pakistan**
Ruling language: **English**
Language for communications: **English**

Sub-Clause 2.1
After receiving the Letter of Acceptance, the Contractor shall be given right of access to all or part of the Site within: **14** days after Commencement Date

Sub-Clause 2.4
Employer’s financial arrangements:

The Employer has sufficient funds to cover the Cost of the entire Project.

Sub-Clause 3.2 (e)(ii)
Engineer's Duties and Authority: **Variation resulting in an increase of the Accepted Contract Amount in excess ofone percent (1%)subject to accumulative Variations not exceeding five percent (5%)of the Accepted Contract Amount**

Sub-Clause 4.2
Performance Security (as percentage of the Accepted Contract Amount in Currencies): 0%
Form of Performance Guarantee: **Nil**

Sub-Clause 4.2.1
List of Insurance Companies:

IGI General Insurance Limited
Adamjee Insurance Company Limited
Jubilee General Insurance Company Limited
East West Insurance Company Limited

Sub-Clause 4.7.2
period for notification of errors in the items of reference: **Twenty Eight (28) days**

Sub-Clause 4.19
Period of payment for temporary utilities: **Each Month**

Sub-Clause 5.1 (a)
Maximum allowable accumulated value of work subcontracted (as a percentage of the Accepted Contract Amount): **25** %

Sub-Clause 5.1 (b)
Parts of the Works for which subcontracting is not permitted: 1

Sub-Clause 6.5
Normal working hours on the Site: **8**

Sub-Clause 8.3
Number of additional paper copies of programmes: **3**

Sub-Clause 8.8 & 14.15(b)
Delay Damages payable for each day of delay **0.10**% of the Accepted Contract Amountfor delay in completion of whole of the Works

Sub-Clause 8.8
Maximum amount of Delay Damages **10.00 %** of the Accepted Contract Amount

Sub-Clause 8.14
Applicability of Incentives for Early Completion **No**

Sub-Clause 12.3
Percentage profit (Not more than 10%): **Nil**

Sub-Clause 13.4.(b)(ii)
Percentage rate to be applied to Provisional Sums for overhead charges and profit: **Twenty Five percent**

(25%)

Sub-Clause 14.2
Total Advance Payment: **Fifteen percent (15%) of the Accepted Contract Amount excluding Provisional Sums payable in the currencies and proportions in which the Accepted Contract Amount is payable**

Sub-Clause 14.2.1
Advance Payment Insurance **Allowed**

Sub-Clause 14.2.3
Percentage deductions for the repayment of the Advance Payment: Deduction shall be made at the amortization rate of 17.5 % of the value of the Works executed of each IPC as provided in paragraph (i) of Sub-Clause GCC 14.3, starting from 2nd IPC provided that the advance payment shall be completely repaid prior to the time when 90% of the Accepted Contract Amount less Provisional Sums has been certified for payment. It may be more than 17.5% in the last instalment to ensure full repayment.

Sub-Clause 14.3
Period of payment **One Month**

Sub-Clause 14.3(b)
Number of additional paper copies of Statements: **4**

Sub-Clause 14.3 (iii)
Percentage of retention: **Seven percent (7%)**

Sub-Clause 14.3 (iii)
Limit of Retention Money (as a percentage of the Accepted Contract Amount): **Five percent (5%)**

Sub-Clause 14.5(b)(i)
Plant and Materials for payment when shipped: **Plant and Materials under Bill of "Imported Plant and Materials"**

Sub-Clause 14.5(c)(i)
Plant and Materials for payment when delivered to the Site: Plant and Non Perishable Materials

Sub-Clause 14.6.2
Minimum amount of Interim Payment Certificate (IPC): **Yes**
The Minimum Amount IPC is 10% of the Accepted Contract Amount.
[Employer to give value not exceeding one fifth of the average expected value of Interim Payment Certificate]

Sub-Clause 14.7(a)
Period of payment of Advance Payment to the Contractor**: 14 days**

Sub-Clause 14.7b(i)
Period for the Employer to make interim payments to the Contractor under Sub-Clause 14.6: **14** days

Sub-Clause 14.7b(ii)
Period for the Employer to make interim payments to the Contractor under Sub-Clause 14.13 (Final Payment)**: 28** days

Sub-Clause 14.7(c)
Period for the Employer to make final payment to the Contractor**: 56** days

Sub-Clause 14.8
Financing charges for delayed payment Local Currency (PKR):
6-Month KIBOR (Offer) +3% per annum.
Foreign Currency:
USD
6-Month SOFR (Secured Overnight Financing Rate for USD) +1% per annum.

EURO
6-Month EURIBOR (EURO Interbank Offered Rate for EURO) +1% per annum.

Others
Appropriate rates +1% (for other foreign currencies, Ref. Schedule-A, A-4 to Bid).

Sub-Clause 14.11.1(b)
Number of additional paper copies of draft Final Statements**: 4**
[insert number of copies say six (06)]

Sub-Clause 14.15
Currencies of payment of Contract Price: **as stated in the Table Schedule of Adjustment Data of Schedule A (if Given)**

Sub-Clause 14.15(a)(i)
Proportions or amounts of Local and Foreign currencies: **as stated in the Table Schedule of Adjustment Data of Schedule A (if Given)**

Sub-Clause 14.15(c)
Currencies and proportions for payment of Delay Damages: **as stated in the Table Schedule of Adjustment Data of Schedule A (if Given)**

Sub-Clause 14.15(f)
rates of exchange: **as stated in the Table IV of Schedule A (If Given)**

Sub-Clause 17.2(d)
Forces of nature, the risks of which are allocated to the Contractor: **Nil**

Sub-Clause 19.1
Permitted deductible limits:
i) insurance required for the Works: **Ten percent (10%) of loss amount on each & every loss**
ii) insurance required for Goods: **Nil**
iii) insurance required for liability for breach of professional duty: **Nil**
iv) insurance required against liability for fitness for purpose (if any is required): **Nil**
v) insurance required for injury to persons and damage to property: **Nil**
vi) insurance required for injury to employees: **Nil**
vii) other insurances required by Laws and by local practice : **Nil**

Periods for submission of insurance:
a) evidence of insurance: Not later than the Commencement Date
b) relevant policies: Within twenty eight (28) day from the Commencement Date

Sub-Clause 19.2.1(b)
Additional amount to be insured (as a percentage of the replacement value): 15% of the replacement value (Accepted Contract Amount)
Sub-Clause 19.2.2
Extent of insurance required for Goods: From Ex-Works (i.e., works, factory, warehouse, etc) to delivery at

the Site
Amount of insurance required for Goods: Full replacement value

Sub-Clause 19.2.3(a)
Amount of insurance required for liability for breach of professional duty: Full replacement value of the Works to be designed by the Contractor

Sub-Clause 19.2.3(b)
Insurance required against liability for fitness for purpose: **Yes**

Sub-Clause 19.2.3
Period of insurance required for liability for breach of professional duty: Until the date of issuance of Performance Certificate

Sub-Clause 19.2.4
Amount of insurance required for injury to persons and damage to property: Injury to person and Fatal case: in accordance with Workmen Compensation Act
Damage to Property: The Amount of Insurance Required for Person Injury is n accordance with Workmen Compensation Act
The Amount of Insurance Required for Damage to Property is PKR 1 million without limit to the number of incidents as per his assessment of the adjoining property(ies) other than the Works]
without limit to the number of incidents

Sub-Clause 19.2.6
Other insurances required by Laws and by local practice: All insurances as applicable, to the extent of execution of the project, under Federal and Provincial laws of Islamic Republic of Pakistan

Sub-Clause 21.1
Time for appointment of the DAAB: Within 28 days from the Commencement Date.
In case the Accepted Contract Amount is lesser than PKR one (01) billion, appointment of the DAAB shall be made when Dispute arises between the Parties.

Sub-Clause 21.1
The DAAB shall comprise 1
[insert either “a sole Member” or “Three Members”]
[For a Contract estimated to cost above PKR 2.5billion, the DAAB shall comprise of three members. For a Contract estimated to cost between PKR1billion and PKR2.5billion, the DAAB may comprise of three members or a sole member. For a Contract estimated to cost less than PKR1billion, a sole member is recommended.]

Sub-Clause 21.1
List of proposed members of DAAB
- proposed by Employer

to be inserted at the time of signing of the Contract]. one sole member to be appointed with mutual consent of both parties

- proposed by Contractor
[to be inserted at the time of signing of the Contract]
1._____
2._____
3._____

Sub-Clause 21.2
Appointing entity (official) for DAAB members Managing Director Public Procurement Regulatory Authority (PPRA) or Chairman Pakistan Engineering Council (PEC) from the list of PEC approved arbitrators published at its website

Sub-Clause 21.6
Rules of Arbitration: PEC Rules of Conciliation and Arbitration or Pakistan Arbitration Act of 1940, if the former is inactive.
The place of Arbitration shall be in the Employer's country: **Islamabad,Pakistan**
[Insert name of city]

Particular Conditions

PartB - Special Provisions

1.1 Definitions

1.1.76 "Specification"
Following is added at the end:
"and consists of two parts i.e.,
i) "Part A - Specific Provisions"; and
ii) "Part B - Technical Provisions"."

1.2 Interpretation

"and" is deleted from the end of sub-paragraph (i) and added at the end of sub-paragraph (j).
Sub-paragraph (k) is added:
"(k) The word "tender" is synonymous with "bid" the word tenderer with "bidder", the words "tender documents" with "bidding documents" and "Schedule of Prices" with "Bill of Quantities", as applicable."
1.5 Priority of Documents The documents listed at (a) through (k) of this Sub-Clause are deleted and substituted with the following:
(a) the Contract Agreement;
(b) the Letter of Acceptance;
(c) the Letter of Bid;
(d) the Particular Conditions Part A - Contract Data;
(e) the Particular Conditions Part B - SpecialProvisions;
(f) the General Conditions;
(g) the Specification Part A - SpecificProvisions;
(h) the Specification Part B- Technical Provisions;
(i) the Drawings;
(j) the completed Schedules to Bid includingBillof Quantities;
(k) the JV Undertaking (if the Contractor is a JV); and
(l) any other documents forming part of the Contract.
The addenda/corrigenda, if any, shall be deemed to have been incorporated at the appropriate places in the documents forming the Contract.

1.6 Contract Agreement

In the last line of the 1st paragraph the text "shall be borne by the Employer" is substituted by" shall be reimbursed by the Employer to the Contractor".

3.1 The Engineer

In sub-paragraph (a) the text “as defined in the Pakistan Engineering Council Act, 1975 (Act No.V of 1976)” are added after the words “professional engineer”.

3.2 Engineer’s Duties and Authority

The Engineer shall obtain the consent in writing of the Employer before taking action under the following Sub-Clauses of these Conditions:
(a) Consenting to the subcontracting of any part of the Works under Sub-Clause 5.1 [Subcontractors]
(b) Any action under Sub-Clauses 8.9 [Employer’s Suspension] and 8.12 [Prolonged Suspension]
(c) Issuance of “Taking Over Certificate” under Sub-Clause 10.1 [Taking Over the Works and Sections].
(d) Issuing the “Performance Certificate” under Sub-Clause 11.9 [Performance Certificate].
(e) Sub-Clause 13.1 [Right to Vary]: instructing a Variation, except;
(i) in an emergency situation as determined by the Engineer, or
(ii) if such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the Contract Data.
(f) Sub-Clause 13.3 [Variation Procedure]: approving a proposal for Variation submitted by the Contractor in accordance with Sub-Clause 13.3.2 [Variation by Request for Proposal] or 13.2 [Value Engineering].
(g) Certifying release of second half of the Retention Money under Sub-Clause 14.9 [Release of Retention Money].
(h) Issuing Final Payment Certificate under Sub-Clause 14.13 [Issue of FPC].
(i)
*[insert Sub-Clause number (not Sub-Clause 3.7 [Agreement or Determination]
Any such requirement shall not be applied to any action by the Engineer under Sub-Clause 3.7 [Agreement or Determination], as stated in Sub-Clause 3.2 [Engineer’s Duties and Authority] of the General Conditions.
Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Engineer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 13 and shall notify the Contractor accordingly, with a copy to the Employer.
Following is added after the words “the Employer’s consent is required” in 4th paragraph:
“stating that the Employer’s consent has been obtained for that specified authority”

4.2 Performance Security

4.2.1 Contractor’s Obligations
The entity issuing the Performance Security and its form shall be as under:
The Performance Security shall be, at the option of the Contractor,issuedin the prescribed form included in the Bidding Documents,by(a) a Scheduled Bank in Pakistan or (b) a foreign bank duly counter-guaranteed by a Scheduled Bank in Pakistan or (c)an Insurance Companylisted in the Contract Data and rated by PACRA/VIS ofratingas provided in Table below:
Accepted Contract Amount (In Eq. PKR million) Minimum Rating of Insurance Companies
Up to 1000 A (+)
1001 to no limit AA
In case of Joint Venture, the Performance Security shall be in the name of the Joint Venture or in the name of Lead/either firm of the JV or in ratio of shares of the individual JV partners.
Following paragraph is added at the end of this Sub-Clause:
“The amount of Performance Security shall be reducedto 50%following issue of the Taking-Over Certificate for the whole of the Works under Clause 10 of Conditions of Contract.”

4.3 Contractor's Representative

In second paragraphthe text "professional engineer as defined in the Pakistan Engineering Council Act, 1975 (Act No. V of 1976) (having temporary licence in case of foreign engineer under Section 12 of the Pakistan Engineering Council Act, 1975 (Act No. V of 1976)" are added after the words "qualified, experienced".
In the 3rd paragraph the words "28 days" are substituted by "14 days". In 2nd line of 4thparagraph the text "or appoint a replacement" is substituted by "except appointment of a suitable temporary replacement is deployed at the Site"

4.4 Contractor's Documents

4.4.2 As-Built Records
First paragraph is deleted and the text in the last paragraph is substituted with the following:
"The Contractor shall furnish to the Engineer 6 copies, one reproducible and one electronic copy(provided the Engineer has made available to the Contractor editable form of the Drawings)of all Drawings amended to conform to the Works as built.In case the Engineer does not make available to the Contractor editable form of the Drawings, the Contractor shall furnish to the Engineer as-built data for incorporation in the Drawings. Upon receipt of PDF versions of the as-built drawings prepared by the Engineer, the Contractor shall furnish to the Engineer 6copies and one reproducible of these Drawings.
The price of such Drawings shall be deemed to be included in the Contract Price."
Following Sub-Clause is added:
4.4.4 ShopDrawings
The Contractor shall submit to the Engineer for review 3 copies of all shop and erection drawings applicable to this Contract as per provision of relevant Sub-Clause of the Contract.
Review and approval by the Engineer shall not exceed 21 days and be construed as a complete check but will indicate only that the general method of construction and detailing is satisfactory and the Engineer's review or approval shall not relieve the Contractor of any of his responsibilities under the Contract.

4.8 Health and Safety Obligations

The following text is added at the end ofthis Sub-Clause:
In the event of work being carried out outside the normal working hours and in the event of work being carried out at night, the Contractor shall at his own cost, provide and maintain such good and sufficient light as will enable the work to proceed satisfactorily and without danger. The approaches to the Site and the Works where the night work is being carried out shall be sufficiently lighted. All arrangement adopted for such lighting shall be to the satisfaction of the Engineer.

4.20 Progress Reports

At the end of sub-paragraph (g) the word "and" is deleted and at the end of sub-paragraph (h) the full stop (.) is replaced with ";", and the following new sub-paragraphs are added as:
(i) planned programme for the execution of the Works for next 56 days to enable the Engineer to determine its programme of inspection and testing;
(j) monthly summery of daily job record indicating weather conditions, deployment of Contractor's Equipment, labour employment, local material procurement and material import, if any; and
(k) salient contractual and project information.

5.1 Subcontractors

Add the following text at the end of paragraph (ii):
"underSchedule to Bid"
The following is added at the end of the last paragraph of Sub-Clause 5.1:
"All subcontracts relating to the Works shall include provisions which entitle the Employer to require the subcontract to be assigned to the Employer under sub-paragraph (a) of Sub-Clause 15.2.3 [After

Termination].
The Contractor shall give reasonable opportunity to contractors from Islamic Republic of Pakistan for subcontracts for the Works, and endeavour to employ such contractors as Subcontractors."

5.2 Nominated Subcontractors

5.2.2 Objection to Nomination
In sub-paragraph (c), "and" is deleted from the end of (i);
"." at the end of (ii) is replaced with: ", and".
The following is then added as (iii):
"(iii) be paid only if and when the Contractor has received from the Employer payments for sums due under the Subcontract referred to under Sub-Clause 5.2.3 [Payment to nominated Subcontractors]."

6.1 Engagement of Staff and Labour

The following paragraph is added at the end of the Sub-Clause:
"The Contractor shall, to the extent practicable and reasonable, employ staff (not less than 50%) and labour (not less than 85%) with appropriate qualifications and experience from sources within the Islamic Republic of Pakistan."

6.7 Health and Safety of Personnel

The existing text is substituted with the following:
"In order to provide for the safety, health and welfare of persons, and for prevention of damage of any kind, all operations for the purposes of or in connection with the Contract shall be carried out in compliance with the Safety Requirements of the Government of Pakistan with such modifications thereto as the Engineer may authorize or direct and the Contractor shall take or cause to be taken such further measures and comply with such further requirements as the Engineer may determine to be reasonably necessary for such purpose. The Contractor shall also provide all other medical services and appoint a health and safety officer at Site if stated in the Specifications. In case of any fatality or serious accident, the Contractor shall, in addition, notify the Engineer immediately by the quickest available means."

6.8 Contractor's Superintendence

Insert at the end of sub-paragraph (a) of this Sub-Clause:
"or, if not, the Contractor shall make competent interpreters available during all working hours, in a number sufficient for those persons to properly perform their superintendence duties"
The following text is added at the end of this Sub-Clause:
"The Contractor's authorized representative and his other engineers working at site shall possess valid registration with the Pakistan Engineering Council.
The Contractor's authorized representative at Site shall be authorized to exercise adequate administrative and financial powers on behalf of the Contractor so as to achieve completion of the Works as per the Contract."

6.12 Key Personnel

The following is inserted at the end of the last paragraph:
"If any of the Key Personnel are not fluent in this language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer."
The following Sub-Clauses 6.13 to 6.26 are added at the end of Sub-Clause 6.12:

6.13 Foreign Personnel

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 all reasonable endeavours in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national, or government permission required for bringing in the Contractor's personnel.
The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.

6.14 Supply of Foodstuffs

The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor's Personnel for the purposes of or in connection with the Contract.

6.15 Supply of Water

The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.

6.16 Measures against Insect and Pest Nuisance

The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.

6.17 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereto by Contractor's Personnel.

6.18 Arms and Ammunition

The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.

6.19 Festivals and Religious Customs

The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.

6.20 Funeral Arrangements

The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of its local employees who may die while engaged upon the Works.

6.21 Forced Labour

The Contractor, including its Subcontractors, shall not employ or engage forced labour which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labour, such as indentured labour, bonded labour or similar labour-contracting arrangements.

6.22 Child Labour

The Contractor, including its Subcontractors, shall not employ or engage child labour in accordance with relevant law(s) in force in Islamic Republic of Pakistan.

6.23 Employment Records of Workers

The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [Contractor's Records].

6.24 Workers' Organizations

The Contractor shall comply with the relevant labour laws of Pakistan which recognize workers' rights to form and to join workers' organizations/Trade Union of their choosing and to bargain collectively without interference.

6.25 Non-Discrimination and Equal Opportunity

The Contractor shall not make decisions relating to the employment or treatment of Contractor's Personnel on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment of Contractor's Personnel on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to any aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, and disciplinary practices.
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. The Contractor shall provide protection and assistance as necessary to ensure nondiscrimination and equal opportunity, including for specific groups such as women, persons with disabilities, migrant workers and children (of working age in accordance with Sub-Clause 6.22).

6.26 Epidemics

In the event of any out-break of illness of epidemic nature, the Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government or the local medical or sanitary authorities for the purpose of overcoming the same.

7.7 Ownership of Plant and Materials

The following is added before the first paragraph:
"Except as otherwise provided in the Contract,"
The following is added at the end of the Sub-Clause:
"No Plant and/or Materials that is the property of the Employer shallbe removed from the Site. If it becomes necessary to:
(i) remove any item of such Plant from the Site for the purposesof repair, the Contractor shall give a Notice, with reasons, tothe Engineer requesting consent to remove the defective ordamaged item off the Site. This Notice shall clearly identifythe item of defective or damaged Plant, and shall give detailsof: the defect or damage to be repaired; the place to whichdefective or damaged item of Plant is to be taken for repair;the transportation to be used (and insurance cover for suchtransportation); the proposed inspections and testing off theSite; and the planned duration required before the repaireditem of Plant shall be returned to the Site. The Contractorshall also provide any further details that the Employer mayreasonably require; or
(ii) replace any item(s) of such Plant and/or Materials, theContractor shall give a Notice, with reasons, to the Engineerclearly identifying the item(s) of Plant and/or Materials to bereplaced, and giving details of the due date of delivery tothe Site of the replacement item(s).
Where any item of Plant and/or Materials has become the propertyof the Employer under this Sub-Clause

before it has been deliveredto the Site, the Contractor shall ensure that such an item is notmoved except for its delivery to the Site.
The Contractor shall indemnify and hold the Employer harmlessagainst and from the consequences of any defect in title orencumbrance or charge (except any reasonable restrictionarising from the intellectual property rights of the manufacturer orproducer) on any item of Plant and/or Materials that has becomethe property of the Employer under this Sub-Clause."
The following Sub-Clause7.9 is added after Sub Clause 7.8:

7.9 Use of Pakistani Materials and Services

The Contractor shall, so far as may be consistent with the Contract, make the maximum use of materials, supplies, plant and equipment indigenous to or produced or fabricated in Pakistan and services available in Pakistan provided such materials, supplies, plant, equipment and services shall be of required standard.

8.1 Commencement of Works

The following is added before the first paragraph:
“After signing of the Contract Agreement by both Parties,” and thereafter the word “The” is replaced with the word “the”.

8.5 Extension of Time for Completion

The following is added after paragraph (c):
“for last five years”.
The following Sub-Clause 8.14 is added after Sub-Clause 8.13:

8.14 Incentives For Early Completion

If Contract Data does not state applicability of incentives for early completion, this Sub-Clause shall not apply.
The Contractor shall be entitled subject to Sub-Clause 20.2 [Claims for Payment and/or EOT] to bonus payment if the Works and/or each Section is completed earlier than the Time for Completion for the Works or Section (as the case may be). The amount of bonus for early completion of the Works and/or each Section shall be upto a limit and at a rate to 50% of the relevant limit and rate of delay damages prescribed in Contract Data and shall be paid for every day which shall elapse between the relevant Date of Completion of the Works or Section and the relevant Time for Completion.
For the purposes of calculating any bonus payment, the applicableTime for Completion stated in the Contract Data is fixed and noadjustments of this time by reason of granting an EOT will beallowed.
The following Sub-Clause 11.12 is added after Sub-Clause 11.11:

11.12 Supervisory Assistance During DNP

If provided under the Schedule of Prices, the Contractor shall provide supervisory assistance to the Employer during the DNP for the Works. Such supervisory assistance shall be as described in the Specification for the purpose of supporting the Employer's operation and maintenance of the Plant for the period specified in the Schedule of Prices after the Date of Completion.

12.2 Method of Measurement

The following paragraph is added at the end of the Sub-Clause:
“Summary of measured quantity for payment shall be delineated item-wise under four headsnamely; “Schedule of Prices Quantity”, “Quantity Executed To-date”, “Quantity Certified Previously” and “Net Quantity Executed under this Certificate”.

12.3 Valuation of the Works

The following text is added at the end of fifth paragraph of the Sub-Clause:
“Sum of overhead charges and profit for sub-paragraph (a) shall be Twenty Five percent (25%)”.

13.4 Provisional Sums

The following paragraph is inserted as the penultimate paragraph:
“The Provisional Sum shall be used to cover the Employer’s share of the DAAB members’ fees and expenses, in accordance with Clause 21. No prior instruction of the Engineer shall be required with respect to the work of the DAAB. The Contractor shall submit the DAAB members’ invoices and the satisfactory evidence of having paid 100% of such invoices as part of the substantiation of those Statements submitted under Sub-Clause 14.3.

13.6 Adjustments for Changes in Laws

The following paragraphsare added at the end of the Sub-Clause:
“Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay has already been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the Table of Adjustment Data in accordance with the provisions of Sub-Clause 13.7 [Adjustments for Changes in Cost].”

14.1 The Contract Price

The following is added at the end of the Sub-Clause:
“Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts, imported by the Contractor for the sole purpose of executing the Contract shall be temporarily exempt from the payment of import duties and taxes upon initial importation, provided the Contractor shall post with the customs authorities at the port of entry an approved re-export bond or bank guarantee, valid until the Time for Completion plus six months, in an amount equal to the full import duties and taxes which would be payable on the assessed imported value of such Contractor's Equipment and spare parts, and callable in the event the Contractor's Equipment is not re-exported from the Country on completion of the Contract. A copy of the bond or bank guarantee endorsed by the customs authorities shall be provided by the Contractor to the Employer upon the importation of individual items of Contractor's Equipment and spare parts. Upon re-export of individual items of Contractor's Equipment or spare parts, or upon the completion of the Contract, the Contractor shall prepare, for approval by the customs authorities, an assessment of the residual value of the Contractor's Equipment and spare part to be re-exported, based on the depreciation scale(s) and other criteria used by the customs authorities for such purposes under the provisions of the applicable Laws. Import duties and taxes shall be due and payable to the customs authorities by the Contractor on (a) the difference between the initial imported value and the residual value of the Contractor's Equipment and spare parts to re-exported; and (b) on the initial imported value of the Contractor's Equipment and spare parts remaining in the Country after completion of the Contract. Upon payment of such dues within 28 days of being invoiced, the bond or bank guarantee shall be reduced or released accordingly; otherwise the security shall be called in the full amount remaining.”
[The Employer may change or delete this Sub-Clause as per Project requirements]

14.2 Advance Payment

14.2.1 Advance Payment Guarantee
The entity issuing the Advance PaymentGuaranteeand its form shall be as under:
The Advance PaymentGuarantee shall be in the form of Guarantee issued by (a) a Scheduled Bank in Pakistan or (b) a foreign bank duly counter-guaranteed by a Scheduled Bank in Pakistanor (c)an Insurance Companylisted in the Contract Data and rated by PACRA/VIS ofrating as provided in Table below:

Accepted Contract Amount (In Eq. million PKR) Minimum Rating of Insurance Companies
Up to 1000 A (+)
1001 to no limit AA
In case of Joint Venture, the Advance PaymentGuarantee(s)shall be in the name of the Joint Venture or in the name of Lead/either firm of the JV or in ratio of shares of the individual JV partners.

14.6 Issue of IPC

14.6.1 The IPC
In the first line of the 1st paragraph the words “28 days” are substituted by “14 days”.

14.7 Payment

The words “or through crossed cheque in favour of the Contractor or JV partners. The Payment to JV partners shall be made at the request of the Joint Ventures in the ratio of their shares specified by them” are added at the end of the Sub-Clause.

14.8 Delayed Payment

In the first paragraph, third line, the words “compounded monthly” are deleted.
The text of 2nd paragraph is deleted and substituted with the following:
“The Employer shall pay to the Contractor compensation at the rate stated in the Contract Data.”

14.9 Release of Retention Money

The following is added at the end of Sub-Clause 14.9:
“Unless otherwise stated in the Contract, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a guarantee, in the form annexed to the Particular Conditions or in another form approved by the Employer and issued by a schedule bank selected by the Contractor, for the second half of the Retention Money. The Contractor shall ensure that the guarantee is in the amounts and currencies of the second half of the Retention Money and is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects, as specified for the Performance Security. On receipt by the Employer of the required guarantee, the Engineer shall certify, and the Employer shall pay the second half of the Retention Money. The release of the second half of the Retention Money against a guarantee shall then be in lieu of the release after the latest of the expiry dates of the Defects Notification Periods. The Employer shall return the guarantee to the Contractor within 21 days after receiving a copy of the Performance Certificate.

If the Performance Security required under Sub-Clause 4.2 is in the form of a demand guarantee, and the amount guaranteed under them when the Taking-Over Certificate is issued is more than half of the Retention Money, then the Retention Money guarantee will not be required. If the amount guaranteed under the Performance Security when the Taking-Over Certificate is issued is less than half of the Retention Money, the Retention Money guarantee will only be required for the difference between half of the Retention Money and the amount guaranteed under the Performance Security.

15.2 Termination for Contractor’s Default

15.2.1 Notice
Following text is added at the end of sub-paragraph (h) of this Sub-Clause:
“For the purposes of this Contract, corrupt and fraudulent practices have been defined in Public Procurement Rules 2004.”
15.2.3 After Termination
The word “and” at the end of sub-paragraph (ii) of paragraph (b) is deleted the following paragraph is added

after sub-paragraph (iii):
“(iv) all Employer-Supplied Materials and/or Employer's Equipment madeavailable to the Contractor in accordance with Sub-Clause 2.6 [Employer-Supplied Materials and Employer's Equipment], and”

15.4 Payment after Termination

The following text is added at the end of this Sub-Clause:
“The Employer shall be entitled to sell any of the Contractor’s Equipment, Temporary Works and unused materials and apply the proceeds of sale towards payment of any debt due from the Contractor to the Employer under this Clause including any outstanding payments to the Subcontractors.

16.2 Termination by Contractor

16.2.1 Notice
The sub-paragraph (j) is deleted in its entirety.
At the end of sub-paragraph (i) “; or” is replaced with “.” and at the end of sub-paragraph (h) “;” is replaced with “; or”.
In sub-paragraph (f) “84 days” are replaced with “180 days” and text “for reasons not attributable to the Contractor” is added at the end.

16.3 Contractor’s Obligations After Termination

Sub-paragraph (c) is deleted and replaced with:
"(c) deliver to the Engineer all Employer-Supplied Materials and/orEmployer's Equipment made available to the Contractor in accordance with Sub-Clause 2.6 [Employer-Supplied Materials and Employer’s Equipment]; and
(d) remove all other Goods from the Site, except as necessary for safety,and leave the Site."

17.1 Responsibility for Care of the Works

After the two instances of “Goods” in the last paragraph, the words “Employer-Supplied Materials and/orEmployer's Equipment” are added.
The following Sub-Clause 17.7 is added after Sub-Clause 17.6:

17.7 Use of Employer’s Accommodation/Facilities

The Contractor shall take full responsibility for the care of the items of the Employer’s facilities and/or accommodation, if any, as detailed in the Specification, from the date of use and/or occupation by the Contractor until the date on which such use and/or occupation is re-vested in the Employer.
If any loss or damage happens to any of the above items during a time while the Contractor is responsible for its care, arising from any cause other than a cause for which the Employer is responsible or liable, the Contractor shall promptly rectify the loss or damage at the Contractor’s risk and cost.

18.1 Exceptional Events

The words “or disorder” are replaced with “disorder or sabotage” in sub-paragraph (c) of the Clause.

18.4 Consequences of an Exceptional Event

The following is added at the end of sub-paragraph (b) after deleting the “.”:
“, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Exceptional Events, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 19.2 [Insurance to be provided by the Contractor].”

18.5 Optional Termination

In sub-paragraph (c), the words “and necessarily” areadded after the words “was reasonably”.

19.1 General Requirements

Following text is added at the end of first paragraph:
“The Contractor shall immediately after the date of the Letter of Acceptance submit the draft of insurance policies for the Employer’s consent.”
Following text is added at the end of third paragraph:
“The Contractor shall, within the respective periods stated in the Contract Data submit to the Engineer and the Employer a) evidence that the insurances described in this Clause have been effected, and b) copies of policies of the insurances described in Sub-Clauses 19.2.1, 19.2.4 and 19.2.5.”

19.2 Insurance to be provided by the Contractor

19.2.5 Injury to employees
The words “sickness, disease” are deleted in the third line of first paragraph.

The following Sub-Clause is added after Sub-Clause 19.2.6:
19.2.7 Insurance Company
“The Contractor shall be obliged to place all insurances described in this Clause with insurers listed in the Contract Data and rated byPACRA/VISofrating as provided in Table below:

Accepted Contract Amount (In Eq. million PKR) Minimum Rating of Insurance Companies
Up to 1000 A (+)
1001 to no limit AA

21.6 Arbitration

The word “international” is deleted in the sixth line of first paragraph. The text of sub-paragraph (a) is substituted with the following:
“the Dispute shall be finally settled under the Rules of Arbitration, specified in the Contract Data;”
The following Clauses are added after Clause 21

22 Custom Duty

[Employer may incorporate provisions where applicable. However, in order to make the bid more balanced, the payment of Customs Duties should be the responsibility of the Employer.]

23 Taxes

The Contractor, Subcontractors and their employees shall be liable to pay income tax, withholding tax, super tax and other taxes on income arising out of the Contract. The rates and prices as stated in the contract shall be deemed to cover all such taxes.

24 Integrity Part

If it is found and established at any stage that the Contractor or any of his Subcontractors, agents or servants have violated or involved in violation of the Integrity Pact signed by the Contractor then the Employer shall be entitled to :
(a) recover from the Contractor an amount equivalent to ten times the sum of any commission, gratification, bribe, finder’s fee or kickback given by the Contractor or any of his Subcontractors, agent or servants;
(b) terminate the Contract; and
(c) recover from the Contractor any loss or damage to the Employer as a result of such termination or of

any other corrupt business practices of the Contractor or any of his Subcontractors, agent or servants.
The termination under sub-paragraph(b) of this Sub-Clause shall proceed in the manner prescribed under Sub-Clause 15.1 to 15.4 and the payment under Sub-Clause 15.4 shall be made after having deducted the amounts due to the Employer under sub-paragraph(a) and (c) of this Sub-Clause.
Appendix General Conditions of Dispute Avoidance/Adjudication Agreement

12 Disputes Under DAAB Agreement

In the first paragraph, third, fourth and fifth line, the text “under the Rules of Arbitration of the International Chamber of Commerce 2017……shall apply” is substituted with “under the Arbitration Act 1940 by sole arbitrator appointed by the Managing Director Public Procurement Regulatory Authority or Chairman Pakistan Engineering Council.”

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Bid Securing Declaration

FORM OF BID SECURING DECLARATION

Date:
No.:
Alternative No.: ***P183357***

To: **National Police Foundation (National Police Foundation), Assistant Director Admin Mauve Area G-10/4, Islamabad Capital Territory**

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 be blacklisted and henceforth cross debarred for participating in respective category of public procurement proceedings for a period of (not more than) six months, if fail to abide with a bid securing declaration, however without indulging in corrupt and fraudulent practices, 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) having been notified of the acceptance of our Bid by the Procuring agency/Employer during the period of Bid validity, (i) fail or refuse to sign the Contract; or (ii) fail or refuse to furnish the Performance Security (or guarantee), if required, in accordance with the ITB.

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) twenty-eight days after the expiration of our Bid.

Name of the Bidder*
Name of the person duly authorized to sign the Bid on behalf of the Bidder** _____
Title of the person signing the Bid _____
Signature of the person named above _____
Date signed _____ day of _____, _____
*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder
**: Person signing the Bid shall have the power of attorney given by the Bidder attached to the Bid

[Note: In case of a Joint Venture, the Bid-Securing Declaration must be in the name of all members to the Joint Venture that submits the Bid.]

Contract Form

FORM OF CONTRACT AGREEMENT

THIS CONTRACT AGREEMENT (hereinafter called the "Agreement") made on the _____ day of _____ (month) 20_____ between **National Police Foundation (National Police Foundation), Assistant Director Admin Mauve Area G-10/4, Islamabad Capital Territory** (hereinafter called the "Employer") of the one part and _____ (hereinafter called the "Contractor") of the other part.

WHEREAS the Employer is desirous that certain Works, viz., **Construction of Houses and Associated Infrastructure Development for ICT Police (*P183357*)** should be executed by the Contractor and has accepted a Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW this Agreement witnessed as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.

2. The following documents, in the order of priority, after incorporating addenda, if any, except those parts relating to Instructions to Bidders shall be deemed to form and be read and construed as part of this Agreement:

a) This Contract Agreement;
b) The Letter of Acceptance;
c) The Letter of Bid;
d) The Particular Conditions Part A - Contract Data;
e) The Particular Conditions Part B - SpecialProvisions;
f) The General Conditions;
g) The Specifications Part A - SpecificProvisions;
h) The Specifications Part B- Technical Provisions;
i) The Drawings;
j) The Completed Schedules to Bid including Schedule of Prices;
k) the JV Undertaking (if the Contractor is a JV); and
l) [Employer to insert any other documents forming part of the Contract]

The addenda/corrigenda,if any, (Excluding part relating to Instructions to Bidders alongwith Bidding Data) shall be deemed to have been incorporated at the appropriate places in the "Documents forming the Contract".

3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy defects therein in conformity and 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 as per provisions of the Contract, 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 on the day, month and year first before written in accordance with their respective laws.

Signature of the Contactor Signature of Employer

(Seal) (Seal)

Signed, Sealed and Delivered in the presence of:

Witness Witness

(Name, Title and Address) (Name, Title and Address)

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

DAAB Agreement

[All italicised text and any text within square brackets (except sub-clause headings) in this form of agreement is for use in preparing the form and should be deleted from the final product].

Name and details of the Contract Construction of Houses and Associated Infrastructure Development for ICT Police

_____

This Agreement made the _____day of _____ [month], _____ [year], between

Name and contact details of the Employer **National Police Foundation (National Police Foundation), Assistant Director Admin**
Mauve Area G-10/4, Islamabad Capital Territory
+92-333-101-7652
procurement@npf.org.pk

Name and contact details of the Contractor _____ (name)
_____ (address)
_____ (telephone)
_____(email / other contact details);

Name and contact details of the DAAB Member _____ (name)
_____ (address)
_____ (telephone)
_____(email / other contact details);

("DAAB Agreement")

Whereas:
A. the Employer and the Contractor have entered (or intend to enter) into the Contract;
B. under the Contract, the "DAAB" or "Dispute Avoidance/Adjudication Board" means the sole member or three members (as stated in the Contract Data of the Contract) so named in the Contract, or appointed under Sub-Clause 21.1 [Constitution of the DAAB] or Sub-Clause 21.2 [Failure to Appoint DAAB Members] of the Conditions of Contract;
C. the Employer and the Contractor desire jointly to appoint the above-named DAAB Member to act on the DAAB as:
a. the sole member of the DAAB, and where this is the case, all references to the "Other Members" do not apply; or
b. one of three members / chairman [delete the one which is not applicable] of the DAAB and, where this is the case, the other two persons are:

_____ (name) _____ (name)
_____ (address) _____ (address)
_____(telephone) _____(telephone)
_____(email/ other contact details) _____ (email/other contact details)

the "**Other Members**"; and
D. the DAAB Member accepts this appointment.

The Employer, Contractor and DAAB Member jointly agree as follows:

1. The conditions of this DAAB Agreement comprise:
(a) Clause 21 [Disputes and Arbitration] of the Conditions of Contract, and any other provisions of the Contract that are applicable to the DAAB's Activities; and
(b) the "General Conditions of Dispute Avoidance/Adjudication Agreement", which is appended to the General Conditions of the "Conditions of Contract for Construction" Second Edition 2017 published by FIDIC ("GCs"), as amended and/or added to by the following provisions.
2. [Details of amendments to the GCs, if any. For example:
In the procedural rules annexed to the GCs, Rule _ is deleted and replaced by: " … "]
3. The DAAB Member shall be paid in accordance with Clause 9 of the GCs. The currency of payment shall be _____.
In respect of Sub-Clauses 9.1 and 9.2 of the GCs, the amounts of the DAAB Member's monthly fee and daily fee shall be:
monthly fee_____ per month, and
daily fee of_____ per day
(or as otherwise set under Sub-Clause 9.3 of the GCs).
4. In consideration of the above fees, and other payments to be made to the DAAB Member in accordance with the GCs, the DAAB Member undertakes to act as DAAB Member in accordance with the terms of this DAAB Agreement.
5. The Employer and the Contractor shall be jointly and severally liable for the DAAB Member's fees and other payments to be made to the DAAB Member in accordance with the GCs.
6. This DAAB Agreement shall be governed by the law of _____ (if not stated, the law that governs the Contract under Sub-Clause 1.4 of the Conditions of Contract).

SIGNED by:_____	SIGNED by:_____	SIGNED by:_____
Print name:_____	Print name:_____	DAAB Member
Title: _____	Title:_____	Title:_____
for and on behalf of the Employer	for and on behalf of the Contractor	
in the presence of	in the presence of	in the presence of
Witness:_____	Witness:_____	Witness:_____
Name:_____	Name:_____	Name:_____
Address:_____	Address:_____	Address:_____
_____	_____	_____
Date:_____	Date:_____	Date:_____

FORM OF MOBILIZATION ADVANCE GUARANTEE/ BOND

Guarantee No._____ Date _____

WHEREAS _____ (hereinafter called the 'Employer')
has entered into a Contract for _____
(Particulars of Contract)
with _____ (hereinafter called the "Contractor').
AND WHEREAS, the Employer has agreed to advance to the Contractor, at the Contractor's request, an amount of Pak Rupees _____ (PKR _____) which amount shall be advanced to the Contractor as per provisions of the Contract.
AND WHEREAS, the Employer has asked the Contractor to furnish Guarantee to secure the mobilization advance for the performance of his obligations under the said Contract.
AND WHEREAS, _____

(hereinafter called the “Guarantor”) at the request of the Contractor and in consideration of theEmployer agreeing to make the above advance to the Contractor, has agreed to furnish the said Guarantee.
NOW, THEREFORE, the Guarantor hereby guarantees that the Contractor shall use the advance for the purpose of above mentioned Contract and if he fails and commits default in fulfilment of any of his obligations for which the advance payment is made, the Guarantor shall be liable to the Employer for payment not exceeding the aforementioned amount.
Notice in writing of any default,on the part of the Contractor, of which the Employer at his discretion of making decision, shall be given by the Employer to the Guarantor, and on such first written demand, payment shall be made by the Guarantor of all sums then due under this Guarantee without any reference to the Contractor and without any objection.
This Guarantee shall remain in force until the advance is fully adjusted against payments from the Interim Payment Certificates of the Contractor or until _____whichever is earlier.
(Date)
The Guarantor's liability under this Guarantee shall not in any case exceed the sum of
PKR _____ (PakRupees _____).
This Guarantee shall remain valid up to the aforesaid date and shall be null and void after the aforesaid date or earlier if the advance made to the Contractor is fully adjusted against paymentsfrom Interim Payment Certificates of the Contractor provided that the Guarantor

agrees that the aforesaid period of validity shall be deemed to be extended if on the above mentioned date the advance payment is not fully adjusted.

Guarantor
(Scheduled Bank/ Insurance Company)

Signature _____
Name _____
Title _____

WITNESS:

1. _____

_____

Corporate Secretary (Seal) Corporate Guarantor (Seal)

2. _____

_____

Name, Title & Address

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Retention Money Security
Demand Guarantee

_____ [Guarantor letterhead or SWIFT identifier code]
Beneficiary: _____ [Insert name and Address of Employer]
Date: _____[Insert date of issue]
RETENTION MONEY GUARANTEE No.: [Insert guarantee reference number]
Guarantor: [Insert name and address of place of issue, unless indicated in the letterhead]

We have been informed that _____ [insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture] (hereinafter called "the Contractor") has entered into Contract No. _____ [insert reference number of the contract] dated _____ with the Employer, for the execution of _____ [insert name of contract and brief description of Works] (hereinafter called "the Contract").
Furthermore, we understand that, according to the conditions of the Contract, the Employer retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, payment of [insert the second half of the Retention Money orifthe amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and, if required, the ES Performance Security] is to be made against a Retention Money guarantee.
At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ [insert amount in figures] () [amount in words] upon receipt by us of the Employer's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without your needing to prove or show grounds for your demand or the sum specified therein.
A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Employer's bank stating that the second half of the Retention Money as referred to above has been credited to the contractor on its account number _____ at _____ [insert name and address of Contractor's bank].
This guarantee shall expire no later than the …. day of ……, 2…, and any demand for payment under it must be received by us at the office indicated above on or before that date.

_____
[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

Integrity Pact

Integrity Pact

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC. PAYABLE BYTHE SUPPLIERS OF GOODS, SERVICES & WORKS IN CONTRACTS WORTH RS.10.00 MILLION OR MORE

Contract Number: Contract Value: Contract Title:

Dated:

[Name of Supplier] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GoP) through any corrupt business practice.

Without limiting the generality of the foregoing [Name of Supplier] represents and warrants that it has fully declared the brokerage, commission, fee etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultations fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP, except that which has been expressly declared pursuant hereto.

[Name of Supplier] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GoP and has not taken any action or will not take any action to circumvent the above declaration, representative or warranty.

[Name of Supplier] accepts full responsibility and strict liability for making and false declaration, not making full disclosure, misrepresenting fact or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard, [Name of Supplier] agrees to indemnify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten time the sum of any commission, gratification, bribe, finder's fee or kickback given by [Name of Supplier] as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP.

Name of Employer: …… Name of Bidder/Contractor: ……
Signature: …… Signature: …….
[Seal] [Seal]

Performance Guarantee Form

FORM OF PERFORMANCE SECURITY

Guarantee No._____
Executed on _____
Expiry date _____

Name of Guarantor with address: _____

Name of Principal (Contractor) with address:_____

Penal Sum of Security (express in words and figures) _____

Letter of Acceptance No. _____Dated _____

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bidding Documents and above said Letter of Acceptance (hereinafter called the Documents) and at the request of the said Principal we, the Guarantor above named, are held and firmly bound unto the **National Police Foundation (National Police Foundation), Assistant Director Admin Mauve Area G-10/4, Islamabad Capital Territory** (hereinafter called the Employer) in the penal sum of the amount stated above for the payment of which sum well and truly to be made to the said Employer, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has accepted the Employer's above said Letter of Acceptance for _____ _____

(Name of Contract) for the **Construction of Houses and Associated Infrastructure Development for ICT Police** (**P183357**)
_____ (Name of Project).

NOW THEREFORE, if the Principal (Contractor) shall well and truly perform and fulfill all the undertakings, covenants, terms and conditions of the said Documents during the original terms of the said Documents and any extensions thereof that may be granted by the Employer, with or without notice to the Guarantor, which notice is, hereby, waived and shall also well and truly perform and fulfill all the undertakings, covenants terms and conditions of the Contract and of any and all modifications of said Documents that may hereafter be made, notice of which modifications to the Guarantor being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue till all requirements of Clause11, Defects After Taking Over, of Conditions of Contract are fulfilled.

Our total liability under this Guarantee is limited to the sum stated above and it is a condition of any liability attaching to us under this Guarantee that the claim for payment in writing shall be received by us within the validity period of this Guarantee, failing which we shall be discharged of our liability, if any, under this Guarantee.

We, _____ (the Guarantor), waiving all objections and defense under the Contract, do hereby irrevocably and independently guarantee to pay to the Employer without delay upon the Employer's first written demand without cavil or arguments and without requiring the Employer to prove or to show grounds or reasons for such demand any sum or sums up to the amount stated

above, against the Employer's written declaration that the Principal has refused or failed to perform the obligations under the Contract which payment will be effected by the Guarantor to Employer's designated Bank & Account Number.

PROVIDED ALSO THAT the Employer shall decide, whether the Principal (Contractor) has duly performed his obligations under the Contract or has defaulted in fulfilling said obligations and the Guarantor shall pay without objection any sum or sums up to the amount stated above upon first written demand from the Employer forthwith and without any reference to the Principal or any other person.

IN WITNESS WHEREOF, the above-bounden Guarantor has executed this Instrument under its seal on the date indicated above, the name and corporate seal of the Guarantor being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Guarantor
(Schedule Bank/ Insurance Company)
Signature: _____
Name: _____
Title: _____

Corporate Guarantor (Seal)

WITNESS:

1.
_____
_____

2.

_____
_____
Name, Title & Address

Annexure

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Volume - I - B.Docs Infra & 1-K Houses NPF

Technical Submission (Vendor)

Document Required

See Form Under Additional Forms and Documents: **Volume - I - B.Docs Infra & 1-K Houses NPF** (page number: 243)

Volume-II SP & Specs

Technical Submission (Vendor)

Document Required

See Form Under Additional Forms and Documents: **Volume-II SP & Specs** (page number: 388)

Volume-III Drawings 1

Information (Read-Only)

See Form Under Additional Forms and Documents: **Volume-III Drawings 1** (page number: 600)

Volume-III Drawings 2

Information (Read-Only)

See Form Under Additional Forms and Documents: **Volume-III Drawings 2** (page number: 627)

Volume - IV - Price Bid - Fin Letter

Financial Submission (Vendor)

Document Required

See Form Under Additional Forms and Documents: **Volume - IV - Price Bid - Fin Letter** (page number: 654)

Procurement Forms

Past Construction Experiences

See Form Under Additional Forms and Documents: **Past Construction Experiences** (page number: 662)

Contractor's Key Personnel Representative and Their Schedules

See Form Under Additional Forms and Documents: **Contractor's Key Personnel Representative and Their Schedules** (page number: 668)

Financial Resources

See Form Under Additional Forms and Documents: **Financial Resources** (page number: 672)

Past Experience and Completed Contracts

See Form Under Additional Forms and Documents: **Past Experience and Completed Contracts** (page number: 673)

Historical Contract Non-Performance, and Pending Litigation and Litigation History

See Form Under Additional Forms and Documents: **Historical Contract Non-Performance, and Pending Litigation and Litigation History** (page number: 674)

Current Contracts and Their Progress

See Form Under Additional Forms and Documents: **Current Contracts and Their Progress** (page number: 676)

Financial Capacity and Net Worth Evaluation Form

See Form Under Additional Forms and Documents: **Financial Capacity and Net Worth Evaluation Form** (page number: 677)

Average Annual Turnover

See Form Under Additional Forms and Documents: **Average Annual Turnover** (page number: 679)

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

PUBLIC PROCUREMENT REGULATORY AUTHORITY
(PPRA)
EPADS

Additional Forms and Documents

NATIONAL POLICE FOUNDATION

GOVERNMENT PAKISTAN

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD

CONSTRUCTION OF INFRASTRUCTURE WORKS & 1-KANAL HOUSES

TECHNICAL BID

BIDDING DOCUMENT VOLUME – I

OCTOBER, 2026

National Engineering Services Pakistan (Pvt) Limited
NESPAK House Sector G-5/2, Islamabad, Pakistan
Phone: +92-51-9221910 - 13 Fax: +92-51-9221914
Email: Islamabad@nespak.com.pk
http://www.nespak.com.pk

Clearance Code	SA578/321/BD/60(26)	Doc No.	2	Rev No.	2

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SECTION I: INVITATION FOR BIDS

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NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD CONSTRUCTION OF INFRASTRUCTURE WORKS & 1-KANAL HOUSES

Invitation For Bids

Date: ……..

1. This Invitation for Bids follows the Procurement Notice (PN) or Procurement Advertisement (PA) No. ---------- for the subject Project/Procurement which appeared in [*insert media*] ---------- vide dated [*insert dates of issue of PN/PA*] ---------- and on EPADS.

2. The Procuring agency/Employer has reserved the funds for the procurement planned during the financial year 2026-27. It is intended that part of the proceeds of the funds will be used to cover eligible payment under the contract for the ICT POLICE ACCOMMODATION PROJECT ISLAMABAD – CONSTRUCTION OF INFRASTRUCTURE WORKS & 1-KANAL HOUSES.

3. National Police Foundation (NPF), Islamabad now invites bids from eligible bidders for the subject Contract.

4. The bidding shall be conducted in line with the procedure of the Rule 27(b) Single Stage–two envelop procedure prescribed under Public Procurement Rules 2026, e-Pak Procurement Regulations, 2023 and any Regulations, Regulatory Guides, Procurement Guidelines or Instructions issued by the Authority (from time to time), and is open to all potential bidders registered in the EPADS.

5. All bids must be accompanied by a Bid Security at the option of the bidder, in the form of Call Deposit Receipt (CDR)/ Pay Order or a Bank Guarantee issued by a Scheduled Bank in Pakistan or from a foreign bank duly counter guaranteed by a Scheduled Bank in Pakistan in favor of the Employer in the amount of **PKR. 7.5 million**.

6. The electronic bids prepared in accordance with the instructions prescribed in the electronic bidding documents must be submitted through EPADS on or before *[mention bid closing date and time] ----------*. Electronic bids will be opened by using EPADS on the same day at *[mention bid opening time at least 30 minutes after bid closing time].*

7. A Pre-Bid meeting will be held in the office of _____ on _____ 2026 at 1100 hrs.

8. National Police Foundation (NPF), Islamabad reserves the right to reject all Bids as per Rule 45 of Public Procurement Rules, 2026.

Director In Chief
National Police Foundation (NPF)
Mauve Area, G-10/4, Islamabad.
Ph: 051 2350158 2350100 Fax: 051 9106188

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SECTION II: INSTRUCTION TO BIDDERS (ITBs)

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A. INTRODUCTION

1. Scope of Bid	1.1	The Procuring agency/Employer (PA), as indicated in the **Bid Data Sheet** (BDS) invites Bids for the execution of Works as specified in the BDS and **Section V- Works Requirements**. The name, identification, and number of lots (contracts) of this National/ International Competitive Bidding process are specified in the BDS.
2. Source of Funds	2.1	Source of funds as referred in Bid Data Sheet.
3. Eligible Bidders	3.1	A bidder may be natural person, company or firm or public or semi-public agency of Pakistan or any foreign country**,** or any combination of them with a formal existing agreement (on Judicial Papers) in the form of a joint venture or consortium. In the case of a joint venture or consortium, all members shall be jointly and severally liable for the execution of the Contract in accordance with the terms and conditions of the Contract. The joint venture or consortium shall nominate a Lead Member as nominated in the BDS, who shall have the authority to conduct all business for and on behalf of any and all the members of the joint venture or consortium during the Bidding process, and in case of award of contract, during the execution of contract. *(The limit on the number of members of JV or Consortium may be prescribed in BDS, in accordance with the guidelines issued by the PPRA)*.
	3.2	The appointment of Lead Member in the joint venture or consortium shall be confirmed by submission of a valid Power of Attorney to the Procuring agency/Employer
	3.3	Verifiable copy of the agreement that forms a joint venture or consortium shall be required to be submitted as part of the Bid.
	3.4	Any bid submitted by the joint venture or consortium shall indicate the part of proposed contract to be performed by each party and each party shall be evaluated (or post qualified if required) with respect to its contribution only, and the responsibilities of each party shall not be substantially altered without prior written approval of the Procuring agency/Employer and in line with any instructions issued by the Authority.
	3.5	The invitation for bids is open to all prospective bidders subject to any provisions of incorporation or licensing by the respective national/ international incorporating agency or statutory body established for that particular trade or business.
	3.6 .	Foreign Bidders must be locally registered with the appropriate national incorporating body or the statutory body, before participating in the national/international competitive

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		bidding with the exception of such procurements made by the foreign missions of Pakistan. For such purpose the bidder must have to initiate the registration process before the bid submission and the necessary evidence shall be submitted to the Procuring agency/Employer along with their bid, however, the final award will be subject to the complete registration process.
	3.7	A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidders may be considered to have a conflict of interest with one or more parties in this Bidding process, if they: a) are associated or have been associated in the past, directly or indirectly with a firm or any of its affiliates which have been engaged by the Procuring agency/Employer to provide consulting services for the preparation of design or technical specifications of the works that are the subject of the bid; or b) any of its affiliates has been hired (or is proposed to be hired) by the Procuring agency/Employer as Engineer for the Contract implementation; or c) The works to be executed are resulting from or directly related to consulting services for the preparation or implementation of the project that the bidder provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm; d) have controlling shareholders in common; or e) receive or have received any direct or indirect subsidy from any of them; or f) have the same legal representative for purposes of this Bid; or g) have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another bidder, or influence the decisions of the Procuring agency/Employer regarding this Bidding process; or h) Submit more than one bid in this bidding process.
	3.8	A Bidder may be ineligible if – (a) he is declared bankrupt or, in the case of company or firm, insolvent; (b) payments in favor of the bidder is suspended in accordance with the judgment of a court of law other than a judgment declaring bankruptcy and resulting (in accordance with the national laws) in the total or partial loss of the right to administer and dispose of its property;

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		(c) legal proceedings are instituted against such bidder involving an order suspending payments and which may result, in accordance with the national laws, in a declaration of bankruptcy or in any other situation entailing the total or partial loss of the right to administer and dispose of the property; (d) the bidder is convicted, by a final judgment of a Court of Law or relevant Professional Statuary Body, of any offence involving professional conduct; (e) The bidder is debarred/ blacklisted by a national level Procuring agency/Employer and hence debarred due to involvement in corrupt and fraudulent practices, or performance failure or due to breach of bid securing declaration. (f) The bidder is blacklisted or debarred by a foreign country, international organization, or other foreign institutions for the period defined by them.
	3.9	Bidders shall provide to the Procuring agency/Employer evidence of their eligibility, proof of compliance with the necessary legal requirements to carry out the contract effectively.
	3.10	Bidders shall provide such evidence of their continued eligibility to the satisfaction of the Procuring agency/Employer, as the Procuring agency/Employer shall reasonably request.
	3.11	Bidders shall submit proposal relating to the nature, conditions and modalities of sub-contracting wherever the sub-contracting of any elements of the contract is envisaged.
4. Eligible Material and Equipment	4.1	All the material and equipment to be mobilized under the contract shall have their origin in eligible source countries, and all expenditures made under the contract will be limited to such materials and equipment. For this purpose, ineligible countries are stated in the section-IV titled as “Eligible Countries”.
	4.2	For purposes of this Clause, “origin” means the place where the material, equipment is produced, manufactured, or processed, or through manufacture, procession, or assembly, another commercially recognized article results that differs substantially in its basic characteristics from its imported components or the place from where the services are/to be supplied.
	4.3	The nationality of the bidder shall not determine the origin of the material and equipment.
	4.4	To establish the eligibility of the material and equipment, Bidders shall fill the country-of-origin declarations included in the Form of Bid.

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5. One Bid per Bidder	5.1	A bidder shall submit only one bid, in the same bidding process, either individually as a bidder or as a member in a joint venture or any similar arrangement.
	5.2	No bidder can be a sub-contractor while submitting a bid individually or as a member of a joint venture in the same bidding process.
6. Cost of Bidding	6.1	The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Procuring agency/Employer shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

B. BIDDING DOCUMENTS

7. Contents of Bidding Documents	7.1	The scope of Works, bidding procedures, and terms and conditions of the contract are prescribed in the bidding documents. In addition to the Invitation for Bids, the bidding documents which should be read in conjunction with any addenda issued in accordance with **ITB 9.2** include: **Section I -**Invitation for Bids **Section II** Instructions to Bidders (ITBs) **Section III** Bid Data Sheet (BDS) **Section IV** Eligible Countries **Section V** Works Requirements Technical Specifications & Schedule of Requirements **Section VI** Standard Bidding Forms **Section VII** General Conditions of Contract (GCC) **Section VIII** Special Conditions of Contract (SCC) **Section IX** Contract Forms
	7.2	The number of copies to be completed and submitted with the Bid is specified in the **BDS.**
	7.3	The Procuring agency/Employer is not responsible for the completeness of the bidding documents and their addenda, if they were not obtained directly from the Procuring agency/Employer or the signed pdf version downloaded from the website of the Procuring agency/Employer or the Authority's website or e-Procurement System as the case may be. However, Procuring agency/Employer shall place both the pdf and editable version of the same on its website and Authority's website or e-Procurement System to facilitate the bidder for filling the standard bidding forms.
	7.4	The bidder is expected to examine all instructions, forms, specifications, terms and conditions prescribed in the bidding documents. Failure to furnish all the information required in the bidding documents will be at the bidder's risk and may result in the rejection of his bid.

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8. Clarification of Bidding Document, Pre-bid Meeting	8.1	A prospective bidder requiring any clarification of the bidding document may notify the Procuring agency/Employer in writing or in electronic form that provides record of the contents of communication at the Procuring agency/Employer's address indicated in the **BDS.**
	8.2	The Procuring agency/Employer will within three (3) working days after receiving the request for clarification, respond in writing or in electronic form to any request for clarification provided that such request is received not later than three (03) days prior to the deadline for the submission of Bids as prescribed in **ITB 24.1.** However, this clause shall not apply in case of alternate methods of procurement.
	8.3	Copies of the Procuring agency/Employer's response will be forwarded to all identified prospective bidders through an identified source of communication, including a description of the inquiry, but without specifying its source. In case of downloading of the bidding documents from the website of Procuring agency/Employer or e-Procurement System, the response of all such queries will also be available on the same platform available at the website.
	8.4	Should the Procuring agency/Employer deem it necessary to amend the bidding documents as a result of a clarification, it shall do so following the procedure as prescribed under **ITB 09.**
	8.5	If indicated **in the BDS**, the bidder's designated representative is invited at the bidder's cost to attend a pre-bid meeting at the place, date and time mentioned in the **BDS**. During this pre-bid meeting, prospective bidders may request clarification of the schedule of requirement, the evaluation criteria or any other aspects of the bidding documents.
	8.6	Minutes of the pre-bid meeting, if applicable, including the text of the questions asked by bidders, including those during the meeting (without identifying the source) and the responses given, together with any responses prepared after the meeting will be transmitted promptly to all prospective bidders who have obtained the bidding documents. Any modification to the bidding documents that may become necessary as a result of the pre-bid meeting shall be made by the Procuring agency/Employer exclusively through the use of an Addendum pursuant to **ITB 9.** Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.
	8.7	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

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		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.
	8.8	The bidder and any of its authorized personnel will be granted permission by the Procuring agency/Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the bidder and its personnel will release and indemnify the Procuring agency/Employer 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.
9. Amendment of Bidding Documents	9.1	Before the deadline for submission of bids, the Procuring agency/Employer for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder or pre-bid meeting may modify the bidding documents by issuing addenda.
	9.2	Any addendum issued including the notice of any extension of the deadline shall be part of the bidding documents pursuant to **ITB 7.1** and shall be communicated in a timely manner and on equal opportunity basis. Where notification of such change, addition, modification or deletion becomes essential, such notification shall be made in a manner similar to the original advertisement. *Provided that the bidder who had either already submitted their bid or handed over the bid to the courier prior to the issuance of any such addendum shall have the right to withdraw his already filed bid and submit the revised bid prior to the original or extended bid submission deadline.*
	9.3	To give prospective bidders reasonable time in which to take an addendum/corrigendum into account in preparing their bids, the Procuring agency/Employer may, at its discretion, extend the deadline for the submission of bids: *Provided that the Procuring agency/Employer shall extend the deadline for submission of bid, if such an addendum is issued within last three (03) days of the bid submission deadline.*

C. PREPARATION OF BIDS

10. Language of Bid	10.1	The bid prepared by the bidder, as well as all correspondence and documents relating to the bid exchanged by the bidder and the Procuring agency/Employer shall be written in the English language unless specified in the B**DS.** Supporting documents and printed literature furnished by the bidder may be in another language provided they are accompanied by an accurate

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		translation of the relevant pages in the English language unless specified in the **BDS**, in which case, for purposes of interpretation of the bidder, the translation shall govern.
11. Documents Establishing Eligibility of Material, Equipment and Works, their Conformity to Bidding Documents	11.1	The bid prepared by the bidder shall constitute the following components: - a) Documentary evidence established in accordance with **ITB 11** that the material, equipment and services to be provided by the Bidder are eligible material, equipment and services, and conform to the Bidding Documents; b) Documentary evidence established in accordance with **ITB 12** that the bidder has been authorized to carry out the Construction works; c) Documentary evidence established in accordance with **ITB 12** that the bidder is eligible and/or qualified for the subject bidding process; d) Form of Bid and Bid Prices completed in accordance with **ITB 14 and 15;** e) Completed schedules as required, including priced Bill of Quantities in accordance with **ITB 13 & 15.** f) Technical Proposal completed in all aspects in accordance with **ITB-17**. g) Bid security or Bid Securing Declaration furnished in accordance with **ITB 19;** h) Alternative bids, if permisible, in accordance with **ITB 20;** i) Duly Notarized Power of Attorney authorizing the signatory of the Bidder to submit the bid**;** and j) Any other document required in the **BDS**.
	11.2	In addition to the requirements, bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all members and submitted with the bid, together with a copy of the proposed Agreement.
	11.3	The bidder shall furnish, as part of its bid, all those documents establishing the eligibility in conformity to the terms and conditions specified in the bidding documents for all material, equipment and works which the bidder proposes to execute.
	11.4	The documentary evidence of conformity of the material, equipment and works to the Bidding Documents may be in the form of literature, drawings, and data, and shall consist of: a) a detailed description of the work methodology, approach, schedule and resources to be mobilized at site;

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		b) an item-by-item commentary on the Procuring agency/Employer's Technical Specifications demonstrating substantial responsiveness of the material, equipment and works to those specifications, or a statement of deviations and exceptions to the provisions of the Technical Specifications; c) any other procurement specific documentation requirement as stated in the **BDS**.
	11.5	The required documents and other accompanying documents must be in English. In case any other language than English is used the pertinent translation into English shall be attached to the original version.
12. Documents Establishing Eligibility and Qualification of the Bidder	12.1	The bidder shall furnish, as part of its bid, all those documents establishing the bidder's eligibility to participate in the bidding process and/or its qualification to perform the contract if its bid is accepted.
	12.2	The documentary evidence of the bidder's eligibility to bid shall establish to the satisfaction of the Procuring agency/Employer that the bidder, at the time of submission of its bid, is from an eligible country as defined in Section-IV titled as "Eligible Countries".
	12.3	The documentary evidence of the bidder's qualification to perform the contract if its bid is accepted shall establish to the satisfaction of Procuring agency/Employer that: a) The bidder has the financial and technical capability necessary to perform the Contract, meets the qualification criteria specified in Section-V, Evaluation and Qualification Criteria and **BDS**. b) In the case of a bidder not doing business within Pakistan, the bidder is or will be (if awarded the contract) represented by a local bidder (Joint Venture) in accordance with the PEC works bylaws, and in case of award of works such foreign firm is required to participate in the execution of works to carry out its obligations as prescribed in the Conditions of Contract and /or Technical Specifications. c) That the bidder meets the qualification criteria listed in Section-V, Evaluation and Qualification Criteria and **BDS.**
13. Letter of Bid and Schedules	13.1	The Letter of Bid (Technical or Financial as the case may be) and Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Standard Bid Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under **ITB 22.** All blank spaces shall be filled in with the information requested.

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14. Letter of Bid	14.1	The bidder shall fill the Letter of Bid (Technical or Financial as the case may be) furnished in the bidding documents. The Standard Bid Forms must be completed without any alterations to its format and no substitute shall be accepted.
15. Bid Prices	15.1	The bid prices quoted by the bidder in the Standard bid Forms, Bill of Quantities and in the Price Schedules shall conform to the requirements specified below or exclusively mentioned hereafter in the bidding documents.
	15.2	The bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. If a Price Schedule shows items listed but not priced, their prices shall be construed to be included in the prices of other items in the Bill of Quantities and will not be paid for separately by the Procuring agency/Employer.
	15.3	Items not listed in the Price Schedule shall be assumed not to be included in the bid, and provided that the bid is still substantially responsive in their absence or due to their nominal nature, the corresponding average price of the respective item(s) of the remaining substantially responsive bidder(s) shall be construed to be the price of those missing item(s): Provided that: a) where there is only one (substantially) responsive bidder, or b) where there is provision for alternate proposals and the respective items are not listed in the other bids, The Procuring agency/Employer may fix the price of missing items in accordance with market survey, and the same shall be considered as final price.
	15.4	The Bid price to be quoted in the Form of Bid in accordance with **ITB 15.1** shall be the total price of the bid.
	15.5	Unless otherwise specified 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.
	15.6	If so specified in **ITB 1.1**, bids may be invited for individual lots (contracts) or for any combination of lots (packages).
	15.7	Prices quoted by the Bidder shall be fixed during the bidder's performance of the contract and not subject to variation on any account. A bid submitted with an adjustable price will be treated as non-responsive and shall be rejected, pursuant to **ITB 30,** unless otherwise price adjustment is permissible under Conditions of the Contract.
	15.8	All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date

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		twenty-eight (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.
16. Currencies of Bid and Payment	16.1	The currency(ies) of the bid and the currency(ies) of payments shall be as specified in the **BDS.**
	16.2	For the purposes of comparison of bids quoted in different currencies, the price shall be converted into a single currency specified in the bidding documents. The rate of exchange shall be the selling rate, prevailing on the date of opening of (financial part of) bids specified in the bidding documents, as notified by the State Bank of Pakistan on that day.
	16.3	Bidders shall indicate details of their expected foreign currency requirements in the Bid, if prescribed in the BDS.
	16.4	Bidders may be required by the Procuring agency/Employer to clarify their foreign currency requirements, if prescribed in the BDS and to substantiate that the amounts included in Lump Sum and in the **SCC** are reasonable and responsive to **ITB 16.1**.
17. Documents Comprising the Technical Proposal	17.1	The bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in **Section IV – Standard Bid Forms**, in sufficient detail to demonstrate the adequacy of the bidder's proposal to meet the work requirements and the completion time.
18. Bid Validity Period	18.1	Bids shall remain valid for the period specified in the **BDS** after the bid submission deadline prescribed by the Procuring agency/Employer. A bid valid for a shorter period shall be rejected by the Procuring agency/Employer as non-responsive**.** The period of bid validity will be determined from the complementary bid securing instrument i.e. the expiry period of bid security or bid securing declaration as the case may be.
	18.2	Under exceptional circumstances, prior to the expiration of the initial bid validity period, the Procuring agency/Employer may request the bidders' consent to an extension of the period of validity of their bids only once, for the period not more than the period of initial bid validity. The request and the bidders' responses shall be made in writing or in electronic forms that provide record of the content of communication. The Bid Security provided under **ITB 19** shall also be extended 28 days beyond the deadline of extended bid validity period. A bidder may refuse the request for the extension of his bid without forfeiting his bid security or causing to be executed his Bid Securing Declaration. A bidder agreeing to the request will not be required nor permitted to modify its bid, but will be required

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		to extend the validity of its Bid Security or Bid Securing Declaration for the period of the extension, and in compliance with **ITB 19** in all respects.
19. Bid Security or Bid Securing Declaration	19.1	Pursuant to **ITB 11.1** unless otherwise specified in the **BDS**, the bidder shall furnish as part of its bid, a Bid Security in form of fixed amount not exceeding five percent of the estimated value of procurement determined by the Procuring agency/Employer and in the amount and currency specified in the **BDS** or Bid Securing Declaration as specified in the **BDS** in the format provided in **Section VI (Standard Bidding Forms)**. In case Procuring agency/Employer is inviting bids in lots / packages, the bidder shall be required to submit his bid security against the respective lot/ package for which he is submitting his bid, which shall not exceed five percent of the estimated value of that particular lot/ package.
	19.2	The Bid Security or Bid Securing Declaration is required to protect the Procuring agency/Employer against the risk of Bidder's conduct before award of the contract to the most advantageous bidder which would warrant the security's forfeiture, pursuant to **ITB 19.9.**
	19.3	The Bid Security shall be denominated in the local currency or in another freely convertible currency, and it shall be in the form specified in the **BDS** which shall be in any of the following: a) A bank guarantee, an irrevocable letter of credit issued by a Scheduled bank in the form provided in the Bidding Documents or another form acceptable to the Procuring agency/Employer and valid for twenty-eight (28) days beyond the end of the validity of the Bid. This shall also apply if the period for Bid Validity is extended. In either case, the form must include the complete name of the bidder; b) A cashier's or certified cheque; or c) Another security as indicated in the **BDS.**
	19.4	The Bid Security or Bid Securing Declaration shall be in accordance with the Form of the Bid Security or Bid Securing Declaration included in **Section VI (Standard Bidding Forms)** or another form approved by the Procuring agency/Employer prior to the bid submission.
	19.5	The Bid Security shall be payable promptly upon written demand by the Procuring agency/Employer in case any of the conditions listed in **ITB 19.9** are invoked.
	19.6	Any bid not accompanied by a Bid Security or Bid Securing Declaration in accordance with **ITB 19.1 or 19.3** shall be rejected by the Procuring agency/Employer and shall be

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		declared as non-responsive bid, pursuant to **ITB 30**.
	19.7	Unsuccessful bidders' Bid Security will be discharged or returned as promptly as possible, however in no case later than thirty (30) days after the expiration of the period of Bid Validity prescribed by the Procuring agency/Employer pursuant to **ITB 18**. The Procuring agency/Employer shall make no claim to the amount of the Bid Security, and shall promptly return the Bid Security document, after whichever of the following that occurs earliest: (a) The expiry of the Bid Security; (b) The entry into force of a procurement contract and the provision of a performance security (or guarantee), for the performance of the contract if such a security (or guarantee), is required by the Biding documents; (c) The rejection by the Procuring agency/Employer of all Bids; (d) The withdrawal of the bid prior to the deadline for the submission of bids, unless the biding documents stipulate that no such withdrawal is permitted.
	19.8	The successful bidder's Bid Security will be discharged upon the bidder signing the contract pursuant to **ITB 47,** or furnishing the performance security (or guarantee), pursuant to **ITB 48**.
	19.9	The Bid Security may be forfeited or the Bid Securing Declaration executed: a) if a Bidder: i) Withdraws its Bid during the period of Bid Validity as specified by the Procuring agency/Employer, and referred by the bidder on the Form of Bid except as provided for in **ITB 18.2**; or ii) Does not accept the correction of errors pursuant to **ITB 32;** or b) In the case of a successful bidder, if the bidder fails: i) to sign the contract in accordance with **ITB 47**; or ii) to furnish performance security (or guarantee) in accordance with **ITB 48.**
	19.10	In case of Bid Security issued by the foreign bank is allowed by the Procuring agency/Employer, the same should be counter guaranteed by a corresponding bank in Pakistan. Furthermore, in case of joint venture, it should be in the name of Joint venture to ensure joint responsibility.
20. Alternative Bids by Bidders	20.1	Bidders shall submit offers that comply with the requirements of the bidding documents, including the basic bidder's technical design as indicated in the specifications and Bill of Quantities. Alternatives will not be considered, unless specifically allowed for in the **BDS**. If so allowed,

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		ITB 20 shall prevail.
	20.2	When alternative schedule for execution of works is explicitly invited, a statement of that effect will be included in the **BDS** as will the method for evaluating different schedule for execution of works.
	20.3	If so allowed in the **BDS**, bidders wishing to offer technical alternatives to the requirements of the bidding documents must also submit a bid that complies with the requirements of the bidding documents, including the basic technical design as indicated in the specifications. In addition to submitting the basic bid, the bidder shall provide all information necessary for a complete evaluation of the alternative by the Procuring agency/Employer, including technical specifications, breakdown of prices, and other relevant details. Only the technical alternatives, if any, of the Most Advantageous Bidder conforming to the basic technical requirements (without altering the bid price) shall be considered by the Procuring agency/Employer.
21. Withdrawal of Bids	21.1	Before bid submission deadline, any 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 the corresponding must accompany the respective written notice.
	21.2	Bids requested to be withdrawn in accordance with **ITB 21.1** shall be returned unopened to the bidders.
22. Format and Signing of Bid	22.1	The Bidder shall prepare an original and the number of copies of the bid as indicated in the **BDS**, clearly marking each **"ORIGINAL"** and **"COPY"** as appropriate. In the event of any discrepancy between them, the original shall prevail: *Provided that except in Single Stage One Envelope Procedure, the bid shall include only the copies of technical proposal.*
	22.2	The original and the copy (ies) of the bid shall be typed or written in indelible ink and shall be signed by the bidder or a person or persons 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 un-amended printed literature, shall be initialed by the person or persons signing the bid.

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	22.3	Any interlineations, erasures, or overwriting shall be valid only if they are signed by the person(s) authorized for signing the Bid.

D. SUBMISSION OF BIDS

23. Sealing and Marking of Bids	23.1	In case of Single Stage One Envelope Procedure, the bidder shall seal the original and each copy of the bid in separate envelopes, duly marking the envelopes as **"ORIGINAL"** and **"COPY".** The envelopes shall then be sealed in an outer envelope securely sealed in such a manner that opening and resealing cannot be achieved undetected. **Note:** *The envelopes shall be sealed and marked in accordance with the bidding procedure adopted as referred in Rule-36 of Public Procurement Rules,2004.*
	23.2	The inner and outer envelopes shall: a) be addressed to the Procuring agency/Employer at the address given in the **BDS**; and b) bear the title of the subject procurement or project name, as the case may be as indicated in the **BDS**, the Invitation for Bids (ITB) title and number indicated in the **BDS**, and a statement: **"DO NOT OPEN BEFORE",** to be completed with the time and the date specified in the **BDS**, pursuant to **ITB 24.1.**
	23.3	In case of Single Stage Two Envelope Procedure, The Bid shall comprise two envelopes submitted simultaneously, one called the Technical Proposal and the other Financial Proposal. Both envelopes to be enclosed together in an outer single envelope called the Bid. Each Bidder shall submit his bid as under: a) Bidder shall submit his **TECHNICAL PROPOSAL** and **FINANCIAL PROPOSAL** in separate inner envelopes and enclosed in a single outer envelope. b) **ORIGINAL** and each copy of the Bid shall be separately sealed and put in separate envelopes and marked as such. c) The envelopes containing the **ORIGINAL** and copies will be put in one sealed envelope and addressed / identified as given in **ITB 23.2.**
	23.4	The inner and outer envelopes shall: a) be addressed to the Procuring agency/Employer at the address provided in the **BDS**; b) bear the name and identification number of the contract as defined in the **BDS**; and provide a warning not to open before the time and date for bid opening, as specified in the **BDS** pursuant to **ITB 24.1.** c) In addition to the identification required in **ITB 23**

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		hereof, the inner envelope shall indicate the name and address of the bidder to enable the bid to be returned unopened in case it is declared "late" pursuant to **ITB 25.**
	23.5	If all envelopes are not sealed and marked as required by **ITB 23.2**, **ITB 23.3** and **ITB 23.4** or incorrectly marked, the Procuring agency/Employer will assume no responsibility for the misplacement or premature opening of bid.
24. Deadline for Submission of Bids	24.1	Bids shall be received to the Procuring agency/Employer no later than the date and time specified in the **BDS.**
	24.2	The Procuring agency/Employer may, under exceptional circumstances and at its discretion, extend the deadline for the submission of bids by amending the Bidding Documents in accordance with **ITB 9**, in which case all rights and obligations of the Procuring agency/Employer and bidders previously subject to the deadline will thereafter be subject to the new deadline.
25. Late Bids	25.1	The Procuring agency/Employer shall not consider for evaluation of any bid that arrives after the deadline for submission of bids, in accordance with **ITB 24**.
	25.2	Any bid received by the Procuring agency/Employer after the deadline for submission of bids shall be declared late, recorded, rejected and returned unopened to the bidder.
26. Substitution and Modification of bids	26.1	A bidder may substitute or modify his bid after it has been submitted, provided that written notice of the substitution or modification of the bid, is received by the Procuring agency/Employer prior to the deadline for submission of bids.
	26.2	Revised bid may be submitted after the substitution or modification made in the original bid in accordance with the provisions referred in **ITB 22.**

E. OPENING AND EVALUATION OF BIDS

27. Opening of Bids	27.1	The Procuring agency/Employer will open all bids, in public, in the presence of bidders' or their representatives who choose to attend, and other parties with a legitimate interest in the bid proceedings at the place, on the date and at the time, specified in the **BDS**. The bidders' representatives present shall sign a attendance sheet as a proof of their attendance.
	27.2	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.
	27.3	Second, outer envelopes marked **"SUBSTITUTION**" shall be opened. The inner envelopes containing the Substitution Bid

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		shall be exchanged for the corresponding Original Bid being substituted, which is to be returned to the bidder unopened. No envelope shall be substituted unless the corresponding Substitution Notice contains a valid authorization to request the substitution and is read out and recorded at bid opening.
	27.4	Next, outer envelopes marked **"MODIFICATION"** shall be opened. No Technical Proposal and/or Financial Proposal shall be modified unless the corresponding Modification Notice contains a valid authorization to request the modification and is read out and recorded at the opening of the bids. Any modification shall be read out along with the Original Bid except in case of Single Stage Two Envelope Procedure where only the Technical Proposal, both Original as well as Modification, are to be opened, read out, and recorded at the opening. Financial Proposal, both Original and Modification, will remain unopened till the prescribed financial bid opening date.
	27.5	Other envelopes holding the bids shall be opened one at a time, in case of Single Stage One Envelope Procedure, the bidders' names, the bid prices, the total amount of each bid and of any alternative bid (if alternatives have been requested or permitted), the presence or absence of Bid Security, Bid Securing Declaration and such other details as the Procuring agency/Employer may consider appropriate, will be announced by the Procurement Evaluation Committee.
	27.6	In case of Single Stage Two Envelope Procedure, the Procuring agency/Employer will open the Technical Proposals in public at the address, date and time specified in the **BDS** in the presence of bidders' designated representatives who choose to attend and other parties with a legitimate interest in the bid proceedings. The Financial Proposals will remain unopened and will be held in custody of the Procuring agency/Employer until the specified time of their opening.
	27.7	The envelopes holding the Technical Proposals shall be opened one at a time, and the following read out and recorded: (a) the name of the bidder; (b) whether there is a modification or substitution; (c) the presence of a Bid Security or Bid Securing Declaration, if required; and (d) Any other details as the Procuring agency/Employer may consider appropriate.
	27.8	Bids not opened and not read out at the bid opening shall not be considered further for evaluation, irrespective of the circumstances.
	27.9	Bidders are advised to send in a representative with the knowledge of the content of the bid who shall verify the information read out from the submitted documents. Failure to send a representative or to point out any un-read information

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		by the sent bidder's representative shall indemnify the Procuring agency/Employer against any claim or failure to read out the correct information contained in the bidder's bid.
	27.10	No bid will be rejected at the time of bid opening except for late bids which will be returned unopened to the bidder, pursuant to **ITB 25.**
	27.11	The Procuring agency/Employer shall prepare minutes of the bid opening. The record of the bid opening shall include, as a minimum: the name of the bidder and whether or not there is a withdrawal, substitution or modification, the bid price if applicable and the presence or absence of a Bid Security or Bid Securing Declaration.
	27.12	The bidders' representatives who are present shall be requested to sign on the attendance sheet. The omission of a bidder's signature on the record shall not invalidate the contents and affect the record. A copy of the record shall be distributed to all the bidders.
	27.13	A copy of the minutes of the bid opening shall be furnished to individual bidders upon request.
	27.14	In case of Single Stage -Two Envelop Bidding Procedure, after the announcement of technical evaluation report, the Procuring agency/Employer, shall at a time within the bid validity period, publicly open the financial proposals of the technically responsive bidder only. The financial proposal of bidders found technically non-responsive shall be returned un-opened to the respective bidders after seven days of the announcement of technical evaluation report, except those aggrieved bidder(s) whose complaints are pending before the Grievance Redressal Committee.
28. Confidentiality	28.1	Information relating to the examination, clarification, evaluation and comparison of bids and recommendation of contract award shall not be disclosed to bidders or any other persons not officially concerned with such process until the time of the announcement of the respective evaluation report.
	28.2	Any effort by a bidder to influence the Procuring agency/Employer processing of bids or award decisions may result in the rejection of its bid.
	28.3	Notwithstanding **ITB 28.2** from the time of bid opening to the time of contract award, if any bidder wishes to contact the Procuring agency/Employer on any matter related to the bidding process, it should do so in writing or in electronic forms that provides record of the content of communication.
29. Clarification of Bids	29.1	To assist in the examination, evaluation and comparison of bids, the Procuring agency/Employer may, ask any bidder for a clarification of its bid including breakdown of prices invariably in writing. Any clarification submitted by a bidder that is not in response to a request by the Procuring

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		agency/Employer shall not be considered.
	29.2	The request for clarification and the response shall be in writing or in electronic forms that provide record of the content of communication. No change in the prices or substance of the bid shall be sought, offered, or permitted, except clarification for the correction of arithmetic errors discovered by the Procuring agency/Employer during the evaluation of bids which shall be sought in accordance with **ITB 32**.
	29.3	The alteration or modification in the bid which in any case affect the following parameters will be considered as a change in the substance of a bid: a) evaluation & qualification criteria; b) required scope of work; c) contract price; d) all securities requirements; e) tax requirements; f) terms and conditions of bidding documents. g) change in the ranking of the bidder
	29.4	From the time of bid opening to the time of Contract award if any bidder wishes to contact the Procuring agency/Employer on any matter related to the bid it should do so in writing or in electronic forms that provide record of the content of communication.
30. Preliminary Examination of Bids	30.1	Prior to the detailed evaluation of bids, the Procuring agency/Employer will determine whether each bid: a) meets the eligibility criteria defined in **ITB 3** and **ITB 4**; b) has been prepared as per the format and contents defined by the Procuring agency/Employer in the bidding documents; c) has been properly signed; d) is accompanied by the required securities; and e) is substantially responsive to the requirements of the bidding documents. The Procuring agency/Employer's determination of a bid's substantial responsiveness will be based on the contents of the bid itself.
	30.2	A substantially responsive Bid is one which conforms to all the terms, conditions, and specifications of the Bidding Documents, without material deviation or reservation. A material deviation or reservation is one that: - a) affects in any substantial way the scope, quality, or performance of the Works; b) limits in any substantial way, inconsistent with the bidding documents, the Procuring

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		agency/Employer's rights or the bidders' obligations under the Contract; or c) if rectified, would affect unfairly the competitive position of other bidders presenting substantially responsive bids.
	30.3	The Procuring agency/Employer will confirm that the documents and information specified under **ITB 11, 12** and **13** have been provided in the bid. If any of these documents or information is missing, or is not provided in accordance with the Instructions to Bidders, the bid shall be rejected.
	30.4	The Procuring agency/Employer may waive-off any minor informality, nonconformity, or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Bidder. ***Explanation:*** *A minor informality, non-conformity or irregularity is one that is merely a matter of form and not of substance. It also pertains to some immaterial defect in a Bid or variation of a bid from the exact requirements of the invitation that can be corrected or waived without being prejudicial to other bidders. The defect or variation is immaterial when the effect on quantity, quality, or delivery is negligible when contrasted with the total cost or scope of the works. The Procuring agency/Employer either shall give the bidder an opportunity to cure any deficiency resulting from a minor informality or irregularity in a bid or waive the deficiency, whichever is advantageous to the Procuring agency/Employer. Examples of minor informalities or irregularities include failure of a bidder to –* (a) *Submit the number of copies of signed bids required by the invitation;* (b) *Furnish required information concerning the number of its employees;* (c) *the firm submitting a bid has formally adopted or authorized, before the date set for opening of bids, the execution of documents by typewritten, printed, or stamped signature and submits evidence of such authorization and the bid carries such a signature.*
	30.5	Provided that a Technical Bid is substantially responsive, the Procuring agency/Employer may request the bidder to submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the Technical Bid related to documentation requirements. Requesting information or

		documentation on such nonconformities shall not be related to any such aspect of the technical Proposal linked with the ranking of the bidders. Failure of the bidder to comply with the request may result in the rejection of its bid.
	30.6	Provided that a Technical Bid is substantially responsive, the Procuring agency/Employer shall rectify quantifiable nonmaterial nonconformities or omissions related to the Financial Proposal. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of the missing or nonconforming item or component.
	30.7	If a bid is not substantially responsive, it will be rejected by the Procuring agency/Employer and may not subsequently be evaluated for complete technical responsiveness.
31. Examination of Terms and Conditions; Technical Evaluation	31.1	The Procuring agency/Employer shall examine the bid to confirm that all terms and conditions specified in the **GCC** and the **SCC** have been accepted by the bidder without any material deviation or reservation. For this purpose: "Deviation" means departure from the requirements specified in the Bidding Document. "Reservation" means setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document.
	31.2	The Procuring agency/Employer shall evaluate the technical aspects of the bid submitted in accordance with **ITB 31,** to confirm that all requirements specified in **Section V – Works Requirement**, **Technical Specifications of** the Bidding Documents have been met without material deviation or reservation.
	31.3	If after the examination of the terms and conditions and the technical evaluation, the Procuring agency/Employer determines that the bid is not substantially responsive in accordance with **ITB 30,** it shall reject the bid.
32. Correction of Arithmetic Errors	32.1	Bids determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows: - a) if there is a discrepancy between unit prices and the sub-total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the sub-total price shall be corrected, unless in the opinion of the Procuring agency/Employer there is an obvious misplacement of the decimal point in the unit price, in which 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 sub-totals, the sub-totals

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		shall prevail, and the total shall be corrected; and c) where there is a discrepancy between the amounts in figures and in words, the amount in words will govern. d) Where there is discrepancy between grand total of price schedule and amount mentioned on the Form of Bid, the amount referred in Price Schedule shall be treated as correct subject to elimination of other errors.
	32.2	The amount stated in the Bid will, be rectified by the Procuring agency/Employer in accordance with the above procedure for the correction of errors and, with, the concurrence of the bidder, shall be considered as binding upon the bidder. If the bidder does not accept the corrected amount, its bid shall be rejected after forfeiture of Bid Security or execution of the Bid Securing Declaration, as the case may be, in accordance with **ITB 19.9.**
33. Conversion to Single Currency	33.1	The unit rates and the prices shall be quoted by the bidder entirely in Pak rupees. A bidder expecting to incur expenditures in other currencies for inputs to the Works from outside the Procuring agency/Employer's country (referred to as the "Foreign Currency Requirements") shall indicate the same in the letter of bid-financial proposal. The proportion of the Bid Price (excluding Provisional Sums) needed by him for the payment of such Foreign Currency Requirements either (i) entirely in the currency of the Bidder's home country or, (ii) at the bidder's option, entirely in Pak rupees provided always that a bidder expecting to incur expenditures in a currency or currencies other than those stated in (i) and (ii) above for a portion of the foreign currency requirements, and wishing to be paid accordingly, shall indicate the respective portions in his bid.
	33.2	To facilitate evaluation and comparison, the Procuring agency/Employer will convert all bid prices expressed in the amounts in various currencies in which the bid prices are payable. For the purposes of comparison of bids quoted in different currencies, the price shall be converted into a single currency specified in the bidding documents. The rate of exchange shall be the selling rate, prevailing on the date of opening of (financial part of) bids specified in the bidding documents, as notified by the State Bank of Pakistan on that day.
	33.3	The currency selected for converting bid prices to a common base for the purpose of evaluation, along with the source and date of the exchange rate, are specified in the **BDS**.
34. Evaluation of Bids	34.1	The Procuring agency/Employer shall evaluate and compare

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		only the bids determined to be substantially responsive, pursuant to **ITB 30**.
	34.2	In evaluating the Technical Proposal of each Bid, the Procuring agency/Employer shall use the criteria and methodologies listed in the **BDS** and in terms of works requirement. No other evaluation criteria or methodologies shall be permitted.
	34.3	The Procuring agency/Employer's evaluation of a bid will take into account: a) the bid price, excluding provisional sums and the provision, if any, for contingencies in the summary bill of quantities, but including day work items, where priced competitively; b) price adjustment for correction of arithmetic errors in accordance with **ITB 32.1;** c) converting the amount resulting from applying (a) and (b) above, if relevant, to a single currency in accordance with **ITB 33**;
	34.4	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.
	34.5	If these bidding documents allow bidders to quote separate prices for different lots, and the award to a single bidder of multiple lots, the methodology of evaluation to determine the lowest evaluated lot combinations in the Form of Bid, is specified in the **BDS.**
	34.6	If the bid, which results in the Evaluated Bid Price (Most Advantageous Bid), 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. **Explanation:** *"Unbalanced" or "front-loaded" bids consist of deliberately submitting bids with artificially high prices or unit rates for the early stages of a construction project, offset by artificially low*

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		prices or unit rates for the later stages of the project, to improve the contractor's cash flow.
35. Domestic Preference	35.1	If the **BDS** so specifies, the Procuring agency/Employer will grant a margin of preference to the domestic contractor in line with the rules, regulations, regulatory guides or instructions issued by the Authority from time to time.
36. Determination of Most Advantageous Bid	36.1	The Procuring agency/Employer shall compare the evaluated bids in accordance with the predefined bidding procedure, of all substantially responsive bids to determine the Most Advantageous bidder.
37. Qualification of Bidder	37.1	The Procuring agency/Employer shall determine to its satisfaction whether the bidder is substantially responsive and whose bid is declared as most advantageous bid either continues to meet (if prequalification applies) or meets (if post-qualification applies) the qualifying criteria specified in Evaluation and Qualification Criteria. *Note: In case of International bidding, the parameters for incorporation or licensing within Pakistan may be fulfilled as part of post qualification.*
	37.2	The determination shall be based upon an examination of the documentary evidence of the bidder's qualifications submitted by the bidder, pursuant to **ITB 12**.
	37.3	Prior to contract award, the Procuring agency/Employer will verify that the successful bidder (including each member of a JV) is not blacklisted/debarred. The Procuring agency/Employer will conduct the same verification for each sub-contractor proposed by the successful bidder.
38. Sub-Contractors	38.1	The bidder shall provide details regarding any specialized sub-contractor to the Procuring agency/Employer. In case change of sub-contractors, the bidder shall promptly notify the Procuring agency/Employer and obtain approval for replacement of sub-contractors.
	38.2	Bidders may propose sub-contracting up to the percentage of total value of contracts or the volume of works as specified in the **BDS.**

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39. Abnormally Low Financial Bid	39.1	Where the bid price is considered to be abnormally low, the Procuring agency/Employer shall perform price analysis either during determination of Most Advantageous Bid or as a part of the post-qualification process. The following process shall apply: a) The Procuring agency/Employer may reject a bid if the Procuring agency/Employer has determined that the price in combination with other constituent elements of the bid is abnormally low in relation to the subject matter of the procurement (i.e. scope of the procurement or ancillary services) and raises concerns as to the capability and capacity of the respective Bidder to perform that contract; b) Before rejecting an abnormally low bid the Procuring agency/Employer shall request the bidder an explanation of the bid or of those sections which it considers contribute to the bid being abnormally low; take account of the evidence provided in response to a request in writing; and subsequently verify the bid or parts of the bid being abnormally low; c) The decision of the Procuring agency/Employer to reject a bid and reasons for the decision shall be recorded in the procurement proceedings and promptly communicated to the bidder concerned; d) The Procuring agency/Employer shall not incur any liability solely by rejecting abnormally bid; and e) An abnormally low bid means, in the light of the Procuring agency/Employer's estimate and of all the bids submitted, the bid appears to be abnormally low by not providing a margin for normal levels of profit. **Guidance for Procuring agency/Employer:** In order to identify the Abnormally Low Bid (ALB) following approaches can be considered to minimize the scope of subjectivity: (i) Comparing the bid price with the cost estimate; (ii) Comparing the bid price with the bids offered by other bidders submitting substantially responsive bids; and (iii) Comparing the bid price with prices paid in similar contracts in the recent past either government- or development partner-funded.
	39.2	The Procuring agency/Employer will determine to its satisfaction whether the bidder that is selected as having submitted the most advantageous bid is qualified to perform the contract satisfactorily, in accordance with the criteria listed in **ITB 12**

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	39.3	The determination will take into account the bidder's financial and technical capabilities. It will be based upon an examination of the documentary evidence of the bidder's qualifications submitted by the bidder, pursuant to **ITB 12,** as well as such other information as the Procuring agency/Employer deems necessary and appropriate. Factors not included in these bidding documents shall not be used in the evaluation of the bidders' qualifications.
	39.4	Procuring agency/Employer may seek "Certificate for Independent Price Determination" from the bidder and the results of reference checks may be used in determining award of contract. ***Explanation:*** *The Certificate shall be furnished by the bidder. The bidder shall certify that the price is determined keeping in view of all the essential aspects such as raw material, its processing, value addition, optimization of resources due to economy of scale, transportation, insurance and margin of profit etc.*
	39.5	An affirmative determination will be a prerequisite for award of the contract to the bidder. A negative determination will result in rejection of the bidder's bid, in which event the Procuring agency/Employer will proceed to the next ranked bidder to make a similar determination of that bidder's capabilities to perform satisfactorily.

F. AWARD OF CONTRACT

40. Criteria of Award	40.1	Subject to **ITB 36** and **37**, the Procuring agency/Employer will award the Contract to the bidder whose bid has been determined to be substantially responsive to the bidding documents and who has been declared as Most Advantageous Bidder, provided that such bidder has been determined to be: a) eligible in accordance with the provisions of **ITB 3;** b) is determined to be qualified to perform the Contract satisfactorily; and c) Successful negotiations have been concluded, if any.
41. Negotiations	41.1	The Committee of the Procuring agency/Employer may negotiate with the Most Advantageous Bidder relating to the following areas: (a) a minor alteration to the technical (drawings, design technical specifications) details of the statement of works; (b) Methodology, work plan, staffing in view to streamline the work; (c) a minor amendment to the special conditions of Contract; (d) finalizing payment arrangements; (e) clarifying details that were not apparent or could not be finalized at the time of Bidding;

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	41.2	Where negotiation fails to result into an agreement, the Procuring agency/Employer may invite the next ranked bidder for negotiations. Where negotiations are commenced with the next ranked bidder, the Procuring agency/Employer shall not reopen earlier negotiations.
42. Procuring agency/Employer's Right to reject All Bids	42.1	Notwithstanding **ITB 37**, the Procuring agency/Employer reserves the right to reject all the bids, and to annul the bidding process at any time prior to acceptance of bid, without thereby incurring any liability to the affected bidder(s). However, the Authority (i.e. PPRA) may call from the Procuring agency/Employer the justification of those grounds.
	42.2	Notice of the rejection of all bids shall be given promptly to all bidders that have submitted bids.
	42.3	The Procuring agency/Employer shall upon request communicate to any bidder the grounds for its rejection of its bids, but is not required to justify those grounds.
43. Variations	43.1	The Engineer shall make any variation in the quantity of the Works or any part thereof that may, in his opinion, be necessary and for that purpose, or if for any other reason it shall, in his opinion, be appropriate, he shall have the authority to instruct the Contractor to do and the Contractor shall do any of the following: a) increase or decrease the quantity of any work included in the Contract, b) omit any such work (but not if the omitted work is to be carried out by the Employer or by another contractor), c) change the character or quality or kind of any such work, d) change the levels, lines, position and dimensions of any part of the Works, e) execute additional work of any kind necessary for the completion of the Works, or f) change any specified sequence or timing of construction of any part of the Works. No such variation shall in any way vitiate or invalidate the Contract, but the effect, if any, of all such variations shall be valued in accordance with **ITB 15**. Provided that where the issue of an instruction to vary the Works is necessitated by some default of or breach of contract by the Contractor or for which he is responsible, any additional cost attributable to such default shall be borne by the Contractor.
44. Instructions for variations	44.1	The Contractor shall not make any such variation without an instruction of the Engineer. Provided that no instruction shall be required for increase or decrease in the quantity of any work where such increase or decrease is not the result of an instruction given under this Clause, but is the result of the

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		quantities exceeding or being less than those stated in the Bill of Quantities.
45. Valuation of Variations	45.1	All variations and any additions to the Contract Price which are required to be determined in accordance with **ITB 15** (for the purposes of this Clause referred to as "varied work"), shall be valued at the rates and prices set out in the Contract if, in the opinion of the Engineer, the same shall be applicable. If the Contract does not contain any rates or prices applicable to the varied work, the rates and prices in the Contract shall be used as the basis for valuation so far as may be reasonable, failing which, after due consultation by the Engineer with the Procuring agency/Employer and the Contractor, suitable rates or prices shall be agreed upon between the Engineer and the Contractor. In the event of disagreement, the Engineer shall fix such rates or prices as are, in his opinion, appropriate and shall notify the Contractor accordingly, with a copy to the Employer. Until such time as rates or prices are agreed or fixed, the Engineer shall determine provisional rates or prices to enable on-account payments to be included in certificates issued in accordance with **ITB 15.**
46. Notification of Award	46.1	Prior to the award of contract, the Procuring agency/Employer shall issue a Final Evaluation Report giving justification for acceptance or rejection of the bids.
	46.2	Where no complaints have been lodged, the bidder whose bid has been accepted will be notified of the award by the Procuring agency/Employer prior to expiration of the bid validity period in writing or through electronic means that provide record of the content of communication. However, the Procuring agency/Employer shall not award any procurement contract atleast for fifteen (15) days after the acceptance of bid. The notification letter (herein after and in the condition of the contract and contract form called “Letter of Acceptance” will specify the sum that the Procuring agency/Employer will pay the successful bidder in consideration for the execution and completion of the works as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price).
	46.3	The notification of award will constitute the formation of the Contract, subject to the bidder furnishing the Performance Security (or guarantee) in accordance with **ITB 48** and signing of the contract in accordance with **ITB 47.**
	46.4	Upon the successful bidder’s furnishing of the performance security (or guarantee) pursuant to **ITB 48**, the Procuring agency/Employer will promptly notify each unsuccessful bidder, the name of the successful bidder and the Contract amount and will discharge the Bid Security or Bid Securing

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		Declaration of the bidder(s) pursuant to **ITB 19**.
47. Signing of Contract	47.1	Promptly after notification of award, Procuring agency/Employer shall send the successful bidder the draft agreement, incorporating all terms and conditions as agreed by the parties to the contract.
	47.2	Immediately after the Redressal of grievance by the GRC, and after fulfillment of all conditions precedent of the Contract Form, the successful bidder and the Procuring agency/Employer shall sign the contract.
	47.3	Where no formal signing of a contract is required, work order issued to the bidder shall be construed to be the contract.
48. Performance Security (or Guarantee)	48.1	After the receipt of the Letter of Acceptance, the successful bidder, within the specified time, shall deliver to the Procuring agency/Employer a Performance Guarantee in the amount and in the form stipulated in the **BDS and SCC**, denominated in the type and proportions of currencies in the Letter of Acceptance and in accordance with the Conditions of Contract.
	48.2	If the Performance Guarantee is provided by the successful bidder and it shall be in the form specified in the **BDS** which shall be in any of the following: (a) certified cheque, cashier's or manager's cheque, or bank draft; (b) irrevocable letter of credit issued by a scheduled bank of Pakistan or in the case of an irrevocable letter of credit issued by a foreign bank, the letter shall be confirmed or authenticated by a scheduled bank of Pakistan; (c) bank guarantee confirmed by a reputable local bank or, in the case of a successful foreign bidder, bonded by a foreign bank; or (d) surety bond callable upon demand issued by any reputable surety or insurance company. Any Performance Guarantee submitted shall be enforceable in Pakistan.
	48.3	Failure of the Most Advantageous Bidder to comply with the requirement of **ITB 47** shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security or declare blacklisted (in case bid securing declaration is submitted) in which event the Procuring agency/Employer may make the award to the next most advantageous bidder or reinitiate the procurement process afresh (as a case may be).
49. Advance Payment	49.1	Advance payment will be provided to the bidder in percentage and in the manner as agreed by the both parties in terms of Conditions of the Contract.
	49.2	The Procuring agency/Employer will provide an advance payment as stipulated in the Conditions of Contract, subject

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		to a maximum amount, as stated and/or Conditions of the Contract. The advance payment request shall be accompanied by an advance payment security (guarantee) in the form provided in Section X. For the purpose of receiving the advance payment, the bidder shall make and estimate of, and include in its bid, the expenses that will relate to the purchase of equipment, machinery, materials, and on the engagement of labor during the first month beginning with the date of the Procuring agency/Employer's "Notice to Commence" as specified in the **SCC.**
50. General Performance of the Bidders	50.1	The Procuring agency/Employer reserves the right to obtain information regarding performance of the bidders on their previously awarded contracts / works. The Procuring agency/Employer may seek information / report from the previous employer for consideration. However, the Procuring agency/Employer shall incorporate such parameters in the evaluation criteria and accordingly decide the fate of the bid submitted.
51. Corrupt & Fraudulent Practices	51.1	Procuring agencies (including beneficiaries of Government funded projects and procurement) as well as Bidders/Suppliers/Contractors under Government financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts, and will avoid to engage in any corrupt and fraudulent practices.

G. GRIEVANCE REDRESSAL & COMPLAINT REVIEW MECHANISM

52. Constitution of Grievance Redressal	52.1	Procuring agency/Employer shall constitute a Grievance Redressal Committee (GRC) comprising of odd number of persons with proper power and authorization to address the complaint. The GRC shall not have any of the members of Procurement Evaluation Committee. The committee must have one subject specialist depending the nature of the procurement.
53. GRC Procedure	53.1	Any party can file its written complaint against the eligibility parameters or any other terms and conditions prescribed in the prequalification or bidding documents found contrary to provision of Procurement Regulatory Framework, and the same shall be addressed by the GRC well before the bid submission deadline.
	53.2	Any bidder feeling aggrieved by any act of the Procuring agency/Employer after the submission of his bid may lodge a written complaint concerning his grievances not later than seven days of the announcement of technical evaluation report and five days after issuance of final evaluation report.
	53.3	In case, the complaint is filed against the technical evaluation report, the GRC shall suspend the procurement proceedings.

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	53.4	In case, the complaint is filed after the issuance of the final evaluation report, the complainant cannot raise any objection on technical evaluation of the report: Provided that the complainant may raise the objection on any part of the final evaluation report in case where single stage one envelope bidding procedure is adopted.
	53.5	The GRC, in both the cases shall investigate and decide upon the complaint within ten days of its receipt.
	53.6	Any bidder or the Procuring agency/Employer not satisfied with the decision of the GRC may file Appeal before the Appellate Committee of the Authority on prescribed format after depositing the Prescribed fee.
	53.7	The Committee, upon receipt of the Appeal against the decision of the GRC complete in all respect shall serve notices in writing upon all the parties to Appeal.
	53.8	The committee shall call the record from the concerned Procuring agency/Employer or the GRC as the case may be, and the same shall be provided within prescribed time.
	53.9	The committee may after examination of the relevant record and hearing all the concerned parties, shall decide the complaint within fifteen (15) days of receipt of the Appeal.
	53.10	The decision of the Committee shall be in writing and shall be signed by the Head and each Member of the Committee. The decision of the committee shall be final.

H. MECHANISM OF BLACKLISTING

54. Mechanism of Blacklisting	54.1	The Procuring agency/Employer shall bar for not more than the time prescribed in Rule-19 of the Public Procurement Rules, 2004, from participating in their respective procurement proceedings, bidder or contractor who either: Involved in corrupt and fraudulent practices as defined in Rule-2 of Public Procurement Rules; i) Fails to perform his contractual obligations; and ii) Fails to abide by the id securing declaration;
	54.2	The show cause notice shall contain: (a) precise allegation, against the bidder or contractor; (b) the maximum period for which the Procuring agency/Employer proposes to debar the bidder or contractor from participating in any public procurement of the Procuring agency/Employer; and (c) the statement, if needed, about the intention of the Procuring agency/Employer to make a request to the Authority for debarring the bidder or contractor from participating in public procurements of all the procuring agencies.

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	54.3	The Procuring agency/Employer shall give minimum of seven days to the bidder or contractor for submission of written reply of the show cause notice.
	54.4	In case, the bidder or contractor fails to submit written reply within the requisite time, the Procuring agency/Employer may issue notice for personal hearing to the bidder or contractor/ authorize representative of the bidder or contractor and the Procuring agency/Employer shall decide the matter on the basis of available record and personal hearing, if availed.
	54.5	In case the bidder or contractor submits written reply of the show cause notice, the Procuring agency/Employer may decide to file the matter or direct issuance of a notice to the bidder or contractor for personal hearing.
	54.6	The Procuring agency/Employer shall give minimum of seven days to the bidder or contractor for appearance before the designated officer of the Procuring agency/Employer for personal hearing. The designated officer shall decide the matter on the basis of the available record and personal hearing of the bidder or contractor, if availed.
	54.7	The Procuring agency/Employer shall decide the matter within fifteen (15) days from the date of personal hearing unless the personal hearing is adjourned to a next date and in such an eventuality, the period of personal hearing shall be reckoned from the last date of personal hearing.
	54.8	The Procuring agency/Employer shall communicate to the bidder or contractor the order of debarring the bidder or contractor from participating in any public procurement with a statement that the bidder or contractor may, within thirty (30) days, prefer a representation against the order before the Authority.
	54.9	Such blacklisting or barring action shall be communicated by the Procuring agency/Employer to the Authority and respective bidder or bidders in the form of decision containing the grounds for such action. The same shall be publicized by the Authority after examining the record whether the procedure defined in blacklisting and debarment mechanism has been adhered to by the Procuring agency/Employer.
	54.10	The bidder may file the review petition before the Review Petition Committee Authority within thirty (30) days of communication of such blacklisting or barring action after depositing the prescribed fee and in accordance with “Procedure of filing and disposal of review petition under Rule-19(3) Regulations, 2021”. The Committee shall evaluate the case and decide within ninety (90) days of filing of review petition.

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	54.11	The committee shall serve a notice in writing upon all respondent of the review petition. The notices shall be accompanied by the copies of review petition and all attached documents of the review petition including the decision of the Procuring agency/Employer. The parties may file written statements along with essential documents in support of their contentions. The Committee may pass such order on the representation may deem fit.
	54.12	The Authority on the basis of decision made by the committee either may debar a bidder or contractor from participating in any public procurement process of all or some of the procuring agencies for such period as the deemed appropriate or acquit the bidder from the allegations. The decision of the Authority shall be final.

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SECTION III: BID DATA SHEET

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Bid Data Sheet (BDS)

The following specific data for the procurement of works shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITBs). Whenever there is a conflict, the provisions herein shall prevail over those in ITBs.

BDS Clause Number	ITB Number	Amendments of, and Supplements to, Clauses in the Instruction to Bidders
		A. Introduction
1.	**1.1**	Name of Procuring agency/Employer: National Police Foundation (NPF), Islamabad The subject of procurement is: ICT Police Accommodation Project Islamabad - Construction of Infrastructure Works & 1-Kanal Houses Period for completion of the works: **119 days** Commencement date execution of the works: 14 days after signing of Contract. Type of Procurement: National Competitive Bidding
2.	**2.1**	Financial year for the operations of the Procuring agency/Employer: 2026-27 & onwards Name of Project: ICT Police Accommodation Project Islamabad - Construction of Infrastructure Works & 1-Kanal Houses Name of financing institution: Employer's own funds Name and identification number of the Contract: Not Applicable
3.	**3.1**	Joint Venture: Not allowed. Maximum number of members in the joint venture: Nil
4.	**5.1**	Each bidder shall submit only one bid. Joint venture of firms is not allowed. A bidder who participates in more than one bid (other than alternatives pursuant to Clause IB.20) will be disqualified.

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B. Bidding Documents

5.	**7.1**	Delete the text of Sub-Clause 7.1 and substitute with the following: The Bidding Documents, in addition to Invitation for Bids, are those stated below, and should be read in conjunction with any Addenda issued in accordance with Clause IB.9. **Technical Bid** **7.1.1 Volume - I** • **Section I** - Invitation for Bids • **Section II** - Instruction to Bidders (ITBs); • **Section III** - Bidding Data Sheet (BDS); • **Section IV** - Eligible Countries; • **Section V** – Evaluation and Qualification Criteria; • **Section VI** – Works Requirements Technical Specifications & Schedule of Requirements; • **Section VII** – Standard Bidding Forms; • **Section VIII** – General Conditions of Contract (GCC) ; • **Section IX** – Special Conditions of Contract (SCC); - Part A – Contract Data; - Part B- Special Provisions; • **Section X** – Contract Forms **7.1.2 Volume – II** • Specifications: - Part A – Specific Provisions; - Part B – Technical Provisions. **7.1.3 Volume – III** • Bid Drawings. **Financial Bid** **7.1.4 Volume – IV** • Letter of Financial Bid; • Preamble to Bill of Quantities; • Bill of Quantities.
6.	**7.2**	Complete Bid duly signed, stamped and scanned shall be submitted online on EPADS v2.0.
7.	**8.1**	The address for clarification of Bidding Documents is; **Director In Chief** National Police Foundation (NPF) Mauve Area, G-10/4, Islamabad. Ph: 051 2350158 2350100 Fax: 051 9106188
8.	**8.5**	Pre-bid meeting venue, time, and date will be as per Invitation for Bids.

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C. Preparation of Bids

9.	**10.1**	The Language of all correspondences and documents related to the Bid is: English
10.	**11.1(j)**	In addition to the documents stated in **ITB 11,** the following documents must be included with the Bid: List of documents: Nil
11.	**11.5 (c)**	Other procurement specific documentation requirements are: Nil
12.	**15.2**	**For Scheduled & Non-Scheduled Items**, Bidder Shall quote Premium in the Form of Percentage Above or Below the estimated price put to bid provided in the Summary of Estimates. Prices provided in the estimates against items are complete inclusive value of the finished work without any hidden technical and/ or financial reservations or implications. Bidders shall not modify, change, nor add any footnotes or any conditions to the Estimate.
13.	**15.5**	The bid price shall be adjusted in accordance with Appendix C – Formula for Price Adjustment.
14.	**15.6**	Name of the works: ICT Police Accommodation Project Islamabad - Construction of Infrastructure Works & 1-Kanal Houses The identification No.: Not applicable The No. and identification of lots (contracts) comprising this open competitive bid: Not Applicable
15.	**16.1**	The currency of the Bid shall be in Pak Rupees (PKR).
16.	**18.1**	The Bid Validity period shall be 120 days.
17.	**19.1**	The amount of Bid Security shall be **PKR 7.5 million**. The currency of the Bid Security shall be: PKR Original Bid Security shall be submitted at the following address: **Director In Chief** National Police Foundation (NPF) Mauve Area, G-10/4, Islamabad. Ph: 051 2350158 2350100 Fax: 051 9106188
18.	**19.3**	The Bid Security shall be in the form of: Call Deposit Receipt (CDR) / Pay Order or a Bank Guarantee issued by a Scheduled Bank in Pakistan or from a foreign bank duly counter-guaranteed by a Scheduled Bank in Pakistan in favor of the Employer valid for a period of 148 days from the date of submission/opening of bids.
19.	**19.3 (c)**	Other forms of security are: Not applicable.

20.	**20.1**	Alternative Bids to the requirements of the Bidding Documents will not be permitted.
21.	**20.2**	Not applicable
22.	**22.1**	The Bid prepared in accordance with the instructions in the Bidding documents, must be submitted through **EPADS v2.0**.
23.	**22.2**	The written confirmation of authorization to sign on behalf of the Bidder shall consist of: Written power of Attorney

D. Submission of Bids

24.	**23.1**	Not Applicable.
25.	**23.2**	Not Applicable.
26.	**23.3**	Single Stage Two Envelope Procedure will be used for submission of Bids through EPADS V2.0. The Bidders shall submit separately the technical proposal and the financial proposal.
27.	**23.4 (a)**	Bid shall be submitted through EPADS v2.0.
28.	**23.4 (b)**	Title of the subject Procurement or Project name: ICT Police Accommodation Project Islamabad - Construction of Infrastructure Works & 1-Kanal Houses ITB title and No: Not Applicable Time and date for submission: As per Invitation for Bids
29.	**24.1**	The deadline for Bid submission will be as per Invitation for Bids.

E. Opening and Evaluation of Bids

30.	**27.1**	Bids will be opened by using EPADS v2.0.
31.	**32.1**	Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows: where there is a discrepancy between the quoted amount provided by the bidder in the summary of Estimates and in the Letter of Price Bid, the amount stated in the Form of Bid shall govern; and **For Scheduled and Non Scheduled Items:** (a) where there is a discrepancy between the Premium/amount in figures and in words mentioned in the summary of Estimates, the premium/amount in words shall govern; and

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		(b) where there is a discrepancy between the percentage premium and the total amount quoted by the Bidder by multiplying the percentage premium with the price put to Bid, the value provided as premium shall govern and total amount shall be corrected.
32.	**33.2**	The currency that shall be used for Bid evaluation and comparison purposes to convert all Bid prices expressed in various currencies is: PKR The source of exchange rate shall be: Nil The date of exchange rate shall be: Nil
33.	**33.3**	The bids shall be quoted in PKR
34.	**34**	**Evaluation Techniques** Least Cost Based Selection (LCBS): After meeting the requirements of eligibility, qualification and substantial responsiveness, the bid in compliance with all the mandatory (drawings/ design/ technical specifications /requirements and/or requisite quality threshold (if any), and having lowest evaluated cost (or financial proposal) shall be considered highest ranked bid.
35.	**34.2**	Criteria for evaluating the bids to be used in the evaluation and their evaluation method or reference to the Technical Specifications as mentioned in Section-V Evaluation and Qualification Criteria.
36.	**34.5**	Not Applicable
37.	**35**	Not Applicable
38.	**38.2**	Sub-contracting 25% (twenty-five percent) of the total value of the Contract.
		F. Award of Contract
39.	**48**	The Performance Security (or guarantee) shall be 10% (ten percent) of the Contract Price.
40.	**48**	The Performance Security (or guarantee) shall be in the form of Bank Guarantee either from any Scheduled Bank in Pakistan or from a bank located outside Pakistan duly counter-guaranteed by a Scheduled Bank in Pakistan. The amount of Performance Security shall be reduced to 50% following issue of the Taking-Over Certificate for the whole of the Works under Clause 10 of Conditions of Contract. The cost of complying with requirements of this Sub-Clause shall be borne

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		by the Contractor.

G. Review of Procurement Decisions

41.	**52.1**	In case of grievance, the address of Grievances Committee is: **Convener Grievance Committee,** National Police Foundation (NPF) Mauve Area, G-10/4, Islamabad. Ph: 051 2350158 2350100 Fax: 051 9106188
42.	**53.6**	The Address of PPRA to submit a **copy** of appeal: Grievance Redressal Appellate Committee Public Procurement Regulatory Authority 1st Floor, G-5/2, Islamabad, Pakistan Tel: +92-51-9202254
43.	**54.1**	Delete the text of Sub-Clause 54.1 and substitute with the following: The Procuring Agency/Employer shall bar for not more than the time prescribed in Rule-25 of the Public Procurement Rules, 2026, from participating in their respective procurement proceedings, bidder or contractor who either: i. Involved in corrupt and fraudulent practices as defined in Rule-2 of Public Procurement Rules; ii. Fails to perform his contractual obligations; and iii. Fails to abide by the bid securing declaration;
44.	**54.10**	After the text “Procedure of filing and disposal of review petition under Rule-19(3) Regulations, 2021” add the text “as per revised schedule notified vide S.R.O. No. 165(I)/2025”.

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SECTION IV: ELIGIBLE COUNTRIES

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Section IV. Eligible Countries

All the bidders are allowed to participate in the subject procurement without regard to nationality, except bidders of some nationality, prohibited in accordance with policy of the Federal Government.

Following countries are ineligible to participate in the procurement process:

1. India
2. Israel

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SECTION V: EVALUATION AND QUALIFICATION CRITERIA

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Section V. Evaluation and Qualification Criteria

Qualification of Bidders will be based on the criteria given in succeeding para A regarding eligibility and mandatory requirements. Only those bidders who would meet the eligibility and mandatory requirements will be evaluated on the basis of criteria given in succeeding para B regarding the bidder's Experience, Personnel capabilities, Equipment capabilities and Financial soundness.

Sub-contractor's experience and resources shall not be taken into account in determining the applicant's compliance with the qualifying criteria.

The Employer reserves the right to waive minor deviations, if they do not materially affect the capability of the Bidder to perform the Contract.

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A. Eligibility and Mandatory Requirements

Eligibility and Mandatory Requirements			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements and Explanation Notes
				All Parties Combined	Each Member	One Member	
1. Eligibility							
1.1	**Nationality**	Nationality in accordance with **ITB 4.3**	Must meet requirement	N/A	N/A	N/A	Forms ELI 1 and 2, with attachments
1.2	**Conflict of Interest**	No conflicts of interest in accordance with **ITB 3.7**	Must meet requirement	N/A	N/A	N/A	Letter of Bid – Technical Proposal
1.3	**Security Clearance**	Security Clearance by ICT Police	Must meet requirement	N/A	N/A	N/A	Evidence of Security clearance from ICT Police
2. Valid registration with Pakistan Engineering Council (PEC)							
2.1	**Valid registration with Pakistan Engineering Council**	**Category C-3** and at least in Specialization Codes: **CE-01, CE-09, CE-10, CE-11, EE-04, EE-05 and EE-11**	Must meet requirement	N/A	N/A	N/A	PEC Registration License Specialization Codes: **CE-01, CE-09, CE-10, CE-11, EE-04, EE-05 and EE-11**
3. Historical Contract Non-Performance							
3.1	**History of Non-Performing Contracts**	Non-performance of a contract did not occur as a result of contractor default for last 15 years.	Must meet requirement	N/A	N/A	N/A	Form CON-2
3.2	**Pending Litigation**	Bidder's financial position and prospective long-term profitability sound according to criteria established in Financial Capabilities below and assuming that all pending litigation will be resolved against the Bidder	Must meet requirement	N/A	N/A	N/A	Form CON – 2

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Eligibility and Mandatory Requirements			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements and Explanation Notes
				All Parties Combined	Each Member	One Member	
3.3	**Litigation History**	No consistent history of court/ arbitral award decisions against the Bidder since 1st January 2011.	Must meet requirement	N/A	N/A	N/A	Form CON – 2
4. No-Blacklisting							
4.1	**No- Blacklisting**	Bidder has never been blacklisted	Must meet requirement	N/A	N/A	N/A	Affidavit on Judicial Stamp Paper prepared within the current month of submission of bidding document that the firm has never been blacklisted
5. Registration with Federal Board of Revenue							
5.1	**Income Tax Registration Certificate**	Bidder registration with the Federal Board of Revenue for Income Tax	Must meet requirement	N/A	N/A	N/A	Income Tax Registration Certificate
5.2	**Active Tax Payer (Income Tax)**	Bidder shall be on the active taxpayer's list of the Federal Board of Revenue for Income Tax	Must meet requirement	N/A	N/A	N/A	Record of Active Taxpayer for Income Tax
5.3	**Active Tax Payer (Sales Tax)**	Bidder shall be on the active taxpayer's list of the Federal Board of Revenue for Sales Tax	Must meet requirement	N/A	N/A	N/A	Record of Active Taxpayer for Sales Tax

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B. Detailed Qualification Criteria

Only those bidders who successfully meet all the **Eligibility** and **Mandatory Requirements** shall qualify for detailed evaluation, in accordance with the given criteria. The detailed qualification shall be carried out on the basis of the criteria for the different categories and minimum passing marks prescribed hereunder:

S. No.	Category	Weightage / Marks	Passing Marks (50%)
B.1	Experience		
B.1.1	Completed Projects	24	12
B.1.2	In-Hand Projects	16	8
B.2	Personnel Capabilities	15	7.5
B.3	Equipment Capabilities	15	7.5
B.4	Financial Soundness		
B.4.1	Annual Turnover	15	7.5
B.4.2	Working Capital	15	7.5
	Total	**100**	**50**

Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements and Explanation Notes
				All Parties Combined	Each Member	Lead Member	
B.1 Experience		**Max Marks**	**50%**	**N/A**	**N/A**	**N/A**	

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Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements and Explanation Notes
				All Parties Combined	Each Member	Lead Member	
		Completed Projects = 24 marks **In-Hand Projects = 16 Marks**					
B1.1	**Specific Building / Infrastructure Works Experience – Completed Projects**	Experience as constructor in execution of Building / Roads/Housing Infrastructure development Projects completed during last ten (10) years. **Max. Marks = 24** • 12 marks will be awarded for each completed project having project cost ≥ Rs. 350M up to maximum of 24 marks • 08 marks will be awarded for each completed project having project cost from Rs. 320M to Rs. 349.99 M up to maximum of 24 marks • 06 marks will be awarded for each completed project having project cost from Rs. 290M to 319.99M up to maximum of 24 marks. • No marks will be awarded for completed projects having					Form. EXP – 4.2 (a) i. The applicants must provide Letter of Award and Taking Over/ Completion Certificate of completed projects. No marks will be given to the projects for which above certificates are not provided. ii. Applicant shall provide complete information of the projects including scope, cost and covered area etc. iii. Proportionate marks on the basis of share in JV agreement will be awarded to each partner, for projects executed as Joint Venture (JV).

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Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements and Explanation Notes
				All Parties Combined	Each Member	Lead Member	
		project cost < Rs. 290M.					
B1.2	**Specific Infrastructure Works Experience – Completed Projects**	Experience as Contractor in execution of Building / Roads/Housing Infrastructure development projects currently in-hand. **Max. Marks = 16** • 08 marks will be awarded for each in-hand project having project cost ≥ Rs. 350M up to maximum of 16 marks • 06 marks will be awarded for each in-hand project having project cost from Rs. 320M to Rs. 349.99 M up to maximum of 16 marks. • 04 marks will be awarded for each in-hand project having project cost from Rs. 290M to 319.99M up to maximum of 16 marks. • No marks will be awarded for in-hand projects having project cost < Rs. 290M.					Form. EXP – 4.2 (b) i. The applicants must provide Award Letter of in-hand projects. No marks will be given to the projects for which above certificate is not provided. ii. Applicant shall provide complete information of the projects including scope, cost and covered area etc. iii. Proportionate marks on the basis of share in JV agreement will be awarded to each partner, for projects executed as Joint Venture (JV).

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Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements and Explanation Notes
				All Parties Combined	Each Member	Lead Member	
B.2 Personnel Capabilities		**Max Marks = 15**	**50%**	**N/A**	**N/A**	**N/A**	Form PER-1 and PER-2 Provide the following for each personnel, failing which, no marks will be awarded: a. verifiable proof of employment with the bidder of the proposed staff b. detailed CV c. valid PEC Registration for Engineers d. Diploma Certificates of DAE staff
B2.1	**Project Manager**	04 marks will be awarded for B.Sc. Civil Engineer having at least 06 years relevant experience. **Max Marks = 04**					
B2.2	**Associate Engineer (Civil)**	03 marks will be awarded for Associate Engineer having B-Tech / DAE Civil and at least 05 years relevant experience **Max Marks = 03**					
B2.3	**Associate Engineer (E/M)**	03 marks will be awarded for Associate Engineer having B-Tech / DAE (E/M) and at least 05 years relevant experience. **Max Marks = 03**					

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Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements and Explanation Notes
				All Parties Combined	Each Member	Lead Member	
B2.4	**Quantity Surveyor (Civil)**	03 marks will be awarded for Quantity Surveyor having B-Tech / DAE Civil and at least 05 years relevant experience. **Max Marks = 03**					
B2.5	**Surveyor**	02 marks will be awarded for Surveyor having certificate and at least 05 years relevant experience. **Max Marks = 02**					
B.3 Equipment Capabilities		**Max Marks = 15**	**50%**	**N/A**	**N/A**	**N/A**	Form EQU: (SECTION VI) Proportionate marks will be awarded if minimum number of corresponding equipment is less than minimum required. Provide an undertaking on stamp paper to the effect that the listed equipment is available with the firm and will be made available, as and when required, for the Project.
B3.1	**Pneumatic Tyre Roller**	Min. Quantity = 01 No. Marks = 01					
B3.2	**Bull Dozer (200HP)**	Min. Quantity = 01 No. Marks = 01					

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Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements and Explanation Notes
				All Parties Combined	Each Member	Lead Member	
B3.3	**Asphalt Paver Machine**	Min. Quantity = 01 No. Marks = 01					
B3.4	**Vibratory Road Roller (10 Ton)**	Min. Quantity = 01 No. Marks = 01					
B3.5	**Sheep Foot Roller (10 Ton)**	Min. Quantity = 01 No. Marks = 01					
B3.6	**Excavator**	Min. Quantity = 02 No. Marks = 01					
B3.7	**Grader**	Min. Quantity = 01 No. Marks = 01					
B3.8	**Concrete mixer machine (single load)**	Min. Quantity = 01 No. Marks = 01					
B3.9	**Scaffolding**	Min. Quantity = 30,000Rft Marks = 01					
B3.10	**Shuttering**	Min. Quantity = 20,000 Sft. Marks = 01					
B3.11	**Dumper**	Min. Quantity = 02 No. Marks = 01					
B3.12	**Loader**	Min. Quantity = 01 No. Marks = 01					
B3.13	**Tractor Trolley**	Min. Quantity = 02 No. Marks = 01					

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Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements and Explanation Notes
				All Parties Combined	Each Member	Lead Member	
B3.14	**Water Bowser & Steel Cutting/ Bending Machine**	Min. Quantity = 01 No. Each Marks = 01					
B3.15	**Generator Set (10KVA) & Total Station**	Min. Quantity = 01 No. Each Marks = 01					
B.4 Financial Soundness		**Max Marks = 30**	**50%**	**NA**	**NA**	**NA**	FORM FIN - 3.1, FIN - 3.2 and FIN 3.3 The bidder shall submit Audited financial statements for the last three years duly certified by the Chartered Accounts Firms shall submit copies of Credit Line Facility in specific name of the Project. No marks shall be awarded, if the audited financial statements for last 3 years and credit line facility are not provided.
B4.1	**Annual Turnover**	The minimum annual volume of construction work (Annual Turn-Over) during any of the last three years shall be as under: **Max Marks = 15** • 8 Marks will be awarded if the Turnover is in range of PKR. 200 million to PKR. 250 million					

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Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements and Explanation Notes
				All Parties Combined	Each Member	Lead Member	
		• 15 Marks will be awarded if the Turnover is more than PKR. 250 million.					
B4.2	**Working Capital**	The amount of Working Capital (Current Assets – Current Liabilities) & credit facilities (in specific name of the Project), net of other construction commitments of the construction, shall be as under: **Max Marks = 15** • 8 Marks will be awarded if the Working Capital & credit facilities is in range of PKR. 50 million to PKR. 70 million • 15 Marks will be awarded if the Working Capital & credit facilities is more than PKR. 70 million.					

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SECTION VI: WORKS REQUIREMENT, TECHNICAL SPECIFICATIONS, DRAWINGS, SUPPLEMENTARY INFORMATION AND BILL OF QUANTITIES

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Scope of Works

The scope of works mainly comprises Civil, Electrical, Plumbing for Buildings, Infrastructure Development and related Ancillary Works lying within the boundaries and limits as shown on the drawings and any such additional areas adjacent thereto as may be designated by the Engineer from time to time for the construction to be performed under the Contract, and all such areas and additional areas shall comprise the Site.

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Technical Specifications

Volume-II covering Technical Specifications

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Drawings

Volume-III covering Drawings

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Supplementary Information

NOT APPLICABLE

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Bill of Quantities

Volume-IV covering Bill of Quantities

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Technical Proposal

- **Site Organization**
- **Method Statement**
- **Mobilization Schedule**
- **Construction Schedule**
- **List of Major Equipment**
- **Bidder's Equipment Data**

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Site Organization

The Bidder is required to submit an organization proposed for the Works, together with their names, qualifications, experience, positions held and their nationalities.

Designation	Name	Summary of Qualifications Experience, Present, Position and Nationality

- **Head Office:**

- **Site Office:**
  Contractor's Representative
  Site Superintendent
  Supervising Engineer
  Plant Erectors
  Construction Supervisors
  Other Key Staff

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Method Statement

The Bidder is required to submit a narrative outlining the method of performing the Work. The narrative should indicate in detail and include but not be limited to:

1. Organization Chart indicating head office and field office personnel involved in management and supervision, engineering, equipment maintenance and purchasing.

2. Mobilization, in Pakistan, the type of facilities including personnel accommodation, office accommodation, provision for maintenance and for storage, communications, security and other services to be used.

3. The method of executing the Works, the procedures for installation of equipment and machinery and transportation of equipment and materials to the site and providing all services including but not limited to supply of power, water, maintenance of facilities, safety and security and all what is required for completion of works in accordance with the Contract.

4. Quality control / Quality assurance measures to be adopted including procedures to be followed for carrying out all tests required under specifications.

5. The Bidder while preparing his methodology for performing and executing the works shall also consider the following:

a) The timely completion of the Project as per the time provided in Contract Data.

b) The Contractor while filling out the list of major equipment required at site, shall ensure that the equipment requirement is in consonance with the construction requirement.

c) The Contractor is not restricted to carry out the work in single shift. The Contractor should note that if he plans to execute the work in more than single shift than all costs related to the additional superintendence to be provided by the Engineer will be borne by the Contractor. Procedure for such additional costs will be worked out and finalized between the Contractor and Engineer with the consent of the Employer.

d) The portions of the Site shall be made available to the Contractor in coordination with other Contractors working at site. The Contractor shall prepare the work programme accordingly.

Mobilization Schedule

The Bidder is required to submit a narrative outlining the method for mobilization of works and arrangement of preliminaries.

In accordance with the Particular Conditions, Sub-Clause 4.1, the Contractor shall not carry out mobilization to Site unless the Engineer gives consent.

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Construction Schedule

Pursuant to Sub-Clause 8.3 of the General Conditions, the whole of the Works, and each Section (if any), shall be completed within the Time for Completion for the Works or Section (as the case may be) stated as hereunder and mentioned in Contract Data:

Description	Time for Completion (Days)
Whole Works	**119 days**

The Bidder shall provide, the Construction Schedule in the bar chart (CPM, PERT or any other to be specified herein) showing the sequence of work items and the period of time during which he proposes to complete each work item in such a manner that his proposed programme for completion of the whole of the Works and Sections of the Works may meet Employer's completion targets in days noted above and counted from the Commencement Date.

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LIST OF MAJOR EQUIPMENT

The Bidder will provide a list of all major equipment and related items, under separate heading for items owned, to be purchased or to be arranged on lease by him to carry out the Works. The information shall include make, type, capacity, and anticipated period of utilization for all equipment.

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed.

Sr. No.	Description of Equipment	Total No. of Equipment to be brought/installed/erected at site during execution of Works	Minimum Mandatory Equipment to be brought / installed / erected at site prior to release of 2nd Part of Mobilization Advance
1.	Pneumatic Tyre Roller	01 No.	-
2.	Bull Dozer (200HP)	01 No.	-
3.	Asphalt Paver Machine	01 No.	-
4.	Vibratory Road Roller (10 Ton)	01 No.	01 No.
5.	Sheep Foot Roller (10 Ton)	01 No.	-
6.	Excavator	02 No.	01 No.
7.	Grader	01 No.	01 No.
8.	Dumper	02 No.	01 No.
9.	Loader	01 No.	01 No.
10.	Tractor Trolley	02 Nos.	01 No.
11.	Water Bowser	02 No.	01 No.
12.	Concrete mixer machine (single load)	01 No.	01 No.
13.	Scaffolding	30,000Rft	15,000Rft
14.	Shuttering	20,000Sft	10,000Sft
15.	Steel Cutting / Bending Machine	01 No.	01 No.
16.	Generator Set (10KVA)	01 No.	01 No.
17.	Total Station	01 No.	01 No.
18.	Lab. Equipment	As per Instructions of Engineer	

Note:

The bidder while preparing his methodology for performing and executing the works and listing out Major Equipment (required to complete the Works in the specified Time Schedule) in this Appendix shall consider the above mentioned minimum requirement of Construction Equipment to be brought/installed/erected at site.

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ORGANIZATIONAL CHART
FOR THE
SUPERVISORY STAFF AND LABOUR

MINIMUM MANDATORY STAFF REQUIREMENT:

The Contractor shall arrange the following staff at site immediately upon commencement of works:

Designation ***(A)***	***Nos.*** ***(B)***	***Minimum Qualification*** ***(C)***	***Min. Relevant Working Experience*** ***(D)***
Project Manager	01	B.Sc. Civil Engineer with valid Pakistan Engineering Council Registration	06 years
Associate Engineer Civil	01	B-Tech / DAE (Civil)	05 years
Associate Engineer E/M	01	B-Tech/ DAE (E/M)	05 years
Quantity Surveyor	01	DAE (Civil)	05 years
Surveyor	01	Certificate	05 years

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Form EQU: Equipment

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section V, Evaluation and Qualification Criteria. 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	

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List of Recommended Manufacturers

(Applicable to Non-Scheduled Items)

Equipment and materials specified with brand names have been provided in order to establish a standard of performance and do not necessarily indicate a preference for a particular manufacturer or material.

The names of manufacturers given below are to indicate the level of quality and performance anticipated by the Engineer/ Employer. Other makes may be accepted provided that the quality and performance of such equipment, in the opinion of the Engineer and subject to approval of the Employer, are at least equal to or better than the equipment/ product offered by the recommended manufacturer.

The acceptance of equipment/ materials offered by these manufacturers will be subject to compliance of offered models /materials with the specifications, capacity and/or performance requirements.

Onus lies with the Contractor for establishing the genuineness of any material/product for its make and origin.

S.NO.	ITEM	MANUFACTURER
(a)	**CIVIL WORKS**	
1	Paints	i Nippon Paints ii ICI Paints iii Berger Paints
2	Anti Termite Treatment	i Mirage ii Biflex iii Termidor
3	Construction Chemicals	i Sika ii FEB iii Ultra Chemical iv Faw Chem v Aquafin
4	Anchors for Concrete (Chemical and Mechanical)	i Hilti ii Spit iii Sika iv Fischer
5	PVC Water Stops	i Decora ii Sika iii ATS Synthetics
6	Wall Coatings	i Gritwall ii Rockshield iii Rockwall
7	Façade Tile Cladding	i Ultra Thin Rockslab (H-Verse Kale)
8	Porcelain Tiles	i Master Tiles

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		ii	Orient Ceramcia Tiles
		iii	Shabbir Tiles
9	Concrete Floor Tile & Pavers	i	GrandWorks
		ii	Concrete Wizard
		iii	Envicrete
		iv	Acmecrete
10	False Ceiling	i	OWA (Germany)
		ii	Daiken Coorporation (Japan)
11	Aluminium Composite Panels (ACP)	i	Alucobond
		ii	Reynobond
		iii	Alubond
12	Epoxy Flooring	i	ICI
		ii	Jotun
		iii	Faw Chem
		iv	Berger
		v	Sika
13	Hardware, Hinges and Locks	i	Yale
		ii	Mandelli
14	Fire Resistant Doors	i	Haseen Habib Trading
		ii	MK Traders
15	Aluminum	i	Prime Aluminum
		ii	Chawla Aluminum
		iii	Alcon Aluminum
		iv	Pakistan Cables
16	Glass	i	Ghani Glass (Local)
		ii	Tariq Glass (Local)
		iii	Gunj Glass (Local)
		iv	Saint-Gobain Glass (imported)
		v	Cornwall Glass (Imported)
		vi	Guardian Glass (Imported)
		vii	Pelkington (Imported)

(b) PLUMBING WORKS

1	Sanitary Fixtures	i	M/S Porta
		ii	M/S Marachi
			(or approved equivalent)
2	Sanitary Fittings	i	M/S Faisal
		ii	M/S Sonex
			(or approved equivalent)
3	Kitchen Sinks	i	M/S Atlas
		ii	M/S Rashad
		iii	M/S Porta
			(or approved equivalent)

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4	Bath & Kitchen Specials / Accessories	i M/S Faisal ii M/S Sonex (or approved equivalent)
5	Grab bars	i M/S Porta ii M/S Zilver (or approved equivalent)
6	Water Filters / Filter Plant	i M/S So-Safe ii M/S N-viro Pak iii M/S KSB (or approved equivalent)
6	Electric Water Heaters	i M/S Ariston ii M/S Canon (or approved equivalent)
8	Gas+Electric Dual Water Heaters	i M/S Corona ii M/S Nasgas iii M/S Tesla (or approved equivalent)
9	Galvanized Iron /Mild steel Pipes	i M/S International Industries Ltd. ii M/S Bashir Pipe Industries Pvt. Ltd. iii M/S Jamal Pipe Industries Pvt. Ltd. (or approved equivalent)
10	Galvanized Iron Pipe Fittings	i M/S HE China ii M/S TG China
11	Thermal insulation for pipes	i M/S Kimmco ii M/S Afico (or approved equivalent)
12	PPR Pipes & Fittings	i M/S Dadex (polydex) ii M/S Beta Pipe iii M/S Popular Pipe iv M/S Nepro Pipe (or approved equivalent)
13	UPVC Pipes & Fittings	i M/S Dadex (Nikasi) ii M/S Beta Pipe iii M/S Popular Pipe iv M/S Nepro Pipe (or approved equivalent)
14	Bronze/ Brass/ CI/ DI Valves	i M/S Kitz ii M/S Scon (or approved equivalent)
15	Cast iron Pipes/traps/Covers/Gratings	i M/S JAWS ii M/S Sandan Engg. Pvt. Ltd (Teepu) iii M/S Super Alpine (or approved equivalent)
16	Fire Equipment	i M/S Naffco ii M/S Sffeco iii M/S Lifeco or approved equivalent

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17	Water Transfer & Drainage Pumping Machinery	i M/S KSB ii M/S Grundfos or approved equivalent
18	Hangers & Supports	i M/S Fischer. ii M/S Hilti. iii M/S Sikla or approved equivalent

(c) ELECTRICAL (BUILDING)

1	DISTRIBUTION BOARDS AND MAIN AND SUB MAIN PANEL BOARDS AND SUB MAIN PANEL BOARDS	i POWER TECH SWITCH GEAR ii SWITCH GEAR SOLUTION LHR iii SUNTECH iv NIBS ENGINEERING v ELECTRICH
2	CABLES AND WIRES	i PAKISTAN CABLES ii NEWAGE CABLES iii FAST CABLES iv GM CABLES
3	MCCBS AND MCBS ELCBS	i SCHNEIDER ii ABB iii TERASAIKI
4	Wiring accessories (SWITCHES, SOCKETS)	i Schneider ii Legrand iii Philips iv ABB
5	LIGHT FIXTURES	i PHILIPS(SIGNIFY) ii OSRAM iii SUNLIGHT iv Britlight v COARTS
6	DATA NETWORKING SYSTEM (PASSIVE COMPONENTS)	i 3M (Corning) ii Schneider
7	DATA NETWORKING SYSTEM (ACTIVE COMPONENTS)	i Cisco ii H3C iii Huawei
8	PVC CONDUITS, PIPES, DUCTS & ACCESSORIES	i SHAVYL ii DADEX iii ADAMJEE DURABUILT iv BETA
9	LIGHTNING PROTECTION	i LOCAL BRAND BEST QUALITY AS APPROVED BY THE ENGINEER

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10	LOW VOLTAGE DG SET (CBU) Foreign Couple Genset With Imported Canopy	i ii iii iv	ALLIED ENGINEERING (CATERPILAR) S.M.JAFFER (FG WILSON / TEKSEN) ORIENT ENERGY (CUMINS POWER GENERATION) ENERGY SOLUTIONS PVT LTD. (AKSA POWER GENERATION)
11	CABLE TRAY	i ii iii iv	JEI ERCON Bilal Switch Gear LINE MAN
12	FANS	i ii iii	LAHORE FANS GFC FANS PAK FANS
13	CCTV	i ii	DAHWA HIK VISION
14	PUBLIC ADDRESS SYSTEM	i ii	BOSCH TOA

d) ELECTRICAL (EXTERNAL)

1	DISTRIBUTION BOARDS AND MAIN AND SUB MAIN PANEL BOARDS	i ii iii iv v vi	JEI Power Tech BILAL SWITCH GEAR LINE MAN TARIQ ELECTRIC ERCON
2	HT CABLES, LV CABLES AND WIRES	i ii iii iv	PAKISTAN CABLES NEWAGE CABLES FAST CABLES AGE CABLES
3	LIGHT FIXTURES	i ii iii iv	PHILIPS(SIGNIFY) (Professional Series only) OSRAM (Professional Series only) SUNLIGHT (Professional Series only) Future Technology (Professional Series only)
4	PVC CONDUITS, PIPES, DUCTS & ACCESSORIES	i ii iii iv v	SHAVYL DADEX ADAMJEE DURABUILT BETA POLO

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5	Light Poles	i ii	JAMAL Pipes MUNIR Industries

Authorized Signature and official Seal: _____

Name: _____

Date: _____

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SECTION VII: STANDARD BIDDING FORMS

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SECTION VII: STANDARD BIDDING FORMS

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Letter of Bid – Technical Proposal

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

Place this Letter of Bid in the first envelope "TECHNICAL PROPOSAL".

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

Note: All italicized text in black font is to help Bidders in preparing this form and Bidders shall delete it from the final document.

Date of this Bid submission: [*insert date (as day, month and year) of Bid submission*]
RFB No.: Not Applicable.
Alternative No.: Not Applicable.

To:

Director In Chief
National Police Foundation (NPF)
Mauve Area, G-10/4, Islamabad.
Ph: 051 2350158 2350100
Fax: 051 9106188

We, the undersigned Bidder, hereby submit the first part of our Bid, the Technical Proposal

In submitting our Bid we make the following declarations:

(a) **No reservations:** We have examined and have no reservations to the bidding document, including addenda issued in accordance with Instructions to Bidders **(ITB 9);**
(b) **Eligibility**: We meet the eligibility requirements and have no conflict of interest in accordance with ITB 3;
(c) **Bid/Proposal-Securing Declaration**: We have not been suspended nor declared ineligible by the Procuring agency/Employer based on execution of a Bid Securing Declaration or Bid Securing Declaration in the Procuring agency/Employer's country in accordance with **ITB 3;**
(d) **Conformity:** We offer to execute works in conformity with the bidding document and in accordance with the works requirements: [*insert a brief description of the WORKS*];
(e) **Bid Validity Period**: Our Bid shall be valid for the period specified in **BDS 18.1** (as amended, if applicable) from the date fixed for the Bid submission deadline specified in **BDS 24.1** (as amended, if applicable), and it shall remain binding upon us, and may be accepted at any time before the expiration of that period;
(f) **Performance Security**: If our Bid is accepted, we commit to obtain a performance security in accordance with the bidding document;
(g) One Bid per Bidder: We are not submitting any other Bid(s) as an individual Bidder, and we are not participating in any other bid(s) as a Joint Venture member or as a subcontractor, and meet the requirements, other than Alternative Bids submitted in accordance with **ITB 20;**
(h) **Suspension and Debarment**: We, along with any of our subcontractors, suppliers, consultants, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the Procuring agency/Employer. Further, we are not ineligible under Pakistan laws;

(i) **State-owned enterprise or institution**: [*select the appropriate option and delete the other*] [*We are not a state-owned enterprise or institution*] / [*We are a state-owned enterprise or institution*];
(j) **Binding Contract**: We understand that this Bid, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
(k) **Not Bound to Accept**: We understand that you are not bound to accept the Most Advantageous Bid or any other Bid that you may receive; and
(l) **Fraud and Corruption**: We hereby certify that we have taken steps to ensure that no person acting for us, or on our behalf, engages in any type of Fraud and Corruption.

Name of the Bidder: *[*insert complete name of Bidder*]

Country of Origin of the Bidder: *[insert country of origin, in case of JV country of origin of lead member]*

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

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

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

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

*****: In the case of the Bid submitted by a Joint Venture specify the name of the Joint Venture as Bidder.
**: Person signing the Bid shall have the power of attorney given by the Bidder. The power of attorney shall be attached with the Bid Schedules.

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Form ELI 1 - Bidder Information Form

[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted.]

Date: *[insert date (as day, month and year) of Bid submission*]
RFB No.: *Aviation Complex-01*

Page _____ of_ _____ pages

1. Bidder's Name *[insert Bidder's legal name]*
2. In case of JV, legal name of each member : *[insert legal name of each member in JV]*
3. Bidder's actual or intended country of registration: *[insert actual or intended country of registration]*
4. Bidder's year of registration: *[insert Bidder's year of registration]*
5. Bidder's Address in country of registration: *[insert Bidder's legal address in country of registration]*
6. Bidder's Authorized Representative Information Name: *[insert Authorized Representative's name]* Address: *[insert Authorized Representative's Address]* Telephone/Fax numbers: *[insert Authorized Representative's telephone/fax numbers]* Email Address: *[insert Authorized Representative's email address]*
7. Attached are copies of original documents of *[check the box(es) of the attached original documents]* ☐ Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above. ☐ In case of JV, JV agreement, in accordance with ITB 3.3. ☐ Establishing that the Bidder is not under the supervision of the Procuring agency/Employer[in case of subsidiaries] 8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

Form ELI 2 - Bidder's JV Members Information Form

[The Bidder shall fill in this Form in accordance with the instructions indicated below. The following table shall be filled in for the Bidder and for each member of a Joint Venture]].
Date: *[insert date (as day, month and year) of Bid submission*]
RFB No.: *Aviation Complex-01*

Page _____ of_ _____ pages

1. Bidder's Name: *[insert Bidder's legal name]*
2. Bidder's JV Member's name: *[insert JV's Member legal name]*
3. Bidder's JV Member country of registration: *[insert JV's Member country of registration]* NOT APPLICABLE
4. Bidder's JV Member's year of registration: *[insert JV's Member year of registration]*
5. Bidder's JV Member's legal address in country of registration: *[insert JV's Member legal address in country of registration]*
6. Bidder's JV Member's authorized representative information Name: *[insert name of JV's Member authorized representative]* Address: *[insert address of JV's Member authorized representative]* Telephone/Fax numbers: *[insert telephone/fax numbers of JV's Member authorized representative]* Email Address: *[insert email address of JV's Member authorized representative]*
7. Attached are copies of original documents of *[check the box(es) of the attached original documents]* ☐ Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above. 8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

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PERSONNEL

Form PER 1 – Contractor's Representative and Key Personnel Schedule

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

Contractor' Representative and Key Personnel

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

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

Form PER-2: Resume and Declaration

Contractor's Representative and Key Personnel

Name of Bidder

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

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

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

Declaration

I, the undersigned *[insert either "Contractor's Representative" or "Key Personnel" as applicable]* , certify that to the best of my knowledge and belief, the information contained in this Form PER-2 correctly describes myself, my qualifications and my experience.

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

Commitment	**Details**
Commitment to duration of contract:	*[insert period (start and end dates) for which this Contractor's Representative or Key Personnel is available to work on this contract]*
Time commitment:	*[insert period (start and end dates) for which this Contractor's Representative or Key Personnel is available to work on this contract]*

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

(a) be taken into consideration during Bid evaluation;

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

(c) result in my dismissal from the contract.

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

Date: (day month year): _____

Countersignature of authorized representative of the Bidder:

Signature: _____

Date: (day month year): _____

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Form CON – 2: Historical Contract Non-Performance, Pending Litigation and Litigation History

Bidder's Name: _____
Date: _____
JV Member Name_____
ICB/NCB No. and title: _____
Page _____of _____pages

Non-Performed Contracts in accordance with Qualification Criteria			
☐ Contract non-performance did not occur January *[insert year]* ☐ Contract(s) not performed since [*insert year]*			
Year	**Non-performed portion of contract**	**Contract Identification**	**Total Contract Amount (current value, currency, exchange rate and PKR equivalent)**
		Contract Identification: Name of Procuring agency/Employer(PA): Address of PA: Reason(s) for nonperformance:	
Pending Litigation, in accordance with Qualification Criteria			
☐ No pending litigation ☐ Pending litigation			

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Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount
		Contract Identification: _____ Name of PA: _____ Address of PA: _____ Matter in dispute: _____ Party who initiated the dispute: ____ Status of dispute: _____	
Litigation History in accordance with Section III, Evaluation and Qualification Criteria of the Prequalification document			
☐ No Litigation History ☐ Litigation History			
Year of award	**Outcome as percentage of Net Worth**	**Contract Identification**	**Total Contract Amount (currency), PKR Equivalent (exchange rate)**
[insert year]	*[insert percentage]*	Contract Identification: *[indicate complete contract name, number, and any other identification]* Name of PA: *[insert full name]* Address of PA: *[insert street/city/country]* Matter in dispute: *[indicate main issues in dispute]* Party who initiated the dispute: *[indicate "Procuring agency/Employer" or "Contractor"]* Reason(s) for Litigation and award decision *[indicate main reason(s)]*	*[insert amount]*

FINANCIAL SITUATION

Form FIN – 3.1: Financial Situation and Performance

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

1. Financial data

Type of Financial information in (currency)	**Historic information for previous *years*, (amount in currency, currency, exchange rate*, PKR equivalent)**		
	Year 1	Year 2	Year 3
Total Assets (TA)			
Total Liabilities (TL)			
Total Equity/Net Worth (NW)			
Current Assets (CA)			
Current Liabilities (CL)			
Working Capital (WC)			
Information from Income Statement			
Total Revenue (TR)			
Profits Before Taxes (PBT)			
Cash Flow Information			
Cash Flow from Operating Activities			

*Refer to ITB 16 for the exchange rate

2. Sources of Finance

Specify sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.

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No.	Source of finance	Amount (PKR)
1		
2		
3		

3. Financial documents

The Bidder and its parties shall provide copies of Audit reports for last 03 years pursuant to Evaluation and Qualifications Criteria, Sub-factor B.4. The financial statements shall:

(a) reflect the financial situation of the Bidder or in case of JV member, and not an affiliated entity (such as parent company or group member).

(b) be independently audited or certified in accordance with local legislation.

(c) be complete, including all notes to the financial statements.

(d) correspond to accounting periods already completed and audited.

☐ Attached are copies of Audit Reports for the **03** years required above; and complying with the requirements

Form FIN – 3.2: Average Annual Turnover

Bidder's Name: _____
Date: _____
JV Member's Name_____
ICB/NCB No. and title: _____
Page _____of _____pages

Annual turnover data (construction only)			
Year	**Amount** **Currency**	**Exchange rate**	**PKR equivalent**
[indicate year]	*[insert amount and indicate currency]*		
Average Annual Turnover *			

* See Section V, Evaluation and Qualification Criteria.

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Form FIN – 3.3: Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as specified in Section V (Evaluation and Qualification Criteria)

Financial Resources		
No.	**Source of financing**	**Amount (PKR.)**
1		
2		
3		

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Form FIN – 3.4: Current Contract Commitments / Works in Progress

Bidders and each member to a JV 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.

Current Contract Commitments					
No.	**Name of Contract**	**Procuring agency/Employer's Contact Address, Tel, Fax**	**Value of Outstanding Work [PKR Equivalent]**	**Estimated Completion Date**	**Average Monthly Invoicing Over Last Six Months [PKR/month)]**
1					
2					
3					
4					
5					

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Form FIN - 5: Self-Assessment Tool for Bidder's Compliance to Financial Resources (Criterion 2.1 of Section 3)

This form requires the same information submitted in Forms FIN – 3.3 and FIN -3.4. 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 – 3.3 (B)	Total Monthly Financial Requirement for Current Contract Commitments (CCC) from FIN – 3.4 (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 – 3.3 (B)	Total Monthly Financial Requirement for Current Contract Commitments (CCC) from FIN – 3.4 (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)	NOT USED			. . . . .	
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 = _____	. . . .	

- Note -

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.

EXPERIENCE

Form EXP - 4.1: General Construction Experience

Bidder's Name: _____
Date: _____
JV Member's Name_____
ICB/NCB No. and title: _____
Page _____of _____pages

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

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Form EXP - 4.2(a)
Specific Construction and Contract Management Experience

Bidder's Name: _____
Date: _____
JV Member's Name_____
ICB/NCB No. and title: _____
Page _____of _____pages

Similar Contract No.	**Information**			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Sub-contractor ☐
Total Contract Amount			PKR equivalent	
If member in a JV or sub-contractor, specify participation in total Contract amount				
PA's Name:				
Address: Telephone/fax number E-mail:				

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Form EXP - 4.2(a) (cont.)
Specific Construction and Contract Management Experience (cont.)

Similar Contract No.	Information
Description of the similarity in accordance with Sub-Factor 4.2(a) of Section III:	
1. Amount	
2. Physical size of required works items	
3. Complexity	
4. Methods/Technology	
5. Construction rate for key activities	
6. Other Characteristics	

Form EXP - 4.2(b)
Construction Experience in Key Activities

Bidder's Name: _____
Date: _____
Bidder's JV Member Name: _____
Sub-contractor's Name[1] (as per ITB 34.2 and 34.3): _____
ICB/NCB No. and title: _____

Page _____ of _____ pages

All Sub-contractors for key activities must complete the information in this form as per ITB 38 and Qualification Criteria and Requirements, Sub-Factor 4.2.

1. Key Activity No One: _____

	Information			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Sub-contractor ☐
Total Contract Amount			PKR equivalent	
Quantity (Volume, number or rate of production, as applicable) performed under the contract per year or part of the year	Total quantity in the contract (i)	Percentage participation (ii)		Actual Quantity Performed (i) x (ii)
Year 1				
Year 2				
Year 3				
Year 4				
PA's Name:				
Address: Telephone/fax number				

[1] If applicable

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	Information
E-mail:	

2. Activity No. Two

3. ……

	Information
Description of the key activities in accordance with Section III:	

Form EXP - 4.2 (c)
Specific Experience in Managing ES aspects

[The following table shall be filled in for contracts performed by the Bidder, and each member of a Joint Venture]

Bidder's Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Member Name: *[insert full name]*
ICB/NCB No. and title: *[insert ICB/NCB number and title]*
Page *[insert page number]* of *[insert total number]* pages

NOT USED

1. Key Requirement no 1 in accordance with 4.2 (c): _____

Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Subcontractor ☐
Total Contract Amount			PKR	
Details of relevant experience				

2. Key Requirement no 2 in accordance with 4.2 (c): _____
3. Key Requirement no 3 in accordance with 4.2 (c): _____
4. …

Appendix-A
Form of Bid Security

(Bank Guarantee)

[The bank shall fill in this Bank Guarantee Form in accordance with the instructions indicated.]

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[Purchaser to insert its name and address]*

No.: *[Purchaser to insert reference number for the Request for Bids]*

Alternative No.: *[Insert identification No if this is a Bid for an alternative]*

Date: *[Insert date of issue]*

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

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

We have been informed that _____ *[insert name of the Bidder, which in the case of a joint venture shall be the name of the joint venture (whether legally constituted or prospective) or the names of all members thereof]* (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its Bid (hereinafter called "the Bid") for the execution of _____ under Request for Bids No. _____ _ ("the RFB").

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

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

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

(b) having been notified of the acceptance of its Bid by the Beneficiary during the Bid Validity Period or any extension thereto provided by the Applicant, (i) has failed to sign the contract agreement, or (ii) has failed to furnish the performance security, in accordance with the Instructions to Bidders ("ITB") of the Beneficiary's bidding document.

This guarantee will expire: (a) if the Applicant is the successful Bidder, upon our receipt of copies of the Contract agreement signed by the Applicant and the performance security issued to the Beneficiary in relation to such Contract agreement; or (b) if the Applicant is not the successful Bidder, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Bidding process; or (ii) twenty-eight days after the end of the Bid Validity Period.

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

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_____

[Signature(s)]

Note: All italicized text is for use in preparing this form and shall be deleted from the final product.

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Appendix-B
Form of Bid-Securing Declaration

[The Bidder shall fill in this Form in accordance with the instructions indicated.]

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

To: *[complete name of Procuring agency/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 be blacklisted and henceforth cross debarred for participating in respective category of public procurement proceedings for a period of (not more than) six months, if fail to abide with a bid securing declaration, however without indulging in corrupt and fraudulent practices, 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) having been notified of the acceptance of our Bid by the Procuring agency/Employer during the period of Bid validity, (i) fail or refuse to sign the Contract; or (ii) fail or refuse to furnish the Performance Security (or guarantee), if required, in accordance with the ITB.

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) twenty-eight days after the expiration of our Bid.

Name of the Bidder*_____

Name of the person duly authorized to sign the Bid on behalf of the Bidder**_____

Title of the person signing the Bid_____

Signature of the person named above_____

Date signed _____ day of _____, _____

*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder
**: Person signing the Bid shall have the power of attorney given by the Bidder attached to the Bid

[Note: In case of a Joint Venture, the Bid-Securing Declaration must be in the name of all members to the Joint Venture that submits the Bid.]

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Appendix C

[*The formulae for price adjustment shall be of the following general type:*]

Pn= a + b Ln / Lo + c En/ Eo + d Mn/Mo + ...

where:

“Pn” is the adjustment multiplier to be applied to the estimated Contract value in the relevant currency of the work carried out in period “n”, this period being a month;

“a” is a fixed coefficient, stated in the relevant table of adjustment data, representing the non- adjustable portion in contractual payments;

“b”, “c”, “d”, ... are coefficients representing the estimated proportion of each cost element related to the execution of the Works as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, equipment and materials;

“Ln”, “En”, “Mn”, are the current cost indices or reference prices for period “n”, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date 28 days prior to the last day of the period (to which the particular Payment Certificate relates); and

“Lo”, “Eo”, “Mo”, are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date i.e. prices prevalent 28 days prior to the latest day for submission of Bids.

The weightings (coefficients) for each of the factors of cost stated in the following table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variation(s).

The source of prices and the weightages for use in the adjustment formula shall be as follows:

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SCHEDULE OF ADJUSTMENT DATA

Table I. Local Currency (LC) For Bill Nos. 01 to 05.

Cost Element	Description	Weightages	Applicable Price
(i)	(ii)	(iii)	(iv)
a	Fixed Portion	0.670	
b	Labour *(Labourer (un-skilled) per day, shall be taken as representative of all types of Labour (skilled/unskilled) deployed at site)*	0.150	Government of Pakistan (GP) Federal Bureau of Statistics (FBS) Monthly Statistical Bulletin.
c	Cement *(OPC cement per bag shall be taken as representative of all types of cement used at the site)*	0.039	- do -
d	Reinforcing Steel *(½" Ø round M.S. Bars per tonne shall be taken as representative of all types and diameters of Steel Reinforcement)*	0.066	- do -
e	High Speed Diesel (HSD) *(HSD shall be taken as representative of all kind of fuels used in connection with the Contract)*	0.075	-do-
	Total	1.00	

Notes:

1) Prices for "(b)" to "(e)" shall be taken from the Government of Pakistan, Federal Bureau of Statistics. Monthly Statistical Bulletin. The base prices shall be those prevalent 28 days prior to the latest day for submission of Bids. Current date price of any element shall be those prevalent 28 days prior to the last day of the period to which the particular Payment Certificate relates.

2) If the Statistical Bulletin of the aforesaid month is not available at the time of Bid opening, then the Basic Prices of Specified Materials will be submitted by the Contractor at the time of their availability and shall be recommended by the Engineer and will be fixed as Basic Prices for Specified Materials for Price Adjustment.

3) The prices for the cost elements of (b) to (f) shall be used for the City where the Site is located. In case the Site is not listed in the monthly statistical Bulletin, the prices for the nearest City listed in the Bulletin shall be used.

4) Any fluctuation in the prices of materials other than those given above shall not be subject to adjustment of the Contract Price and shall be deemed to be included in the rates and prices quoted by the Bidders.

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5) The prices of materials provided in this Appendix are for the purpose of price adjustment only. The Contractor shall base his rates entered in the Bill of Quantities on current market prices.

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SECTION VIII. GENERAL CONDITIONS (GC)

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Section VIII. General Conditions (GC)

Red Book:

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The Conditions of Contract are the "General Conditions" which form part of the "Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer ("Red book") Second edition 2017, Reprinted 2022 with amendments" published by the Federation Internationale Des Ingenieurs – Conseils (FIDIC) and the following "Particular Conditions" which shall complement the General Conditions of the Contract.

The Contractor shall arrange and provide three (3) originals of the above FIDIC publication directly from FIDIC and shall also submit the original purchase receipts as documentary evidence to the Engineer.

International Federation of Consulting Engineers (FIDIC)

FIDIC Bookshop – Box- 311 – CH – 1215 Geneva 15 Switzerland

Fax: +41 22 799 49 054

Telephone: +41 22 799 49 01

E-mail: fidic@fidic.org

www.fidic.org

FIDIC code: ISBN13: 978-2-88432-084-9

SECTION IX. SPECIAL CONDITIONS OF THE CONTRACT

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Special Conditions of the Contract

The Special Conditions of Contract (SCC) complement the General Conditions of Contract (GCC) to specify data and contractual requirements of the Procuring agency/ Employer/ Employer, the engineer, the sector, the overall project, and the works. In the event of a conflict, the provisions herein shall prevail over those in the GCC.

Part A – Contract Data

Contract data of the SCC, includes data to complement the GCC in a manner similar to the way in which the Bid Data Sheet complements the Instructions to Bidders.

SCC Clause Number	GCC Clause Number	Amendments of, and Supplements to, Clauses in the GCC
		General Provision (GCC 1)
1.	1.1.27	365 days
2.	1.1.31	Employer's name and address: National Police Foundation (NPF) Islamabad. Name of Employer's representative: **Director In Chief** National Police Foundation (NPF) Mauve Area, G-10/4, Islamabad. Ph: 051 2350158 2350100 Fax: 051 9106188
3.	1.1.35	_____ *[insert Engineer's name and address at the time of appointment of the Engineer]*
4.	1.1.84	**119 days** for whole of the Works
5.	1.3	**For notices** Procuring agency/Employer Authorized representatives name and address: **Director In Chief** National Police Foundation (NPF) Mauve Area, G-10/4, Islamabad. Ph: 051 2350158 2350100 Fax: 051 9106188 Engineer's Authorized representatives name and address: ---------- *[insert Engineer's authorized representative name and address at the time of appointment of the Engineer]*

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		Contractors Authorized representatives name and address: --- *[insert Contractor's name and address at the time of signing of the Contract]*
6.	1.4	**Governing Law;** The Applicable Law shall be: Laws of the Islamic Republic of Pakistan
7.	1.4	**Communication Language:** The Communication Language shall be: English
The Employer/ Procuring agency/Employer (GCC Clause 2)		
8.	2.1	Time for access to the Site: Within 14 days of Signing of Contract Agreement.
9.	2.4	The Employer has sufficient funds to cover the Cost of the entire Project.
The Engineer (GCC Clause 3)		
10.	3.2	Engineer's Duties and Authority: Variations resulting in an increase of the Accepted Contract Amount in excess of 1% subject to accumulative Variations not exceeding five percent (5%) of the Accepted Contract Amount.
The Contractor (GCC Clause 4)		
11.	4.2	Performance guarantee/ security will be in the form of an un-conditional and irrevocable bank guarantee from a scheduled bank in Pakistan in the amount of 10% as a percentage of the Accepted Contract Price.
12.	4.7.2(a)	**Clause 4.7 Setting out** Period for notification of errors in the items of reference*: 28 (twenty-eight) days*
13.	4.20	Number of additional paper copies of progress reports: 03
Sub-Contracting (GCC Clause 5)		
14.	5.1(a)	Maximum allowable accumulated value of work subcontracted (as a percentage of the Accepted Contract Amount): twenty-five percent (25%)
15.	5.1 (b)	Works for which sub-contracting is not permitted: None
Staff and Labour (GCC Clause 6)		
16.	6.5	Normal working hours 08 *(eight) hours.*

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Plant, Material and Workmanship (GCC Clause 7)		
17.	7.2	Samples as required by the Engineer.
Commencement, Delays and Suspension (GCC Clause 8)		
18.	8.3	Number of additional paper copies of program: 03 copies
19.	8.8	Delay damages shall be payable for each day of delay shall be 0.25% of the Accepted Contract Amount per day, in the currency and proportions in which the Contract Price is payable. Maximum amount of delay damages is 10% of the Accepted Contract Amount.
20.	8.14	Clause 8.14 Applicability of Incentives for Early Completion: Not Applicable.
Measurement and Valuation (GCC Clause 12)		
21.	12.2	Method of measurement shall be in accordance with the reference Technical Specifications, Bill of Quantities and/ or other applicable Schedule(s) for relevant BOQ item of work.
22.	12.3	Percentage profit : 10%
Variations and Adjustments (GCC Clause 13)		
23.	13.4 (b)(ii)	Percentage rate to be applied to Provisional Sums for overhead charges, profit and taxes is: Twenty five percent (25%)
24.	13.7	Adjustments for Changes in Cost: The Accepted Contract Amount shall be adjustable during Contract Execution as per Appendix-C.
Contract Price and Payment (GCC Clause 14)		
25.	14.2	Total advance payment shall be fifteen percent (15%) of the Accepted Contract Amount excluding Provisional Sums payable in the currency and proportion of Contract.
26.	14.2.3	Repayment of Advance payment: Deduction shall be made at the amortization rate of 20% of the value of the Works executed in each IPC as provided in paragraph (i) of Sub-Clause GCC 14.3, starting from 1st IPC against work done provided that the advance payment shall be completely repaid prior to the time when 90% of the Accepted Contract Amount less Provisional Sums has been certified for payment. It may be more than 20% in the last instalment to ensure full repayment.
27.	14.3	Period of payment: one month

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28.	14.3(b)	Number of additional paper copies of statements: four (04)
29.	14.3(iii)	Percentage of retention: 7% (seven percent) Limit of Retention Money: 5% (five percent)
30.	14.5(b)(i)	Plant and Materials for payment when shipped: Not Applicable
31.	14.5(c)(i)	Plant and Non-Perishable Materials under Bill of "Imported Plant and Materials" shall be paid as: Not Applicable
32.	14.6.2	Withholding (amount in) an IPC: 10% of the Accepted Contract Amount.
33.	14.7(a)	Period of payment of Advance Payment to the Contractor: 14 days
34.	14.7 b(i)	Period for the Procuring agency/Employer to make interim payments to the Contractor under Sub-Clause 14.6 (interim Payment): 14 days
35.	14.7 b(ii)	Period for the Procuring agency/Employer to make interim payments to the Contractor under Sub-Clause 14.13 (Final Payment): 28 days
36.	14.7(c)	Period for the Procuring agency/Employer to make final payment to the Contractor: 56 days
37.	14.8	financing charges for delayed payment: Nil
38.	14.11.1(b)	Number of additional paper copies of draft Final Statement: four (4)
39.	14.15	Currencies of Payment The Contract Price shall be paid in Pakistani Rupees (PKR).
40.	14.15 (a)(i)	Local Currency: 100% Foreign Currency: 0%
41.	14.15 (c)	Local Currency: 100% Foreign Currency: 0%
42.	14.15 (f)	Rate of exchange: Nil
43.	17.2 (d)	Liability for Care of the Works Nil
Insurance (GCC Clause 19)		
44.	19.1	Permitted deductible limits insurance required for the Works: 10% of the loss amount on each

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		and every loss. insurance required for Goods: Nil insurance required for liability for breach of professional duty: Nil insurance required against liability for fitness for purpose (if any is required): Nil insurance required for injury to persons and damage to property: Pak Rupees one hundred thousand (PKR. 100,000) per occurrence with number of occurrences unlimited insurance required for injury to employees: Pak Rupees one hundred thousand (Rs. 100,000) per occurrence with number of occurrences unlimited other insurances required by Laws and by local practice: Nil
45.	19.1	Periods for submission of insurance: a) evidence of insurance: Not later than the Commencement Date b) relevant policies: Within twenty-eight (28) days from the Commencement Date
46.	19.2.1(b)	Additional amount to be insured: 15% of Accepted Contract Amount
47.	19.2.1(iv)	List of Exceptional Risks which shall not be excluded from the insurance cover for the Works: Nil
48.	19.2.2	Extent of insurance required for Goods: from Ex-Works to delivery at the Site Amount of insurance required for Goods: Full Replacement Value
49.	19.2.3(a)	amount of insurance required for liability for breach of professional duty: full replacement value of the Works to be designed by the Contractor
50.	19.2.3(b)	Insurance required against liability for fitness for purpose: Yes
51.	19.2.3	Period of insurance required for liability for breach of professional duty: Until the date of issuance of Performance Certificate
52.	19.2.4	Amount of insurance required for injury to persons and damage to property: Injury to person and Fata case: in accordance with Workmen Compensation Act Damage to Property: PKR 1 million without limit to the number of incidents
53.	19.2.6	**Insurance** Other insurances required by Laws and by local practice: All insurances as applicable to the extent of execution of the project, under Federal and Provincial laws of Islamic Republic of Pakistan.

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Dispute Avoidance/ Adjudication Board (GCC Clause 21)		
54.	21.1	As and when required (Ad-hoc DAB)
55.	21.1	The DAB shall comprise: *sole member*
56.	21.1	List of proposed members of DAB [to be inserted at the time of signing of the Contract] - Proposed by Employer/ Procuring agency/Employer: One sole member to be appointed with mutual consent of both parties. - Proposed by Contractor: One sole member to be appointed with mutual consent of both parties.
57.	21.2	Appointing entity (official) for DAB members: Chairman Pakistan Engineering Council (PEC) from the list of PEC approved arbitrators published at its website.
58.	21.6	PEC Rules of Conciliation and Arbitration or Pakistan Arbitration Act of 1940, if the former is inactive. The place of Arbitration shall be in the Employer's country: Islamabad, Pakistan

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Part-B Special Provisions

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PARTICULAR CONDITIONS
Part B - Special Provisions

1.1 Definitions

1.1.22 "DAAB or Dispute Avoidance / Adjudication Board"

Delete the text of 1.1.22 and replace with the following:

"**Dispute Adjudication Board**" or "**DAB**" means the person so named in the Contract, or appointed under Clause 21"

1.1.23 "DAAB Agreement"

Delete the text of 1.1.23 and replace with the following:

"**DAB Agreement"** means the Agreement signed or deemed to have been signed by both parties and the sole member of the DAB in accordance with Sub-Clause 21.1. [*Constitution of DAB*] or Sub-Clause 21.2 [*Failure to Appoint DAB Member(s)*], incorporating by reference the General Conditions of DAB Agreement contained in the Appendix of these General Conditions with such amendments as are agreed.

1.1.76 "Specification"

Following is added at the end:

"and consists of two parts i.e.,

i) "Part A - Specific Provisions"; and

ii) "Part B - Specifications

- Technical Provisions"."

1.2 Interpretation

"and" is deleted from the end of sub-paragraph (i) and added at the end of sub-paragraph (j).

Sub-paragraph (k) is added:

"(k) The word "tender" is synonymous with "bid" the word tenderer with "bidder", the words "tender documents" with "bidding documents" and "Schedule of Prices" with "Bill of Quantities", as applicable."

1.5 Priority of Documents

The documents listed at (a) through (i) of this Sub-Clause are deleted and substituted with the following:

(a) the Contract Agreement;

(b) the Letter of Acceptance;

(c) The completed Letters of Technical & Financial Bid;

(d) the Particular Conditions Part A - Contract Data;

(e) the Particular Conditions Part B - Special Provisions;

(f) the General Conditions;

(g) the Specification Part A - Specific Provisions;

(h) **For Scheduled items:**

1). Bill of Quantities (BOQ)
2). Drawings
3). Punjab MRS 2nd Biannual Rawalpindi-2026 Specifications

For Non-Scheduled items:

1). Bill of Quantities (BOQ)
2). Drawings
3). Technical Specifications

(i) any other documents forming part of the Contract.

The addenda/ corrigenda, if any, shall be deemed to have been incorporated at the appropriate places in the documents forming the Contract.

1.6 Contract Agreement

Delete the text and substitute with the following:

The Parties shall sign a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Contractor. The Contractor shall prepare six (6) copies of the Contract Document (including all the volumes / documents listed in the Contract Agreement) along-with copies of all the bonds/Guarantees/Sureties, at his cost and shall submit the same to the Employer".

3.1 The Engineer

In sub-paragraph (a) the text "as defined in the Pakistan Engineering Council Act, 1975 (Act No. V of 1976)" are added after the words "professional engineer"

3.2 Engineer's Duties and Authority

The Engineer shall obtain the consent in writing of the Employer before taking action under the following Sub-Clauses of these Conditions:

(a) Consenting to the subcontracting of any part of the Works under Sub-Clause 5.1 [*Subcontractors*]

(b) Any action under Sub-Clauses 8.9 [*Employer's Suspension*] and 8.12 [*Prolonged Suspension*]

(c) Issuance of "Taking Over Certificate" under Sub-Clause 10.1 [*Taking Over the Works and Sections*].

(d) Issuing the "Performance Certificate" under Sub-Clause 11.9 [*Performance Certificate*].

(e) Sub-Clause 13.1 [*Right to Vary*]: instructing a Variation, except;

(i) in an emergency situation as determined by the Engineer, or

(ii) if such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the Contract Data.

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(f) Sub-Clause 13.3 [*Variation Procedure*]: approving a proposal for Variation submitted by the Contractor in accordance with Sub-Clause 13.3.2 [Variation by Request for Proposal] or 13.2 [*Value Engineering*].

(g) Certifying release of second half of the Retention Money under Sub-Clause 14.9 [*Release of Retention Money*].

(h) Issuing Final Payment Certificate under Sub-Clause 14.13 [*Issue of FPC*].

(i) Any Change in the payment thereof under Clause 13.6 [*Adjustment for Changes in Law*].

(j) Extra payment as a result of Contractor's claims under Clause 20 [*Employer's and Contractor's Claim*].

Any such requirement shall not be applied to any action by the Engineer under Sub-Clause 3.7 [*Agreement or Determination*], as stated in Sub-Clause 3.2 [*Engineer's Duties and Authority*] of the General Conditions.

Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Engineer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 13 and shall notify the Contractor accordingly, with a copy to the Employer.

Following is added after the words "the Employer's consent is required" in 4th paragraph:

"stating that the Employer's consent has been obtained for that specified authority".

4.2 Performance Security

4.2.1 Contractor's Obligations

The entity issuing the Performance Security and its form shall be as under:

The Performance Security shall be, at the option of the Contractor, issued in the prescribed form included in the Bidding Documents, by (a) a Scheduled Bank in Pakistan or (b) a foreign bank duly counter-guaranteed by a Scheduled Bank in Pakistan.

Following paragraph is added at the end of this Sub-Clause:

"The amount of Performance Security shall be reduced to 50% following issue of the Taking-Over Certificate for the whole of the Works under Clause 10 of Conditions of Contract."

The cost of complying with requirements of this Sub-

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Clause shall be borne by the Contractor.

4.3 Contractor's Representative

In second paragraph the text "professional engineer as defined in the Pakistan Engineering Council Act, 1975 (Act No. V of 1976) (having temporary licence in case of foreign engineer under Section 12 of the Pakistan Engineering Council Act, 1975 (Act No. V of 1976)" are added after the words "qualified, experienced".

In the 3rd paragraph the words "28 days" are substituted by "14 days". In 2nd line of 4th paragraph the text "or appoint a replacement" is substituted by "except appointment of a suitable temporary replacement is deployed at the Site"

4.4 Contractor's Documents

4.4.2 As-Built Records

First paragraph is deleted and the text in the last paragraph is substituted with the following:

"The Contractor shall furnish to the Engineer 6 copies, one reproducible and one electronic copy (provided the Engineer has made available to the Contractor editable form of the Drawings) of all Drawings amended to conform to the Works as built. In case the Engineer does not make available to the Contractor editable form of the Drawings, the Contractor shall furnish to the Engineer as-built data for incorporation in the Drawings. Upon receipt of PDF versions of the as-built drawings prepared by the Engineer, the Contractor shall furnish to the Engineer 6 copies and one reproducible of these Drawings.

The price of such Drawings shall be deemed to be included in the Contract Price."

Following Sub-Clause is added:

4.4.4 Shop Drawings

The Contractor shall submit to the Engineer for review 3 copies of all shop and erection drawings applicable to this Contract as per provision of relevant Sub-Clause of the Contract.

Review and approval by the Engineer shall not exceed 21 days and be construed as a complete check but will indicate only that the general method of construction and detailing is satisfactory and the Engineer's review or approval shall not relieve the Contractor of any of his responsibilities under the Contract.

4.8 Health and Safety Obligations

The following text is added at the end of this Sub-Clause:

In the event of work being carried out outside the normal working hours and in the event of work being carried out at night, the Contractor shall at his own cost, provide and maintain such good and sufficient light as will enable the work to proceed satisfactorily and without danger. The approaches to the Site and the Works where the night work is being carried out shall be sufficiently lighted. All arrangement adopted for such lighting shall be to the satisfaction of the Engineer.

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4.20	**Progress Reports**	At the end of sub-paragraph (g) the word "and" is deleted and at the end of sub-paragraph (h) the full stop (.) is replaced with ";", and the following new sub-paragraphs are added as: i) planned programme for the execution of the Works for next 56 days to enable the Engineer to determine its programme of inspection and testing; j) monthly summary of daily job record indicating weather conditions, deployment of Contractor's Equipment, labour employment, local material procurement and material import, if any; and k) salient contractual and project information
5.1	**Subcontractors**	Add the following text at the end of paragraph (ii): "under Schedule to Bid" The following is added at the end of the last paragraph of Sub- Clause 5.1: "All subcontracts relating to the Works shall include provisions which entitle the Employer to require the subcontract to be assigned to the Employer under sub-paragraph (a) of Sub- Clause 15.2.3 [*After Termination*]. The Contractor shall give reasonable opportunity to contractors from Islamic Republic of Pakistan for subcontracts for the Works, and endeavour to employ such contractors as Subcontractors."
5.2	**Nominated Subcontractors**	5.2.2 Objection to Nomination In sub-paragraph (c), "and" is deleted from the end of (i); "." at the end of (ii) is replaced with: ", and". The following is then added as (iii): "(iii) be paid only if and when the Contractor has received from the Employer payments for sums due under the Subcontract referred to under Sub-Clause 5.2.3 [*Payment to nominated Subcontractors*]."
6.1	**Engagement of Staff and Labour**	The following paragraph is added at the end of the Sub-Clause: "The Contractor shall, to the extent practicable and reasonable, employ staff (not less than 50%) and labour (not less than 85%) with appropriate qualifications and experience from sources within the Islamic Republic of Pakistan."
6.7	**Health and Safety of Personnel**	The existing text is substituted with the following: "In order to provide for the safety, health and welfare of persons, and for prevention of damage of any kind, all operations for the purposes of or in connection with the Contract shall be carried out in compliance with the Safety Requirements of the Government of Pakistan with such modifications thereto as the Engineer may authorize or direct and the Contractor shall take or cause to be taken

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such further measures and comply with such further requirements as the Engineer may determine to be reasonably necessary for such purpose. The Contractor shall also provide all other medical services and appoint a health and safety officer at Site if stated in the Specifications. In case of any fatality or serious accident, the Contractor shall, in addition, notify the Engineer immediately by the quickest available means."

6.8 Contractor's Superintendence

Insert at the end of sub-paragraph (a) of this Sub-Clause:

"or, if not, the Contractor shall make competent interpreters available during all working hours, in a number sufficient for those persons to properly perform their superintendence duties"

The following text is added at the end of this Sub-Clause:

"The Contractor's authorized representative and his other engineers working at site shall possess valid registration with the Pakistan Engineering Council.

The Contractor's authorized representative at Site shall be authorized to exercise adequate administrative and financial powers on behalf of the Contractor so as to achieve completion of the Works as per the Contract."

6.12 Key Personnel

The following is inserted at the end of the last paragraph:

"If any of the Key Personnel are not fluent in this language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer."

The following Sub-Clauses 6.13 to 6.26 are added at the end of Sub-Clause 6.12:

6.13 Foreign Personnel

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 all reasonable 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.

6.14 Supply of Foodstuffs

The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor's Personnel for the purposes of or in connection with the

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Contract.

6.15	**Supply of Water**	The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.
6.16	**Measures against Insect and Pest Nuisance**	The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.
6.17	**Alcoholic Liquor or Drugs**	The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereto by Contractor's Personnel
6.18	**Arms and Ammunition**	The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.
6.19	**Festivals and Religious Customs**	The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.
6.20	**Funeral Arrangements**	The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of its local employees who may die while engaged upon the Works.
6.21	**Forced Labour**	The Contractor, including its Subcontractors, shall not employ or engage forced labour which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labour, such as indentured labour, bonded labour or similar labour-contracting arrangements.
6.22	**Child Labour**	The Contractor, including its Subcontractors, shall not employ or engage child labour in accordance with relevant law(s) in force in Islamic Republic of Pakistan.
6.23	**Employment Records of Workers**	The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [*Contractor's Records*].
6.24	**Workers' Organizations**	The Contractor shall comply with the relevant labour laws of Pakistan which recognize workers' rights to form and to join workers' organizations/Trade Union of their choosing and to bargain collectively without interference.

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6.25 Non-Discrimination and Equal Opportunity

The Contractor shall not make decisions relating to the employment or treatment of Contractor's Personnel on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment of Contractor's Personnel on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to any aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, and disciplinary practices.

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. The Contractor shall provide protection and assistance as necessary to ensure non discrimination and equal opportunity, including for specific groups such as women, persons with disabilities, migrant workers and children (of working age in accordance with Sub-Clause 6.22)

6.26 Epidemics

In the event of any out-break of illness of epidemic nature, the Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government or the local medical or sanitary authorities for the purpose of overcoming the same.

7.7 Ownership of Plant and Materials

The following is added before the first paragraph: "Except as otherwise provided in the Contract,"

The following is added at the end of the Sub-Clause:

"No Plant and/or Materials that is the property of the Employer shall be removed from the Site. If it becomes necessary to:

(i) remove any item of such Plant from the Site for the purposes of repair, the Contractor shall give a Notice, with reasons, to the Engineer requesting consent to remove the defective or damaged item off the Site. This Notice shall clearly identify the item of defective or damaged Plant, and shall give details of: the defect or damage to be repaired; the place to which defective or damaged item of Plant is to be taken for repair; the transportation to be used (and insurance cover for such transportation); the proposed inspections and testing off the Site; and the planned duration required before the repaired item of Plant shall be returned to the Site. The Contractor shall also provide any further details that the Employer may reasonably require; or

(ii) replace any item(s) of such Plant and/or Materials, the Contractor shall give a Notice, with reasons, to the Engineer clearly identifying the item(s) of Plant and/or Materials to be replaced, and giving details of the due date of delivery to the Site of the replacement item(s).

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Where any item of Plant and/or Materials has become the property of the Employer under this Sub-Clause before it has been delivered to the Site, the Contractor shall ensure that such an item is not moved except for its delivery to the Site.

The Contractor shall indemnify and hold the Employer harmless against and from the consequences of any defect in title or encumbrance or charge (except any reasonable restriction arising from the intellectual property rights of the manufacturer or producer) on any item of Plant and/or Materials that has become the property of the Employer under this Sub-Clause."

The following Sub-Clause 7.9 is added after Sub Clause 7.8:

7.9	**Use of Pakistani Materials and Services**	The Contractor shall, so far as may be consistent with the Contract, make the maximum use of materials, supplies, plant and equipment indigenous to or produced or fabricated in Pakistan and services available in Pakistan provided such materials, supplies, plant, equipment and services shall be of required standard.
8.1	**Commencement of Works**	The following is added before the first paragraph: "within 14 days, after signing of the Contract Agreement by both Parties," and thereafter the word "The" is replaced with the word "the".
8.5	**Extension of Time for Completion**	The following is added after paragraph (c): "for last five years".

The following Sub-Clause 11.12 is added after Sub-Clause 11.11:

11.12	**Supervisory Assistance During DNP**	If provided under the Schedule of Prices, the Contractor shall provide supervisory assistance to the Employer during the DNP for the Works. Such supervisory assistance shall be as described in the Specification for the purpose of supporting the Employer's operation and maintenance of the Plant for the period specified in the Schedule of Prices after the Date of Completion.
12.2	**Method of Measurement**	The following paragraph is added at the end of the Sub-Clause: "Summary of measured quantity for payment shall be delineated item-wise under four heads namely; "Schedule of Prices Quantity", "Quantity Executed To-date", "Quantity Certified Previously" and "Net Quantity Executed under this Certificate".
12.3	**Valuation of the Works**	After sub-paragraph (c) delete the text of 5th paragraph "Each new rate…… …..relevant matters" and substitute with the following: "the valuation will be carried out on the basis of applicable

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item rates of Punjab MRS Schedule of Rates 2026, 2nd Biannual, Rawalpindi, with the application of awarded premium / rebate.

Failing above, the valuation will be carried out by the Engineer on the basis of similar items covered in the Bill of Quantities, insofar as such rates or prices apply and where such rates or prices do not directly apply, the value shall be based on the rates or prices deduced therefrom so far as it is practicable to do so. If the same is not provided in the Bill of Quantities then the valuation will be carried out on the basis of actual with the application of current market rates for labour, material etc. No escalation on account of material, labour, POL etc. shall be allowed on such items if the valuation is carried out on the basis of current market rates and the percentage of overheads, taxes & profit, etc. to be allowed in such cases shall be twenty five percent (25%)."

13.4 Provisional Sums

The following paragraph is inserted as the penultimate paragraph:

"The Provisional Sum shall be used to cover the Employer's share of the DAB members' fees and expenses, in accordance with Clause 21. No prior instruction of the Engineer shall be required with respect to the work of the DAB. The Contractor shall submit the DAB members' invoices and the satisfactory evidence of having paid 100% of such invoices as part of the substantiation of those Statements submitted under Sub-Clause 14.3."

13.6 Adjustments for Changes in Laws

The following paragraphs are added at the end of the Sub- Clause:
"Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay has already been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the Table of Adjustment Data in accordance with the provisions of Sub-Clause 13.7 [*Adjustments for Changes in Cost*]."

14.2 Advance Payment

14.2.1 Advance Payment Guarantee

The entity issuing the Advance Payment Guarantee and its form shall be as under:

The Advance Payment Guarantee shall be in the form of Guarantee issued by (a) a Scheduled Bank in Pakistan or (b) a foreign bank duly counter-guaranteed by a Scheduled Bank in Pakistan.

14.2.2 Advance Payment Certificate

Add the following at the end:

"The Engineer shall issue an Advance Payment Certificate for the advance payment in following two equal parts:

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(i) first part within 14 days after signing of the Agreement or the date of receipt of Engineer's Notice to Commence, whichever is earlier; and

(ii) second part within 42 days from the date of payment of the first part, subject to the satisfaction of the Engineer as to the state of mobilization of the Contractor, bringing/installing/erecting of essential equipment and mobilization of minimum mandatory staff to complete the requirement for the entire work, having fulfilled his obligation under the Contract agreement for provision of facilities for the Engineer such as Site office, transport etc. and his own facilities such as contractor's camp, storage yards, etc. and having completed at least 2% of the permanent works (to be assessed by the Engineer during this time period."

14.6 Issue of IPC

14.6.1 The IPC

In the first line of the 1st paragraph the words "28 days" are substituted by "14 days".

14.7 Payment

Delete '.' At the end of last paragraph and add the words "or through crossed cheque in favour of the Contractor."

14.8 Delayed Payment

In the first paragraph, third line, the words "compounded monthly" are deleted.

The text of 2nd paragraph is deleted and substituted with the following:

"The Employer shall pay to the Contractor compensation at the rate stated in the Contract Data."

15.2 Termination for Contractor' Default

15.2.1 Notice

Following text is added at the end of sub-paragraph (h) of this Sub-Clause:

"For the purposes of this Contract, corrupt and fraudulent practices have been defined in Public Procurement Rules 2026."

15.2.3 After Termination

The word "and" at the end of sub-paragraph (ii) of paragraph (b) is deleted. The following paragraph is added after sub-paragraph (iii):

"(iv) all Employer-Supplied Materials and/or Employer's Equipment made available to the Contractor in accordance with Sub-Clause 2.6 *[Employer-Supplied Materials and Employer's Equipment],* and"

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15.4	**Payment after Termination for Contractor's Default**	The following text is added at the end of this Sub-Clause: "The Employer shall be entitled to sell any of the Contractor's Equipment, Temporary Works and unused materials and apply the proceeds of sale towards payment of any debt due from the Contractor to the Employer under this Clause including any outstanding payments to the Subcontractors."
16.2	**Termination by Contractor**	16.2.1 Notice The sub-paragraph (j) is deleted in its entirety. At the end of sub-paragraph (i) "; or" is replaced with "." and at the end of sub-paragraph (h) ";" is replaced with "; or". In sub-paragraph (f) "84 days" are replaced with "180 days" and text "for reasons not attributable to the Contractor" is added at the end.
16.3	**Contractor's Obligations After Termination**	Sub-paragraph (c) is deleted and replaced with: "(c) deliver to the Engineer all Employer-Supplied Materials and/or Employer's Equipment made available to the Contractor in accordance with Sub-Clause 2.6 *[Employer-Supplied Materials and Employer's Equipment];* and (d) remove all other Goods from the Site, except as necessary for safety, and leave the Site."
17.1	**Responsibility for Care of the Works**	After the two instances of "Goods" in the last paragraph, the words "Employer-Supplied Materials and/or Employer's Equipment" are added.
		The following Sub-Clause 17.7 is added after Sub-Clause 17.6:
17.7	**Use of Employer's Accommodation/ Facilities**	The Contractor shall take full responsibility for the care of the items of the Employer's facilities and/or accommodation, if any, as detailed in the Specification, from the date of use and/or occupation by the Contractor until the date on which such use and/or occupation is re-vested in the Employer. If any loss or damage happens to any of the above items during a time while the Contractor is responsible for its care, arising from any cause other than a cause for which the Employer is responsible or liable, the Contractor shall promptly rectify the loss or damage at the Contractor's risk and cost.
18.1	**Exceptional Events**	The words "or disorder" are replaced with "disorder or sabotage" in sub-paragraph (c) of the Clause.
18.4	**Consequences of an Exceptional Event**	The following is added at the end of sub-paragraph (b) after deleting the ".": ", including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Exceptional Events, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 19.2 [*Insurance to be provided by the Contractor*]."
18.5	**Optional Termination**	In sub-paragraph (c), the words "and necessarily" are added after the words "was reasonably".

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19.1	**General Requirements**	Following text is added at the end of first paragraph: "The Contractor shall immediately after the date of the Letter of Acceptance submit the draft of insurance policies for the Employer's consent." Following text is added at the end of third paragraph: "The Contractor shall, within the respective periods stated in the Contract Data submit to the Engineer and the Employer a) evidence that the insurances described in this Clause have been effected, and b) copies of policies of the insurances described in Sub-Clauses 19.2.1, 19.2.4 and 19.2.5."
19.2	**Insurance to be provided by the Contractor**	19.2.5 Injury to employees The words "sickness, disease" are deleted in the third line of first paragraph. The following Sub-Clause is added after Sub-Clause 19.2.6: 19.2.7 Insurance Company "The Contractor shall be obliged to place all insurances described in this Clause with insurers listed in the Contract Data with min. rating of AA by PACRA/VIS.
21.1	**Constitution of the DAAB**	Delete the text of Sub-Clause 21.1 in its entirety and replace with the following: Disputes shall be adjudicated by a DAB in accordance with Sub-Clause 21.4 [*Obtaining DAAB's Decision*]. The Parties shall jointly appoint a DAB by the date 28 days after a Party gives notice to the other Party of its intention to refer a dispute to a DAB in accordance with Sub-Clause 21.4. The DAB shall comprise, as stated in the Contract Data, of one suitably qualified person ("the member"). The members shall be selected from those on the list on PEC Website, other than anyone who is unable or unwilling to accept appointment to the DAB. The agreement between the Parties and the sole member ("adjudicator") shall incorporate by reference the General Conditions of Dispute Adjudication Agreement contained in the Appendix to FIDIC Conditions of Contract for Plant Design-Build, First Edition 1999, with such amendments as are agreed between them. The terms of the remuneration of the sole member 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 appoint a suitably qualified person to replace the member of the DAB. Unless the Parties agree otherwise, the appointment will come into effect if the member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment. The 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 the member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone. Unless otherwise agreed by

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		both Parties, the appointment of the DAB (including the member) shall expire when the DAB has given its decision on the dispute referred to it under Sub- Clause 21.4 [*Obtaining DAAB's Decision*], unless other disputes have been referred to the DAB by that time under Sub-Clause 21.4, in which event the relevant date shall be when the DAB has also given decisions on those disputes.
21.3	**Avoidance of Disputes**	Delete the Sub-Clause 21.3 in its entirety.
21.4	**Obtaining DAAB's Decision**	In the 1st paragraph of Sub-Clause 21.4 after the words "if a dispute arises between the parties then, "add the following: "after a DAB has been appointed"; Delete the words " (whether or not any informal discussions have been held under Sub-Clause 21.3 [*Avoidance of Disputes]*); . .21.4.1 " Reference of a Dispute to the DAAB" Delete Sub-Paragraph (a) of Sub-Clause 21.4.1.
21.6	**Arbitration**	The word "international" is deleted in the sixth line of first paragraph. The text of sub-paragraph (a) is substituted with the following: "the Dispute shall be finally settled under the Rules of Arbitration, specified in the Contract Data;"
		The following Clauses are added after Clause 21
22	**Custom Duty**	The Contractor shall be liable to pay custom duty arising out of the Contract. The rates and prices as stated in the contract shall be deemed to cover all such duties.
23	**Taxes**	The Contractor, Subcontractors and their employees shall be liable to pay income tax, withholding tax, super tax and other taxes on income arising out of the Contract. The rates and prices as stated in the contract shall be deemed to cover all such taxes.
24	**Integrity Part**	If it is found and established at any stage that the Contractor or any of his Subcontractors, agents or servants have violated or involved in violation of the Integrity Pact signed by the Contractor then the Employer shall be entitled to : a) recover from the Contractor an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by the Contractor or any of his Subcontractors, agent or servants; b) terminate the Contract; and c) recover from the Contractor any loss or damage to the Employer as a result of such termination or of any other corrupt business practices of the Contractor or any of his Subcontractors, agent or servants. The termination under sub-paragraph (b) of this Sub-Clause shall proceed in the manner prescribed under Sub-Clause

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15.1 to 15.4 and the payment under Sub-Clause 15.4 shall be made after having deducted the amounts due to the Employer under sub- paragraph (a) and (c) of this Sub-Clause

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SECTION X: CONTRACT FORMS

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Notification of Award

(On Procuring agency/Employer's letterhead)

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

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Form of Contract

THIS AGREEMENT made the _____ day of _____ 20_____ between *[name and address of Procuring agency/Employer]* of Pakistan (hereinafter called "the Procuring agency/Employer") of the one part and *[name of Contractor]* of *[city and country of Contractor]* (hereinafter called "the ") of Contractor other part:

WHEREAS the Procuring agency/Employer desired that the works *[brief description of works]* should be executed by the contractor, and has accepted a Bid by the contractor for the execution and completion of these works and remedying of any defects therein, in the sum of *[contract price in words and figures]* (hereinafter called "the Contract Price").

NOW THIS CONTRACT WITNESSETH AS FOLLOWS:

1. In this Contract words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Contract, In the event of any ambiguity or conflict between the Contract Documents listed below, the order of precedence shall be the order in which the Contract Documents are listed below:-

   (a) This form of Contract;
   (b) Letter of Acceptance;
   (c) The completed Letters of Technical & Financial Bid submitted by the Bidder ;
   (d) the Particular Conditions, Part-A – Contract Data;
   (e) the Particular Conditions, Part-B – Special Provisions;
   (f) the General Conditions;
   (g) the Specifications Part-A – Specific Provisions;
   (h) Bill of Quantities
   (i) the Drawings;
   (j) the Specifications Part-B – Technical Provisions
   (k) [*add here: any other documents*]

3. In consideration of the payments to be made by the Procuring agency/Employer to the contractor as mentioned in this contract, the contractor hereby covenants with Procuring agency/Employer to execute the works to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Procuring agency/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 Contract to be executed in accordance with their respective laws the day and year first above written.

Signed, sealed, delivered by _____the _____ (for the Procuring	Signed, sealed, delivered by _____the _____ (for the Contractor)

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agency/Employer)	
Witness to the signatures of the Procuring agency/Employer ……	Witness to the signatures of the Contractor ……

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Performance Guarantee Form

To: *[name of Procuring agency/Employer]*

WHEREAS *[name of Contractor]* (hereinafter called "the contractor") has undertaken, in pursuance of Contract No. *[reference number of the contract]* dated *[insert date]* for the execution of *[insert name of the works and its brief description] (*hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the contractor shall furnish you with a Bank Guarantee by a reputable bank for the sum specified therein as security for compliance with the Contractor's performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Contractor a guarantee:

THEREFORE, WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Contractor, up to a total of *[amount of the guarantee in words and figures],* and we undertake to pay you, upon your first written demand declaring the Contractor to be in default under the Contract and without cavil or argument, any sum or sums within the limits of *[amount of guarantee]* as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the: *[insert date]*

Signature and seal of the Guarantors

_____

[name of bank or financial institution]

_____

[address]

_____

[date]

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Advance Payment Security

Demand Guarantee

_____

Beneficiary: _____

Date: _____

ADVANCE PAYMENT GUARANTEE No.: _____

Guarantor: _____

We have been informed that [Inset name of the Contractor] (hereinafter called “the Contractor”) has entered into Contract No. _____ dated _____ with the [insert name of the Procuring agency/Employer] (hereinafter called “the Procuring agency/Employer”) for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____ (_____) is to be made against an advance payment guarantee.

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

(a) has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or

(b) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Contractor has failed to repay.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Procuring agency/Employer’s bank stating that the advance payment referred to above has been credited to the Contractor on its account number _____ at _____..

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as specified in copies of interim statements or payment certificates which shall be presented to us.

The Guarantee shall remain valid up to the aforesaid date and shall be null and void after the aforesaid date or earlier if the advance made to the Contractor is fully adjusted against payments from Interim Payment Certificates of the Contractor provided that the Guarantor agrees that the aforesaid period of validity shall be deemed to be extended if on the above mentioned date the advance payment is not fully adjusted.

_____

[signature(s)]

Note: All italicized text is for use in preparing this form and shall be deleted from the final product.

Retention Money Security
Demand Guarantee

_____ *[Guarantor letterhead or SWIFT identifier code]*

Beneficiary: _____ *[Insert name and Address of Procuring agency/Employer]*

Date: _____*[Insert date of issue]*

RETENTION MONEY GUARANTEE No.: *[Insert guarantee reference number]*

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

We have been informed that _____ *[insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Contractor") has entered into Contract No. _____ *[insert reference number of the contract]* dated _____ with the Procuring agency/Employer, for the execution of _____ *[insert name of contract and brief description of* Works*]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, the Procuring agency/Employer retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, payment of *[*insert the second half of the Retention Money *or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money,* the difference between half of the Retention Money and the amount guaranteed under the Performance Security and, if required, the ES Performance Security*]* is to be made against a Retention Money guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ *[insert amount in figures]* (_____) *[amount in words]* upon receipt by us of the Procuring agency/Employer's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without your needing to prove or show grounds for your demand or the sum specified therein.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Procuring agency/Employer's bank stating that the second half of the Retention Money as referred to above has been credited to the contractor on its account number _____ at _____ *[insert name and address of Contractor's bank]*.

This guarantee shall expire no later than the …. day of ……, 2…, and any demand for payment under it must be received by us at the office indicated above on or before that date.

_____

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

Integrity Pact

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC. PAYABLE BY THE SUPPLIERS OF GOODS, SERVICES & WORKS IN CONTRACTS WORTH RS.10.00 MILLION OR MORE

Contract Number: _____ Dated: _____
Contract Value: _____
Contract Title: _____

[Name of Contractor] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GoP) through any corrupt business practice.

Without limiting the generality of the foregoing [Name of Contractor] represents and warrants that it has fully declared the brokerage, commission, fee etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultations fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP, except that which has been expressly declared pursuant hereto.

[Name of Contractor] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GoP and has not taken any action or will not take any action to circumvent the above declaration, representative or warranty.

[Name of Contractor] accepts full responsibility and strict liability for making and false declaration, not making full disclosure, misrepresenting fact or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard, [Name of Contractor] agrees to indemnify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten time the sum of any commission, gratification, bribe, finder's fee or kickback given by [Name of Contractor] as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP.

_____ _____
[Procuring Agency/Employer] [Contractor]

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Declaration of Ultimate Beneficial Owners Information for Public Procurement Contracts.

1. Name
2. Father's Name/Spouse's Name
3. CNIC/NICOP/Passport No.
4. Nationality
5. Residential address
6. Email address
7. Date on which shareholding, control or interest acquired in the business.
8. In case of indirect shareholding, control or interest being exercised through intermediary companies, entries or other legal persons or legal arrangements in the chain of ownership or control, following additional particulars to be provided:

1	2	3	4	5	6	7	8	9	10
Name	Legal form (company/limited Liability Partnership/ Association of Persons/Single Member Company/Partnership Firm/individual/other individual, body corporate (to be specified)	Date of incorporation/registration	Name of Director(s)	Business Address	Country	Email address	Percentage of shareholding, control or interest of BO in the legal person or legal arrangement	Percentage of shareholding, control or interest of legal person or legal arrangement in the Company	Identity of natural person who ultimately owns or controls the legal person or arrangement

9. Information about the Board of Directors (details shall be provided regarding number of shares in the capital of the company as set opposite respective names).

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1	2	3	4	5	6	7	8
Name and surname (in Block Letters)	CNIC No. (in case of foreigner, Passport No.)	Father's/Husband's Name in full	Current Nationality	Any other Nationality (ies)	Occupation	Residential address in full or the registered office address for a subscriber other than natural person	Number of shares taken by each subscriber (in figures and words)
			Total numbers of shares taken (in figures and words)				

10. Any other information incidental to or relevant to Beneficial Owner(s).

Name and signature
(Person authorized to issue notice on behalf of the company)

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NATIONAL POLICE FOUNDATION

GOVERNMENT PAKISTAN

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD

CONSTRUCTION OF INFRASTRUCTURE WORKS & 1-KANAL HOUSES

SPECIFIC PROVISIONS SPECIFICATIONS

BIDDING DOCUMENT VOLUME – II

OCTOBER, 2026

National Engineering Services Pakistan (Pvt) Limited
NESPAK House Sector G-5/2, Islamabad, Pakistan
Phone: +92-51-9221910 - 13 Fax: +92-51-9221914
Email: Islamabad@nespak.com.pk
http://www.nespak.com.pk

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A- SPECIFIC PROVISIONS

SPECIFICATIONS – SPECIFIC PROVISIONS

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THE SPECIFICATIONS PART A – SPECIFIC PROVISIONS

1. GENERAL

1.1 The Specifications Part A – Specific Provisions shall form an integral part of Bid and the Contract documents.

1.2 The Contractor shall notify all sub-contractors of the provisions of these Specific Provisions.

2. DESCRIPTION OF PROJECT, WORKS INVOLVED AND SITE

National Police Foundation (NPF) intends to construct **Infrastructure Works and 1-Kanal Houses for ICT Police at Police Lines Headquarters, H-11, Islamabad**.

The scope of works mainly comprises construction of Roads, Paved Areas, Walkways, Water Supply, Sewerage, Storm Drainage, External Electrification and building (civil, plumbing, electrical) works for Houses for ICT Police at Police Lines Headquarters, H-11, Islamabad and related ancillary works lying within the boundaries and limits shown on the Drawings and any such additional areas adjacent thereto as may be designated by the Engineer from time to time for the construction to be performed under the Contract, and all such areas and additional areas shall comprise the Site.

3. CODES, STANDARDS AND CERTIFICATES

A. Applicable Standards

Except as otherwise provided by these Specifications or the Drawings, all materials, equipment and fabrication and testing thereof shall conform to the latest applicable standards and codes referred in the Specifications.

If the Contractor, at any time and for any reason, wishes to deviate from the above standards or desires to use material or equipment not covered by the above standards, he shall state the exact nature of the changes, the reason for making the change and shall submit complete specifications of the materials and equipment to the Engineer for approval.

B. Standards other than those Specified

Where requirements for materials or equipment are specified by reference to a standard which has its origin in one country, it is not the intention to restrict the requirements solely to that standard and that country. Other standards, including standards of other countries, will be accepted provided the requirements thereof, in the sole opinion of the Engineer, are at least equal to the requirements of the standard specified. The Contractor may propose to the Engineer an equivalent standard other than that specified, in which case he shall submit the proposed standard and all other information required and shall submit written proof that his proposed standard is equivalent in all significant respects to the standard specified. All submissions must be made in the English language.

C. Codes and Standards at Site

The Contractor shall supply and have at his site office:-

a) Copies of all latest editions of codes and standards referred to in these Specifications or equivalent codes and standards as approved by the Engineer.

b) Catalogues and published recommendations from manufacturers supplying products and materials for the project.

c) The Contractor shall provide manufacturer's or supplier's materials which must

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meet the requirements of a specific code or standard as stated in these Specifications.

4. MANUFACTURER'S RECOMMENDATIONS

Installation of manufactured items shall be in accordance with procedures recommended by the manufacturer or as approved by the Engineer.

5. UNITS OF MEASUREMENTS

The FPS System of Units shall be used throughout the Project.

6. EXISTING CONDITION AT SITE

Drawings and information pertaining to existing project conditions are furnished for reference. Neither the Employer nor the Engineer warrants the adequacy or correctness of these. The Contractor's are encouraged to visit the project site to assess the existing site conditions.

7. PROTECTION AND PRECAUTIONS

The Contractor and his sub-contractors shall afford all necessary protection to existing structures and will be required to make good at his own expense any damage done to such structures through his own or his representatives or subcontractors' fault and negligence.

The Contractor and his sub-contractors shall afford all necessary protection to existing roads in the area. He will clear and make good at his own expense any damage to or debris on these roads through his own fault and negligence. He must at all time ensure the free and normal flow of traffic and shall not cause obstruction to the traffic system. The Contractor and his sub-contractors shall provide and maintain necessary protection an precautionary measures such as warning signs, warning lamps and barricades etc. to prevent accidents.

The Contractor shall promptly correct all such damage to original condition at no additional expense to the Employer.

The Contractor shall cooperate with trades performing work under other Contracts as necessary for completion.

8. SEQUENCE OF CONSTRUCTION

The Contractor shall submit his proposal for approval of the Engineer the sequence of Construction, prior to starting the works. The works shall be executed as per approved sequence of construction

9. LINES AND LEVELS

Survey control points will be established by the Engineer. The Contractor shall be responsible for verifying these and shall be responsible for all requirements necessary for the execution of any work to the locations, lines, and levels specified or shown on the drawings, subject to such modifications as the Engineer may require as work progresses.

10. PLANT, EQUIPMENT AND TOOLS

The Contractor shall provide at his cost modern plant, equipment and tools, adequate and befitting to the nature, magnitude and size of this Contract, in strict compliance with the requirements of the General Conditions of Contract, Conditions of Particular Applications and Technical Specifications.

11. PARTIAL POSSESSION

Whenever, as determined by the Employer any portion of work performed by the Contractor is in a condition suitable for use, the Employer may take possession of or use such portion.

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Such use by the Employer shall in no instance be construed as constituting final acceptance, and shall neither relieve the Contractor of any of his responsibilities under the Contract, nor acts a waiver by the Employer of any of the conditions thereof, provided that the Contractor shall not be liable for the cost of repairs, re-work, or renewals which may be required due to ordinary wear and tear resulting from such use. However, if such use increases the cost or delays to the completion of remaining portions of work, the Contractor will be entitled to an equitable adjustment.

If, as a result of the Contractor's failure to comply with the provision of the Contract, such use proves to be unsatisfactory, the Employer will have the right to continue such use until such portion of the work can, without injury to the Employer, be taken out of service for correction of defects, errors, omissions, or replacement of unsatisfactory materials or equipment, as necessary for such work to comply with the Contract; provided that the period of such operation or use pending completion of appropriate remedial action shall not exceed twelve months unless otherwise mutually agreed upon in writing between the parties.

12. EXISTING SERVICES

The Contractor shall search for, find, locate and protect any wiring, cable, duct, pipework, etc., within or immediately adjoining the site area.

The Contractor shall take full responsibly for safety of existing service lines, utilities and utility structures uncovered or encountered during excavation and construction operations.

The Contractor shall take full responsibility for damaging any such service lines, utility/utility structure and any cost and/or expense that arises or issues from any such damage shall be borne directly by himself. Should any damage to any such service occur the Contractor shall forthwith take remedial action, initiate safety precautions, install temporary services and carryout repair all at his own cost and expense and inform the Engineer and notify all relevant authorities.

Existing utilities which are to remain in service for or after the works are to be determined by the Contractor. If any existing service lines, utilities and utility structures which are to remain in service are uncovered or encountered during these operations, they shall be safeguarded, protected from damage, and supported. The Contractor shall preserve, maintain and keep in perfect working conditions, any existing facilities required to be preserved by the Employer/the Engineer.

13. CONSTRUCTION AREA AND ACCESS

The Employer will provide the Contractor possible space within or nearby the area of site of works for the storage of plant, equipment and materials and for Contractor's temporary office, during the currency of the Contract. In case the adjacent area as required by the Contractor is not available within the Project boundary for storage of plant, equipment and machines then the Contractor shall arrange at his own expense possible space for storage of plant, equipment and machines at his own cost and expense. On no account shall such temporary installations conflict/interfere with any of the permanent installations, services and any operational function of Employer. The handling and storage of all plants, equipment and materials at site shall be the sole responsibility of the Contractor and at no risk and cost to the Employer.

The Contractor shall protect all material against corrosion, mechanical damage or deterioration during storage and erection on site. The protection methods shall be to the approval of the Engineer

14. CONSTRUCTION AND CHECKING AT SITE

The Contractor shall submit to the Engineer in due time for approval and discussion, his proposals and plans as to the method and procedure to be adopted for the temporary and permanent works involved.

The submitting to these suggestions and arrangements, and the approval thereof by the Engineer shall not relieve the Contractor of his responsibilities and duties under the Contract.

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The carrying out of all work included in the Contract is to be supervised by a sufficient number of qualified representatives of the Contractor and full facilities and assistance are to be afforded by the Contractor for the Engineer or his Representative to check and examine the execution of the work.

The Engineer reserves the right to inspect all parts of the works but may at his discretion waive inspection on certain items. This shall in no way absolve the Contractor from his responsibilities. This particularly applies to the checking of materials, the accurate setting out of foundations, and to the leveling, setting and aligning of the various parts, and to the proper fitting and adjustment of manufactured and finished materials and fixtures in position.

If the Engineer or his Representative find that the work progress is slow in such a way that the works or parts thereof will not be completed in the time specified, then he shall order the Contractor to work overtime or in shifts and the Contractor shall comply. These arrangements will be free of all financial encumbrances and at no additional costs to the Employer.

In the event of night work, the Contractor shall provide sufficient and adequate lighting to the satisfaction of the Engineer or his Representative and shall supply the necessary manpower for satisfactory continuation of the work after normal hours.

15. STORAGE & HANDLING FACILITIES

The Contractor shall make his own arrangements for providing the necessary space for the storage of plant, equipment and materials and for Contractor's temporary office, in and around the site of works, during the currency of the Contract.

16. PRODUCT DATA

Manufacture’s standard schematic drawings shall be modified or deleted to indicate only information which is applicable to the project. Such standard information shall be supplemented to provide all additional applicable information.

Manufacturer's catalogue sheets, brochures, diagrams, schedules, performance charts illustrations and other standard descriptive literature shall be clearly marked to identify pertinent materials products or models. Dimensions and required clearances shall be indicated. Shop performance characteristics and capacities shall be noted.

17. PRODUCT QUALITY AND HANDLING

Suppliers of local and foreign products and installations specified shall have been regularly engaged in the business of manufacturing, fabricating, installing and / or servicing work required for a period not less than 5 years. In addition, the Engineer may request as appropriate a:

- list of similar installations that describes project, scope and date of completion.
- complete literature, performance data, and technical data.
- list of services record within Pakistan.
- location of service office from which this installation could be maintained.

For the actual fabrication, installation and testing of the specified work use only thoroughly trained and experienced workmen completely familiar with the items required and with the manufacturers recommended methods of installation. In acceptance or rejection, no allowance will be made for the lack of skill on the part of workmen.

Use all means necessary to protect materials before, during and after installation and to protect the installed work and materials of all other trades. In the event of damage, immediately make all repairs and replacement necessary for approval and at no additional cost to the Employer.

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18. INSPECTION & TESTS REPORTS

All equipment and materials furnished under these specifications and all work performed in connection therewith will be subject to rigid inspection by the Engineer or the Engineer's Representative. Acceptance of equipment and material or the waiving off inspection thereof shall in no way relieve the Contractor of his responsibility for meeting the requirements of the Contract.

The Contractor shall furnish the Engineer with certified true copies of test reports of all materials used in the manufacture and fabrication of all equipment and material including metal work, steel pipes, fire bricks etc. The result of these test shall be in such form as to show compliance with the applicable Specifications, standards and codes for the material used.

19. FIELD LABORATORY AND TESTING

19.1 General

The Contractor shall provide and maintain a field laboratory equipped with approved equipment to perform all the tests required by the Engineer. The quality control testing shall be performed by the Contractor's competent personnel in accordance with a site testing and quality control programme to be established by the Contractor and approved by the Engineer. The Engineer may however, require certain tests to be performed in any other laboratory designated by him.

The Contractor shall provide laboratory helpers to the Engineer for testing. The laboratory shall be run by a qualified material Engineer and Laboratory Technician to be employed by the Contractor.

The Field Laboratory, including all equipment and staff shall be placed at the disposal and direction of the Engineer during the Contract.

The Contractor shall keep a complete record of all quality tests performed on site.

All quality control and tests shall be carried out in accordance with applicable standards and codes.

19.2. Field Laboratory Equipment Requirements

The Laboratory shall be equipped with new unused and latest Equipment to perform tests as per Technical Specifications and General Conditions of Contract. Additional equipment/materials shall be supplied by the Contractor as and when required by the Engineer to perform any specified test, at no additional cost to the Employer.

The laboratory shall also be equipped with new unused furniture, fittings and fixtures. If any equipment, furniture, fitting or fixture becomes unserviceable for any reason what so ever, the Contractor shall promptly replace the same as and when directed by the Engineer.

19.3. Testing Laboratory Certificates

The Engineer may accept a certificate from a commercial testing laboratory, satisfactory to him, certifying that the product has been tested within a period acceptable to the Engineer and that it conforms to the requirements of these specifications.

19.4. Method of Payment

The cost of providing running and maintenance of the laboratory, equipment, materials and staff, testing charges for materials supplied by the Employer and all other tests to be performed in any other laboratory designated by the Engineer shall be deemed to be included in the price quoted by the Contractor and no separate claim for payment on this account shall be entertained by the Engineer. Furthermore, the cost of any additional laboratory, field and shop tests required through the resubmission of samples because of failure of compliance with Specifications shall be borne by the Contractor.

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In case the Contractor does not provide the specified equipment and testing facility, cost of testing plus 100 percent overheads shall be recovered from his bills.

20. SURVEYING INSTRUMENTS

20.1 General

The minimum quantity of survey equipment is stated below which shall be available with the Contractor at site of Works along with qualified Surveyors and Survey Helpers. The equipment shall be maintained throughout the Contract Period and replaced by the Contractor in case of damage or loss. The survey equipment shall be made available to the Engineer when requested. All surveying equipment shall be in good working condition.

20.2 Surveying Equipment Required

The Contractor shall provide and maintain the following surveying equipment at site.

a) Total Station with staff 02 No.
b) Automatic Levels with tripods & staff 02 Nos.
c) All other miscellaneous tools, equipment and materials required in surveying.

21. APPROVAL OF MATERIALS AND PLANT

21.1 Quality of Materials

All materials, fixtures, fittings, supplies and plant furnished under the Contract shall be new and unused, standard first grade quality and of the best workmanship and design. No inferior or low-grade materials, supplies or articles will be either approved or accepted, and all work of assembly and construction shall be done in a first-class and workmanlike manner. In asking for prices for materials intended for delivery to the Site and incorporation in the Works under any portion of these Specifications, the Contractor shall provide the manufacturer or supplier with complete information as may be necessary to secure compliance to this Clause and, in every case, he shall quote this Clause in full to each such manufacturer or supplier.

21.2 Submission of Samples and Data

21.2.1 The Contractor shall furnish for approval of the Engineer with reasonable promptness all samples as directed by the Engineer or specifically called for in the Specifications and in accordance with the time schedule provided in the schedule of submittals. The Engineer shall check and approve such samples with reasonable promptness only for conformance with the design concept of the Works and for compliance with the information given in the Contract Documents. All work shall be in accordance with approved samples.

21.2.2 Samples shall be furnished so as not to delay fabrication, allowing the Engineer reasonable time for consideration of the sample submitted.

21.2.3 Each sample shall be properly labeled with the name and quality of the material, manufacturer's name, name of the project, the Contractor's name and the date of submission, and the Specifications Article number to which the sample refers.

21.2.4 The manufacturer's installation directions shall be provided with each sample. The Contractor shall pay all transportation costs and deliver samples to the Engineer's office, Site or testing laboratory as directed by the Engineer.

21.2.5 Samples shall be of adequate size to permit proper evaluation of the material by the Engineer. Where variations in colour, texture, dimensions or other characteristics are to be expected, the Contractor shall submit samples showing

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the maximum range of variation. Materials exceeding the range of variation of the approved samples shall not be used on the Work.

21.2.6 In order to permit coordinated selection of colours and finishes, the Contractor shall deliver samples of all related items to the Engineer at one time. Samples of such materials will not be approved until all related samples have been submitted.

21.2.7 If both Shop Drawings and samples are required for the same item, the Engineer may require both to be submitted before approving either.

21.2.8 The Contractor shall erect Mock-up samples of finished items where specifically called for in the documents or as directed by the Engineer.

The Mock-up samples shall be preserved/protected by the Contractor till the end of the project or as directed by the Engineer.

21.2.9 No acceptance or approval of any Shop Drawings or sample, or any indication or request by the Engineer on any Shop Drawings shall constitute an authorization for any increase in the Contract Sum.

21.3 Inspection

All material and Plant furnished and all work performed under this Contract will be subject to inspection by the Employer and the Engineer at all times and in all states of completion both off-Site and on-Site. The Contractor shall furnish promptly without additional charge, all facilities, labour and materials reasonably needed for performing such inspection and testing as may be required by the Engineer.

21.4 Approved Sample At Site

The Contractor shall, at all times, keep on the Site approved samples. All such samples shall be made available to the Engineer as and when required.

22. BAR BENDING SCHEDULE

Bar bending (reinforcement bars) schedule of all structural drawings shall be prepared by the Contractor and submitted in triplicate to the Engineer for approval.

23. DRAWINGS

23.1 Bid Drawings

Bid Drawings issued with the Bid Documents, called the Bid Drawings, show scope of the work to be performed by the Contractor. The Drawings are generally in sufficient detail so as to be used as a basis for construction, fabrication and for placing orders for materials subject to corrections based on the future issue of supplementary Drawings as provided under Sub-Clause 23.2 hereof.

23.2 Construction Drawings, Supplementary Drawings

Upon commencement of the works and furnishing by the Contractor stake out survey plan and natural ground levels, the Engineer shall issue Construction Drawings to the Contractor. The Construction drawings may be issued in stages, where necessary.

The Engineer shall have authority to issue to the Contractor, from time to time, such supplementary Drawings and instructions as shall be necessary for the purpose of the proper and adequate execution and completion of the Works and the remedying of any defects therein. The Contractor shall follow these drawings.

When additional information regarding the geological formations or other conditions becomes available, the Engineer may find it desirable to change dimensions or design of one or more of the features of the Works to conform to the newly disclosed

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conditions. The Engineer reserves the right to make such reasonable changes, and the Contractor's operations shall be conducted so as to accommodate any such reasonable changes in the Works.

23.3 Definition of Term Drawings

The term Drawings as used in the Specifications means the Drawings referred in Clauses 23.1 and 23.2 above.

23.4 Checking of Drawings

The Contractor shall check all Drawings carefully as soon as practicable after receipt thereof, and shall promptly notify the Engineer of any errors discovered.

23.5 Copies of Drawings

Drawings will be issued to the Contractor as described below:

23.5.1 Construction Drawings

Two (2) sets of the Construction Drawings will be issued to the Contractor as stated above, free of charge. Additional sets will be provided at cost of reproduction upon written request of the Contractor.

23.5.2 Supplementary Drawings

Two (2) prints of each supplementary Drawing will be issued to the Contractor free of charge. Additional sets will be provided at cost of reproduction upon written request of the Contractor.

23.6 Drawings to Be Furnished By the Contractor

The Contractor shall submit to the Engineer for review, such drawings as are required under the Contract, sufficiently in advance of the work intended to be executed.

23.6.1 Reinforcement Drawings

Reinforcement placement drawings and bar bending schedules (to be provided by the Contractor as per clause 22 above) of all RCC work shall be prepared by the Contractor and submitted in triplicate to the Engineer for approval, sufficiently in advance of the works in which they are intended to be used.

23.6.2 Shop Drawings

(a) The Contractor shall submit to the Engineer for review three (3) copies of all drawings to be issued for setting out, fabrication, supply order and construction; based on data, requirements, dimensions, details, codes, standards and design provided in the drawings issued by the Engineer. Such drawings shall be submitted at least seven (7) days before they are required for use. If within a period of seven (7) days after submission, the Engineer notifies the Contractor that a drawing fails to comply with the relevant requirement of the Contract, it shall be rectified and resubmitted for approval at the Contractor's cost. Fabrication or construction shall not commence on any part of the Works until the shop drawings or construction drawings for that part of the Works have been approved by the Engineer.

The Works shall be executed in accordance with the drawings as approved by the Engineer. If the Contractor wishes to modify any approved drawings, he shall immediately notify the Engineer and submit revised drawings for approval. If the Engineer instructs that further drawings are necessary for executing the Works, the Contractor shall prepare such drawings and submit them for approval.

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The Contractor at his cost shall rectify errors, omission, ambiguities, inadequacies and other defects.

Approval by the Engineer, in accordance with this paragraph, shall not relieve the Contractor of any of his responsibilities under the Contract.

(b) The shop drawings shall be properly identified indicating the part of the Works, the name of the contractor / supplier etc., the date of preparation and the dates of all revisions. The Shop Drawings shall be complete and shall show the design dimensions, proposed materials to be used, finishes, type of shop paint and all other details in connection thereto.

(c) Where adjoining work requires shop drawings, the Contractor shall prepare and submit composite shop drawings, which shall show and define the work under all affected trades. If the Contractor executes work before coordinating with other trades so as to cause interference with work of those trades, he shall make changes necessary to correct the conditions without extra cost to the Employer.

(d) No changes shall be made by the Contractor in the resubmitted shop drawings in excess of the corrections spelled out by the Engineer and in a separate note on the shop drawings.

(e) No work in the shop shall be started and no material or plant ordered until the Engineer has approved the shop drawings. It shall be the responsibility of the Contractor to submit the shop drawings on a schedule that allows reasonable time for checking and approval and subsequent fabrication. Failure to submit shop drawings in ample time for checking, correcting, and rechecking will not justify extension of time for completion of the Works.

(f) The Contractor shall also check and verify all site measurements whenever requested by other Specialist Contractors or by other Sub-Contractors to enable them to prepare their own shop drawings and pass on the information with sufficient promptness, so as not to delay the work in any way. A copy of all such information passed on shall be given to the Engineer.

23.6.3 As-Built Drawings

The Contractor shall, at all times, keep on Site a separate set of prints of all drawings on which all significant changes between the work shown on the Drawings and that which is actually constructed, shall be noted neatly, accurately and promptly as the work progresses. The Subcontractor(s) for plumbing, mechanical and electrical shall, at all times, keep on Site, a separate set of prints of the drawings (showing their parts of the Works) on which all significant changes between the work shown on the Drawings and that which is actually constructed, shall be noted neatly, accurately and promptly as the work progresses. Such drawings shall show the exact physical location and configuration of the works as actually installed.

The Contractor shall, within fourteen (14) days of issuance of Taking-Over Certificate for whole of the Works, furnish to the Engineer for his approval two (2) copies of such marked up drawings. One (1) copy of each of the marked-up drawings approved by the Engineer shall be returned to the Contractor by the Engineer and these shall be used for the preparation of the As - Built Drawings.

The Contractor shall furnish to the Engineer six (6) complete sets and one reproducible copy of all As -Built Drawings within twenty-eight (28) days of receipt of drawings stated above, from the Engineer.

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24. PROTECTION OF THE WORKS

The Contractor shall whenever necessary cover up and protect the works from weather and damage by his own or other workmen performing subsequent operation. The Contractor shall provide all necessary dustsheets, barriers and guard rails and clear away the same at completion.

25. RESTORATION AND CLEANING

Upon completion of the works the Contractor shall restore all items covered by the Contract to the satisfaction of the Engineer.

The Contractor shall do regular cleaning and clear away all rubbish and excess materials that may accumulate from time to time on completion and before handing over. Upon completion of the works he shall obliterate all signs of temporary construction facilities such as work areas, structures, foundations of temporary structures, stock piles of excess or waste materials, or any other vestiges of construction, as directed by the Engineer. All buildings shall be cleaned; floors and paving scrubbed and the works and site shall be left in a clean and satisfactory state for immediate use and occupation. Care shall be taken not to use any cleaning materials, which may cause damage to the surface to be cleaned.

The Contractor shall also take all necessary precautions to keep the works and site free from vermin during construction and he shall leave the works vermin free on completion. Application of pest control agents shall not commence until the specific product, name, method and extent of application have been submitted to and approved of by the Engineer.

26. SITE OFFICE AND TEMPORARY FACILITIES TO BE PROVIDED BY THE CONTRACTOR

26.1 Contractor's Office, Facilities Etc.

The Contractor shall establish and maintain a Site office. The Contractor shall provide all facilities in connection with the execution, completion, of the Works, remedying defects therein and maintenance of the utilities services. The facilities shall not be limited to the Contractor's Site Office, labour camps, work yard and storage areas, temporary water supply, waste water disposal, temporary electricity, medical unit, temporary roads, fire protection and fire fighting equipment etc. The Contractor shall be solely responsible for arranging all utilities and the Contractor shall setup, maintain and operate an architectural and engineering facility at site with adequate number of technical and support staff as well as equipment required for particular nature of job covered under the Contract to prepare drawings/shop drawings for approval of the Engineer.

The Contractor shall arrange his labour camp, work yard, storage area and site office.

26.2 Temporary Roads

The Contractor shall prepare and maintain such temporary roads as may be necessary, from the site to the nearest road and also within the plot. Such roads shall be positioned strictly in accordance with the Engineer's instructions and the Contractor shall reduce or control any dust nuisance by regularly spraying water and compaction as directed.

26.3 Temporary Services

26.3.1 Temporary Water Supply

The Contractor shall supply in sufficient quantity all necessary potable and other water for construction purposes for all trades at points within a reasonable distance of any building being constructed. The Contractor shall make arrangements and pay charges for water service installation, maintenance and removal thereof, and pay the costs of water for all trades.

At completion of the work, the temporary water services equipment and piping shall be removed by the Contractor at his own expense.

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26.3.2 Temporary Electricity

The Contractor shall make all the necessary arrangements for a temporary electricity service, pay all expense in connection with the installation, operation and removal thereof and pay the costs of electricity consumed by all trades. The Contractor shall arrange and furnish an Electric Power Generating set at site and maintain the generating set in perfect working condition through-out the duration of Contract. The generating power of the set shall be sufficient to operate all plant and equipment as well as the camps and offices of the Contractor and the offices of the Engineer/Employer, during construction at site. Should the set fail to meet the required demand at site or fail to function or operate, the Contractor shall immediately replace the same with other generating set/sets to the satisfaction of the Employer as well as the Engineer.

A temporary lighting system shall be furnished, installed and maintained by the Contractor as required to satisfy the minimum requirements for safety and security and to the satisfaction of the Engineer.

When the permanent electrical power and lighting systems are in an operating condition, they may be used for temporary power and lighting for construction purposes provided that the Contractor obtains the written approval of the Engineer and the Employer and assumes full responsibility for the entire power and lighting system and pays all costs for operation and maintenance of the system.

At completion of construction work, or at such time as the Contractor makes use of permanent electrical equipment and devices, temporary electricity services shall be removed by the Contractor at his own expense.

26.3.3 Waste Disposal

The Contractor shall make such temporary provisions as may be required in order to dispose of any chemicals, fuels, oils, grease, bituminous materials, waste and soil waste and the like without causing pollution to either the site or the environment. Disposal of any materials, wastes, effluent, garbage, oil, grease, chemicals and the like shall be in areas specified by the concerned local authority proposed by the Contractor and subject to the approval of the Engineer. If any waste material is dumped in unauthorized areas the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area. If necessary, contaminated ground shall be excavated, disposed off as directed by the Engineer and replaced with suitable fill material compacted and finished with topsoil all at the expense of the Contractor.

26.3.4 Fire Protection

The Contractor shall provide and maintain adequate fire protection in the form of barrels of water with buckets, fire bucket tanks, fire extinguisher, or other effective means ready for instant use, distributed around the project and in and about temporary inflammable structures during construction of the works.

Gasoline and other flammable liquids shall be stored in and dispensed from safety containers approved by the Engineer and storage shall not be within building.

Torch-cutting and welding operations performed by the Contractor shall have the approval of the Engineer before such work is started and a chemical extinguisher is to be available at the location where such work is in progress.

The Contractor shall follow the instructions and specifications of the Civil Defense Department or any other local department concerned with such activities.

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27 CONSTRUCTION SCHEDULE

A Construction schedule shall be maintained in accordance with the provisions of the General Conditions of Contract.

The schedule shall be accompanied with sufficient data and information including all necessary particulars of constructional plant, equipment machinery, temporary Works, arrival of plant, equipment at site and their installation, method of operation, work forces employed, etc., for an activity of the Works.

Should the Engineer consider any alteration or addition in the programme and time schedule, the Contractor shall conform thereto without any cost to the Employer.

Whenever necessary and wherever the progress of the actual work shows departure, the programme and time schedule shall be undated and submitted to the Engineer for his approval.

28 SUBMISSION REQUIREMENTS

28.1 Schedule submission at least sixty days before the dates when reviewed submittals will be needed.

28.2 Submit Shop Drawings as per provision given in Sub-Clause 23.6.2 and number of copies of Product Data which the Contractor requires for distribution plus four copies which will be retained by the Engineer.

28.3 Submit three samples unless otherwise specified.

28.4 Accompany submittals with transmittal letter, in duplicate, containing:

- Date
- Project title and number
- Contractor’s name and address
- The number of each Shop Drawing, Product Data and the Sample submitted.
- Notification of deviations from Contract Documents.
- Other pertinent data.

29 RESUBMISSION REQUIREMENTS

Shop Drawings:

- Revise initial drawings as required and resubmit as specified for initial submittal.
- Indicate on drawings any changes which have been made by the Engineer.
- Product Data and Samples: Submit new data and samples as required for initial submittal.

30 MONTHLY PROGRESS REPORT AND PHTOGRAPHS

30.1 During the continuance of the Contract, the Contractor shall submit monthly progress on forms as approved by the Engineer. Such weekly reports shall show the actual progress completed as of date of the report plotted against the schedule as given by the Contractor at the start of work and shall be broken down so as to indicate status of all activities

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associated with mobilization, design, material procurement, manufacture, surveys works, tests with regard to the agreed contract programme.

30.2 The Employer and the Engineer reserve the right to coordinate the schedules of this Contractor and other Contractors working at the Site, and to adjust and/or change any and all such schedules as required during the course of construction in order to achieve a coordinated project in harmony with the Employer's completion date.

30.3 Commencing after the first week of construction, and continuing every week until completion, the Contractor shall take and submit photographs to the Engineer's Representative, to show progress of his work and completion of each structure or major feature.

31 CONTRACTOR TO NOTIFY DELAYS ETC.

Any delay which will affect the completion of Works shall be detailed by the Contractor who shall state the action he is taking for effective completion of the Contract programme.

The Contractor shall submit a report in respect of the various sections of the Works, the equipment in use or held in readiness, a return of labour and supervisory staff, and details of any matters arising which may generally affect the progress of the work.

The Contractor shall give a summary of the detailed progress report giving the position with regard to the agreed Contract programme.

The progress reports shall be set out in a format to the approval of the Engineer, and forwarded promptly so that on receipt the information contained therein is not more than 21 days out of date.

If during execution of the Contract, the Employer considers the progress position of any section of the work to be unsatisfactory, or for any other reason relating to the Contract, he will be at liberty to convene a meeting and the Contractor’s Representatives are to attend such meeting.

The Contractor's Site Office shall prepare and submit 6 copies of a weekly progress report to the Employer and Engineer's Site Office. This report shall summarize site activities and record and details where difficulties in maintaining the agreed programme are being experienced or are likely to cause subsequent delay.

The Contractor's Site Office shall also prepare and submit to the Engineer's Site Office 2 copies of Daily Activity Report summarizing the main activities to be undertaken each day, noting special activities such a tests, alignment checks, etc. The Contractor shall be responsible for expediting the delivery of all material and equipment to be provided by him and his subcontractors.

32 PHOTOGRAPHS

As soon as work commences on Site, the Contractor shall provide at least 10 to 12 photographs (alongwith soft copy) of the works from positions to be selected by the Engineer. Each photographic print shall not be less than 297mm x 210mm and shall bear a printed description, a serial number and the date when taken.

The negatives/soft copy of all photographs shall be held at the Contractor’s Site Office, numbered and handed over to the Employer at the completion of the Contract.

33 Sign Board

The Contractor shall erect and maintain at the Site in a location to be approved by the Engineer two (2) Sign Boards of dimensions approved by the Engineer. The Sign Boards shall be made

of metal. It shall be mounted on steel posts securely anchored and braced. The Contractor shall paint on the Sign Boards, the name of the Works, and the names of the Employer, Engineer and the Contractor both in English and Urdu Language.

34 Site Office for Engineer/Engineer's Staff

The Contractor shall construct, provide, furnish and maintain for Engineer, a site office as per design provided in these documents along with stabilized access road.

The Contractor shall provide a direct telephone with internet connection for the Engineer at site up-to an average billing of Rs. 4,000/- per month, one (01) computer (Core i-7, minimum with 500 GB Hard disk, 8 Gb Ram, a DVD writer, 17" Flat Colour monitor, etc.), one flash drive of at-least 8 GB capacity each, an A3 size colour printer, stationery, a digital camera (12.5 pixel minimum), UPS, stabilizers, air conditioners, 6 cubic feet refrigerators, etc., and the site office shall be connected to the electrical system, potable water supply system and sewage disposal system.

The Contractor shall provide replacement of the equipment(s), if any of the above-mentioned equipment(s) is temporarily or permanently rendered unserviceable for any reason(s) or declared to be beyond repair by the Engineer/Engineer's staff at no additional cost to the Employer.

The said offices shall be provided by the Contractor within twenty eight (28) days of the receipt by the Contractor of Engineer's Notice to Commence or twenty one (21) days of the payment of the first half of the Mobilization Advance, whichever earlier.

The site office shall be maintained by the Contractor up to a period of three hundred sixty four (364) days after the Issuance of Taking Over Certificate (DLP Period) by the Engineer.

The site office along with all fittings, fixtures and gadgets shall become property of the Employer after the completion of the project and shall be handed over to the Employer along with list of all items given for the use of Engineer. The site office shall be removed /dismantled if directed by the Engineer/Employer. In such case, the area shall be developed in accordance with the drawings or to its natural state and as per the instructions of the Engineer.

No payment shall be made to the Contractor for the works involved under this Sub-Clause

35 Transport for The Engineer

The Contractor shall provide, operate and maintain 01 No (1,000 CC), brand new latest model, air-conditioned Car along with driver for exclusive use of the Engineer/ Engineer's staff, to meet the transportation needs in connection with the project.

The Contractor shall furnish supply and provide, as may be necessary without specific direction of the Engineer / Engineer's staff, all fuels, lubricants, tyres and other supplies, all maintenance, repairs, comprehensive insurance cover and running costs and suitability qualified driver at all times for running of vehicle not exceeding 4500 km per month and will provide a substitute vehicle in case of any break down.

The Contractor shall provide replacement vehicle, if the vehicle is temporarily or permanently rendered unserviceable for any reason(s) or declared to be beyond repair by the Engineer/ Engineer's representative at no additional cost to the Employer.

The Contractor shall maintain the vehicles up to a period of three hundred sixty four (364) days after the Issuance of Taking-Over Certificate (DLP Period) by The Engineer.

No separate payment shall be made to the Contractor for the facilities involved under this clause. The cost thereof shall be deemed to have been included in the price quoted by the Contractor for the Works.

36 Coordination of Work at Site

The Contractor shall take cognizance that during the execution of the project, other Contractor will be working concurrently on this Site.

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All works of his responsibility shall be coordinated by the Contractor so as to give the necessary facilities to other Contractor or their workman or any other employ, who execute or supervise any work on the Site.
The Contractor shall ensure that the necessary safety precaution will be observed and interferences shall be avoided specially for the works executed side by side by different Contractors.

Due consideration must be given to permit access to sections of the work as required by other Contractors for the extension of their works. With a view to coordinate the works, the Engineer may from time to time direct the order of the works to be carried out.

No payment shall be made to the Contractor for the works involved under this sub clause.

37 Site Facilities to Be Provided By The Contractor

37.6.1 General

Without prejudice to the generality of the various clauses of the Contract, particular attention is drawn to the obligation of the Contractor to make his own arrangement at his own expense for the following.

37.6.2 Labour Camps and Staff Residences

The Contractor shall provide, operate and maintain labour camps and staff residences and are required for the proper and efficient progress of the work to house his own employees. For the purposes of operation and maintenance of the Camps and Residences, the Contractor shall comply with the rules of Pakistan Labour Camp Rules 1960 and all other applicable provisions of the Pakistan Labour Laws.

37.6.3 Administrative and Field Office

The Contractor shall provide, operate and maintain administrative and field offices required for his staff and would be responsible for Operation and Maintenance, furniture, equipment, appliances, janitor services and security of the same.

37.6.4 Work yards and Storage Areas

The Contractor shall provide, operate and maintain all sheds, fencing, foundations and all above ground structures required to store material or equipment brought on to the site by him. The Contractor shall be responsible for the security of his entire camps, residence, site and field offices work yard and storage area.

37.6.5 Water Supply, Sewerage System and Electricity

The Contractor shall make his own arrangement, at his own expense for provision, operation and maintenance of electric supply, reasonable supplies of raw and potable water and sewerage system at the site of works and his labour camps, staff residences and offices. The Contractor shall pay all fees, and charges (including bills) of whatsoever nature to the concerned departments (if any) in order to procure connections of the above facilities and thereafter using these facilities.

37.6.6 Medical Care

The Contractor shall arrange provision of adequate medical facilities for his employees.

Adequately equipped and properly staffed first aid stations or dispensaries shall be provided by the Contractor at camps and other strategic locations, to

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administer first aid treatment at all times free of charge to all persons on the Site, including personnel of the Engineer and the Employer. The nature, number and location of facilities furnished and the Contractor's staff for administering first-aid treatment shall meet the requirements of the Health Services of the Government of Pakistan and of Section III of the Manual "Safety Requirements for Construction by Contract", published by the Employer, and shall be subject to approval by the Engineer.

37.6.7 Other Facilities

The Contractor shall also be responsible for providing at his own cost other facilities for his own staff and labour such as educational, recreational, transport, telephone and catering if required.

38. CONSTRUCTION PROCEDURES

The Contractor shall advise the Engineer of proposed construction procedures in accordance with the General Conditions of Contract.

If the Engineer shall see that the work progress is slow in such a way that the work will not be completed in the time specified, then he shall order the Contractor to work overtime or in more shifts and the Contractor shall obey these orders without any additional payments and without any objections or request for compensation.

39. NOTIFICATION TO ENGINEER

The Engineer shall be notified daily in writing of the nature and location of the Works the Contractor intends to perform the next day so as to enable necessary inspection and measurement to be carried out. The Engineer may, if necessary, direct that longer notice be given of certain operations.

40. NIGHT WORK

When work is done at night the Contractor shall maintain from sunset to sunrise such lights on or about his work and plant as the Engineer may deem necessary for the proper observations of the work and the efficient execution thereof.

41. WEATHER

No work is to be undertaken when, in the opinion of the Engineer, the weather is so unsuitable that proper protection of the work cannot be ensured.

42. CO-ORDINATION WITH OTHER CONTRACTORS

It shall be the responsibility of the Contractor to keep-up good relations with other Contractors employed on site by the Employer. The Contractor shall cooperate and coordinate his work with that of the other Contractors working at the Site, to whatever extent may be necessary to complete the Project in accordance with the approved programme of the Works and in accordance with the Engineer's instructions. Should a disagreement or dispute arise between the Contractor and other contractors, the same shall be referred without delay to the Engineer for his decision. Upon such decision, the Contractor shall proceed with the work in accordance therewith. In case the access to the works of other contractors is through the Site area of the Contractor, the Contractor shall coordinate with and permit all reasonable access to other Contractors.

43. ACCIDENT PREVENTION, SAFETY MEASURES AND PROTECTIVE EQUIPMENT

The Contractor shall comply and enforce compliance by all his sub- contractors with the highest standards of safety and accident prevention in accordance with international standards and in compliance with all applicable laws, ordinances and statutory provisions.

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All requisite barriers, fences, warning signs, lights and other safety precautions as required for the protection of persons and property on or adjacent to the site shall be provided at the Contractor's cost.

All false work, scaffolding and handrails shall be well constructed and secured at all times. Where overhead work is being carried out, warning signs shall be installed at ground level clearly warning of the overhead work.

All warning signs shall be in two languages, English and Urdu, and shall at all times be maintained in a clean and legible condition, to the satisfaction of the Engineer.

Trash shall be removed at frequent intervals to the satisfaction of the Engineer.

Netting shall be provided at all levels where work is in progress, all around the building.

44. SETTING OUT OF WORK AND SURVEY

44.1 Reference Points, Lines

The Contractor shall establish benchmarks and / or reference line at the Site in accordance with the instructions of the Engineer. The Contractor shall set out its work from these benchmarks and lines. The Contractor shall supply plant, equipment, materials and labour for checking if required of the survey control by the Engineer. Slope stakes will be set by the Contractor before commencement of excavation and will be re-established as required during progress of work using established bench-marks and reference points.

44.2 Verification

The Engineer may make checks as the work progress to verify lines and grades established by the Contractor and to determine the conformance of the work as it progresses with the requirements of the Drawings and Specifications. Such checking by the Engineer shall not relieve the Contractor of his responsibility to perform all work in accordance with the Drawings and Specifications and the lines and grades given therein.

Based upon the basic control, the Contractor shall provide his own primary control points, as needed for the Works, and shall preserve and maintain them until otherwise authorized.

The Contractor shall be responsible for maintaining all survey markers/monuments, and property corners. If any markers/monuments are destroyed by the Contractor, the Contractor shall arrange, at his own cost, to retrace and replace them to the entire satisfaction of the Engineer. If a monument cannot be replaced in its original position, the Contractor shall install a witness corner. The Contractor shall complete and file monument reference cards on all monuments as per instructions of the Engineer.

The Contractor shall provide experienced construction surveyors with adequate experience in the construction surveys similar in nature as required by this Contract.

Based upon established basic control monuments the Contractor shall establish all lines and grades necessary to control the Works, and shall be responsible for all measurements that may be required for execution of the Works to the tolerance prescribed below.

The Contractor shall perform such surveys and computations as are necessary to determine quantities of work performed or placed during each progress payment period, and shall also perform all surveys necessary for the Engineer to determine final quantities of work in place. The Engineer will determine final quantities based on original ground levels determined by the Contractor and agreed by the Engineer.

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The Contractor shall notify the Engineer at least 24 hours before performing a quantity survey and, unless specifically waived, quantity surveys shall be performed in the presence of an authorized representative of the Engineer.

Degree of accuracy for the survey works shall satisfy the following specified tolerances:

(a) Structure points shall be set within 0.01 foot accuracy from point to point, except where tighter tolerances are required.

(b) Cross-section points shall be located within 0.10 foot, horizontally and 0.01 foot vertically.

(c) Permissible closing error for a levelling line meant for establishing Temporary Bench Mark (TBMs) shall not exceed 0.045 x √ M foot, where M is in miles. The permissible closing error shall be duly adjusted.

The Contractor shall provide all materials, equipment and labour required for surveying work, including, but not limited to, instruments, stakes, spikes, steel pins, templates, platforms, and tools, and except as required to be incorporated in the work or left in place, all such materials and equipment, shall remain the property of the Contractor. Surveying instruments shall be in perfect working condition and shall be subject to rigid inspection for proper operation at least after every two weeks of use. Defective instruments shall be promptly replaced or repaired and adjusted to the satisfaction of the Engineer.

Survey data shall be recorded in accordance with recognized professional surveying standards. Original field notes, computations, and other surveying data shall be recorded in the Contractor furnished field books. Notes or data not in accordance with standard formats will be rejected. Illegible notes or data, or use of erasures on any page of a field book will be considered sufficient cause for rejection of part or the entire field book. Copied notes or data will not be permitted; therefore, rejection of part or all of a field book may necessitate re-surveying. Corrections by ruling or lining out errors will be satisfactory.

The cost of all materials, equipment, surveyors and labour required for surveys for the Works and quantity surveys required by this clause shall be deemed to be included in the rates and prices of the various items in the Bill of Quantities and no separate measurement and payment in their respect shall be made.

44.3 Survey Instruments

The Contractor shall maintain at the Site the requisite surveying instruments in perfect working conditions to enable the Engineer's Representative to check levels and lines of the work at all times.

45. PAYMENT OF WORK

No payment shall be made for the works involved within the scope of this section of specification unless otherwise specifically stated in the Bills of Quantities or herein.

The cost thereof shall be deemed to have been included in the total price quoted by the Contractor.

46. ENVIRONMENTAL PROTECTION

The Contractor shall exercise care to protect the natural landscape and shall conduct his construction operations so as to prevent any unnecessary destruction, scarring or defacing of the natural surroundings in the vicinity of works. Except where clearing is required for the Permanent works, approved construction roads and the Temporary Works, and for excavation operations, all trees and native vegetation shall be preserved and shall be protected from damage which may be caused by the Contractor's construction operations and equipment. On completion of the works, all work areas shall be smoothed and graded in a manner to confirm to the natural appearance of the landscape. Where unnecessary destruction, scarring, damage or defacing may occur as a result of the Contractor's operations, it shall be repaired, replanted, or otherwise corrected as directed by the Engineer at no additional cost to the Employer.

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B1.TECHNICAL SPECIFICATIONS (INFRASTRUCTURE WORKS)

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

SECTION - 0100

GENERAL

1. The Punjab MRS 2026 (2nd Bi-Annual, Rawalpindi) Specifications for Execution of Works shall be applicable for the works to be carried out under Schedule Items of Bill of Quantities (BOQ).

2. The Technical specifications contained in this Bidding Documents (Volume-II) shall be applicable for the works to be carried out under Non-Schedule Items of Bill of Quantities (BOQ).

3. The Contractor shall provide three (03) copies of Punjab MRS 2026 (2nd Bi-Annual, Rawalpindi) Specifications for Execution of Works at site without any cost to the Employer.

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

SECTION – 5216

WATER SUPPLY PIPES, PIPE LAYING AND APPURTENANCES

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PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

5216 WATER SUPPLY PIPES, PIPE LAYING AND APPURTENANCES

5217 SCOPE

The work covered by this Section of the specification consists in furnishing all plant, labour, equipment, appliances and materials and in performing all operations in connection with water supply lines and appurtenances in strict accordance with this section of the specifications and the applicable Drawings.

5218 MATERIALS

Material shall conform to the respective specifications and other requirements specified hereinafter and shall be new and unused.

01 Cast Iron Pipes and Fittings

Cast iron pipes and fittings shall comply with ISO 13-1978 (E) or B.S. 78 for spigot and socket vertically cast pipes, B.S.1211 for spigot and socket spun iron pipes and B.S. 2035 for flanged pipes.

02 Asbestos Cement pipes, Fittings and Specials

These shall conform to International Organization for Standardization Recommendation R160 "Asbestos Cement Pressure Pipe and joints" or British Standard Specification 486 "Asbestos Cement Pressure Pipe" or to Pakistan standard specification No. PS. 428 : 1984 of the class capable of withstanding a 400 ft. head test pressure. Short lengths of pipe machined overall shall be used at fittings for tying in.

The fittings and specials for asbestos cement pipes shall be cast-iron conforming to British Standard Specification 78: PART 2 Fittings: "Cast Iron Spigot and Socket Fittings", Class AV, except that the fittings and specials shall have the shapes, dimensions and tolerance required to fit the asbestos-cement pipes. Fittings and specials for asbestos-cement pipe shall be supplied by the manufacturer of the asbestos-cement pipe.

Rubber ring shall conform to Pakistan standard specification No. PS. 1915: 1987.

03 **Galvanized Iron Pipes and Fittings**

The galvanized iron pipes shall strictly conform to B.S. 1387 Specifications for "Steel Tubes and Tubulars suitable for screwing to B.S. 21 pipe threads" and shall be of medium grade. All screwed pipes and sockets shall conform B.S. 1740. A complete and uniform adherent coating of zinc white will be provided for galvanized iron pipes and fittings.

04 **M.S Pipe**

All mild steel pipes shall conform to ASTM designation A53, schedule 40 "standard specification for welded and stainless steel pipe". All pipes shall be internally cement mortars lined and externally bituminous coated.

M.S. short pieces shall be flanged at both ends. The flanges shall conform to B.S. 4504, part 3 (PN 16). M.S. pipe pieces shall be externally protected by applying two coats of red oxides (of approved quality) and bituminous coating (grade 10/20) at the rate of 0.4 lb/Sq.ft.

05 **Unplasticised Polyvinyl Chloride Pipe and Fittings**

Unplasticised polyvinyl chloride (uPVC) and fittings if approved by the Engineer shall confirm to BS 3505 pipes shall be class C: Pipe and fittings shall not be stored directly exposed to sunlight handled or laid in conditions where ambient temperatures may cause distortion or damage. In extreme conditions, pipe and fittings may have to be stored under water.

06 **Joints for Unplasticised Chloride Pipe**

Joints for unplasticised polyvinyl chloride pipe shall be the Z type consisting of a socket with rubber gasket, or approved equal, and assembled in accordance with the pipe manufacture's recommendations.

07 **Polyethylene (P.E.) Pipes and Fittings**

High-density polyethylene pipes (HDPE) and fittings shall conform to ISO 4427/DIN 8075 standards. Material, diameters, wall thickness shall be as indicated in 4427/DIN 8074. Tests to be performed for pipes shall be Heat revision, Short term hydrostatic pressure test and Tensile

strength and for P.E. compounds shall be Elongation at break, Melt flow rate and Density test.

Warning tape shall be provided for lying over P.E. pipes. It should be single fold, 0.02 inch thick and 2 inch wide, with warning for digging continuously printed in Urdu language. The tape shall be placed one foot above the P.E. pipe.

Bricks on edge shall be placed on the P.E. pipes along its edge after it is laid in order to avoid any damage to the pipe.

08 **Sluice (Gate) Valve**

Valves shall be wedge gate valves conforming to British Standard Specification 5163. Ends of valves shall be suitable for the type of pipe to which the valves will be connected.

09 **Check Valves**

Check valve shall comply with the requirements of BS 5153 latest revision for pressure rating of 16 bar. The valve shall be of swing type and shall be of quick acting single door type.

10 **Fire Hydrants**

The metal of the fire hydrant shall conform to B.S. 750 and shall be of screw down streamline pattern. The body shall be best quality, closed grain, grey cast iron with spindle of manganese bronze having tensile strength of not less than 11.0 tons per square inch machined from solid rolled bars, the seating valves and other parts shall be of best quality gun metal with Brinell Hardness No. 80. The direction of closing shall be by clockwise rotation and outlet shall have screwed joint for accommodation 2 1/2" dia hose connection. Inlet flanges of hydrant shall be suitable for jointing with flanges of hydrant bends and tees. All fire hydrants shall be coated with three coats of solution from an approved manufacturer to give a uniform protective coating on cast iron.

5219 APPROVAL OF MATERIALS AND EQUIPMENT

As soon as practicable but within 30 days after receipt of notice to proceed and before any materials or equipment are purchased, the Contractor shall submit for approval by the Engineer a complete schedule, in triplicate, of materials and equipment to be incorporated in the work, together with the names and addresses of the manufacturers and their catalogue cuts,

diagrams, drawings, and such other descriptive data as may be required by the Engineer. No consideration will be given to partial lists submitted from time to time. Approval of materials and equipment under deviations from the specifications shall not be granted unless the attention of the Engineer has been directed to the specific deviations. Laboratory results and certifications, specified or otherwise required, shall be submitted prior to delivery of the material and equipment to site.

5220 INSTALLATION

01 Handling

Pipe and accessories shall be handled in such a manner as to ensure their delivery to the trench in sound, un-damaged condition. If any pipe or fitting is damaged, the repair or replacement shall be made by the Contractor at his expenses in a satisfactory manner. No other pipe or material of any kind shall be placed inside of a pipe or fittings. Pipe shall be carried into position and not dragged. The interior of pipe and accessories shall be thoroughly cleaned of foreign matter before being lowered into the trench and shall be kept clean during laying operations by plugging or other approved method. Before installation, the pipe shall be inspected for defects. Material found to be defective before or after laying shall be replaced with sound material without additional expense to the Employer. Rubber gaskets that are not to be installed immediately shall be stored in a cool dark place and protected against the direct rays of the sun.

02 Cutting of Pipe

This shall be done in a neat and workman-like manner without damage to the pipe. Unless otherwise authorized by the Engineer or recommended by the manufacturer, cutting shall be done with a mechanical cutter of approved type. Wheel cutters shall be used wherever practicable.

03 Location

Where the location of the water pipe is not clearly defined by dimensions on the Drawings, the water pipe shall be located as directed by the Engineer.

04 Deflection

Maximum allowable deflections from a straight line or grade, as required by vertical curves, horizontal curves, or offsets will be 2^{O} degrees for Asbestos Cement Pipe unless other- wise recommended by the manufacturer. If the alignment requires deflections in excess of the specified limitations, special bends or a sufficient number of shorter lengths of pipe shall be furnished to provide angular deflections within the limit setforth, as approved.

05 **Placing and Laying**

Pipe and accessories shall be carefully lowered into the trench by means of derrick ropes, belt slings, or other suitable equipment. Under no circumstances shall any of the water line materials be dropped or dumped into the trench. Care shall be taken to avoid abrasion of the pipe coating. Poles used as levers shall be of wood and shall have broad flat faces to prevent damage to the pipe. Except where necessary in making connections with other lines or authorized by the Engineer pipe shall be laid with the bells facing in the direction of laying. The full length of each section of pipe shall rest solidly upon the pipe bed, with recesses excavated to accommodate bell coupling and joints. Pipe that has the grade or the joint disturbed after laying shall be taken out and relaid. Pipe shall not be laid in water shall be kept out of the trench until the materials in the joints have hardened or until chaulking or jaunting is completed. When work is not in progress, open ends of pipe, fittings, and valves shall be securely closed so that no trench water, earth, or other substances will enter the pipes or fittings. Where any part of a coating or lining is damaged, the repair shall be made by the Contractor at his expense in a satisfactory manner. Pipes shall be installed in accordance with recommendations of the pipe manufacturer. Pipe ends left for future connections shall be valved, plugged or capped, and anchored, as shown or as directed, where connections shall be made by using specials and fittings to suit the actual conditions.

06 **Jointing**

The joints shall be in accordance with the recommendations of the manufacturer or as approved by the Engineer.

Connections between different types of pipes and accessories shall be made with transition fittings where recommended by the pipe manufacturer.

Service connections shall be made as indicated and in accordance with the recommendations of the pipe manufacturer.

07 **Setting of Fire Hydrants, Valves and Surface Boxes**

Fire hydrants shall be located and installed, as shown. Hydrants shall be set plumb and in accordance with the manufacturer's instructions.

Valves and surface boxes shall be installed as shown or directed, and shall be set plumb. Surface shall be centered on the stems or operators. Concrete, concrete pipe, brick, brick ballast used in chambers shall conform to the relevant clause of the Specification. Where feasible, valves or operators shall be located outside the area of roads and streets. Earth fill shall be carefully tamped around each valve box to the satisfaction of Engineer on all sides of the box, or to the undisturbed trench face if less than 4 ft.

Hydrants and valves shall have the interiors cleaned of all foreign matter before installation. Surface boxes shall be lighted and the hydrant or valve shall be inspected in open and closed positions to ensure that all parts are in working condition.

08 **Thrust Blocks**

Plugs, caps, tees, bends and fire hydrants shall be provided with concrete thrust blocks. Backing shall be placed between solid ground and the hydrant or fitting to be anchored. The area of bearing shall be as shown on the Drawing. The backing shall be so placed that fitting joints shall be accessible for repair. The concrete shall be class C plain cement concrete.

09 **Pipe Bedding**

Fine sand as pipe bedding material shall be used for A.C. pipe and C.I. fittings. The sand shall be free from clay, site, salts, organic impurities and debris. Approval of pipe bedding materials shall be obtained by the site Engineer prior to placing.

10 **Pavement Restoration**

The Contractor shall restore paved surface which have been cut under this contract, as part of the work under the excavation items and at no extra cost to the owner/employer.

5221 FLUSHING

The Contractor shall provide facilities for flushing the line. Water for flushing the line shall be arranged by the Contractor. Flushing of line shall be done

section by section. For each valved section of pipeline the Contractor shall make a temporary hose connection between the water pipeline and the pipeline under test. Water shall be pumped into the section flushed. Other arrangements for storing and pumping of water shall be subject to the approval of Engineer. Due precautions shall be taken by the Contractor for the disposal of water. The pipeline shall be flushed by keeping all the branching pipes open. Flushing shall be continued until clean water starts flowing through the other end. Section by section, the entire pipeline shall be flushed at a minimum flushing velocity of 2.5 ft./sec.

5222 LEAKAGE TEST

Flushing of the pipeline shall be followed by a leakage test. The Contractor shall provide facilities for performing the leakage test. Water and pumping facilities shall be provided by the Contractor. Before the testing of pipeline the Contractor shall ensure that concrete backing blocks have been provided where necessary. The test shall be performed only after all concrete work in contact with pipe to be tested has set for a minimum of 24 hours. All joints shall be left exposed. Leakage test shall be performed by keeping the end of the pipeline closed by proper plugs blocked to resist 150 per cent of the working pressure. While filling the line all valves and openings shall be kept open and water shall be filled in slowly. When the pipeline is completely filled with water and all air expelled, water shall be pumped into the pipeline to a minimum pressure of 150 percent of actual working pressure and the test pressure shall be maintained for at least 1 hour. Each and every joint shall be inspected for leaks and for all visible leakage and displacement leakage test shall be performed by the Contractor, for the newly laid pipeline. A measured quantity of water shall be pumped into the pipeline. No piping installation will be accepted until the leakage is equal or less than the number of imperial gallons per hour as determined by the formula:

L = 0.00054 ND / P
L = Leakage in Imperial Gallons
N = Number of joints
D = Nominal diameter of pipe in inches
P = Average test pressure (psi) during test

In the event of the pipeline failing the leakage test, the Contractor shall locate and repair the defective pipe, fitting or joint at his expenses. For dewatering the line for repairs the Contractor shall follow the instructions given by the Engineer for disposal of water. After repairs of the line, the Contractor shall retest the line. The line will not be accepted until it passes the leakage test.

5223 RETESTING AFTER BACKFILL

After the pipe trench has been backfilled, the entire length shall be subjected to a leakage test as a whole unit. The Contractor shall repair the line if it fails to pass the leakage test requirements specified hereinbefore. The test shall be repeated and repairs effected until the pipeline passes the leakage test.

5224 PIPELINE DISINFECTION

01 General

The Contractor shall furnish all equipment, labour and material for the proper disinfection of the pipeline. Disinfection shall be accomplished by chlorination after the lines have been tested for leakage but before they have been connected to the main system. Disinfections of the pipelines shall be done in the presence of the Engineer's representative with equipment approved by him.

02 Chlorination

A chlorine and water mixture shall be supplied by means of a solution feed chlorination device. The chlorine solution shall be applied at one end of the pipeline through a trap, in such a manner that as the pipeline is filled with water, the dosage applied to the water entering the pipe shall be atleast (25 p.p.m) or enough to meet the requirements given hereinafter.

03 Retention Period

Chlorination water shall be retained in the pipeline for a period of at least 24 hours. After the chlorine treated water has been retained for the required time, the chlorine residual at the pipe extremities and at such other representative points shall be at least 10 parts per million. This procedure shall be repeated until the required residual chlorine concentration is obtained.

04 Chlorination of Valves

During the process of chlorination the pipeline, all valves or other appurtenances shall be operated while the pipeline is filled with the heavily chlorinated water.

5225 FINAL FLUSHING

Following complete disinfection of the pipeline, all treated water shall be thoroughly flushed from the pipeline at its extremities. Treated water and water used for flushing the pipelines shall be disposed of in a manner instructed by the Engineer. Fresh treated water shall be filled in the line and water tested from presence of coliform. the test result should indicate negative coliform presence. If the test indicates any positive coliform, the entire process of disinfection shall be repeated or improved upon until coliform free samples are obtained.

5226 SAMPLING AND TESTING

Disinfection of the pipeline and appurtenances shall be the responsibility of the Contractor. The first set of samples will be collected for analysis by the Engineer. Should the samples reveal presence of coliform the Contractor shall again disinfect the pipeline and appurtenances at no extra cost to the Employer for sampling and testing for subsequent retests until coliform free samples are obtained. The charges for resampling and retesting shall be recovered from the Contractor.

5227 CLEAN-UP

Upon completion of the installation of the water supply lines, distribution system and appurtenances, all debris and surplus materials resulting from the work will be removed and disposed off in a manner satisfactory to the Engineer

5228 INDICATION PLATES

The indication plates shall be installed in accordance with the drawings and as directed by the Engineer.

5229 WASHOUTS

The design and locations of washouts shall be illustrated on the Drawings to be approved by the Engineer. Exact positioning shall be determined with regard to topography and to the approval of the Engineer. At least 10 ft. of the washout pipework, inclusive of the isolating valve, measured from the centre line of the pipeline, shall be laid at the same time as the pipeline and suitably capped to preventingress of foreign material. The minimum gradient for the washout pipework shall be 1 in 100.

5230 AIR VALVES

a) **Double orifice Air Valves**

These shall be designed to meet the following conditions:

- expulsion of air during charging of the pipeline
- admit air during emptying of the pipeline to avoid the occurrence of negative pressure
- expulsion of air accumulated at summit points along the pipeline under normal operating conditions

First two conditions shall be met by the employment of a large orifice capable of handling large volumes of air at high flow rate, and the third condition by a small orifice capable of discharging small quantities of air as they accumulate.

The large orifice shall be sealed by a buoyant rigid ball and the chamber housing shall be designed to avoid premature closing of the valve by the air whilst being discharged. The small orifice shall be sealed by a buoyant ball at all pressures above atmospheric except when air accumulates in the valve chamber.

b) **Single Orifice Air Valves**

These shall be designed to carry out the function described above. Each valve shall be provided with only a small orifice which shall operate in the same manner as that in a double acting air valve.

Valves with air intake or exhaust facilities shall have approved screening arrangements to prevent the ingress of air borne sand.

The nominal pressure shall range between NP 16 and 25.

Body ends shall be flanged with raised faces and drilled according to BS 4504 for the nominal pressure specified or indicated in the Drawings.

The materials for the valves shall be as follows:

Cast iron body cover and cowl: for small orifice, cast iron with gunmetal seat with rubber covered ball or other approved; for large orifice, cast iron with rubber seat and vulcanate covered ball or other approved.

5231 MEASUREMENT AND PAYMENT

Measurement and payment of pipework, fittings, specials and appurtenances will be made in accordance with the provisions of this clause specified hereinafter.

01) **Pipe work**

a) **Method of Measurement:** Measurement will be made for the number of running feet of Asbestos cement, uPVC, cast iron and M.S. pipes including fittings, accessories and flanges acceptably installed complete in all respects as per relevant Drawings or as directed by the Engineer.

b) **Basis of Payment:** Payment will be made for the running feet of pipework as measured above at the Contract Unit price and shall constitute full compensation to provide, handle, lay and joint asbestos cement, uPVC and cast iron pipes including fittings, flushing, leakage testing before & after backfilling, final flushing and all other work related to the item.

02 **Service Connection**

i) G.I. Pipe and Fittings

a) **Method of Measurement:** Measurement will be made for the number of linear feet of galvanized iron pipe including fittings acceptably installed complete in all respects as per relevant Drawings or as directed by the Engineer.

b) **Basis of Payment:** Payment will be made for the number of linear feet of galvanized iron pipework as measured above at the Contract Unit Price of each unit and shall constitute full compensation to provide, handle, lay, joint and test galvanized iron pipe, fittings, including sleeves, nuts, sockets, plugs, bitumen coating with Polyethelene tape and all other work related to the item.

ii) Ferrule Assembly

a) **Method of Measurement:** Measurement shall be made for the number of ferrules acceptably installed complete in all respects as per relevant Drawings or specifications.

b) **Basis of Payments:** Payment shall be made for the number of ferrules measured as above at the contract unit price for each unit and shall constitute full compensation for providing,

tapping, drilling, fixing including M.S. straps, Saddles, and all other work related to the item to make complete house connection.

03 **Pipe Fittings and Specials**

a) **Method of Measurement:** Measurement will be made for the number of pounds of fittings and specials acceptably installed in pipework complete in all respects as per relevant drawings or as directed by the Engineer.

b) **Basis of Payment:** Payment will be made for the number of pounds of fittings/specials as provided above at the Contract Unit Price and shall constitute full compensation for the cost of providing, handling, fixing, jointing, disinfecting, respective type of fitting/special, and all other work related to the item.

04 **Sluice (Gate) Valves**

a) **Method of Measurement:** Measurement will be made for the number of sluice (gate) valves acceptably installed complete in all respects as per relevant Drawings.

b) **Basis of Payment:** Payment will be made for the number of sluice (gate) valves measured as above at the Contract Unit Price for each unit and shall constitute full compensation for providing, handling, fixing and jointing and all other work related to the item including construction of chamber as shown on drawings.

05 **Check Valves**

a) **Method of Measurement:** Measurement will be made for the number of check valves acceptably installed complete in all respects as per relevant Drawings.

b) **Basis of Payment:** Payment will be made for the number of check valves measured as above at the Contract Unit Price for each unit and shall constitute full compensation for providing, handling, fixing and jointing and all other work related to the item including construction of chamber as shown on drawings.

06 **Fire Hydrants**

a) **Method of Measurement:** Measurement shall be made for the number of fire hydrants acceptably installed complete in all respects as per relevant Drawings.

b) **Basis of Payment:** Payment will be made for the number of fire hydrants measured as above at the Contract Unit Price for each unit and shall constitute full compensation for providing, handling, fixing and jointing and all other work related to the item including construction of chamber.

07 **Indication Plates**

a) **Measurement** will be made for the number of indication plates acceptably installed complete in all respects as per relevant drawings.

b) **Basis of Payment:** Payment will be made for the number of indication plates measured as above at the contract unit price for each unit and shall constitute full compensation for providing handling, fixing and all other work related to the item.

08 **Washouts**

a) **Method of Measurement:** Measurement will be made for the number of washouts acceptably installed including construction chamber complete in all respects and as approved by the Engineer.

b) **Basis of Payment:** Payment will be made for the number of washouts measured as above at the contract unit price for each unit and shall constitute full compensation for providing handling, fixing and all other work related to the item including construction of chamber.

09 **Air Valves**

a) **Method of Measurement:** Measurement will be made for the number of air valves acceptably installed complete in all respects and as approved by the Engineer.

b) **Basis of Payment:** Payment will be made for the number of air valves measured as above at the contract unit price for each unit and shall constitute full compensation for providing

handling, fixing and jointing related to the item including construction of chamber.

10 **Sand Cushion**

a) **Method of Measurement:** Measurement will be made for the number of cubic foot of sand acceptably placed complete in all respects and as approved by the Engineer.

b) **Basis of Payment:** Payment shall be made for the number of cu.ft of sand measured as provided above at the contract unit price per cu.ft and shall constitute full compensation for all work related to the item.

11 **Thrust Blocks**

a) **Method of Measurement:** Measurement will be made for the number of cubic foot of class 'C' concrete acceptably placed complete in all respects and as approved by the Engineer.

b) **Basis of Payment:** Payment shall be made for the number of cu.ft of class 'C' concrete measured as provided above at the contract unit price per cu.ft and shall constitute full compensation for all work related to the item.

12 **Concrete Encasement**

a) **Method of Measurement:** Measurement will be made for the number of cubic foot of class C concrete acceptably placed complete in all respects and as approved by the Engineer.

b) **Basis of Payment:** Payment shall be made for the number of cu.ft of class C concrete measured as provided above at the contract unit price per cu.ft and shall constitute full compensation for all work related to the item.

SECTION – 8001

GENERAL SPECIFICATIONS FOR ELECTRICAL WORKS

1.0 SCOPE OF WORK

2.0 RULES & REGULATIONS

3.0 AMBIENT CONDITIONS

4.0 STANDARDS

5.0 SYSTEM DATA

6.0 EQUIPMENT

7.0 DRAWINGS AND DATA TO BE FURNISHED BY THE CONTRACTOR

8.0 MANUFACTURER'S INSTRUCTIONS

9.0 GUARANTEE

10.0 DANGER BOARDS WITH SIGNS, DESIGNATION AND SHOCK / FIRST AID CHARTS AND FIRE FIGHTING EQUIPMENT

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12.0 INSTALLATION INSTRUCTIONS - GENERAL

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15.0 APPENDICES TO BE FILLED IN BY THE BIDDER

16.0 PAYMENT

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

1.0 SCOPE OF WORK

The works related to the electrical system which is included in the Scope of this Contract as shown on the Drawings, stated in the Specifications and Bill of Quantities and explained in these Specifications. The works shall broadly include but not limited to the following:

- General Specifications for Electrical Works
- Power Transformer
- LT Distribution Boards
- Light Fixtures
- Low Tension Cables
- Wiring Accessories
- Conduits and Pipes
- Earthing
- Lightning Protection System
- Miscellaneous Items
- Structured Cabling Network
- Fire Alarm System
- Closed Circuit Television System
- Public Address System
- Cable Antenna TV System

The Contractor shall also be responsible to supply any other equipment not specifically mentioned in these Documents but which is necessary for proper operation of the works/system included in the scope of this Contract. The Contractor shall solely be responsible for ensuring proper functional requirements of different equipment. He shall also be responsible for furnishing any additional piece of equipment and for making modification in the equipment as desired and/or approved by the Engineer to achieve proper co-ordination with various equipment offered in the bid and also with those installed by others.

2.0 RULES & REGULATIONS

The entire electrical installation/work shall be carried out by licensed Contractor, authorised to undertake such work under the provisions of the Electricity Act 1910 and The Electricity Rules 1937 as adopted and modified upto date by the Government of Pakistan.

All works shall be carried out in accordance with the latest edition of the Regulations of the Electrical Equipment of Buildings issued by the Institute of Electrical Engineers-London, the Contract Documents, The Electricity Rules 1937 and bye-laws that are in force from time to time. Any discrepancy between these Specifications and any other rules and regulations shall be brought to the notice of Engineer for his instructions and the discussion of the accepting/controlling shall be final and conclusive.

The Contractor shall be responsible for completing all formalities and submitting the test certificates as per prevailing rules and regulations, and shall have the installation passed by the Government Electric Inspector of that region. All requirements of the Electric Inspector and the WAPDA / DISCO shall be complied with.

3.0 AMBIENT CONDITIONS

All material and equipment supplied and installed shall be designed, manufactured and tested to meet the following ambient conditions unless specifically stated otherwise for any material/ equipment.

Maximum indoors ambient temperature	:	45-Degree Celsius
Minimum indoors ambient temperature	:	Zero Degrees Celsius
Maximum outdoors-ambient temperature	:	50-Degree Celsius
Minimum outdoors-ambient temperature	:	Zero Degrees Celsius
Maximum Relative humidity	:	100 Percent
Maximum Altitude of project	:	220 meters above the mean Sea level.

The atmospheric conditions are tropical and highly humid.

4.0 STANDARDS

The latest standards and codes of reputable organisations shall be applicable for the material and equipment specified herein and for installation work. Such organisations to be BSS, VDE, NFPA 99, NEC Article 517 etc. In case the Specifications laid down herein differ from those given in the standards, then the equivalent or better specifications shall govern. Wherever applicable the equipment shall also conform to the requirements of Pakistan Standard Institution (PSI).

Contractor shall maintain at the site office one copy of the standards / codes applicable to the works.

5.0 SYSTEM DATA

Unless otherwise specified elsewhere, all equipment and material shall be designed to operate satisfactorily with the following minimum requirements without any de-rating.

a) Voltage rating of equipment :	HT :	11 kV, 3 phase, +/- 10%
	LT :	400 V, 3 phase, +/- 10%
		230 V, 1 phase, +/- 10%
b) Frequency	:	50Hz $\pm$ 2Hz

In general, the electrical colour coding of switchgear cubicles, control panels, desks etc., shall be in accordance with the respective IEC Recommendations.

Live parts of electrical connections shall be colour coded according to IEC 446 as follows:

	Conductor Designation	**Coding Alphanumeric**	**Colour**
A.C. Network	Phase 1	L 1	red
	Phase 2	L 2	yellow
	Phase 3	L 3	blue
	Neutral	N	black
D.C. Network	Positive	L**+**	white
	Negative	L**-**	black
Earthing	Protective Earth	PE	green/yellow
	Earth	E	green/yellow

The colour coding for the secondary circuits of isolated power panel board is as follows:

Orange-Isolated Phase Conductor
Brown- Isolated Neutral Conductor
Green-Isolated Ground Conductor

Conductor insulation of secondary circuits of isolated power panel board shall be XLPE and PVC sheathed.

Control Cables

The Control Cables shall be manufactured according to specifications for L.T. Cables. The Control Cables shall be of multi-core, PVC insulated type withstanding without deterioration the conditions prevailing at the place of installation. The cross section of cable shall be as per the requirement of the system.

All the cores should be numbered and/or colour coded or otherwise properly identified. At-least 20% spare cores shall be provided in all Control Cables.
No separate payment is admissible for supplying, installing, testing and commissioning of control cables and is deemed to have been included in the BOQ rates of the respective equipment.

Distance in between power, communication and control cables shall be kept as per requirements laid down by NEC800, NFPA 70 and EN50174-2.

6.0 EQUIPMENT

6.1 IP Degree of Protection

The equipment shall have IP degree of protection as follows, unless mentioned other wise:

- IP 20 for indoor areas
- IP 42 for indoor damp areas
- IP 54 for outdoor areas

If properly rated equipment is not available, the Contractor shall provide field enclosures to attain the required IP degree of protection. If necessary cooling/exhaust fans and / or anti condensate heaters shall also be provided. No separate payment shall be made to attain the required IP degree of protection.

6.2 Identification & Labelling

All devices, meters, cabling, wiring and auxiliaries shall be properly labeled for identification. Labeling of equipment shall be done by means of flameproof material using indelible ink/marking. The labeling shall be such as to ensure uniformity and shall facilitate study of control diagrams/ drawings during operation and maintenance.

All labeling shall be of suitable size to be visible from the operating conditions/positions at site.

6.3 Lamp Test Facility

All equipment / switchboards, etc. shall be provided with common lamp test facility.

7.0 DRAWINGS AND DATA TO BE FURNISHED BY THE CONTRACTOR

The shop drawings, as-built drawings and/or technical data to be furnished by the Contractor for each electrical equipment, LT cable distribution layout & shall include, but not limited to the following:

(a) Structural drawings showing foundations, RCC details dimensional plans, elevation and sections on a suitable scale.

(b) Electrical drawings showing:

- Line diagrams of Switchboards, Motor Control Centres,

distribution boards and isolated power panels with detailed wiring diagrams, elevations/internal component layout and other standard details.

- LT Cabling, Grounding/Earthing including all cable routing and support details.
- Necessary execution details such as no. of cable/wires, size of conduits, cable routes, cable trays and cable trenches, etc.
- Substation and Generator Room Equipment installation detail.
- Manhole/Duct works.

(c) Layouts of all LT cable routes with coordinates and levels.

(d) Technical literature and manufacturer's characteristic data with the description of materials and weights of all equipment as instructed by the Engineer.

At least three (3) copies of the shop drawings and/or technical data of the equipment shall be submitted to the Engineer for checking and approval.

8.0 MANUFACTURER'S INSTRUCTIONS

The Contractor shall supply to the Engineer in properly bound form six (6) copies of manufacturer's instruction manuals for installation, testing, commissioning, operation and maintenance of the specified equipment including manuals of spare parts and tools of the equipment. At least two copies of the documents shall be submitted in original. The installation instructions shall be submitted 2 weeks prior to commencement of installation of each equipment, and operation and maintenance instruction at the time of commissioning. If the Contractor fails to provide the documents the Engineer shall withhold issuance of requisite certificates and deduct suitable amount from the payments to the Contractor.

9.0 GUARANTEE

The Contractor shall furnish written guarantee of the manufacturer or supplier with respect to satisfactory performance of each equipment. Guarantee shall be given for replacement and repair of part or whole of the equipment, which may be found defective in material or workmanship. The guarantee shall cover the duration of Maintenance Period as defined in the Conditions of Contract. This guarantee shall not relieve the Contractor of his obligations and he will be fully responsible for the repair or replacement of any defective material in time, so as not to cause any undue delay in carrying out the repairs and/or replacements.

10.0 DANGER BOARDS WITH SIGNS, DESIGNATION AND SHOCK / FIRST AID CHARTS AND FIRE FIGHTING EQUIPMENT

Danger Boards having signs and designation of the room shall be installed on the external door of HT, LT, Power transformer, Low Voltage DG Set Rooms. Shock/First Aid Charts shall be installed in H.T, L.T and Low Voltage DG Set Rooms.

Potable fire fighting extinguisher suitable to control electrical fire shall be provided in H.T, L.T, Power Transformer and Low Voltage DG Set Rooms.

All the above items shall also be provided, wherever required to comply the requirements of the Pakistan Electricity Rules/Electric Inspector.

Laminated single line and adequate detail drawings on proper boards highlighting the main system features shall be displayed/ fixed in respective electrical and communication rooms.

11.0 ASSOCIATED CIVIL WORKS

Except where separately stated in the Bill of Quantities the cost of all civil works associated with any BOQ item of electrical works, such as excavation and back filling of earth, compaction of the earth, foundation pads, chiselling, making openings, etc. shall be included in the price quoted against respective items. No separate payment for such works will be made. Such works will also include repair of any damage to civil works caused by the Contractor during electrical installation.

12.0 INSTALLATION INSTRUCTIONS - GENERAL

The Contractor shall furnish all labour, materials, tools and equipment required to install, connect, test and commission all electrical equipment specified herein, whether or not such equipment is furnished by him or by others.
For all equipment to be installed by the Contractor, the Contractor shall supply and install all erection materials such as foundation bolts, washers, nuts, etc. as required and without any additional costs.

The Contractor shall set out the works himself as per Specifications and Drawings and shall properly position the equipment on specified foundation/location. In general, the manufacturer's instructions for installation shall be followed. Any defect or faulty operation of equipment due to the Contractor not following the manufacturer's instructions shall be corrected and repaired by the Contractor at his own cost.

For any deviation from the working drawings or specification that are deemed

necessary by the Contractor due to site conditions, he shall submit the details and obtain the Engineer approval before starting such works.

13.0 FACTORY TESTS

All type and routine tests on Low Voltage D.G Set, Power Transformer, H.T Switchboards, LT Switchboards, Motor Control Centre, H.T Cables, LT Cables, and all other equipment shall be performed at the manufacturer's works in the presence of the Engineer or his Representative. Type tests may be waived off in case test certificates are submitted as certified by an Engineer approved standard laboratory of international repute; but merely producing the test type certificates will not relieve the manufacturer to carry out the required standard/routine tests.

The Contractor shall inform the Engineer about the date and time of test of each equipment at least two weeks in advance. This shall, however, be done after the Contractor has got the test procedures duly approved by the Engineer. The witnessing of test by the Engineer and the Employer shall not absolve the Contractor from his responsibility for the proper functioning of the equipment, and for furnishing the guarantees referred to in clause 9.0. All test results shall be supplied in quadruplicate. All expenses for carrying out the tests as incurred by the Engineer and the Employer to witness it shall be borne by the Contractor and deemed to have been included in the bid. Provision for at least two person's visit for Factory Acceptance Tests shall be made to include one representative each from the Employer and the Consultant/Engineer. The contractor shall undertake all formalities as may be required for the Engineer or his representative to enable him make the visit.

14.0 TESTING - GENERAL

14.1 Scope

Upon completion of the installation, the Contractor shall perform field tests on all equipment, materials and systems. All tests shall be conducted in the presence of the Engineer for the purpose of demonstrating equipment or system compliance with Specifications. The Contractor shall submit for Engineer's approval complete details of tests to be performed describing the procedure, test observations and expected results.

The Contractor shall furnish all tools, instruments, test equipment, materials, etc., and all qualified personnel required for the testing, setting and adjustment of all electrical equipment and material including putting the same into operation.

All tests shall be made with proper regard for the protection of the personnel and equipment and the Contractor shall be responsible for adequate protection of all personnel and equipment during such tests.

The cost of any damages or rectification work due to any accident during the tests shall be the sole responsibility of Contractor.

The Contractor shall record all test values of the tests made by him on all equipment. Four (4) copies of all test data and results certified by the Engineer shall be given to the Engineer for record purposes. These shall also include details of testing method, testing equipment, diagrams, etc.

The witnessing of any tests by the Engineer does not relieve the Contractor of his guarantees for materials, equipment and workmanship, or as any other obligations of Contract.

14.2 **Low Voltage D.G. Set**

Prior to the tests, the contractor shall submit manufacturer's recommended detailed description of the test procedures to be conducted for Engineer's approval.

The Contractor shall carry out full site load and no load tests in accordance with IEC, ISO or BS Specifications for site commissioning. The inspection and tests shall include but not be limited to:

Basic Tests:	Insulation Resistance Earth Continuity Earth Loop Impedance Polarity Phase Rotation Voltage and Frequency Starting System Protection Equipment
Battery:	Nominal Voltage Discharge Voltage Specific Gravity of Electrolyte Level of Electrolyte Charging System
Lubrication:	Check as required by manufacturer
Operational Check at Start-up	Oil Pressure Fuel Oil Leaks Operation of Safety Devices Operational Speed Automatic Control Instrument Check Exhaust Check Undue Vibration

Operational Check After one hour's run:	Oil Pressure Oil Leaks Cooling System Oil Temperature	
Commissioning Test:	25% of full load	2 hrs.
	50% of full load	5 hrs.
	75% of full load	8 hrs.
	100% of full load	8 hrs.
	110% of full load	1 hr.

All commissioning and test results shall be recorded and compared with design data. A retest/commissioning shall take place if results are not satisfactory. All the tools, labour, POL, required for the testing and commissioning shall be provided by the Contractor at no extra cost. If required load is not available at site for testing the generators, the Contractor shall provide dummy load at site at no extra cost to the Employer. The correct functioning of the control equipment shall also be proved.

Battery Charger

Battery charger shall be static type and shall provide for both trickle and boost charging of the batteries when the engine is not in operation. The charger shall be of suitable capacity to fully recharge the completely discharged batteries within four hours at boost charge.

Control Panel

The Control Panel shall provide all the necessary control and monitoring devices of the Diesel Generating Sets. All the control and monitoring of the safety devices, alarms, protections, meters, lamps, etc. as mentioned in this Specifications and required as per good engineering practices for such an installation shall be provided in the Control Panel.

14.3 **Transformer Tests**

In addition to the insulation resistance test of the transformer, a polarity and phase rotation test shall also be made. Buchholz relay shall be tested for proper operation. Di-electric test shall be carried out on transformer oil prior to putting the same in operation.

14.4 **HT / LT Switchboards**

Each circuit breaker shall be operated electrically and mechanically. All interlocks and control circuits shall be checked for proper connections in accordance with the wiring diagrams given by the manufacturer.

The Contractor shall properly identify the phases of all switchgear and cables for connections to give proper phase sequence.

Trip circuits shall be checked for correct operation and rating of equipment served. The correct size and function of fuses, disconnect switches, number of interlocks, indicating lights, alarms and remote control devices shall be in accordance with approved manufacturer drawings. Nameplates shall be checked for proper designation of equipment served. Protective relays shall be tested and set at site prior to commissioning of the equipment.

14.5 Insulation Resistance Test

Insulation resistance test shall be made on all electrical equipment by using a meggar of 500 volts for circuits upto 250 volts and 1000 volt for circuits between 250 and 500 volts. For testing of 11 kV circuits, upto 5 kV meggar shall be used; the exact voltage shall be as advised by the equipment manufacturer unless otherwise advised by the Engineer.

The insulation resistance values of cables, transformer, switchgears, etc., shall be as per BSS, IEEE, NEC, ICEA and Pakistan Electricity Rules.

Before making connections at the ends of each cable run or joint between cables, the insulation resistance test of each cable section shall be made. H.T. cables shall be subjected to high voltage test as per recommendations of standard to which the cable is manufactured. Each conductor of a multi-core cable shall be tested individually with each of the other conductor of the group and also with earth. If insulation resistance test readings are found to be less than the specified minimum in any conductor, the entire cable shall be replaced and tests repeated on new cable. If cable joint is provided, then each cable section shall be tested, and joint made only after the tests have been made satisfactorily. Finally the completed cable length including the joints shall be tested.
The transformer and switchgears shall be given an insulation resistance measurement test after installation, but before any wiring is connected. Insulation tests shall be made between open contacts of circuit breakers, switches and between each phase and earth.

If the insulation resistance of the circuit under test is less than the specified value, the cause of the low reading shall be determined and removed. Corrective measures shall include dry-out procedure by means of heaters, if equipment is found to contain moisture. Where corrective measures are carried out, the insulation resistance readings shall be taken after the correction has been made and repeated twice at 12 hours interval. The maximum range for each reading in the three successive tests shall not exceed 20% of the average value. After all tests have been

made, the equipment shall be reconnected as required. Polarity test shall be made on single pole switching devices.

14.6 **Earth Resistance Test**

The Contractor shall make Earth resistance tests on the Earthing system, separating and reconnecting each earth connection.

If it is indicated that soil treatment or other corrective measures are required to lower the ground resistance values, the Engineer will determine the extent of such corrective measures.

The electrical resistance of the ECC together with the resistance of the Earthing leads measured from the connection with earth electrode to any other position in the complete installation shall not exceed one ohm.

Earth resistance test shall be performed as per Electrical Inspector's requirements. Where more than one earth electrodes are installed, the earth resistance test of each electrode shall be measured by means of resistance bridge instrument.

The complete lightning protection system shall be tested for continuity and earth resistance. The combined earth resistance at any point in the lightning protection system shall not exceed 10 ohms.

14.7 **Completed Tests**

After any equipment has been tested, checked for operation, etc., and is accepted by the Engineer the Contractor shall be responsible for the proper protection of that equipment so that subsequent testing of other equipment do not cause any damage to the already tested equipment.

14.8 **Expenses**

All expenses, i.e., travelling, boarding and lodging for carrying out the tests and witnessing by the Engineer shall be borne by the Contractor and are deemed to have been included in the BOQ rates of the respective equipment(s) by the Contractor.

14.9 **Spare Parts**

Contractor shall provide spare parts as identified in relevant appendix. The cost of each spare parts shall be carried over to relevant BOQ item and no extra payment shall be admissible in this regard.

14.10 **Special Tools**

Contractor shall provide special tools as indicated in Appendix-IV and as may be deemed essential for assembly, adjustment, dismantling, installation and maintenance reasons.

No separate payment shall be made for any special tools and cost shall be deemed to be included in the cost of the Contract.

15.0 APPENDICES TO BE FILLED IN BY THE BIDDER

The details regarding equipment manufacturers, deviations, etc., are to be furnished in the appendices attached with form of Bids, in accordance with the provisions of the clause "Requirements of Electrical Works" given in the instructions to Bidder, Volume - I.

16.0 PAYMENT

No separate payment shall be made for work involved within the scope of this section unless specifically stated in the Bill of Quantities or herein.

*** End of Section 8001 ***

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

SECTION – 8132

LT SWITCHBOARDS

1.0 SCOPE OF WORK

2.0 GENERAL

3.0 APPLICABLE STANDARDS/CODES

4.0 MATERIAL

5.0 INSTALLATIONS

6.0 MEASUREMENT AND PAYMENT

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

1.0 SCOPE OF WORK

The work under this section consists of supplying, installing, testing, connecting, commissioning of all material and services of the complete LT Switchboards as specified herein and/or shown on the Bidding Drawings and given in the Bill of Quantities.

The Contractor shall discuss the electrical layout with the Engineer and coordinate at site with other services for exact route, location and position of the LT Switchboards.

The LT Switchboards shall also comply with the General Specifications for Electrical Works Section-8001 and with other relevant provisions of the Bidding Documents.

2.0 GENERAL

The LT Switchboards shall be of sheet steel fabricated, floor mounting, cubicle type, totally enclosed, dust tight and vermin proof. It shall be complete in all respect with material and accessories, factory assembled, tested and finished all according to the specifications and to the normal requirements. The IP rating of LT Switchboards shall be at least IP54.

The switchboard with all components and accessories shall be suitable for front operation only and shall:

- have a rated service short circuit breaking capacity, (Ics) at 415 V AC conforming to IEC 60947-2 as shown on the drawings.
- be provided with adequate clearance from live parts so that flashovers cannot be caused by switching, vermin, pests, etc.
- have all components rated for insulation class of 600-volt minimum.
- be designed for flush mounting of all instruments on the front side.
- have all incoming and outgoing connection from the top or bottom as required.
- have the components mounted so as to facilitate ease of maintenance from the front.
- have common lamp test facility for all lamps.
- have wiring diagram in the pocket on the inside of each door of the panel.
- be suitable for 415 volts AC, 3 phase 4 wire, 50 Hz system.

- be labeled with stainless steel nameplate on the front side of door for each incoming and outgoing circuit.

- have doors grounded by flexible copper cable/strip.

- have arrangements for extension of panel in future.

3.0 APPLICABLE STANDARDS/CODES

The latest editions of the following standards and codes shall be applicable for the materials specified within the scope of this Section:

IEC 60947-3	-	Low Voltage Switchgear and Control Gear-Switches, Disconnector, Switch-disconnector and Fuse Combination Units.
IEC 60947-2	-	Low Voltage Switchgear and Control Gear-Circuit Breakers
IEC 60831	-	Power Capacitors
IEC 60439	-	Low Voltage Switchgear and Control gear Assemblies
IEC 60073	-	Colours for indicator lights and push buttons
BS EN 60529	-	Specifications for degrees of protection provided by enclosures (IP Code).
IEC 60044-1	-	Instrument Transformers - Current Transformers
IEC 60044-2	-	Instrument Transformers – Inductive Voltage Transformers
IEC 60051-1, 2, 3, 5 & 8	-	Direct acting indicating analogue electrical measuring instruments and their accessories
BS 88	-	Cartridge fuses for voltage upto and including 1000 V a.c and 1500 V d.c

4.0 MATERIAL

4.1 Sheet Metal Work

The LT Switchboards shall be fabricated, welded, grinded, finished with angle iron framework and cladded with 14/16 SWG MS sheet. It shall be suitably divided into panels and compartments for accommodating the required number of circuit components, instruments and accessories.

The switchboard shall be supplied complete with foundation bolts and other installation materials as recommended by the manufacturer. Proper size cable clamping channels with galvanized steel clamps and brass

cable glands respectively for unarmoured and armoured cables shall be provided. All holes, cutout shall be tool or jib manufactured and free from burrs and rough edges. An earth bar of appropriate cross section shall be provided and connected to the bodies of all sections of the switchboard. Two external earth terminals shall be provided for main earth connection to the body of switchboard. The doors shall be earthed by means of flexible copper strip**.** Means shall be provided to limit the opening angle of doors to about 100^0.

The cabling inside the switchboard shall be suitably numbered and harnessed by means of straps or cords. Wiring to door mounted components shall be in flexible PVC conduit. All indicating, selecting and control equipment shall be suitably arranged and clearly labelled by means of flame proof material using indelible ink/marking indicating the rating of fuse, switches, etc. The nameplates provided on the front of panel shall be of flame retardant material preferably stainless steel. Use of plastic or any inflammable material shall not be permitted for nameplates.

All metalwork of the switchboards shall be cleaned down to bare shining metal phosphated and the surfaces chemically prepared for powder coating. Then these shall be coated with powder of colour RAL 7032 and then baked in oven. The thickness of powder coating shall not be less than 100 microns.

4.2 **Components**

The switchboards shall be provided with all components as specified or shown on the Drawings and as necessary for the satisfactory operation of the switchboard and of the electrical system. Typical specifications are given hereunder.

4.2.1 Bus Bars

The bus bars shall be made of 99.99% pure high conductivity electrolytic tinned copper and shall be completely isolated and mechanically braced for the specified fault level according to relevant IEC standard. The phase identification of bus bars shall be by providing colours sleeves on bus bars ends and these shall be red, yellow and blue for phase and black for neutral. The earth bus bar shall be green.

The bus bars shall be triple pole, neutral & earth and shall be of appropriate size to meet the electrical and mechanical requirements of the system. The temperature rise shall not exceed 30^0C at rated current.

Neutral bus bar shall be of the same cross section as phase bus bars. Earth bus bar shall be of half cross section area as phase bus bars.

4.2.2 Circuit Breakers

The circuit breaker shall be triple pole, current limiting type, manually operated or motor operated, spring charged type as shown on the drawings with front drive grip handle. ON-TRIP-OFF indication shall be provided on circuit breakers. The all circuit breakers shall have the following protections and setting range unless otherwise shown on the drawings:

- Adjustable three pole, manual reset thermal overload release of setting range 80 to 100% of rated current.

- Magnetic triple pole short circuit release having range according to manufacturer's standard range.

The incoming circuit breakers of main LT panel (normal and emergency) shall be air circuit breakers whereas outgoing circuit breakers shall be moulded case type, unless stated otherwise on the drawings.

The incoming circuit breaker shall have two numbers normally open and two numbers normally closed auxiliary contacts rated for 2 Amp, 230 VAC. The incoming circuit breaker shall also have ON-TRIP-OFF indicating lamps. Where shown on the drawings indication lamps shall also be provided for outgoing circuit breakers. The circuit breaker shall have specified rupturing capacity without the use of back-up fuses. Auxiliary release and trip coils shall be provided for desired operation and/or interlockings as stated on the drawings.

The motor operated, spring charged type circuit breakers shall be provided with anti-pumping circuit to prevent repeating cycle of TRIP reset and ON even if the close command is given while the circuit breaker has tripped due to fault.

4.2.3 Switch - Fuse Units

The switch-fuse unit shall comprise a triple pole on load isolating switch with HRC fuses. The fuse shall be supplied complete with the fuse base and shall conform to BS-88 Class Q1 with a fusing factor of 1.5.

4.2.4 Ammeters and Voltmeters

All meters shall be flush mounting, moving iron, spring controlled. The front dimensions shall be 96 x 96 mm for meters.

The meters shall be of accuracy class 1.5 according to relevant IEC standard. The ammeter shall be suitable for connection to 5 Amps secondary of current transformers or directly through shunt as shown on drawings. The ammeters and voltmeters shall have measuring range as indicated on the drawings.

4.2.5 Current Transformers

Air-cooled, ring type current transformers shall be provided having transformation ratio as indicated on the drawings. The current transformers shall be of suitable burden having accuracy class 1.0 according to relevant IEC standard. The current transformers shall have 5 amps secondary.

4.2.6 Selector Switches

Ammeter and voltmeter selector switches shall be complete with front plate and grip handle. R-Y-B and OFF position for ammeters and RY-YB-BR-RN-YN-BN and OFF position for voltmeters shall be marked on the respective selector switches.

The selector switches for controls shall be rotary cam type, having required number of positions. It shall be provided complete with knob and front plate showing all positions as required.

4.2.7 Air Break Contactors

The contactors shall be air break, triple pole 400 VAC type and suitable for the AC3 type of duty to be performed. The main contacts shall be silver tipped, butt type with double break per pole. Each contactor shall be provided with single phase 230 VAC operating coil and minimum one spare normally open and one normally closed auxiliary contact. The number of working auxiliary contacts shall be provided according to the system requirements.

4.2.8 Push Buttons

The push buttons shall be illuminating momentary make/break contact type (normally open/normally close) and suitable for flush mounting. The push button for on and off switching shall be red and green respectively.

4.2.9 HRC Fuses

HRC fuses shall be provided complete with fuse bases, fuse etc. The fuses shall have a fusing factor as specified for class Q1 in accordance with BS 88.

4.2.10 Indicating Lamps

Indicating lamps shall be suitable for flush mounting, complete with base, 230 volt AC incandescent lamp and shall have rosettes of suitable colour.

4.2.11 Line up Terminals

Line up terminals wherever provided for control and power circuits shall be suitable for voltage and size of conductors as indicated on drawing.

The line-up terminals for controls shall be suitable for channel mounting. All necessary accessories such as end plates, fixing clips, transparent label holder caps and label sheets with marking shall be provided.

4.2.12 Power Factor Improvement Plant

The power factor improvement plant shall be used for improving the power factor of the system on 415 Volts side. The plant shall be automatic-cum-manual.

The power factor improvement plant shall be aligned with the Main LT Switchboard. The control panel for the plant shall be a part of Main LT Switchboard, whereas the power factor correction capacitors shall be mounted in a separate ventilated panel. The capacitors shall be suitable for three phase, 440/415 volts, 50 Hz system and shall be self cooled, designed for indoor use in tropical climate for maximum ambient temperature as specified in section - 8001, General Specifications for Electrical Works. The capacitors shall be in the form of banks divided for required stages. Each capacitor bank unit shall be of kVar capacity as shown on drawings. Each capacitor unit shall be complete with discharge resistors and internal fuses and shall be connected with control panel with proper size of single core PVC insulated cables.

The control panel of the plant with all accessories shall be installed within LT Switchboard. The panel shall be supplied complete with a set of 3-phase, full capacity, insulated copper busbars, interconnections, risers, designation labels, cable

sockets, holdings down bolts, wiring with cleats and ferrules, earthing sockets and studs, etc. The control panel shall at least accommodate, but not limited to the following:

- 1 No. Multi-stage power factor correction relay for automatic/manual control.
- 1 No. 3-phase, 4 wire, 415 volts, unbalanced load power factor indicator.
- 1 No. Current transformer with 5 amps secondary current, having suitable output burden and accuracy.
- 3 Nos. Instrument potential fuses.

Following equipment shall be provided for every capacitor bank:

- 1 No. triple pole 415 volts air break contactor with auxiliary contacts (125/63/40 amps for 50/25/12.5 kV Air bank respectively).
- 1 Set 3 Nos. HRC back-up fuses with base and carrier having the fuse factor as required for capacitors in accordance with BS- 88 (125/63/40 amps for 50/25/12.5 kVA bank respectively).
- 1 No. Auto-Off-Manual selector switch.
- 1 No. Red lamp for 'ON' indication of the contactor.

The cost of control panel and power factor connection capacitors panel shall deemed to be included in relevant BOQ item for LT Switchboard and no extra payment shall be admissible in this regard.

5.0 INSTALLATION

The LT Switchboards shall be installed at location shown on the drawing or as advise by the Engineer. The concrete pedestal shall be constructed as per relevant specifications for civil works. The Contractor shall be responsible to ensure co-ordination with the civil works for providing any openings, holes, etc., to avoid any breakage to completed works. In case the provisions in civil works for installation of electrical equipment are not made or made incorrect the same shall be rectified by the Contractor at his own cost and to the satisfaction of Engineer.

The Contractor shall provide foundation bolts and grout them in cement concrete floor using non-shrinkable material with the approval of Engineer.

All installation materials for physically erecting the switchboard, such as bolts, nuts, washers, supporting steel, etc., shall be provided and installed by the Contractor. The switchboard shall be installed upright and in level and shall be firmly and rigidly bolted to the floor and concrete supports.

The switchboard shall be completely erected as per manufacturer's instructions and as approved by the Engineer. Loose parts dispatched by the manufacturer shall be installed and connected as per assembly drawing provided by the manufacturer. Any safety locking of meter, relays, etc., provided by the manufacturer for safe transport shall be released only after the switchboard is erected in position. The incoming and outgoing cables shall be connected as recommended by cable manufacturer. The cable armour shall be connected effectively to ground.

The switchboard body shall be connected to earth as per instructions given in section "Earthing" of these Specifications. The switchboard shall be tested and commissioned in the presence of the Engineer.

The LT Switchboards shall be tested before energizing as per instructions contained in article "Testing" of General Specifications for Electrical Works, Section-8001 of these Specifications.

6.0 MEASUREMENT AND PAYMENT

6.1 General

The Contractor's bid amount against Bill of Quantities item as given below shall include design, fabrication, supply, installation, testing, commissioning and completion for all works specified herein and as shown on the Bidding Drawings related to the item.

6.2 LT Switchboards

6.2.1 Measurement:

Measurement shall be made for the number of each LT Switchboards given in BOQ acceptably supplied and installed by the Contractor as a complete job.

6.2.2 Payment:

Payment shall be made for the total number of each type of job measured, as provided above, at the Contract unit price each and shall constitute full compensation for design, fabricating, supplying, installing, connecting, testing and commissioning of the LT Switchboards as per single line diagram shown on the drawing including Power Factor Improvement Plant (including complete control panel and power factor connection capacitor's

panel), all erecting material such as foundations bolts, supporting steel channels, nuts, washers, cable glands etc., complete with foundation and all related Civil works.

*** End of Section 8132***

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

SECTION - 8230

CONDUITS AND PIPES

1.0 SCOPE OF WORK

2.0 GENERAL

3.0 APPLICABLE STANDARDS/CODES

4.0 MATERIAL

5.0 INSTALLATION

6.0 MEASUREMENT AND PAYMENT

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

1.0 SCOPE

The work under this section consists of supplying, installing and commissioning of all material and services of the complete Conduits and Pipes as specified herein and/or shown on Tender Drawings and stated in the Bill of Quantities.

The Contractor shall discuss the electrical layout with the Engineer and co-ordinate at Site with other services for exact route, location and position of the conduits and pipes.

The conduits and pipes with accessories shall also comply with the General Specifications for Electrical Works, Section-8001 and with other relevant provisions of the Tender Document.

2.0 GENERAL

The extent of works shown on the drawing does not indicate the exact position of conduits and pipes. The Contractor shall ensure exact location and route of conduit and pipes in coordination with other services drawings, as per site requirements and as directed by the Engineer.

The conduit system shall be continuous with manufacturer's recommended accessories.

The quality and material for the accessories of conduits and pipes such as sockets, end cap, elbows, bushings, bends, inspection/pull boxes, round boxes, etc., necessary for the complete installation shall be similar to that of conduits or pipes. All the accessories shall be supplied by the Contractor without any extra cost and deemed to have been included in the price of conduits/pipes.

Pull wire shall be laid in all empty conduits.

3.0 APPLICABLE STANDARD/CODES

The latest edition of the following standards and codes shall be applicable for the materials specified within the scope of this section:

BS 31	-	Steel conduits and fittings for Electrical Wiring.
BS 4607	-	Non-metallic conduits and fittings for electrical installations.
BS 1387	-	Galvanized Iron (GI) pipes and fittings.
BS 3505	-	uPVC pressure pipe and fittings.

4.0 MATERIAL

4.1 PVC Conduit and Accessories

The PVC conduits and accessories for lighting and power circuits shall be furnished by the Contractor as shown on the drawings or given in BOQ. The PVC bends shall have enlarged ends to receive conduit without any reduction in the internal diameter at joint. Manufactured smooth bends shall be used where conduit changes direction. Bending of conduits by heating or otherwise will be allowed in special situations only for which the consent of the Engineer shall be required. The use of sharp 90 degree bends and tees will not be allowed for concealed wiring.

The round PVC junction boxes for ceiling light or fan points shall have minimum dimensions of 63 mm diameter and depth. The junction boxes for wall light points shall have minimum dimensions of 63 mm diameter and 38 mm deep. Round junction boxes shall be provided with one piece PVC cover plate fixed to the box by means of brass screws.

4.2 Inspection/Pull and Adaptable Boxes

Inspection/Pull boxes and adaptable boxes shall be provided in conduit runs wherever required to facilitate pulling operation. The drawings are diagrammatic and do not indicate the position and spacing of inspection/pull boxes or adaptable boxes. However, these shall be as per Engineer's approval.

4.3 uPVC Pipes and fittings

Unplasticised PVC pressure pipes and fittings shall conform to BS 3505:1968 and shall be of class-D (working pressure - 12 bars). The buried uPVC pipes should be able to withstand the external load acting upon it by continuous movements of heavy duty vehicles such as trucks, cranes, forklift etc. where pipe changes direction, manufacturer smooth bend shall be used.

Fittings and accessories for use with uPVC pressure pipes shall be of the same class and manufacture as the pipe and shall have the required shapes and dimensions of turned ends to fit the uPVC pressure pipes. uPVC pipes and accessories shall be suitable for jointing with rubber rings or solvent.

Bending of pipes by heating or otherwise will not be allowed. The use of sharp 90 degree bends and tees will not be allowed. The bends shall conform to same specifications as given for PVC conduits. For joining of pipe all precautions and procedures recommended by manufacturer shall

be allowed.

Hard PVC or reinforced concrete pipe range spacers shall be used if there is more than one pipe running in parallel. The distance between range spacers shall be maximum 2 meters. Range spacers shall be prefabricated/precast and decay resistant.

Flexible pipes shall be used as deemed essential or as approved by the Engineer.

5.0 INSTALLATION

5.1 PVC Conduits and Accessories

5.1.1 Concealed Conduit

Where concealed conduit system is shown on drawings/ mentioned in BOQ, the conduit shall be installed concealed in roof, wall, column, etc. Conduits shall be laid under floor only where specifically stated. The entire conduit system shall be installed and checked before wring is carried out. Any obstruction found shall be cleared before the installation of cable.

When concealed, the conduit shall have a minimum of 32mm cover of concrete measured from the top of conduit to finished surface. In the reinforced cement concrete (RCC) work the conduit shall be laid before pouring of concrete. Under no circumstances shall chases be made in the RCC structure for concealing conduit and accessories after pouring of concrete. The conduit shall be supported on top of bottom reinforcement of slab. All outlet boxes to be firmly supported and installed such that they finish flush with the soffit of slab or beam.

Where conduits have to be concealed in cement concrete (CC) work after concreting or in block masonry, chase shall be made with appropriate tools and shall not be made deeper than required. The conduit shall then be fixed firmly in the recess and covered with cement concrete mixture. The work of cutting in the cement concrete work or block masonry work shall be coordinated with the civil work. The Contractor shall obtain approval from the Engineer before starting chasing and cutting.

The termination of conduits at or near the equipment / switchboard is shown diagrammatically on the drawings. The exact locations of the termination shall be coordinated with the

equipment/switchboard to be installed. Any extension of conduit to suit the site condition shall be made without any extra cost. Conduit ends pointing upwards or downwards shall be properly plugged in order to present the entry of foreign materials. All openings through which concrete may leak shall be carefully plugged in order to prevent the entry of foreign materials. All opening through which concrete may leak shall be carefully plugged and boxes shall be suitably protected against filling with concrete. At all terminations of conduit, sharp edges of conduit ends shall be prevented to avoid the cutting or damaging of wires or cables during pulling through the conduits.

Under floor conduit shall be installed at a minimum depth of 2 inch from the finished floor level or as shown on the drawings. The conduits shall be installed empty, before finishing of floor or in RCC work, with an 18 SWG steel wire drawn through the conduit for pulling cable. No conduits shall be laid under floor in bathroom.

5.1.2 **Surface Conduits**

The surface conduits shall be installed where shown on drawings mentioned in BOQ. The conduits shall be installed parallel or perpendicular to the surface of wall, structural members, ceiling, etc., by means of PVC saddles and clamps of approved design. The conduits shall be kept at least 150 mm away from parallel runs of flues, steam pipes and hot water pipes.

The saddles shall be installed on surface by means of nylon or wooden plugs and galvanized screws. Appropriate size of holes in structure shall made by drilling, the thickness of saddles and clamps shall be at appropriate thickness and prime quality. The surface conduits shall be supported at maximum of one meter spacing along horizontal and vertical runs. The Contractor shall provide all accessories for complete installing of conduit system. The pull boxes, etc. as stated for concealed conduits shall also be applicable for surface conduit system.

5.2 **uPVC Pipe and Fittings**

uPVC pipes shall be installed as shown in the drawings. The depth of the pipe shall vary according to the conditions at site, and approval of Engineer shall be obtained prior to installation. In general the pipes shall be installed underground at the following depths measured from the top of the pipe.

- Under roads/pavement : 900 mm below finished surface.

- When crossing other services : 250/500 mm vertical/horizontal.

The trench of required dimensions shall be excavated and the bottom of trench cleaned and leveled. A 100 mm bed of fine sand shall be provided over which the PVC pipes installed after proper alignment. Where two or more pipes are installed in the same trench the clearance between pipes shall not less than 50 mm. This shall be done by the provision of pipe range spacers as per Engineers approval. After laying of pipe the trench shall be backfilled with clean screened sand at least 100 mm above the top most pipes. The remaining portion of trench shall be backfilled with selected earth in layers well compacted.

After installation, the ends of the pipe shall be plugged with manufactured end cap impervious to water and chemicals. All joints shall be sealed adequately not only to prevent entry of foreign elements but water tightness shall be ensured.

The installation of pipes shall be completed in all respects including its fixing at terminations, before cabling work is started. All sharp edges and burrs shall be removed by using reamer or any approved device. The pipe shall be through cleaned of dirt and dust from inside, the pipes shall be installed in proper co-ordination with other works.

The protective PVC pipe for cable entering building shall be installed so as to lead cable into the cable trench. The required number of pipes shall be fixed before completing the work in the plinth. If an opening is provided to the cable trench from outside, the required number of pipes shall be installed and part of the opening remained unutilized shall be properly packed and sealed using suitable packing material impervious to water and chemical to make it completely water-tight.
Spare pipes shall be provided with 5 mm dia rope pulled from end to end and plugged with manufactured end cap.

Flexible pipes of compatible material and size shall be used wherever deemed essential.

6.0 MEASUREMENT AND PAYMENT

6.1 General

The Contractors bid amount against each item of Bill of Quantities as given below shall include supply, installation, testing, commissioning and completion for all work specified herein and/or as shown on the Tender Drawings related to the item.

6.2 Conduits PVC / Pipes PVC and Accessories

6.2.1 **Measurement:** Measurement shall be made for the total running

feet of each type and size of conduits / pipes and accessories acceptably supplied and installed by the Contractor according to specification and as shown on drawings.

6.2.2 **Payment:** Payment shall be made for the total running feet of each type and size of conduits or pipes measured as provided above at the contract unit price each and shall constitute full compensation for supplying, installing and completion of the laying of the conduits and pipes including all accessories related to the item.

No separate payments shall be made for the under mentioned specified work related to the supply and installation of conduit and pipe. The cost thereof shall be deemed to have been included in the quoted rates of above work.

- Excavation and backfilling.
- Dewatering during excavation and backfilling.
- Providing and filling of fine sand in trenches.
- Providing pipe range spacers.
- Providing flexible pipes and accessories, jointing material/ compound, saddles, sockets, elbows, bend, junction boxes reducers, 16SWG GI pull wire for empty conduit, and 5 mm rope for empty pipe, soft metal bush, making threads and plugging of pipe with manufactured end cap etc. whether used or left spare.
- Compacted backfilling of trenches with specified material and disposal of surplus and rejected material.
- Watertight sealing of any unutilized opening to the buildings after installing the protective pipes entering the buildings.

*** End of Section 8230 ***

SECTION – 8262

POLES FOR STREET LIGHTING

1.0 SCOPE OF WORK

2.0 APPLICABLE STANDARDS/CODES

3.0 CONSTRUCTION OF STREET LIGHTING POLES

4.0 INSTALLATION

5.0 TESTS

6.0 MEASUREMENT AND PAYMENT

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1.0 SCOPE OF WORK

The work under this section consists of manufacturing, supplying, installation testing and commissioning of the street lighting poles and accessories as specified herein, or as shown on the Bid Drawings and given in the Schedule of Prices.

The Contractor shall discuss the electrical layout with the Engineer and coordinate at site with other services for exact location and position of the electrical poles.

The poles with accessories shall also comply with the requirements of Special Provisions and with other relevant provisions of the Bid Documents.

2.0 APPLICABLE STANDARDS/CODES

The latest editions of the following standards/codes shall be applicable to the material specified within the scope of this Section:

- BS 5649 - Specification for lighting columns
- NV 65 - Specification for lighting columns
- CM 66 - Specification for lighting columns
- XP P 97 406-1 - Specification for lighting columns

3.0 CONSTRUCTION OF STREET LIGHTING POLES

The galvanized steel poles shall be of mild steel as shown on drawing from base plate to lantern connection, well-proportioned and neatly finished. The height of the pole from the centre line of the spigot for lantern connection to the ground line and out-reach of each arm from the vertical centre line of the pole to the tip of the spigot for lantern attachment shall be as shown on Drawing. Approval of the Engineer shall be obtained before ordering the poles for manufacturing.

The pole (vertical portion) along with base plate shall preferably be in one piece. But if manufacturing in one length is not possible, it can be in two or three pieces with force fit lap joint.

The steel poles after fabrication shall be galvanized by hot dip process both in and outside as per BS-729 `Hot Dip Galvanized Coatings on Iron and Steel Articles'. The poles shall be prepared before galvanizing by removing grease, burs and slag etc. so that zinc coating is adherent, dense, smooth, continuous and uniform. The Contractor shall ensure before placing of order that the firm has adequate facility for hot dip galvanizing process as per standard practice.

The steel used in the manufacture of poles shall be made by open hearth or electric furnace process.

The steel for poles shall have the following requirements:

Tensile Strength

- Minimum = 39.9 kg/mm^2
- Maximum Yield Point = 56.3 kg/mm^2

Yield Point

- Minimum Elongation = 24.7 kg/mm^2

Elongation

- for a 200mm sample = 20% min.

The straight portion of the pole shall be truly vertical and no deviation more than 100 mm in the entire length shall be accepted.

Other tolerances shall be as follows:

- Outside diameter = +/- 1%
- Wall thickness = +/- 10%
- Overall length of pole = +/- 0.5%
- Weight = - 0.3% + not limited.

The pole and the bracket shall be so designed that when subjected to wind at a velocity of 160 km/hour on the full projected area of pole, bracket and the lantern a factor of safety of 3 on minimum tensile strength of the material shall be obtained. In addition, the temporary horizontal deflections at the lantern position shall not exceed 1/40 of the length of the pole above ground at aforementioned wind velocity.

The poles shall have a base compartment, designed to accommodate a loop-in services cutout for 4 core PVC/SWA/PVC cables of given sizes. An 8 mm stainless steel stud complete with nut and washers shall be provided in the base compartment of the pole for earthing purpose.

The edges of the door opening on the pole shall be reinforced with a 10 mm thick M.S. square bar to reinstate the strength of pole at this location. The opening cover shall consist of weather proof hinged door. The door shall be provided with a heavy duty non-rusting lock.

Flag brackets shall be fitted to poles if shown on the drawing and shall be as approved by the Engineer.

4.0 INSTALLATION

Lighting poles shall be handled / transported and erected in such a way so as to avoid any damages. Any damage to pole or galvanizing shall be made good to the satisfaction of the Engineer.

The lighting poles shall be stored clear of soil, ground water or other rust producing materials. The fixing of poles shall be carried out in accordance with manufacturer's instructions and good engineering practice.

The poles shall be erected in a true vertical position. The contractor shall be responsible until completion of the maintenance period for correcting the alignment of any pole/bracket from its original position except where it is due to vehicle impact.

Where lighting poles are to be installed in the vicinity of overhead power lines, the Contractor shall inform the Engineer and act as directed. He shall maintain clearances as per WAPDA requirements from the power lines.

The Contractor shall number all the poles with high quality paint using stencil for 50 mm high lettering. The numbering shall be at 1200 mm from the bottom of pole towards the road. The numbering shall be in a manner as directed by the Engineer.

Earth backfill around pole foundation shall be done in 150 mm thick layers and shall be well rammed and compacted to provide full lateral support.

4.1 Data to be submitted

Before manufacturing, the Contractor shall submit for approval of the Engineer, the shop drawing of the pole anchor bolts, base plate and pole bracket together with details of the base compartment, cover and the means adopted for making it waterproof and tamperproof. Design calculation sheets for the poles from manufacturer shall also be submitted by the contractor to show that poles/foundations are safe for all specified stresses.

5.0 TESTS

5.1 General

The poles shall be tested and the results recorded for each test by the manufacturer in the presence of an authorized representative of the Owner or Engineer as stated below.

5.2 **Inspection**

The material, weight and dimensions of poles as specified shall be certified by the manufacturer. The poles shall be inspected and in case being found below the limits of tolerance as aforementioned, shall be rejected.

5.3 **Loading Test**

The pole shall be cantilevered horizontally, rigidly supported at base plate and loads applied at right angle to the axis of the pole at the required point, i.e. at some distance from top. The test items shall be as follows:

- Deflection test.
- Permanent set test
- Breaking load test.

Sample comprising four poles shall be selected at random out of each lot of 1000 and subjected to deflection test. One pole per thousand shall be tested for permanent set test and breaking load test. When the poles in Contact are limited in number, the manufacturer may avoid these tests and supply results of tests already done for prototype testing on such poles or supply calculation based results.

5.4 **Galvanizing**

Weight, uniformity of coating and other requirements shall be strictly inspected in accordance with BS-729 or other relevant international standards.

5.5 **Service Cutouts**

Each pole shall be provided with a waterproof and dust tight loop-in-service cutout accommodated in the base compartment of the pole.

The junction box shall comprise two (2) 6A MCBs for double arm poles and one (1) 6A MCB for single arm poles, a solid neutral link and an earthing terminal. It shall incorporate arrangements for looping "IN" and "OUT" for 4 core up to 25 mm^2 PVC/SWA/PVC cable having Aluminum conductor. The earth terminals, nuts and washers shall be adequately sized to take the earth continuity conductors with tight connections.

Dimensional drawings and details of the junction cutout box of pole shall be submitted for approval to the Engineer.

6.0 MEASUREMENT AND PAYMNET

6.1 Measurement:

Measurement shall be made for the number of poles including all accessories and foundation block acceptably supplied and installed by the Contractor as shown on the drawing.

6.2 Payment:

Payment shall be made for the number of units measured, as provided above, at the contract unit price each, and shall constitute full compensation for supplying, installing, connecting, testing and commissioning of each pole including junction cutout box.

*** End of Section 8262***

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B2.TECHNICAL SPECIFICATIONS (1-KANAL HOUSES)

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SECTION - 0120

CONTRACTOR'S CAMP

1. SCOPE

2. PAYMENT OF WORK

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1. SCOPE

The work to be done under this item consists of construction, erection, installation and maintenance of the Contractor's Project Site Offices or main camp and the Contractor's sub-camps or temporary camps, if any, and shall include all offices, shops, warehouses, and other operational buildings; all housing and related facilities including accommodations for the Contractor's personnel.

The location of the Contractor's camps, including all buildings, utilities and facilities thereof, and of the camps or establishments of all persons/parties in the vicinity operating or associated with the Contractor shall be subject to approval of the Engineer.

The work to be done under this item will terminate upon the actual Completion Date. However, if directed by the Engineer or the Employer, the Contractor shall continue such work to the extent required by the Contractor's personnel during the period of maintenance. No compensation shall be paid for the continued operation and maintenance of the Contractor's Camps during the period of maintenance.

Upon completion of the Works, or at such time within the period of maintenance as directed by the Engineer, the Contractor shall remove all buildings utilities and other facilities from the Site and restore all camp areas to a neat and clean condition.

The construction, operation and maintenance of all camps of the Contractor shall comply with all applicable provisions of current Pakistan Labor Camp Rules.

Adequately equipped and properly staffed portable first aid stations or dispensaries shall be provided by the Contractor at camps and other strategic locations to administer first aid treatment at any time required and free of charge to all persons on the Site, including employees of the Engineer and the Employer.

2. PAYMENT OF WORK

No payment shall be made for the work involved within the scope of this section of Specifications unless otherwise specifically stated in the Bill of Quantities or herein.

The cost thereof is included in the quoted rate of other items of the Bill of Quantities.

*** End of Section 0120 ***

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SECTION - 0130

STAKE-OUT SURVEY

1. SCOPE
2. MATERIAL AND EQUIPMENT
3. SUBMITTALS
4. EXECUTION
5. PAYMENT OF WORK

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1. SCOPE

Under this item the Contractor shall make the stakeout survey for construction purposes with competently qualified men, consistent with the current practices. The work shall proceed immediately upon the award of the contract and shall be expeditiously progressed to completion in a manner and at a rate satisfactory to the Engineer. The Contractor shall keep the Engineer fully informed as to the progress of the stakeout survey. The scope of this section of specifications is covered by detailed specifications as laid down herein.

2. MATERIAL AND EQUIPMENT

All instruments, equipment, stakes and other material necessary to perform all work shall be provided by the Contractor. These instruments and equipment shall be available to Engineer at all times for the purpose of checking the work of the Contract.

All stakes used shall be of a type approved by the Engineer, clearly and permanently marked so as to be legible at all times. It shall be the Contractor's responsibility to maintain these stakes in their proper position and location at all times. Any existing stakes or markers defining property lines and survey monuments which may be disturbed during construction shall be properly tied into fixed reference point before being disturbed and accurately reset in their proper position upon completion of the work.

3. SUBMITTALS

Submit all survey data, computations, field notes, drawings and all other survey records necessary to accomplish the work.

4. EXECUTION

The Contractor shall trim trees, bushes and other interfering objects, not consistent with the plan, from survey lines in advance of all survey work to permit accurate and unimpeded work by his stake-out survey crews and the Engineer's survey crews. The exact position of all work shall be established from control points, which are shown on the plans or modified by the Engineer. Any error, apparent discrepancy in or absence of data shown or required for accurately accomplishing the stakeout survey shall be referred to the Engineer for interpretation or furnishing when such is observed or required.

The Contractor shall be responsible for the accuracy of his work and shall maintain all reference points, stakes, etc. throughout the life of the contract. Damaged, destroyed or inaccessible reference points, bench marks or stakes shall be replaced by the Contractor. Existing or new control points that will be or are destroyed during construction shall be re-established and all reference ties recorded thereon shall be furnished to the Engineer. All stakeout survey work shall be referenced to the centerlines shown on the Plans. All computations necessary to establish the exact position of the work from control points shall be made and preserved by the Contractor. All computations, survey notes and other records necessary to accomplish the work shall be kept neatly and made available to the Engineer upon request and furnished to the Employer upon Contract completion.

The Engineer may check all or any portion of the stakeout survey work or notes made by the Contractor and any necessary correction to the work shall be immediately made. Such checking by the Engineer shall not relieve the Contractor of any of his responsibilities for the accuracy or completeness of his work.

Reference points, base lines, stakes and benchmarks for borrow pits shall be established by the Contractor.

All required right-of-way and easement limits shall be established, staked and referenced by the Contractor concurrent with the construction stakeout survey.

The Contractor shall place at least two offset stakes or references at each centre lines station and at such intermediate stations as the Engineer may direct. From computations and

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measurements made by the Contractor, these stakes shall be clearly marked with the correct centre line, station number, offset and cut or fill so as to permit the establishment of the true centre line location during construction. He shall locate and place all cut, fill, slope, line grade or other stakes and points as the Engineer may direct to be necessary for the proper progress of the work.

5. PAYMENT OF WORK

No payment shall be made for the Works involved within the scope of this section of Specifications unless otherwise specifically stated in the Bill of Quantities or herein.

The cost thereof is included in the quoted unit rate of other items of the Bill of Quantities.

*** End of Section 0130 ***

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SECTION - 0150

CLEARING AND GRUBBING

1. SCOPE

2. EXECUTION

3. PAYMENT OF WORK

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1. SCOPE

The clearing and grubbing shall consist of clearing the designated area of all trees, down timber, snags, bush, other vegetation, rubbish and all other objectionable material, and shall include grubbing stumps, roots, and matted roots, and disposal of all spoil material resulting from the clearing and grubbing. It shall also include the removal and disposal of structures that protrude, encroach upon, or otherwise obstruct the work, except when otherwise provided for on the plans or directed by the Engineer to be saved.

2. EXECUTION

2.1 LOCATION OF WORKS

The Engineer will define the limit of areas where clearing and grubbing is to be done. Normally it will include all land within the right of way and all other construction area including ditches, detours, minor road crossings and other areas shown on the plans or as specified or as directed by the Engineer. The Engineer will designate the fences, structures, debris, trees and bushes to be cleared where grubbing is not required. It shall not include clearing and grubbing of borrow or other pit areas from which material is secured. It shall include the leveling or removal of all bunds or mounds within the right of way unless otherwise directed by the Engineer.

2.2 GRUBBING AND CUTTING

All roots and stumps within the limits of the Site shall be grubbed and excavated unless otherwise specified or approved by the Engineer. Unless otherwise directed, holes from grubbing up tress, bushes and other holes from which obstructions are removed, shall be filled with suitable material and compacted in an approved manner.

2.3 DISPOSAL

The Contractor shall be responsible for disposal of any material whatever not to remain on Site within fourteen (14) days after cutting or felling unless otherwise approved. No tree trunks, stumps or other debris shall be left within Site unless approved in writing by the Engineer. The location of disposal areas shall be within or outside the limits of the project or as approved in writing by the Engineer and shall be acquired by the Contractor at his own expense. Any useable material shall remain the property of the Employer, and shall be stockpiled or stored safely by the Contractor.

2.4 BURNING

There shall be no burning on or around the Site area whatever. The Contractor shall ensure that neither his Employees nor anyone whosoever burns anything on or within specified limits around the Site area.

2.5 PROTECTION AND RESTORATION

The Contractor shall prevent all damage to pipes, conduits, wires, cables or structures above or below ground. No land monuments, property markers, or official datum points shall be damaged or removed until the Engineer has witnessed or otherwise referred their location and approved their removal. The Contractor shall so control his operations as to prevent damage to trees and shrubs, which are to be preserved. Protection may include fences and boards lashed to trees to prevent damage from machine operations. The existing covered or open benchmarks should be relocated as directed by the Engineer. In the event that anything specified herein to be saved and protected is damaged by the Contractor; such damages shall immediately be repaired or replaced by the Contractor at his own cost to the satisfaction of the Engineer. All areas cleared and grubbed must be approved by the Engineer or Engineer's Representative before the start of cleaning operations.

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3. PAYMENT OF WORK

No payment shall be made for the Works involved within the scope of this Section of Specifications unless otherwise specifically stated in the Bill of Quantities or herein.

The cost thereof is included in the quoted unit rate of other items of the Bill of Quantities.

*** End of Section 0150 ***

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SECTION - 1100

EARTHWORKS

1. SCOPE OF WORK
2. APPLICABLE STANDARDS
3. GENERAL
4. SITE PREPARATION
5. CLASSIFICATION OF EXCAVATION
6. EMBANKMENT CONSTRUCTION
7. QUALITY CONTROL
8. EARTH WORK FOR STRUCTURES, STORM WATER DRAINS & CULVERTS
9. MEASUREMENT AND PAYMENT

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SECTION – 1100

EARTHWORKS

1.0 SCOPE OF WORK

The work under this section of the specifications consists of furnishing all plant, labour, equipment, appliances and materials and in performing all operations for excavation, backfilling, construction of embankments and disposal of unsuitable and surplus excavated material as required in accordance with this section of specifications, the applicable drawings and subject to terms and conditions of the Contract.

2.0 APPLICABLE STANDARDS

Materials, construction and testing shall comply with the following codes and standards:

ASTM C 136	Sieve or screen analysis of fine and coarse aggregate
ASTM D 422	Testing for Liquid Limit of Soils
ASTM D 424	Testing for Plastic Limit and Plasticity Index on Soils
ASTM D 596	Water Analyses
ASTM D1556	Density of soil in place by the sand cone method
ASTM D1557	Moisture-Density relation of soils using 4.5kg rammer and 457mm drop
ASTM D 2167	Density of soil in place by the Rubber-Balloon method
ASTM D 2216	Moisture content of soil
ASTM D 4253	Test method for maximum Index Density and unit weight of soils
ASTM D 4254	Test method for minimum Index Density and unit weight of soils
ASTM D 1883	CBR-California Bearing Ratio test

3.0 GENERAL

3.1 The Contractor shall acquaint himself with the nature of the ground, existing structures and subsurface materials (soil / rock) which will be encountered during excavation or earthworks. The Employer does not guarantee or warrant in any way that the materials to be found in the excavation will be similar in nature to that of any samples which may have been exhibited or indicated in the Report, Drawings or any other Contract Documents or to material obtained from boring or trial holes. The Contractor shall be deemed to have made local and independent inquiries as to, and shall take whole risk of the nature of the subsurface materials (soil / rock) to be excavated or penetrated and the Contractor shall not be entitled to receive an extra or additional payment nor to be relieved from any of his obligations by reasons of the nature of such ground and subsurface material.

3.2 The Contractor shall submit a detailed list of plant and equipment which he shall undertake to bring to the site and to carry out the work. The list shall satisfy the Engineer as to type, size and quantity. The Contractor shall place on the site of the work all of the equipment listed and all subsequent equipment required for approval of the detailed program of work and such equipment which may be directed by the Engineer. All equipment which is proposed to be used on the work shall be sufficient size and in such mechanical condition as to meet requirement of work and produce a satisfactory quality

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of work. In no case shall the Contractor remove from the site the plant and equipment without the written approval of the Engineer. The Contractor shall supply all plant and equipment necessary for the construction of each phase of the work and it must be on site, inspected and approved by the Engineer. If after use of the equipment the Engineer determines that the work provided does not meet the Contract requirement, the equipment shall be changed and the deficient work shall be removed and corrected as direct by the Engineer.

3.3 All suitable materials from stripping of top soil and excavation shall be used unless otherwise declared unsuitable by the Engineer. The suitable material shall comply with the requirements as specified in the respective clauses for various items.

3.4 The Contractor shall jointly survey the area marked for pavements utilities, service lines, buildings or other structures or any area designated by the Engineer and prepare the survey drawings showing natural ground profile and cross-section and submit to the Engineer for approval prior to start of any earthwork operation.

All suitable material from excavations shall be transported to and placed in fill areas or stockpiled at locations designated by the Engineer. Materials from excavation and stripping shall be stockpiled separately.

Existing utilities which are to remain in service or to be relocated and to remain in service until relocation are to be determined by the Contractor. They shall be safeguarded and protected from damage.

If any existing service lines, utilities and utility structures which are to remain in service are uncovered or encountered during the operations, shall be safe guarded, protected from damage and supported as directed by the Engineer.

3.5 All excavations, cut and fills shall be constructed to the lines, levels and gradients specified with any necessary allowance for consolidation, settlement and drainage so that at the end of the Period of Maintenance the ground shall be at the required lines, levels and gradients. During the course of the Contract and during the Period of Maintenance any damage or defects in cuts and fills, in structures and other works, caused by slips, falls of wash-ins or any other ground movement due to the Contractor's negligence shall be made good by the contractor at his own cost.

4.0 SITE PREPARATION

4.1 The Contractor shall set out the works and shall be responsible for true and perfect setting out of the same and for correctness of the positions, levels, dimensions and alignments of all parts thereof. If at any time any error in this respect shall appear during the progress of the works, the Contractor shall at his own expense rectify such error, to the satisfaction of the Engineer.

4.2 The Contractor shall construct and maintain accurate bench marks so that the Lines and Levels can be easily checked by the Engineer.

4.3 The Contractor shall construct and maintain such temporary drains in addition to those shown on the plans, as will adequately drain areas during construction.

4.4 The Contractor shall perform a joint survey with the Engineer's Representative, of the area where earth work is required, plot the ground levels on the drawings and obtain approval from the Engineer before starting the earth work and shall supply a copy to the Employer duly checked, signed and authenticated by the Engineer before start of work.

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5.0 CLASSIFICATION OF EXCAVATION

5.1 No classification shall be made of any material excavated / cut as to its class, nature, origin or condition. The excavation will be unclassified as being carried out in all kinds of subsurface material including soil and rock.

Blasting will be permitted only when proper precautions are taken for the safety of all persons, the work, and the property. All damage done to the work or property shall be repaired at the Contractor's expense. All operations of the Contractor in connection with the transportation, storage, and use of explosives shall conform to all state and local regulations and explosive manufacturers' instructions, with applicable approved permits reviewed by the Engineer. Any approval given, however, will not relieve the Contractor of his / her responsibility in blasting operations.

In each distinct blasting area, where pertinent factors affecting blast vibrations and their effects in the area remain the same, the Contractor shall submit a blasting plan of the initial blasts to the Engineer for approval. This plan must consist of holes size, depth, spacing, burden, type of explosive, type of delay sequence, maximum amount of explosive on any one delay period, depth of rock and depth of overburden if any. The maximum explosive charge weights per delay included in the plan shall not be increased without the approval of the Engineer.

The Contractor shall keep a record of each blast fired – its date, time and location; the amount of explosives used, maximum explosive charge weight per delay period, and, where necessary, seismograph records identified by instrument number and location.

The excavation wherever required will be carried out below ground water level by dewatering the area.

The Contractor shall build, maintain and operate all berms, channels, flumes, sumps and other temporary diversion and protective works needed to divert the surface water through or around the required excavation. All excavation shall be dewatered and kept free of standing water, water seeping from the sides and bottom of excavation above, the free level. The Contractor shall furnish, install, operate and maintain all drains, sumps, pumps and other equipment needed to dewater the excavation areas. Dewatering methods that cause a loss of fines from the bottom and slopes of the excavation will not be permitted.

Prior to commencement of the work, the Contractor shall furnish the Engineer for review and comments with complete plans and sketches for diverting surface water if any and dewatering of the required excavation.

Submission for review and comments of the required plans and sketches and any approval from Engineer shall not relieve the Contractor of any of his duties and obligations under the contract.

5.2 **Tolerance**

In those areas upon which a sub-base or base course is to be placed, the top of the subgrade shall be of such smoothness that when tested with a 4.8 m (15.75 ft.) straight edge applied parallel and at right angles to the centerline, it shall not show deviation in excess of 12 mm (1/2") or shall not be more than 16 mm (5/8") from line grade as established by grade hubs or pins. Any deviation in excess of these amounts shall be corrected by loosening, adding, or removing material; reshaping; and recompacting by sprinkling and rolling.

On graded strips (safety areas) intermediate and other designated areas, the surface shall be of such smoothness that it will not vary more than 30 mm (1-1/4") from true grade as established by grade hubs.

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6.0 EMBANKMENT CONSTRUCTION

6.1 General

It shall consist of construction of select embankment for paved areas and common embankment for unpaved areas. Only approved material shall be used in the construction of embankments.

All embankment construction shall be made to the lines, levels, profiles and grades as shown on the drawings or established by the Engineer. During progress of the work it may be found necessary or desirable by the Engineer to vary the levels, elevations and grades from those shown on the drawings. The Contractor shall perform the embankment construction to the revised levels, elevation as established by the Engineer.

Where embankments are to be placed in water logged areas and which are inaccessible to heavy construction equipment, a working platform shall be first established, consisting of a blanket of fill material placed on the water logged area. The thickness of the working platform shall be about 0.5 metres (1.65 feet) unless directed otherwise by the Engineer and the width shall be that of the embankment. The placement and compaction of the working platform shall be performed by use of light equipment as directed by the Engineer. No density requirements are specified for the working platform, however, subsequent layers above shall be compacted to densities specified in the relevant items.

Benching of sufficient width for slope stability and movement of equipment and machinery shall be carried out for embankment formation in areas of steep slopes.

6.2 Select Embankment

The select embankment shall be constructed under all paved areas. The area shall be prepared (after stripping of top soil) by scarifying the surface to a minimum depth of 150 mm (6") and compacting it to densities mentioned in subsection 6.2.2.

6.2.1 Material

The suitable subsurface material obtained from excavation (except top soil) shall be used in the construction of select embankment. The material shall be A-4 or superior as per AASHTO soil classification. The soaked CBR of the material shall be equal to or greater than 6. In the top 30 cm (12 in.) the material shall be A-4 or superior and the PI ≤ 8. When excavated material consists predominately of rock fragments of such size that the material cannot be placed in layers of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in layers not exceeding 60 cm (2 ft.) in thickness. Each layer shall be leveled and smoothed with suitable leveling equipment and by distribution of spalls and finer fragments of rock. These type lifts shall not be constructed above an elevation 150 cm (5 ft) below the finished sub-grade.

6.2.2 Formation of Embankment

Embankment shall be formed in successive horizontal layers of not more than 200 mm (8 in.) in loose depth for the full width of the cross-section, unless otherwise approved by the Engineer.

The material placed in layers and the sub-grade scarified shall be compacted to the density specified below:

Depth (cm) Below Subgrade Level		**Percent of Max. dry Density as per ASTM D1557**	
Cohesive Soil	**Non-Cohesive Soil**	**Cohesive Soil**	**Non-Cohesive Soil**
0 to 30	0 to 60	95%	100%
30 to 75	60 to 100	93%	95%
Over 75	Over 100	90%	90%

Sub-grade level is the surface on which the pavement structure will be placed.

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The maximum density of sand (granular) material (if used) shall also be determined as per ASTM D4253. The higher of the two values obtained from ASTM D1557 and ASTM D4253 shall be used to check the relative compaction of the in place material.

The moisture content of the material should be controlled to within ±2% of the optimum moisture content. In order to achieve a uniform moisture content throughout, the wetting and drying of the material, and manipulation shall be required when deemed necessary. Also, the California Bearing Ratio test (ASTM D1883) may be conducted on soil if instructed by the Engineer.

The embankment formed by rock fragments of such size that the material can not be placed in layers of thickness prescribed without crushing, pulverizing or further breaking down the pieces, such material may be placed in layers not exceeding 60 cm (2 ft.) of loose measurement and compacted by vibrating roller with mass as specified hereunder:

Mass per metre width of Vibrating roll	Depth of fill layer	Number of passes of the roller on each layer
2300 – 2900 kg/m 1550-1950 lbs./ft.	40 cm 16 in.	5
2900 – 3600 kg/m 1950-2400 lbs./ft.	50 cm 20 in.	5
2600 – 4300 kg/m 1750-2900 lbs./ft.	60 cm 24 in.	5

The material shall be carefully placed in layer so that all larger stones will be well distributed and voids completely filled with smaller stones, small spall and soil to form a solid mass. After placing the rock material, surface shall be covered with fine material having thickness less than 20 cm (8 in.).

Material for each layer should be consolidated with heavy weight vibratory roller until settlement as checked between two consecutive passes of roller is less than 1% of the layer thickness. When rock to be incorporated in fill is composed largely of weak or friable material, the rock shall be reduced to a maximum size not exceeding 50% of the thickness of the layer being placed.

6.3 Common Embankment

6.3.1 Material

The area requiring common embankment, and other unpaved areas shall be constructed from the excavated soil and rock. The top soil obtained from stripping may be used at deeper level with the approval of the Engineer.

6.3.2 Formation of Embankment

Before placing and compacting the fill material the ground shall be scarified to a depth of 15 cm (6 in.) and compacted to a dry density of 90% as per laboratory compaction test method ASTM D1557. The moisture content of soil during compaction of scarified layer and successive layers shall be within ±2% of optimum moisture content before rolling to obtain the desired density results. The successive horizontal layers shall be formed in loose depth 200mm(8 in.) for the full width of the cross section unless otherwise approved by the Engineer. Each layer will be compacted to dry density of 90% as per laboratory compaction test method ASTM D 1557.

The layer thicknesses and compaction requirements shall be the same as specified under 'Select Embankment' for embankment formed by rock fragments.

No rock larger than 8 cm (3 in.) in any dimension shall be placed in top 30 cm (12 in.) of embankment unless allowed by the Engineer.

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6.4 **Tolerances**

Select Embankment

The grade surface of each layer excluding final layer, shall be smooth and even and tolerance from required grade shall not be more than 19 mm (3/4 in.).

Common Embankment

The grade surface of each layer including the final layer, shall be smooth and even and tolerance from required grade shall not be more than 19 mm (3/4 in.).

6.5 **Sub-grade Preparation in Cut**

The area shall be prepared (after stripping of top soil) by scarifying the surface to a minimum of 150 mm (6 in.) and compacted to density mentioned in subsection 6.2.3. In case the material below Sub-grade level is not suitable (having PI >8) then a minimum of 30 cm (12 in.) of the soil shall be improved to PI ≤ 8.

The surface of the Sub-grade level (fill & cut) shall have the following tolerances:

- Plus : 0 mm (0 in.)
- Minus : 40 mm (1-5/8 in.)

7.0 **QUALITY CONTROL**

A testing program shall be submitted by the Contractor. Tests shall be performed by the Contractor to ensure compliance with the specifications as required. A copy of all test reports shall be submitted to the Engineer for approval. The test shall be performed in accordance with the following test procedures and frequency of testing.

Prior to construction of embankment, classification and compaction tests shall be carried out on stock-piled material obtained from stripping of top soil and excavated subsurface material (soil & rock). The tests shall be carried out as per ASTM 422, ASTM 424 and ASTM D 1557. A family of laboratory compaction curves as per ASTM D 1557 representing typical material shall be developed for the fill / backfill material.

The frequency of classification tests shall be for every 1000 cu.m / 35,000 Cft. of fill material. The Engineer may alter the frequency of testing depending on the type of material and variation encountered at site.

The field density tests shall be performed as per ASTM D 1556 or ASTM D 2167. The frequency of testing shall be as under:

Select Embankment

Area requiring 90% to 93% compaction – one test in every 500 m^2 / 5000 Sft. area in each layer

Area requiring 95% & 100% compaction – one test in every 300 m^2 / 3000 Sft. area in each layer

Common Embankment

Area requiring 90% compaction – one test in every 1000 m^2 / 10000 Sft. area

The average of four tests are required to be greater than the required compaction and not more than one test be 1.8% less than required percentage of compaction. This is for 100% compaction. For 95% to 90% compaction the following is required.

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%age Compaction	One test not less than
95%	93.5%
90%	89.5%

8.0 EARTH WORK FOR STRUCTURES, STORM WATER DRAINS & CULVERTS

8.1 Excavation

Excavation, including dewatering where required, for building/related structures, culverts, storm water drains etc. shall conform to the elevations and dimensions as shown on the drawings and extend to a sufficient distance to permit placing and removal of concrete formwork or other construction.

When determined by the Engineer to be insufficiently firm, excavation bottoms shall be further excavated to reach firm ground or backfilled with suitable material and compacted to 95% of maximum dry density as per ASTM D-1557.

All excavations in foundations shall be taken as 150 mm (6 in.) above the final excavation elevations shown on the drawings and the last 150 mm (6 in.) shall be trimmed carefully to a smooth surface. Immediately after trimming to final elevation, a layer of blinding concrete shall be placed to thickness shown on the drawings.

8.2 Fill and Backfill for Structures, Storm Water Drains and Culverts:

8.2.1 After completion of foundation footings, foundation walls and other construction below the elevation of the final grades and prior to start of back-filling, forms shall be removed and the excavation shall be cleaned of trash and debris.

8.2.2 The backfilling/fill shall include filling under the floors where shown or required and around the foundations.

8.2.3 The backfilling/fill shall include loading, unloading transporting, placing, stacking, spread of earth, watering, rolling, ramming and compaction etc. complete as specified herein.

8.2.4 Filling in foundations shall be placed in 200mm (8 in.) loose layers and compacted at optimum moisture content by mechanical means or other means as approved by the Engineer.

8.2.5 Material for backfilling shall be as approved by the Engineer and compacted to produce insitu dry density not less than 95% of the maximum dry density as achieved by compaction test as per ASTM D-1557.

9.0 MEASUREMENT AND PAYMENT

9.1 General

Except otherwise specified herein or elsewhere in the Contract Documents, no measurement and payment will be made for the under mentioned items related to this section. The cost thereof shall be deemed to have been included in the quoted unit rates of the items of the Bill of Quantities under this section.

9.1.1 Timber shoring, planking, strutting and providing slope for upholding the sides of excavations.

9.1.2 Benching of sufficient width for slope stability and movement of equipment and machinery.

9.1.3 De-watering where required to keep the excavated areas dry for pavements, structures, storm water drains and culverts, during construction.

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9.1.4 Rolling, leveling, watering and compaction for construction of embankments to required density.

9.1.5 Any fill with approved materials necessitated by over excavation due to fault or convenience of the Contractor.

9.1.6 Stock piling the excavated materials at approved location within Contract limits and transporting back suitable material to places requiring fill or backfill.

9.1.7 Scarifying & compaction of ground.

9.1.8 Transporting & backfill the suitable material from stripping.

9.1.9 Extra excavation involved in providing adequate working space around sides of foundations and culverts.

9.1.10 Rolling, leveling, watering and compacting the fill and backfill to required density.

9.1.11 All laboratory and field tests stipulated in these specifications

9.1.12 Preparation of sub-grade

9.2 **Embankment (Select)**

9.2.1. Measurement

Measurement of acceptably completed work of constructing select embankment will be made on basis of actual volume in cubic metre / cubic feet of compacted select embankment placed in position in accordance with the lines, levels and grade as shown on drawings or as directed by the Engineer.

9.2.2 Payment

Payment will be made for acceptable measured quantity of select embankment on the basis of unit rate per cubic metre / cubic feet quoted in the relevant items of Bills of Quantities and shall constitute full compensation for all the work related to the item.

9.3 **Embankment (Common)**

9.3.1 Measurement

Measurement of acceptably completed work of constructing common embankment will be made on basis of actual volume in cubic metre / cubic feet of compacted embankment placed in position in accordance with the lines, levels and grade as shown on drawings or as directed by the Engineer.

9.3.2 Payment

Payment will be made for acceptable measured quantity of common embankment on the basis of unit rate per cubic metre / cubic feet quoted in the relevant items of Bills of Quantities and shall constitute full compensation for all the work related to the item.

9.4 **Excavation**

9.4.1 Measurement

The quantities set out for excavation and its subsequent disposal shall be deemed to be the bulk quantity before excavating and no allowance shall be made for any subsequent variations in bulk or for any extra excavation.

Measurement of acceptably completed works of excavation for structures, storm water drains and culverts will be made on the basis of actual volume in cubic metre / cubic foot of earth material excavated to the line, level and grade as shown on the drawings or as directed by the Engineer. It shall be calculated / measured from pre-work levels and levels shown on the drawing.

9.4.2 Payment

Payment will be made for acceptable measured quantity of excavation on the basis of unit rate per cubic metre / cubic foot quoted in the Bills of Quantities and shall constitute full compensation for all the work related to this item.

9.5 **Backfill/Fill**

9.5.1 Measurement

Measurement of acceptably completed works of backfill/fills for structures, storm water drains and culverts will be made on the basis of actual volume in cubic metre / cubic foot of compacted backfill/fill provided and placed in position in accordance with the lines, levels and grade as shown on the drawings or as directed by the Engineer.

9.5.2 Payment

Payment will be made for acceptable measured quantities of backfill/fills for structures, storm water drains and culverts on the basis of unit rate per cubic metre / cubic foot quoted in the respective items of Bills of Quantities and shall constitute full compensation for all the works related to the item.

*** End of Section 1100 ***

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SECTION - 6220

ALUMINUM WORKS

1. SCOPE
2. APPLICABLE STANDARDS
3. GENERAL
4. MATERIAL
5. DESIGN REQUIREMENT
6. WORKMANSHIP
7. PRODUCT DELIVERY AND STORAGE
8. ERECTION
9. PROTECTION AND CLEANING
10. DEFECTIVE WORK
11. GUARANTEE
12. MEASUREMENT & PAYMENT

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

SECTION - 6220

ALUMINUM WORKS

1.0 **SCOPE**

The work under this section of specification includes furnishing all labour, equipment, appliances and materials and performing all operations in carrying out the work of aluminium doors, windows, ventilators and louvers. All related items such as sealants, rubber gasket for glazing, fly proofing, rollers, latches, fastenings, glazing, anchor bolts and all items supplied by other trades and customarily built in and/or installed in strict accordance with this section of the specifications and the applicable drawings and subject to the terms and conditions of the Contract.

2.0 **APPLICABLE STANDARDS**

Latest editions of following ISO and British Standards are relevant to these Specifications wherever applicable.

2.1 **ISO (International Organisation for Standardisation**

1804 Doors - Terminology

6442 Door Leaves - Measurement of defects of general flatness.

6443 Door Leaves - Measurement of dimensions and defects of squareness.

6444 Door Leaves - Test of behaviour under humidity variations (successive uniform climates)

6612 Windows & Doors - wind resistance tests.

6613 Windows & Door - Air permeability test.

2.2 **BSI (British Standard Institution)**

1227 Hinges

4873 Aluminium alloy windows.

3.0 **GENERAL**

3.1 Doors, windows and ventilators to be provided shall be aluminium doors, windows and ventilators of profile, pattern and design shown on drawings and shop drawings as approved by the Engineer. The Contractor shall provide manufacture literature completely describing the product instructions for installation and maintenance.

3.2 All the sections used for doors, windows and ventilators shall be of best quality aluminium products such as equal and unequal angles, channels, tubes, corrugated strips, mouldings etc., in accordance with International standards conforming to ASTM B 308 & B 221.

3.3 All doors, windows and ventilators, shall be of type and size indicated on drawings and shall conform to the requirements shown and specified herein.

3.4 Contractor shall arrange tests and analysis if directed by the Engineer of scaled models of each doors, windows and ventilators type at the maker's works or any laboratory specified by the Engineer for the material supplied by him to be tested in the presence of the Engineer's Inspector, to whom test certificates, proof sheets, etc. shall be furnished.

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The models shall be submitted to the Engineer for approval prior to testing. Nevertheless, neither the fact that the materials have been tested in the presence of the Inspector nor that the Engineer may have been furnished with test certificates in lieu of sending an inspector to the works shall affect the liberty of the Engineer to reject, after delivery of materials found not in accordance with these specifications.

3.5 The contractor shall submit shop drawings which shall show full construction details, quantities and locations, fastenings and attachment to adjacent construction and materials. Shop drawings shall be submitted at the proper time to allow for checking, revisions, agreement and to permit manufacturer's product delivery and start of site work to suit the building programme. The Contractor shall submit representative samples of finished doors, windows and ventilators anchoring mechanism, embedded parts, fastenings, glass panes, accessories and other materials for the Engineer's approval.

After approval of shop drawings and tests etc., the Contractor shall submit at his own cost one mock-up sample of each type of aluminium works complete with glazing, all components assembly method and required fittings and accessories prior to the actual fabrication of the bulk. The samples shall be returned to the Contractor for incorporation in the works after installation of at least 80% of the works.

Fabricate and assemble all work in the shop of the approved manufacturer to reduce field fabrication to a minimum unless otherwise directed by the Engineer.

3.6 The glass shall conform to specification laid down under chapter 'Glazing' and shall be free from all blemishes, bubbles, distortions and other flaws of any kind and shall be properly cut to size as shown on drawings, so as to fit the grooves in ventilators members. All the glass shall be best quality of approved manufacture or equivalent standard as approved by the Engineer.

3.7 The structural shape of the aluminium members shall be of uniform quality, colour and temper, clean, round, commercially straight and free from injurious defects.

3.8 All doors, windows and ventilators shall be fabricated as a complete unit, fully airtight and watertight, including rubber gasket for glazing, rollers, latch, anodized in specified colour, inclusive of glass sheet, all as approved by the Engineer.

3.9 Contractor shall, on request, get certificate signed by the manufacturer stating that each lot has been sampled, tested and inspected and has met the requirements in accordance with these specifications, and the same shall be furnished to the Engineer.

3.10 The shop drawings shall clearly show that there shall be no penetration of rainwater from the exterior to the interior in case of severe wind and rainstorm. This has to be specially ensured in cill section.

4.0 MATERIAL

4.1 Frames/shutters

The frames of aluminium door, windows and ventilator shall be formed from rolled, strip or extruded aluminium. The thickness of sectional members shall be at least 1.6 mm. All outer / frame sections of openable / fixed windows. Ventilators and louvers curtain wall shall be 3” (75 mm) minimum in width. The Frames for doors and door/windows curtain wall shall be at least 3” (75 mm) in width.

4.2 As shown on the drawings, aluminium frames shall be provided as per international standard approved by the engineer.

4.3 Fasteners shall be stainless steel of a type selected to prevent galvanic action with the components fastened.

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4.4 Gaskets shall be vinyl glazing channel gasket to commercial standard CS-230-60.

4.5 Hardware shall be manufacturer's standard hardware. Flush to match doors, windows, ventilators and louvers finish. Floor mounted concealed type double action/swing imported door closures shall be provided to all doors. Heavy-duty in-matching finish stays shall be provided to all openable windows, ventilators and louvers. Stays shall be attached to the window frame so as could be replaced easily.

4.6 Joint sealant shall be approved elastomer.

4.7 All aluminium sections shall be powder coated in accordance with the standards of Aluminium Association of USA. The anodisation shall be of not less than 70-90 microns. The anodic oxide surface shall be properly sealed.

4.8 For powder coated finish aluminium sections to be coated shall be mill finish. The sections shall be firstly degreased with a degreasing chemical to remove all/any stains. The sections will then be given a chromating coating and electro static powder coating in the desired colour with a powder-coating machine. After colour coating the sections will be baked at baking temperature of 220 degree Centigrade for 25 minutes.

4.9 All sliding/openable windows shall have sliding/openable wire/fly screen shutters in window matching finish with wire/fly screen of size so as not to permit the entry of flies and mosquitoes. The wire mesh shall be 30 SWG. 14 mesh (14 x 14 openings per square inch).

4.10 Composite Aluminium Cladding: Composite aluminium cladding material shall be from approved manufacturer.

5.0 DESIGN REQUIREMENT

The Contractor shall design the installation to meet or excell the following requirements.

5.1 Tolerances

The Contractor shall be responsible for agreeing to all dimensions with the Engineer before proceeding with the manufacture and for making provision to allow for building tolerances required by the Engineer. Contractor shall also take site measurements of the structure completed before manufacturing.

5.2 Thermal & Seismic Movements

The window and glazing assemblies are to be constructed and installed in the openings with sufficient tolerance and, where necessary, to provide for joints incorporated in couplings, to provide for expansion and contraction as will be caused by the local seismic and climatic conditions and temperature changes, winter to summer - day to night without buckling, distortion of joints, or other harmful effects.

6.0 WORKMANSHIP

The Contractor shall be responsible for the protection and installation of all items furnished. All items shall be installed plumb and square and shall be solidly anchored in a good workman like manner in accordance with the manufacturer's instruction and as specified herein. The Contractor shall be responsible for the protection of installed items from damage by other trades. All items shall be left in operating, neat and clean condition, free from dirt, finger marks, etc. The Contractor shall be responsible for final cleaning before the final acceptance.

The glass panes shall firmly be secured in the rebates with the rubber gasket. Ensure that the beads and grooves are clean, dry and unobstructed at the time of glazing. The complete unit shall be airtight and watertight on completion. No ventilator shall be

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considered complete until and unless the fingerprints and other stains and marks have been removed from the surface of glass and aluminium.

7.0 PRODUCT DELIVERY AND STORAGE

7.1 Deliver doors, windows and ventilators in a manner preventing damage to units. Store materials off the ground under cover in a manner preventing deterioration or damage.

7.2 All embedded parts and anchor bolts shall be delivered to the site carefully and keeping the fabricated shape and configuration. All these parts shall be suitably marked for identification.

8.0 ERECTION

Rawlplugs and anchoring bolts shall be embedded into the concrete or block masonry for holding the doors, windows and ventilators in their correct positions.

Care shall be taken to install the doors, windows and ventilator in line and plumb & solidly anchored in a good workman like manner in accordance with the drawings. Should any scale or scratch appears on the surface of doors, windows and ventilators, the contractor shall at his own expense and at the Engineer's direction have all exposed surfaces cleaned to bare bright specified colour.

All works shall be installed strictly in accordance with the manufacturer's printed instructions.

9.0 PROTECTION AND CLEANING

9.1 Temporary protection shall be achieved by applying water soluble protective coating capable of withstanding the action of lime mortar.

9.2 Apply coating in the manufacturer's plant to the exposed surfaces of all components.

9.3 Before application of coating, remove all fabrication compounds, moisture and dirt accumulations.

10.0 DEFECTIVE WORK

In the event of non-conformance to specifications and drawings the aluminium work shall be rejected by the Engineer and the Contractor shall remove and replace the rejected works by new work of same specifications.

11.0 GUARANTEE

11.1 The manufacturer shall furnish his standard written guarantee against leakage of rain, excessive infiltration of dust and air and all defects in materials and workmanship covering all work under this section.

11.2 Such guarantee shall be in addition to and not in lieu of all other liabilities which manufacturers and the Contractor may have by law or by other provisions of the Contract Documents.

12.0 MEASUREMENT AND PAYMENT

12.1 General

Except otherwise specified herein or else where in the Contract Documents, no measurement and payment will be made for the under mentioned specified works related to the relevant items of the Bill of Quantities. The cost thereof shall be deemed to have been included in the quoted unit rate of the respective items of the Bill of Quantities.

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12.1.1 Providing and fixing glazings.

12.1.2 Powder coating of Aluminium works.

12.1.3 Anodizing of Aluminium works.

12.1.4 Rawlplugs, brackets, rubber gasket, sealants, rollers, vetting latches and any other embedded fixture required for fixing the ventilators.

12.1.5 Providing & fixing locks, door closures, and other hardware as approved by the Engineer.

12.1.6 Fly proof shutters and screens for Doors & windows.

12.1.7 All samples and tests.

12.1.8 Insulation, structural steel for framing etc. for cladding.

12.2 **Aluminium Works**

12.2.1 Measurement

Measurement of acceptably completed works of aluminium doors, windows, ventilators and louvers will be made on the basis of actual area in square meter / square foot of door, windows and ventilators provided and installed in position as shown on drawings or as directed by the Engineer.

12.2.2 Payment

Payment will be made for acceptable measured quantity of aluminium door, windows, ventilators and louvers on the basis of unit rate per square meter / square foot quoted in the respective items of Bill of Quantities and shall constitute full compensation for all the works related to the item.

*** End of Section 6220 ***

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SECTION - 5100

PLUMBING

1.0 SCOPE

2.0 APPLICABLE STANDARDS

3.0 SUBMITTALS AND SHOP DRAWINGS

4.0 MATERIAL AND EQUIPMENT

5.0 EXECUTION

6.0 TESTING AND COMMISSIONING

7.0 MEASUREMENT AND PAYMENT

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

1.0 SCOPE

The work under this section consists of providing all material and equipment and performing all the work necessary for the complete execution (jointing, clamping, cleaning, painting etc. both above and underground and embedded in walls) and completion, including testing and commissioning of all systems of plumbing works as shown on the Drawings and/or as specified herein and/or as directed by the Engineer. The system includes plumbing works as follows:

i) Cold and Hot Water Supply
ii) Building Drainage
ii) Rain Water Drainage

All the above named systems shall be completed in all respects including extension of these internal systems upto the specified limits outside the building as indicated on the drawings.

2.0 APPLICABLE STANDARDS

Galvanized iron (GI)Pipes threaded	BS- 1387 (1985) Medium duty
Galvanized iron (GI)Pipes welded	ASTM A-53 ERW Schedule 40
Polypropylene Random (PPR) pipes	DIN 8077-78
Cast iron (CI) Pipes	BS- 416 & 2494
uPVC Pipes (Building)	ISO- 3633 & BS- 4514/ 5255. (BS EN-1329)
uPVC Pipes (External)	BS-5481/ BS-4660 (EN-1401)

3.0 SUBMITTALS & SHOP DRAWINGS

All the materials and equipment shall be of the specifications mentioned herein and the Contractor shall submit the sample, necessary catalogues, sketches, the name of manufacturer and guarantee if necessary, before installation. The system shall be installed after the Engineer approves it. All material and equipment shall be new and unused.

It is specifically intended and must be agreed to by each Contractor submitting a bid, that any material or labor which is usually furnished as a part of such equipment and which is necessary for its proper completion and best operation shall be furnished as a part of this Contract without any additional cost whether or not shown in detail on the drawings or described in detail, in the specifications.

Approval of material and equipment by the Engineer shall not absolve the Contractor of the responsibility of furnishing the same of proper size, quantity, quality and all performance characteristics to efficiently fulfill the requirements and intent of the Contract Documents.

Prior to commencement of works on site and at least 3 weeks in advance of all the drawing being required for actual execution the Contractor shall submit on larger scale as approved by Engineer, shop drawings in triplicate for approval to the Engineer. The Engineer shall review the drawing and (i) approve the drawing or, (ii) approve the drawing with comments or, (iii) disapproved the drawings with comments for rectification/revision of the drawing and resubmit 3 copies to the Consultant for approval. On a drawing being approved, the Contractor shall submit 6 copies for formal approval and distribution to relevant offices.

All drawings shall have plan and section and with sufficient details to clearly reflect the installation of the system. All material specifications shall be provided on the drawings. All information required for preparing suitable foundation, for providing suitable access to the system, for making openings in building structure, for coordination with electrical, air-conditioning and other designs etc., shall be clearly provided.

Installation shall not be allowed to commence unless approved shop drawings are in possession of the Contractor, for which purpose shop drawings shall be submitted by the Contractor to the Engineer sufficiently in advance of actual requirements to allow for ample time in checking and approval and no claim for extension of the contract time will be considered by reason of the Contractor's failure to submit the drawings on time.

Each shop drawing submitted by the Contractor shall include a certificate by the Contractor that all related conditions on site relevant to that particular installation have been checked and that no conflict exists.

Any expenses resulting from an error mistake or omission in or delay in delivery of the drawings and information mentioned above shall be borne by the Contractor.

Drawings approved shall not be departed from except on the instructions of the Engineer.

The approval by the Engineer for any submitted data, working drawings, performance curves, test certificates for any items, arrangements and/or layout shall not relieve the Contractor from any responsibility regarding the performance of the Contract. Such approval shall not also relieve the Contractor from responsibility of any error in the submitted data and workings, brought to light at any time subsequent to any approvals.

Relevant specified imported item, model cuts will be available with the authority concern for execution of work for contractor to check the models for fabrication or import.

4.0 MATERIAL & EQUIPMENT

4.1 G.I. COLD, HOT WATER PIPES AND FITTINGS

The galvanized pipes shall be of medium grade and conform to British Standard Specifications 1387 for "Steel Tubes and Tubular suitable for screwing to BS 21 pipe threads".

All screwed tubes and sockets shall have BS pipes thread in accordance with BS 21. In order to prevent damage to the leading thread, the ends of the sockets shall be chamfered internally.

A complete and uniform adherent coating of zinc will be provided for galvanized pipes.

Every tube shall be tested at the manufacturer's works to a hydraulic test pressure of 4.90 MPa (710psi) and shall be maintained at the test pressure sufficiently long for proof and inspection.

Tubes which are bundled shall be secured together by rope or soft iron or other suitable material.

The threads of all tubes shall be effectively covered with a good quality grease or other suitable compound, and each tube above 50 mm nominal bore shall have a protecting ring affixed to the unsocketed screwed end.

All pipe fittings upto 75 mm dia. shall conform to BS 21 and shall be of malleable cast iron. Pipe fittings above 75 mm dia. shall be of approved material and specifications as decided by the Engineer.

4.2 POLYPROPYLENE RANDOM (PPR) PIPES AND FITTINGS

Polypropylene Random Pipes and fittings shall conform to the following standard

DIN	8077-8078	Resistible to all chemical elements
DIN	16961	Smooth inner surface
DIN	19560	Usability for hot water all levels
DIN	4279	Durable to inner pressure
DIN	16962	Conforms to connections by welding process

4.3 SOIL, WASTE, VENT & RAIN WATER DRAINAGE PIPES & PIPE FITTINGS (C.I. & uPVC)

a. Cast Iron (CI) PIPES & FITTINGS

The cast iron pipe shall conform to British Standard Specifications No.416 for "Cast Iron spigot and socket soil, waste and vent pipes and fittings with spigot and socket or hubless ends. The joint shall be lead caulked or elastomeric (Rubber rings) to BS- 2494.

Cast iron pipes shall be centrifugally (SPUN) cast.

The quality of material shall be according to B.S.S. No.1452 for Grade 10.

The contractor shall supply coated pipes and fittings. The coating composition shall be of tar basis or a mixture of natural bitumen with a suitable hardener and natural asphalt. The coatings shall be smooth, tenacious, sufficiently hard, not to flow when exposed to a temperature of 63 Degrees Celsius and not so brittle at zero degrees Celsius that it chips soft when scribed lightly with the point of a pen knife.

Every pipe shall be tested at the manufacturer's work to a hydraulic test pressure of 0.07 MPa (10psi). Every pipe and fitting shall ring clearly when tested for soundness by being struck all over with a light hammer.

b. uPVC PIPES & FITTINGS

The material shall substantially consist of un-plasticized poly vinyl chloride (PVC) as per the requirements of aforesaid standard. Pipes

and fittings shall be sufficiently stabilized against thermal ageing and ultraviolet (UV) light.

uPVC Pipes

- There are two types of pipes and fittings, type A and type B, as per ISO 3633 for drainage systems. Only type B shall be used for soil, waste and venting systems.
- As per BS4514/5255, sanitary pipes and fittings shall be class "A" wall thickness 3.2mm.

uPVC Fittings

All fittings shall be compatible with the pipe material as recommended by the pipe manufacturer. However, there are two types of fittings available as per ISO 3633:

- uPVC fittings with Solvent Cement (SC) socket joint conforming to ISO 3633:1991.
- uPVC fittings with rubber ring socket joint conforming to DIN 19560, which is compatible with ISO 3633/PS 3214.

Rubber Rings

The rubber rings may either be Synthetic or natural conforming to PS 1915:1987 & ISO 4633/1983 (E).

The material shall consist substantially of poly vinyl chloride (PVC) to which may be added only those additives that are needed to facilitate the manufacture of pipes and fittings having good mechanical strength and opacity.

The pipes and fittings shall be tested mechanically and physically in accordance with the relevant Standards as and when directed by the Engineer, before and during installation.

4.4 PLUMBING FIXTURES

4.4.1 General Requirements

Materials shall conform to the latest referenced standard specifications and other provisions stipulated herein and shall be new and unused.

All fixtures shall be of the best quality and finish.

Prior to procurement of the materials, the Contractor shall be required to prepare and submit to the Engineer for his approval, a complete schedule of materials to be used in the works together with a list of the names and addresses of the manufacturers and the trade names of the materials. The schedule shall include diagrams, drawings and such other technical data as may be required by the Engineer to satisfy himself as to the suitability, durability, quality and usefulness of the material to be purchased.

Approval of the schedule shall not be construed as authorizing any deviations from the specifications unless the attention of the Engineer has been invited to the specific changes. If the material or equipment offered under this provision is, in the opinion of the Engineer, equal to or better than specified, it will be given consideration.

Plumbing fixtures shall have smooth impervious surfaces, be free from defects and concealed fouling surface. They shall be true to line, angles, curves and colour etc. Normally they shall be of local make and of the best quality available, provided.

All taps and cocks to be installed with plumbing fixtures shall be chrome plated (CP) and shall be of appropriate class to work without damage or leakage on the specified pressure of potable water system, which is 0.88 MPa (128 psi). The taps and cocks shall be of the best quality locally manufactured.

When any fixture is provided with an overflow, the waste shall be so arranged that the standing water in the fixture cannot rise in the over flow when the stopper is closed or remain in the overflow when the fixture is empty.

Plumbing fixtures shall be installed in a manner to afford easy access for cleaning. The space between the fixture and the wall shall be closely fitted and pointed so that there is no chance for dirt or vermin to collect.

When practical, all pipes from fixtures shall be run to the nearest wall. Where fixture comes in contact with wall and floors, the joint shall be watertight.

Wall hung fixtures shall be rigidly supported by metal supporting members so that no strain is transmitted to the connections. Flush tanks and similar appurtenances shall be secured by approved non-corrosive screws or bolts.

Fixtures shall be set level and in proper alignment with reference to adjacent walls. No water closet shall be set closer than 400 mm from its centre to any side wall. No urinal shall be set neither closer than 300 mm from its centre to any side wall or partition nor closer than 600 mm centre to centre. The supply lines or fittings for every plumbing fixture shall be so installed as to prevent backflow. All cuttings, making holes etc. and making it good shall be included in the work.

Other physical/chemical properties of the fixtures are as below:

S. No.	Physical/Chemical Properties	Pakistan Standards	European Standards
1	Water absorption	Less than 0.50%	Maximum 0.50%
2	Scratch Resistance	Maximum 5.5 MOH's scale	Maximum 5 MOH's scale
3	Resistance to Chemicals	Resistant to acids, alkalies, bases & other household cleaning chemicals	Resistant to chemicals.
4	Crazing Resistance	Crazing "NIL"	Crazing "NIL"
5	Warpage	Maximum 5.5-6mm	Maximum 6mm
6	Strength against bending	More than 700 kg/cm	450kg/cm - 700 kg/cm
7	Thermal shock	More than 10 cycles of thermal shock from hot to cold water 15°C-200°C	More than 2 cycles of thermal shock from hot to cold water 20°C-110°C
8	Durability	Permanently durable	Durable for ever

4.4.2 **Wash Basins**

Wash basin shall be vitreous China, best quality, local make of colour, size and type as approved by the Engineer. It shall be installed as a complete unit including 15 mm mixer for hot and cold water supply or CP brass faucet for cold water only, 15 mm stop-cocks, C.P brass chain with 32 mm rubber plug, C.P brass bottle trap for individual wash basin and C.P brass P trap for battery of wash basins as applicable, C.P brass strainer, heavy duty cast iron brackets with bolts, screws etc. approved water inlet connection pipe, waste pipe, jointing and sealing material, etc., with all other minor accessories required to complete the job in all respect.

4.4.3 **Vanity Wash Basins & laboratory sink**

Wash basin Vanity type & Laboratory Sink shall be vitreous China, best quality, local make of colour, size and type as approved by the Engineer. Other necessary fittings shall be same as described for above Wash basin.

4.4.4 **Water Closets (European type)**

European type water closet shall be best quality local make of colour, size and type as approved by the Engineer. It shall be installed as a complete unit including all accessories. Flush tank (13.5 liters) shall be of low level type - it shall be fitted with either

single push button or double push button type. Trap shall be cast integral with pan. The seat shall be of smooth non-combustible non-absorbent materials like Bakulite and of the open front type fixed to the pan with hinges. The fittings shall also include approved water inlet connection pipe, nuts bolts, 15mm dia stop cock etc. required for complete installation.

4.4.5 **Water Closets (Orissa)**

Squatting (Asian/Orissa) type water closet shall be vitreous China, best quality local make of colour, size and type approved by the Engineer. It shall be installed as a complete unit including, 15 mm stop cock, approved water inlet connection pipe, low level or high level Flush tank (13.5 liters), as required. All fittings shall be installed at low level, or high level as required including interconnecting flush piping. Foot rests, cast iron P trap, making joints, jointing and sealing materials, 15mm dia stop cock etc. with all other minor accessories for complete installation.

4.4.6 **Kitchen Sinks**

Kitchen sink shall be stainless steel of best quality local make of colour, and type as approved by the Engineer, single bowl or double bowl with integral drain board of at least 1000 x 500 mm size. It shall be installed as a complete unit with arrangement for both cold and hot water supply, 15 mm C.P. mixer for cold and hot water, approved water inlet connection C.P. brass strainer, waste outlet pipe, heavy duty cast iron brackets with bolts screws etc., jointing & sealing material, etc., with all other minor accessories required for complete installation.

4.4.7 **Shower Tray**

Shower trays shall be of glass reinforced polyester with hard glass finish best quality local make of colour and type as approved by the Engineer. It shall be installed as a complete unit including C.P. brass strainer, waste outlet pipe, bolts screws, jointing & sealing material, etc.

4.4.8 **Shower Head**

Shower head shall be installed on the wall at a suitable height including installation of chromium plated extension pipe, C.P. brass Mixer for cold & hot water etc. with all other minor accessories required for complete installation.

4.4.9 **Bath Tub**

Bath Tub shall be of the approved material such as Fiberglass, cast iron or acrylic. It shall be installed as a complete unit including chromium plated brass overflow sluice 1-1/4" in dia., chromium plated waste 1-1/2" dia. with chromium plated chain & rubber stopper (Plug), etc. complete in all respects for complete installation. Its colour shall match with that of other fixtures in the toilet.

4.4.10 Urinals

Urinals shall be vitreous China of approved make and size and of wall hung type either with integral water seal trap or with separate brass P-Trap. The complete unit shall be installed including 15mm Tee-stop cock, plastic water inlet/outlet connections, CP Flush Valve or 13.5 liters flushing cistern, heavy duty CI brackets, bolts, screws, and all internal accessories or; CP steel flush pipe. CP steel waste pipe, joints, jointing and sealing materials etc. with all other minor accessories.

4.5 MISCELLANEOUS ITEMS

4.5.1 Taps and Cocks

All taps and cocks shall be of brass, gun metal or other equally suitable corrosion resisting alloy conforming to BS 1010 and shall be best quality local make. The nominal size specified shall be the nominal bore of the seating. Washers for cold water cocks shall be of specially selected leather, rubber asbestos composition or other equally suitable material. Washers for hot water cocks shall be of good quality fiber, rubber - asbestos composition or other equally suitable material. Every tap/cock shall be tested, complete with its component parts, to a hydraulic pressure of at least 1.96 MPa (284.4 psi) During test it shall neither leak nor sweat.

4.5.2 Floor traps/drains

Floor traps/drains shall be of cast iron or uPVC or of other anti-corrosive material, compatible with the material of pipe. They shall have minimum water seal of 40 mm and shall be provided with removable metal/uPVC strainers. The traps shall be of self-clearing type. The open area of the strainer shall be greater than the cross section area of the drain line to which it connects. Floor traps shall be well set in position so that there is no leakage at the joint between trap and the floor.

4.5.3 Roof Drains

Roof drains shall be of bitumen coated cast iron, compatible with the material of pipe. They shall have strainers extending at least 15 mm above the roof surface immediately adjacent to them, when installed on flat part. Bottom of strainer shall be flush with the roof surface, when installed on vertical part. Strainer shall have an available inlet area, above roof level, of not less than 1-1/2 times the area of the down-pipe to which the drain is connected.

The connection between roof and roof drain shall be made watertight by the use of proper flashing material.

4.5.4 Cleanouts

Cleanout shall be of the same nominal size as that of the pipe on which it is installed. Cast Iron Cleanout shall consist of tapped

heavy duty cast iron ferrule caulked into cast iron fitting and heavy duty brass tapered even plug. uPVC cleanout shall consist of either two 45° bends or one long radius bend both with a removable end cap and other necessary fittings/material for complete installation in floor Cleanouts shall be turned up through floors by long sweep fittings, wherever the space so permits. Top finish of cleanout shall be flush with the floor by means of finished metal plate secured in position and screwed firmly to the plug. Cleanout shall be so installed that there is a clearance of at least 300 mm for pipes less than 75 mm diameter and at least 457 mm for pipes of 75 mm and larger diameter, for the purpose of Roding.

Pipe used with cleanout shall be measured and paid under pipe item. All other work of ferrule, plug, concrete work, frame and cover etc. shall be measured and paid under cleanout item.

4.5.5 Grease Trap/Interceptor

a. The grease trap shall be of stainless steel of specified capacity with cover, baffles and strainers to separate grease from water effectively. The grease trap shall be of approved make or equivalent and installed in the position as shown on drawings or as specified by the Engineer.

or

b. The grease interceptor shall be built in masonry or reinforced cement concrete as per relevant drawings including excavation, RCC class “C”, steel reinforcement, PCC class “E”, 15mm thick cement sand plaster in 1:3 c/s, 15mm thick C.I. trap & plate having holes (screen) 25mm c/c of standard diameter, 20mm G.I. pipe for lifting trap, inlet & outlet connections, 600x600 mm C.I. cover with frame, 25mm legs for supporting screen system, painting three coats to steel works with synthetic enamel paint, nuts, bolts etc. complete in all respects as desired by the engineer.

4.5.6 Glass Mirror

The glass mirror shall be of specified size, 5 mm thick, securely fixed on hard board packing and of best quality Belgium make. The mirror shall be fixed on wall as shown on the drawing or as directed by the Engineer. All accessories required for complete fixing of mirror on wall shall be included in Contractor's scope of work.

4.5.7 Towel Rail, Toilet Paper Holder, Soap Trays, Mirror Trays

The towel rail, toilet paper holder, soap trays & mirror trays shall be of best quality All accessories for complete installation of towel rail, toilet paper holder, soap tray and mirror tray shall be included in the Contractor's scope of work.

4.5.8 **Gully Trap**

Gully trap shall be of cast iron with specified size outlet. The inlet shall be provided with cast iron, medium duty grating. The open area of the grating shall be at least 1-1/2 times the area of the outlet. The trap shall be of P-Type with a minimum water seal of 50 mm. It shall be installed as a complete unit including all civil works as shown on relevant details and drawings.

4.5.9 **Cast Iron Grating**

Cast iron grating shall be of the specified size. The specified size shall mean the clear span. Cast iron grating shall be complete with frame. They shall be of Light/medium duty type to resist normal traffic loads, the casting shall be sound and free from all defects. The frame shall be set in place at the time of pouring of concrete. Openings in grating shall be in approved pattern.

4.5.10 **Electric Water Cooler**

Cabinet shall be of heavy gauge mild steel construction painted with non-corrosive paint from inside and with special hammer finish paint from outside.

Push button type water taps shall be chrome plated. Drain pot shall be made of hard plastic with stain-less steel tray. Back panel shall be easily remove-able for cleaning and servicing top cover shall be of scratch proof Formica.

Water storage tank shall be either of stainless steel or copper alloy, tinned inside and outside with present insulation to maintain water temperature, with special arrangement for cleaning the tank.

Condensing unit shall be heavy duty, hermetically sealed with thermal overload protection for refrigerant F-12 and capillary expansion with valves for easy gas charging. Thermostat and other control necessary for proper functioning of the unit shall be provided. The thermostat shall control the temperature of cooled water between + 11^{o}C & + 20^{o}C.

4.5.11 **Water Filters**

Water filters shall be installed on wall near the water coolers. Each filter shall have a crystal housing of a durable material. The flow rate shall be 2 to 6 gpm with a maximum pressure of 70psi and a temperature of 35^{o}F to 100^{o}F.

Stage 1:- Stage 1 shall use a “poly propylene Yarn Indepth Sediment filter cartridge”, for removal of dust, rust, silt, scale and unseen suspended particles. It shall have a filtration rating of 5-micron.

Stage 2:- In this stage a “Granular Activated Carbon (GAC) cartridge” equipped with a post-filter of 1-micron is recommended, for removal of chemicals and unpleasant taste and odor.

Stage 3:- This stage must provide 30,000 MW.sec/sq.cm energy to guarantee 100% sterilization and ensure effective control of microbiological contamination.

4.5.12 **Gas or Electric Water Heaters**

Water heater shall be of automatic storage type Electric or Gas operated, including all necessary fittings for complete installation & operation. The heater shall be of best quality, local make as approved by the Engineer.

The working and test pressure of the heater to be of 6 bar and 10 bar respectively and shall deliver water at 150 °F. It shall be capable to reach the peak demand, storage capacity.

Heater shall be provided with following accessories.

i) Thermostatic control
ii) Temperature & pressure relief valve
High limit Control.

Other specifications of **Water Heater** are as given below:

Inner tank shall be extra heavy gauge anti-rust G.I. sheet metal to hold maximum inside water pressure. As an insulation, imported genuine glass wool shall be used to maintain the desired temperature that controls the liting up of the burner. The outer body shall be made of requisite gauge M.S. sheet shaped into reinforced circumference. Flow and delivery pipes shall be of high quality G.I. pipes fabricated with heavy gauge anti-rust baffle plate. *The thermostat shall be of Robershaw (U.S.A) make or approved equivalent.* The burner shall be made of cast iron with drilled ports. It shall be easy to be detached. Special anti-rust-baked primer-heavy coated stoved enamel paint with high gloss automative shine shall be used on sheet metal.

Standard type gas water heaters shall have following specs:

Capacity	Inner Tank	Outer body
8-15 gallons	G.I. sheet 14-16 swg	M.S sheet painted 22 swg
30 gallons	G.I. sheet 10-12 swg	M.S sheet painted 22 swg
50 gallons	G.I. sheet 10-12 swg	M.S sheet painted 22 swg
100 gallons	G.I. sheet 8-10 swg	M.S sheet painted 22 swg

5.0 EXECUTION

5.1 GENERAL

The Contractor shall be responsible for his work until its completion and final acceptance, and shall replace any of those that may be damaged, lost or stolen without any additional cost.
All openings left in floor for passage of lines of water supply, soil, waste, vent, etc. shall be covered and protected.

All open ends of pipes shall be properly plugged to prevent any foreign material from entering the pipe. Misuse of plumbing fixtures to be

installed under this Contract is prohibited during the currency of the contract.

All metal fixture trimmings shall be thoroughly covered with non-corrosive grease which shall be maintained until all work is completed.

Upon the completion of work, all fixtures and trimmings shall be thoroughly cleaned, polished and left in first class condition.

Before erection, all pipes, valves, fittings, etc. shall be thoroughly cleaned of oil, grease or other material.
All special tools for proper operation and maintenance of the equipment provided under this Contract shall be delivered at no additional cost.

The Contractor shall allow in his bid for cost of all cutting, making holes and subsequent making it good to the desired finish as per approval of the Engineer. No separate payment shall be made for this item.

The Contractor shall allow in his bid for the cost of providing protective painting or coating as specified in the relevant sections and no claim shall be entertained for this item.

All pipes shall be properly installed as shown on the drawings and/or as directed by the Engineer, and shall be as straight as possible forming right angles and parallel lines with the walls and other pipelines. The position, gradients, alignment and inverts shall be as shown on the drawings and/or as directed in writing and set out by the Engineer.

The arrangement, positions and connections of pipe fittings and appurtenances shall be as shown on the drawings. The Engineer reserves the right to change the location etc. Special precautions shall be taken for the installation of concealed pipes as shown on the drawings and/or as required. Should it be necessary to correct piping so installed, the Contractor shall be held liable for any injury caused to other works in the correction of piping. The Contractor shall closely coordinate with other works during the entire stage of execution.

A minimum distance between different services shall be maintained as shown on the Drawings and/or as approved by the Engineer.

Pipes should be installed in such a manner that minimum distance should always be maintained between pipe and wall, beams, columns, etc. Pipes shall be supported on hangers and brackets as shown on the drawings or as directed by the Engineer.

Waste-water outlet from each fixture shall be individually trapped. Each vent terminal shall extend to the outer air and be so installed as to minimize the possibilities of clogging and the return of foul air to the building.

When the roughing-in is completed, the plumbing system shall be subjected to test prior to concealing the roughing-in, in order to ascertain that all threads and connections are watertight.

Cast iron soil and drainage fittings for change in direction shall be used as follows:-

*Vertical to horizontal: short sweep or long-turn for diameter 75 mm and larger; long sweep or extra-long-turn for less than 75 mm. dia.

*Horizontal to vertical: quarter bend or short turn.

All fittings with hubs shall be aligned so that the hub faces upstream. No drainage or vent piping shall be drilled.

All exterior openings provided for the passage of piping shall be properly sealed with snugly fitting collars of metal or other approved rodent-proof material securely fastened into place.

Joints at the roof, around vent pipes, shall be made water-tight by the use of lead, copper, galvanized iron, or other approved flashing or flashing material. Exterior wall openings shall be made watertight.

Each length of pipe & each pipe fitting, trap, fixture, & device used in a plumbing system shall have cast, stamped or indelibly marked on it the maker's mark or name, the weight, type & classes of the product, when such marking is required by the approved standard that applies.

Where different sizes of pipes, or pipes and fittings are to be connected, the proper size increasers or reducers or reduced fittings shall be used between the two sizes.

Any fitting or connection which has an enlargement, chamber, or recess with a ledge, shoulder, or reduction of pipe area that offers an obstruction to flow through the drain pipe is prohibited. The vertical distance from the fixture outlet to the trap weir shall not exceed 600 mm. Each fixture trap shall have a water seal of not less than 50 mm and not more than 100 mm.

Full S, bell, crown vented traps and traps/depending for their seal upon the action of movable parts are prohibited. No fixture shall be double trapped. Where fixture comes in contact with wall and floors, the joint shall be water-tight. Piping in ground shall be laid on a firm bed for its entire length.

Piping in the plumbing system shall be installed without undue strains and stresses. Vertical piping shall be securely held to keep the pipe in alignment and carry the weight of the pipe and contents. Horizontal piping shall be supported to keep it in alignment and prevent sagging. Hangers and anchors shall be of metal of sufficient strength to maintain their proportional share of pipe alignments and prevent rattling. Hangers and anchors shall be securely attached to the building under construction. It must be clearly understood that the Contractor shall be fully responsible for hangers and supports and shall obtain prior approval of design as to the shape, material, dimensions, spacing etc.

Piping in concrete or masonry walls or footings shall be placed or installed in sleeves which will permit access to the piping for repair or replacement.

5.2 G.I. COLD, HOT WATER PIPES AND FITTINGS

The run and arrangement of all pipes shall be as shown on the Drawings and as directed during installation. All vertical pipes shall be erected plumb and shall be parallel to wall and other pipes. All horizontal runs of piping shall be kept close to walls. If required to change the location etc. during the currency of the work, the Contractor will do so at no additional cost. Screwed joints in G.I. pipes shall be made perfectly tight, without the use of any filler except approved jointing compound or tape. Wherever required to make flanged joints, they shall conform to BS 10 Table D.

Furnish and install all pipe passing through floors and walls with sleeves of G.I. sheet, 18 gauge, the inside dia. of which shall be at least 1/2" greater than the outside dia of the pipe passing through it. Sleeves in exterior walls and pits shall have anchor flanges and space between pipe and sleeve shall be caulked and sealed watertight. At waterproof locations, an approved water-proof type pipe sleeve shall be provided.

All embedded water supply piping shall be wrapped with approved anti-corrosion polyethylene tape. All exposed piping shall be painted with two coats of enamel paint over a coat of red oxide.

Pipes laid in trenches (external) shall be protected by applying coating of primer grade 10/20 bitumin+hyacinth cloth mopped with bitumen (50% grade 80/100 & 50% grade 10/20).

Insulation

All hot water supply and return piping shall be insulated as specified herein. Prior to insulation the pipes shall be hydraulically tested and cleaned.

Nominal Pipe Dia. (mm)	**Thickness of per-form Fiber glass pipe insulation. (mm)**
15 (1/2")	25
20 (3/4")	25
25 (1")	25
32 (1-1/4")	25
40 (1-1/2")	25
50 (2")	25
65 (2-1/2")	25
75 (3")	25

Insulation shall consist of pre-formed fiberglass pipe insulation, with factory applied reinforced aluminum vapor barrier, single layer in semi-circular halves, consisting of long, fine glass fibers, bonded with a temperature resistant binder, free from shot or coarse fibers, damage resistant, light in weight, easy to handle, cut and fit. The product shall comply with the requirements of B.S. 3958: Part 4. The insulation shall be rotproof, odorless, non-hygroscopic, and shall not sustain vermin. The fiberglass insulation shall be covered with a layer of approved polyethylene tape in the field. Further reinforcement shall be provided by the use of 20 mm wide soft aluminum bands, generally spaced at 457

mm and on either side of elbows and tees. All butt joints shall be sealed with self-adhesive type of approved quality adhesive tape.

All trimmed sections shall be secured by wrapping of approved type of self adhesive tape to form a complete waterproof seal. All work shall be done in a neat and workmanlike manner, and should reflect recommended practice.

All Hot water and Hot water return lines concealed in walls only, shall be provided with Glass wool blanket insulation.

Pipe work Supports

All supports, clips, steel rods and hangers shall be of mild steel painted with two coats of approved metallic zinc primer. All clips and brackets shall be equipped with 9 mm sectional rubber liners (shore-hardness A 40+5º).

Pipe work supports shall be installed in order to allow free movement due to expansions and contraction. Supports shall be arranged adjacent to joints, changes of direction and branches. Each support shall carry the overall weight of pipe work and water to be borne by it. The intervals between pipe supports shall not exceed the following:

Maximum interval between supports (metres)

Nominal Dia mm	Steel pipes	
	Horizontal	Vertical
10	1.7	1.7
15	2.0	2.0
20	2.4	2.4
25	2.7	2.7
32	2.7	2.7
40	3.0	3.5
50	3.4	3.9
65	3.7	4.3
80	3.7	4.3
100	4.1	4.6

Dimensions of Support Materials

Nominal Dia mm	Flat iron bands mm	Support rods mm	U-bolts mm
10	25 x 3	6	6
15	25 x 3	6	6
20	25 x 3	6	6
25	25 x 3	6	6
32	40 x 5	10	10
40	40 x 5	10	10
50	40 x 5	10	10
65	50 x 6	12	12

80	50 x 6	12	12
100	50 x 6	12	12

Single pipes hung from floor slabs shall be supported on rod hangers. Where two or more pipes are involved a channel or angle from shall be fitted to the underside of slab by two hangers and the pipes shall be supported from the channel iron by rod hangers and flat iron hands.

All hanger rods shall have double nuts and beveled washers to allow the hanger rod to swing.

Multiple pipe runs along walls shall be supported on purpose made substantial angle and channel frames securely fixed to the wall, floor and ceiling as necessary. All pipes shall be arranged to slide on the steel supports and U-bolts shall be provided to form a rigid guide.

Exposed pipe work shall be supported on channel, angle iron or with U-bolts to form a rigid guide.

All U-bolts, except used as anchors, shall have a pair of nut and washers on each leg with the supporting steel flange clamped tight between the pair of nuts to form a rigid guide and allowing the pipe to slide axially,. U-bolts shall be provided on alternate pipe bracket.

Small pipe work running along skirting shall be supported by standard built-in or screw-on type clips.

Pipes shall be individually supported. Pipes shall not hung from other pipes.

Points at which pipes pass through walls, floors, connections to plant, equipment and heat emitters, etc. do not constitute points of supports for the pipes.

Vertical pipes shall be supported at the base or at anchor points to withstand the total weight of the riser. Brackets from risers shall not be used as a means-of support for the riser.

Vibration isolators to be provided with the hangers as approved by the Engineer.

5.3 POLYPROPYLENE RANDOM PIPES & JOINTING

5.3.1 Jointing Techniques

The surfaces of the pipes and fittings must be clean and without impurities. Pipe ends must be clean, cut at right angles. It is recommended to cut 1cm from the pipe ends in order to prevent possible micro-cracking due to incautious handling.

Before carrying out the welding, check that the poly-fusion device operates correctly and that it reaches the required welding temperature (260^{o}C $\pm$ 5).

Jointing is done by heat fusion (welding) by means of welding machine. Welding is carried out by means of heating simultaneously the male and female parts to be joined together, once the welding temperature is reached the joint is made and held for cooling time. (see table I below)

5.3.2 **Welding Instructions Using Socket Welding Machine**

i. Check whether the welding tool corresponds to the size you need to join.
ii. The welding tool/device has reached the necessary operating temperature of 260°C ±10
iii. Cut the pipe at right angles to the pipe axis by using cutter or a hack saw.
iv. Clean the pipe from burrs, cutting and chips
v. Mark the welding depths at the end or pipe
vi. Push the end of pipe up to the marked welding depths in the welding tool, at the same time push the fitting, into the welding tool.
vii. After the stipulated heating time quickly remove pipe and fitting from the welding tools and join them immediately, forcing the pipe into the fitting until the marked welding depth is covered by the bead of Polypropylene from the fitting
viii. The joint elements have to be fixed and aligned within the specified assembly time.
ix. After the cooling time the fused joint is ready for use. The heating time starts when pipe and fitting have been pushed to the correct welding depth in the welding tool

Est. Diameter (mm)	Welding Depth (mm)	Heating Time DVS 2207* (sc).		Heating time (sc.)	Cooling Time (min.)
20	14.0	5	8	4	2
25	15.0	7	11	4	2
32	16.5	8	12	6	4
40	18.0	12	18	6	4
50	20.0	18	27	6	4
63	24.0	24	36	8	6

The heating time have to be increased 50% if average temperature is under + 5°C

5.3.3 **Welding of PPR Pipes**

i. Cutting of pipe at right angle with a cutter.
ii. Marking of welding depth on the pipe end.
iii. Simultaneous heating of both pipe and fittings according to required heating time (as per given data).
iv. Pushing of pipe end into the fitting and alignment of the assembly within specified time period
v. Finish joint.

5.3.4 Installation Principles

5.3.4.1 Fastening technique for open installation

The selection of fastening material and its application have to be determined as:-

- Fixed Point
- Sliding Point

Pipe clamps are such as to meet all requirements and ensure that no mechanical damage on the pipe surface can occur.

5.3.4.2 Fixed Point

Valves and connections resisting to bending stresses have to be fastened by means of points. In particular cases the fixed points are to be positioned closed to branches or wall passages. The axial expansion will be compensated between two points. The assess the resistance of the fixed points one has to take into account the stresses to which they will be subjected, caused by linear expansion, weight of the piping and weight of the transportation fluid. Fixed points should be delimited on both sides of the clamp, availing oneself of the rim fittings or valves.

5.3.4.3 Sliding Point

The sliding points must keep the system aligned and support it, and allow the axial sliding of the piping as well. The sliding are to be firmly mounted in order to prevent vibration and transmission of noise.

Distance between the supports points in cm.

Pipe diameter	***Temperature in °C***		
	20	50	80
20mm	85	70	60
25mm	85	80	70
32mm	100	85	85
40mm	110	100	90
50mm	125	110	90
65mm	140	125	105

5.4 WATER PIPES AND FITTINGS OUTSIDE BUILDING (EXTERNAL WORKS)

5.4.1 Handling

Pipe and accessories shall be handled in such a manner as to ensure their delivery to the trench in sound, un-damaged condition. If any pipe or fitting is damaged, the repair or

replacement shall be made by the Contractor at his expenses in a satisfactory manner. No other pipe or material of any kind shall be placed inside of a pipe or fittings. Pipe shall be carried into position and not dragged. The interior of pipe and accessories shall be thoroughly cleaned of foreign matter before being lowered into the trench and shall be kept clean during laying operations by plugging or other approved method. Before installation, the pipe shall be inspected for defects. Material found to be defective before or after laying shall be replaced with sound material without additional expense to the Employer. Rubber gaskets that are not to be installed immediately shall be stored in a cool dark place and protected against the direct rays of the sun.

5.4.2 **Cutting of Pipe**

This shall be done in a neat and workman-like manner without damage to the pipe. Unless otherwise authorized by the Engineer or recommended by the manufacturer, cutting shall be done with a mechanical cutter of approved type. Wheel cutters shall be used wherever practicable.

5.4.3 **Location**

Where the location of the water pipe is not clearly defined by dimensions on the Drawings, the water pipe shall be located as directed by the Engineer.

5.4.4 **Deflection**

Maximum allowable deflections from a straight line or grade, as required by vertical curves, horizontal curves, or offsets will be 2^{o} degrees unless otherwise recommended by the manufacturer. If the alignment requires deflections in excess of the specified limitations, special bends or a sufficient number of shorter lengths of pipe shall be furnished to provide angular deflections within the limit set forth, as approved.

5.4.5 **Placing and Laying**

Pipe and accessories shall be carefully lowered into the trench by means of derrick ropes, belt slings, or other suitable equipment. Under no circumstances shall any of the water line materials be dropped or dumped into the trench. Care shall be taken to avoid abrasion of the pipe coating. Poles used as levers shall be of wood and shall have broad flat faces to prevent damage to the pipe. Except where necessary in making connections with other lines or authorized by the Engineer pipe shall be laid with the bells facing in the direction of laying. The full length of each section of pipe shall rest solidly upon the pipe bed, with recesses excavated to accommodate bell coupling and joints. Pipe that has the grade or the joint disturbed after laying shall be taken out and re-laid. Pipe shall not be laid in water shall be kept out of the trench until the materials in the joints have hardened or until caulking or jointing is completed. When work is not in progress, open ends of

pipe, fittings, and valves shall be securely closed so that no trench water, earth, or other substances will enter the pipes or fittings. Where any part of a coating or lining is damaged, the repair shall be made by the Contractor at his expense in a satisfactory manner. Pipes shall be installed in accordance with recommendations of the pipe manufacturer. Pipe ends left for future connections shall be valved, plugged or capped, and anchored, as shown or as directed, where connections shall be made by using specials and fittings to suit the actual conditions.

5.4.6 Jointing

The joints shall be in accordance with the recommendations of the manufacturer or as approved by the Engineer.

Connections between different types of pipes and accessories shall be made with transition fittings where recommended by the pipe manufacturer.

Service connections shall be made as indicated and in accordance with the recommendations of the pipe manufacturer.

5.4.7 Thrust Blocks

Plugs, caps, tees, bends and fire hydrants shall be provided with concrete thrust blocks. Backing shall be placed between solid ground and the hydrant or fitting to be anchored. The area of bearing shall be as shown on the Drawing. The backing shall be so placed that fitting joints shall be accessible for repair. The concrete shall be class C plain cement concrete.

5.4.8 Pipe Bedding

Fine sand as pipe bedding material shall be used for bedding of pipes and fittings. The sand shall be free from clay, site, salts, organic impurities and debris. Approval of pipe bedding materials shall be obtained by the site Engineer prior to placing.

5.4.9 Flushing

The Contractor shall provide facilities for flushing the line. Water for flushing the line shall be arranged by the Contractor. Flushing of line shall be done section by section. For each valved section of pipeline the Contractor shall make a temporary hose connection between the water pipeline and the pipeline under test. Water shall be pumped into the section flushed. Other arrangements for storing and pumping of water shall be subject to the approval of Engineer. Due precautions shall be taken by the Contractor for the disposal of water. The pipeline shall be flushed by keeping all the branching pipes open. Flushing shall be continued until clean water starts flowing through the other end. Section by section, the entire pipeline shall be flushed at a minimum flushing velocity of 2.5 ft./sec.

5.4.10 Pipeline Disinfection

The Contractor shall furnish all equipment, labour and material for the proper disinfection of the pipeline. Disinfection shall be accomplished by chlorination after the lines have been tested for leakage but before they have been connected to the main system. Disinfections of the pipelines shall be done in the presence of the Engineer's representative with equipment approved by him.

- **Chlorination** A chlorine and water mixture shall be supplied by means of a solution feed chlorination device. The chlorine solution shall be applied at one end of the pipeline through a trap, in such a manner that as the pipeline is filled with water, the dosage applied to the water entering the pipe shall be atleast (25 p.p.m) or enough to meet the requirements given hereinafter.

- **Retention Period** Chlorination water shall be retained in the pipeline for a period of at least 24 hours. After the chlorine treated water has been retained for the required time, the chlorine residual at the pipe extremities and at such other representative points shall be at least 10 parts per million. This procedure shall be repeated until the required residual chlorine concentration is obtained.

- **Chlorination of Valves** During the process of chlorination the pipeline, all valves or other appurtenances shall be operated while the pipeline is filled with the heavily chlorinated water.

5.4.11 Final Flushing

Following complete disinfection of the pipeline, all treated water shall be thoroughly flushed from the pipeline at its extremities. Treated water and water used for flushing the pipelines shall be disposed of in a manner instructed by the Engineer. Fresh treated water shall be filled in the line and water tested from presence of coliform. The test result should indicate negative coliform presence. If the test indicates any positive coliform, the entire process of disinfection shall be repeated or improved upon until coliform free samples are obtained.

5.4.12 Sampling And Testing

Disinfection of the pipeline and appurtenances shall be the responsibility of the Contractor. The first set of samples will be collected for analysis by the Engineer. Should the samples reveal presence of coliform the Contractor shall again disinfect the pipeline and appurtenances at no extra cost to the Employer for sampling and testing for subsequent retests until coliform free samples are obtained? The charges for re-sampling and retesting shall be recovered from the Contractor.

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5.4.13 **Clean-Up**

Upon completion of the installation of the water supply lines, distribution system and appurtenances, all debris and surplus materials resulting from the work will be removed and disposed off in a manner satisfactory to the Engineer

5.5 SOIL, WASTE, VENT & RAIN WATER DRAINAGE PIPES & PIPE FITTINGS (C. I. & uPVC)

All cast iron soil pipes and fittings shall be installed to the lines and grades shown on the drawings or as directed by the Engineer. When required to be installed above ground floor level, suitable and substantial number of hangers and supports of approved type and make shall be provided. No piping shall be hung from the piping of other systems. Clamps shall be provided on not more than 1.5 meter centres or a minimum of one hanger per each length of pipe whichever is smaller. Where excessive numbers of fittings are installed, additional clamps will be provided.

All steel clamps, hangers and support etc. shall be given one coat of red oxide primer and two coats of synthetic enamel paint. All exposed C.I. soil/vent pipes shall be given two coats of synthetic enamel paint. Materials for painting shall be high quality product of well-known manufacturer and will be approved by the Engineer before using. The instructions of the manufacturer regarding all painting work shall strictly be adhered to Pipes passing through walls, floors, etc. shall be provided with sleeves of approved design. All vent pipes to be installed in the system shall be provided with approved cowl and will rise at least 0.70 meter above the roof.

Caulked joints for cast iron bell-and-spigot soil pipe shall be firmly packed with oakum or kemp and filled with molten lead not less than 22 mm deep and not to extend more than 3 mm below the rim of the hub. Rubber ring joints shall also be allowed. No paint, varnish, or other coatings shall be permitted on the jointing material unit after the joint has been tested and approved

Pipes passing through walls, floors, etc. shall be provided with sleeves of approved design. All vent pipe to the installed in the system shall be provided with approved cowl and will rise at least 0.70 meter above the roof.

Special requirements for *uPVC pipes and fittings* are as under:

Maximum Interval between Supports (m)
(Support centers for uPVC pipe work systems)*

Nominal Diameter, d_e	**Pipe Works**	
	Horizontal ($10xd_e$)	**Vertical**
(mm)	(m)	(m)
40	0.40	1.2
50	0.50	1.5
75	0.75	2.0
110	1.10	2.0

* The values shown are for general installations only. Attention is drawn to special requirements that may be needed in more demanding applications.

All steel clamps, hangers, supports etc. shall be given one coat of red oxide primer and two coats of synthetic enamel paint.

All exposed uPVC pipes shall be given two coats of approved colour water based emulsion paint (note that oil based paints must be avoided.

PRECAUTIONS

Following points describe how an uPVC must be cared of:

a. The depth of concrete cover above uPVC pipe depends on the pipe gradient. However, a minimum of 1 (one) inch concrete cover must be provided.
b. When using cemented joints, the adhesive should be given sufficient opportunity to harden before the pipe is concreted in.
c. Horizontal lines that are concreted-in should be anchored against upward movement and should be adequately secured while the concrete is being poured.
d. During the pouring and setting of concrete, necessary care shall be taken to prevent physical damage to the pipes.
e. When using heated concrete or when steaming the concrete, the sensitivity of uPVC material to temperature changes should be borne in mind.
f. Concrete mortar that is used before concreting-in shall include no sharp-edged material.
g. Avoid excessive misalignment of the pipes.
h. Avoid excessive tightness of joints.
i. Provide sufficient expansion joints to allow thermal movement or regression.
j. Use only allowed cleaning & descaling techniques for different situations & locations (as described in ISO/TR 7024-1985E) when a pipeline gets choked or blocked.

DELIVERY CONDITIONS

The internal and external surfaces of pipes and fittings shall be smooth and free from grooving, blistering and any other surface defect. The materials shall not contain visible impurities or pores. Pipe ends shall be cleanly cut, and the ends of pipes and fittings shall be square with the axis of the pipe

MARKINGS

Pipes, fittings and sealing rings shall be marked clearly and indelibly so that legibility is maintained for the life of products under normal conditions of storage, weather and use.

The markings may be integral with the product or on a label. The markings shall not damage the product.

PIPES

Pipes shall be marked with at least the following information:

a. Manufacturer's name or trade mark;
b. Pipe material;
c. Nominal diameter of pipe;
d. Nominal wall thickness of pipe
e. Manufacturing information, in plain text or in code, providing tractability of the production period to within the year and month and the production site if the manufacturer is producing at several national or international sites.
f. The number of this International Standard.

Pipes with a nominal laying length up to and including z_2 meters shall be marked with at least once. Pipes with a nominal laying length greater than z_2 meters shall be marked at intervals of z_3 meters at the most. The values of z_2 and z_3 shall be as specified by the authorities in each country.

FITTINGS

Fittings shall be marked with at least the following information:

a. Manufacturer's name or trade mark;
b. Fitting material (may be given on packing only in the case of PVC, provided this information is not required on each article by national authorities);
c. Nominal diameter of fitting;
d. Classification (where applicable)
e. Values of angles, if any;
f. Manufacturing information, in plain text or in code, providing tractability of the production period to within the year and month and the production site if the manufacturer is producing at several national or international sites (may be given on packing only, provided this information is not required on each article by national authorities);
g. The number of this International Standard (may be given on packing only, provided this information is not required on each article by national authorities).

SEALING RINGS

Sealing rings shall be marked with at least the following information:

a. Manufacturer's name or trade mark;
b. Nominal diameter of ring;
c. Manufacturing information, in plain text or in code, providing traceability of the production period to within the year and month and the production site if the manufacturer is producing at several national or international sites.

6.0 TESTING AND COMMISSIONING

6.1 G.I. & PPR COLD AND HOT WATER PIPES

All water distribution system shall be tested whole or in part to 2 times the working pressure with a minimum test pressure of 100psi. The contractor shall pay for all device, materials, supplies, labor and power required for the test. The test will be run for two hours at the specified pressure and there should be no leakage in the system. Defects revealed by the test shall be repaired and the whole test rerun until the system proves to be satisfactory.

After all the pipes and fixtures have been properly laid and tested, they shall be flushed clean with water and then disinfected with water solution of chlorine of at least 50 ppm strength for a contact period of 6 hours. The system will be finally flushed with clean water.

6.2 SOIL, WASTE, VENT & RAIN WATER DRAINAGE PIPES & PIPE FITTINGS (C. I. & uPVC)

The entire system of drains, waste, and vent piping inside the building shall be tested by this Contractor under a water test. Every portion of the system shall be tested to a hydrostatic pressure equivalent to at least 3-meter head of water. After filling this Contractor shall shut off water supply and shall allow it to stand two hours, under test during which time there shall be no loss or leakage.

The Contractor shall furnish and pay for all devices, materials, supplies, labor and power required in connection with all tests. All tests shall be made in the presence of and to the satisfaction of the Engineer.
The Contractor shall also be responsible for the repair of this work & other trades work that may be damaged or disturbed by the tests. Defects disclosed by the tests repaired. Work shall be replaced with new work without extra cost to the Employer. Tests shall be repeated as directed, until all work is proven satisfactory.

All fixtures shall be tested for soundness, stability, support and satisfactory operation.

7.0 MEASUREMENT AND PAYMENT

7.1 COLD & HOT WATER PIPE

7.1.1 Measurement

Measurement for acceptably completed works of supply and installation of cold and hot water pipes shall be in running meter length.

a. In building works, no measurement shall be made for earthworks, pipe fittings, jointing, hangers, clamps, brackets, sleeves, insulation, cutting and breaking concrete and then making it good, applying protective painting, coating, cleaning, testing and disinfecting etc. and the measurement will be for the full work specified herein.

b. In external works, no measurement shall be made for pipe fittings, jointing, insulation, cutting and breaking concrete and then making it good, applying protective painting, coating, cleaning, flushing, testing and disinfecting etc. and the measurement will be for the full work specified herein. However, earthworks (excavation, backfilling, sand bedding), and thrust blocks shall be paid separately as specified in Bill of Quantities.

7.1.2 **Payment**

Payment for acceptable measured quantity will be made at the unit rate per running Foot length of cold and hot water pipes quoted in the Bill of Quantities. The amount bid shall be the full payment for completion of the work in all respects as specified herein.

7.2 uPVC and C.I. SOIL, WASTE & VENT PIPES

7.2.1 **Measurement**

Measurement for acceptably completed works of supply and installation of uPVC & C.I. pipes, will be in running Feet length and the work to be done shall include all pipe fittings, jointing, hangers, clamps, brackets, sleeves, cutting and breaking concrete and then making it good, applying protective painting, coating, cleaning and testing.

7.2.2 **Payment**

Payment will be made at the unit rate of bid per running Feet length of pipe acceptably supplied and installed. The amount bid shall be full payment for the work specified herein.

7.3 PLUMBING FIXTURES

7.3.1 **Measurement**

Measurement for plumbing fixtures will be made as per actual number acceptably installed. The Contractor's bid against these items shall include installation of complete unit as specified herein, inclusive of all work from inlet connection of water supply to outlet connection with the sanitary system, complete as per Contract Documents and/or as directed by the Engineer.

7.3.2 **Payment**

Payment for plumbing fixtures shall be made at the applicable unit price per number bid for the respective item in the Bill of Quantities. The amount bid shall be full payment for the work specified herein.

7.4 MISCELLANEOUS ITEMS

7.4.1 **Measurement**

Measurement for acceptably completed works of floor drains, roof drains, cleanouts, glass mirror, towel rail, toilet paper holder, soap

trays, mirror trays, water coolers, water heaters, etc. shall be made on the basis of actual number acceptably installed in position. The Contractor's bid against these items shall include installation complete as specified herein and/or as shown on the Drawings.

7.4.2 **Payment**

Payment for acceptably measured quantity of floor drains, roof drains, cleanouts, glass mirrors, towel rails, toilet paper holders, soap trays, mirror trays electric water coolers, water heaters, etc. shall be made at the applicable unit rate per number quoted in the Bill of Quantities. The bid amount shall be full payment for the works specified herein and as shown on the Drawings.

*** End of Section 5100 ***

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

SECTION - 5240

PUMPING MACHINERY

1.0 SCOPE

2.0 MATERIALS AND PRODUCTS

3.0 SPECIAL REQUIREMENTS OF PUMPS

4.0 POTABLE WATER BOOSTER PUMP SET

5.0 POTABLE WATER PUMP & MOTOR

6.0 SUBMERSIBLE DRAINAGE PUMP AND MOTOR

7.0 MAINTENANCE MANUALS AND TOOLS

8.0 MEASUREMENT AND PAYMENT

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

1.0 SCOPE

The work to be done under this section of the specifications includes furnishing all plant, labour, equipment, appliances and materials and in performing all operations required in connection with the installation of pumping machinery including all accessories as specified herein or shown on the Drawings or as directed by the Engineer.

2.0 MATERIALS AND PRODUCTS

Materials and machinery shall conform to the latest referenced specifications and other provisions specified herein and shall be new and unused. In case where manufacturers are specified, materials and equipment will be of the same manufacturers. In all other cases the Contractor shall submit the names and addresses of the Manufacturers and trade names of the materials and equipment that he intends to buy. Other information such as diagram, drawing and descriptive data will be supplied if so desired by the Engineer. Approval of materials and all the machinery under this provision shall not be construed as authorising any deviations from the specifications. The approval of machinery of manufacturer other than that specified will be purely on the discretion of the Engineer. The Engineer will fully ascertain the facts and satisfy himself as to the performance of the machinery offered by the Contractor.

3.0 SPECIAL REQUIREMENTS OF PUMPS

The Contractor shall furnish with each pump properly identified characteristic curves prepared and certified by the manufacturer showing capacity, head, efficiency and brake horsepower throughout the entire range of the pump.

The pumps shall have stable throttling curves and be suitable for unrestricted parallel operation.

All pumps shall be electric driven.

The pumps and their drives shall not overload or trip when operating against zero pressure.

The design, construction and materials shall be such that damage as a result of cavitation is completely eliminated.

Pumps shall have bearings and be suitable for continuous as well as intermittent operation without external sealing or cooling water. The pumps shall be such that they shall come into operation at once after a prolonged shutdown period without having to take special measures. Pumps shall be capable of delivering specified quantity of water at the specified pressure.

Pumps shall be tested at site before their final acceptance.

Pumps shall be installed at positions shown on the Drawings and/or as directed by the Engineer.

Pumps and their drives shall be in perfect alignment when installed in position.

Pump set shall be provided with reducer/enlarger if necessary on umpdischarge pipe and suction pipe.

4.0 POTABLE WATER BOOSTER PUMP SET

Skid mounted potable water booster pump set shall comprise centrifugal pump and a pressure tank provided with the following accessories:

One number PVC/polypropylene/rubber/epoxy lined steel hydro-pneumatic pressure tank of specified capacity with neoprene rubber diaphragm between the water and air sections. The tank shall be complete skid mounted boosting system with automatic motor control unit for dry run protection and auto operation system shall be provided with stainless steel piping. The unit shall be furnished ready for installation L/C flexible pipe gate valve, non return valve, pressure switch & pressure gauge and shall be ready for operation when connected to the piping & electricity supply. The tank shall be rated for a working pressure of 16 kg/cm2 and test pressure of 25kg/cm2 and shall comply with all the relevant clauses of “ASME Code for Pressure Vessel”.

Pump sleeve, intermediate chamber/guide vanes, impeller, suction inter-connector spline shaft cover plates etc. shall be of stainless steel with mechanical seal of approved material. Base plate shall be painted steel.

Pressure gauge, pressure switch gate and check valve on pump discharge pipe. Pressure switch will be adjustable between specified maximum and minimum pressure levels and shall be wired to motor control panel.

- Gate valve and check valve on pump discharge pipe.
- Gate valve, on pump suction pipe.
- Minimum run timer adjustable from 0-6 minutes.
- Low water level cut-off switch.
- Reducer/enlarger, if necessary on pump discharge and suction pipe.
- Alternator with manual over-ride.
- Alarm shall sound at low water level.

Duty of the pump shall automatically alternate between the two pumps (if available) with manual override. In failure of any of the duty pump the standby pump will automatically come into operations within 30 second.

5.0 POTABLE WATER PUMP & MOTOR

The pump will be vertical centrifugal pump of specified capacity, head and duty, totally enclosed, fan cooled, squirrel cage induction motors of specified power.

Pump material shall be as under:

Body:	Fine grained grey cast iron
Impeller:	Bronze
Shaft:	Bronze or stainless steel

Pumps shall have mechanical seal. The suction and discharge flanges shall be rated for a working pressure of 10 kg/cm2 for potable water pumps. The flanges shall be drilled to BS 19 (Table 'D' or 'E') or BS 4504.

Motors shall run on 3-phase, 400 volts + 10%, 50 c/s A/C power motors shall be

protected from low voltage, overload, overheating and phase failure.

Potable water pumps and motors shall be installed on concrete foundation with anchor bolts.

Potable water pumps will be automatically operated at pre-set levels in overhead tanks with help of level switches installed in respective overhead water tanks.

In case a pump fails to start automatically, an alarm will be automatically sounded at preset minimum water level in overhead water tank.

6.0 SUBMERSIBLE DRAINAGE PUMP & MOTOR

The pump shall consist of submersible drainage pump and motor with duckfoot bend/auto coupling, guide rails and chain etc of the specified capacity and head and shall be integral sealed unit with strainer.

Pump material shall be as under:

Casting:	Cast Iron
Impeller / Bowl:	Cast Iron
Shaft:	Stainless steel
Bearing:	Pre-lubricated bearing
Motor:	Air filled water tight

The pumps shall be installed inside the pit as shown on drawing. The discharge flange shall be threaded to BS 21 and shall be rated for working pressure of 10 kg/cm^2.

6.1 INSTALLATION

The submersible drainage/ sewage pumps shall be installed in the sump pits at the locations shown on the drawings.

6.2 PUMP ACCESSORIES

Pumps shall be provided inclusive of the following accessories:

i. Duck foot Bend, Guide rails and pulling chain etc.
ii. Pressure gauge, level switches, flow switches etc.
iii. Reducer/enlarger is necessary if the pump discharge size is different from discharge piping.

6.3 MOTOR PROTECTION

Motors of 3kw or less power shall be started direct on line. Larger motors shall be started by star-delta starter.

Motor shall be protected against under voltage over voltage, overload, over-heating and phase failure.

Motor shall be rated for normal operation against a voltage fluctuation of + 10% and frequency fluctuation of + 2Hz.

6.4 **CONTROL**

Submersible Drainage Pump

Operation of pumps shall be controlled by level switches installed inside the sump pit.

i. One pump shall be duty and one shall be standby.
ii. Pumps shall start and stop at the designated water levels inside the sump.
iii. If duty pump fail to start, the standby pump shall automatically come into operation.
iv. If standby pump fails to start, an alarm shall be sounded at high water level.

6.5 **LEVEL SWITCH**

Level switches shall be electric actuating device, which will close/open the circuit at preset lower/higher pressures. The device shall be housed in diecast aluminium casing with enamel finish. The switch shall be adjustable. The pressure switch shall be rated for a working pressure of 16 Bar. The switch shall be wired to control panel.

6.6 **WATER LEVEL INDICATOR**

The water level indicator for high and low water level cut off shall operate on 230 Volt AC, 50 Hz and supplied complete with float, float chains, counter-weights, chain clamps, steel mounting brackets, chain guide roller and any other equipment and material necessary for installation and satisfactory operation.

The level indicator shall have at least 5 switch-contacts or as required for sensing the required water levels within the specified range. The level indicator shall be suitable to match with the specific gravity of the fluid in which it is intended to be installed. All operational, constructional and installation details shall be furnished by Contractor for approval.

The Contractor may quote for non-mechanical type of water level indicator to give equivalent performance. Technical literature and data of the indicator is to be furnished along with the bid documents.

7.0 MAINTENANCE MANUALS AND TOOLS

7.1 A book or books containing the complete information in connection with the assembly, operation, lubrication, adjustment and repair of the pumping equipment, electric motor, together with detailed parts list with drawings or photographs shall be furnished in duplicate.

7.2 For the pump room, special tools necessary for maintenance and repair of the pumps and electric motors including tools kits, grease guns etc. with accessories shall be furnished.

7.3 The manufacturer's recommended list of spare parts to be stocked by the CLIENT shall be submitted by the Contractor to the Engineer for approval. Such spare parts will also be furnished by the Contractor.

7.4 All the maintenance manuals, tools, spare parts etc., shall be supplied by the Contractor at no cost of the CLIENT and all cost shall be deemed to be included by the Contractor in his bid against item of pumping set.

8.0 MEASUREMENT AND PAYMENT

8.1 Pumping Machinery

6.1.1 **Measurement**

Measurement for payment of pumping machinery pressure gauge, brass strainer, pressure switch and water level indicator shall be the actual number acceptably provided and installed in position; the Contractor's bid against these item shall include cost of providing and installing the pumping machinery including the pumps, electric motors, all accessories, manuals, tools, spare parts, etc., as shown on the Drawings, as specified herein or as directed by the Engineer.

6.1.2 **Payment**

Payment will be made for acceptable measured quantity of pumping machinery pressure gauge, brass strainer, pressure switch and water level indicator on the basis of unit rate per number quoted in the Bill of Quantities. The amount bid shall be full payment for the work specified.

*** End of Section 5240 ***

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

SECTION – 8001

GENERAL SPECIFICATIONS FOR ELECTRICAL WORKS

1.0 SCOPE OF WORK

2.0 RULES & REGULATIONS

3.0 AMBIENT CONDITIONS

4.0 STANDARDS

5.0 SYSTEM DATA

6.0 EQUIPMENT

7.0 DRAWINGS AND DATA TO BE FURNISHED BY THE CONTRACTOR

8.0 MANUFACTURER'S INSTRUCTIONS

9.0 GUARANTEE

10.0 DANGER BOARDS WITH SIGNS, DESIGNATION AND SHOCK / FIRST AID CHARTS AND FIRE FIGHTING EQUIPMENT

11.0 ASSOCIATED CIVIL WORKS

12.0 INSTALLATION INSTRUCTIONS - GENERAL

13.0 FACTORY TESTS

14.0 TESTING - GENERAL

15.0 APPENDICES TO BE FILLED IN BY THE BIDDER

16.0 PAYMENT

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

1.0 SCOPE OF WORK

The works related to the electrical system which is included in the Scope of this Contract as shown on the Drawings, stated in the Specifications and Bill of Quantities and explained in these Specifications. The works shall broadly include but not limited to the following:

- General Specifications for Electrical Works
- Power Transformer
- LT Distribution Boards
- Light Fixtures
- Low Tension Cables
- Wiring Accessories
- Conduits and Pipes
- Earthing
- Lightning Protection System
- Miscellaneous Items
- Structured Cabling Network
- Fire Alarm System
- Closed Circuit Television System
- Public Address System
- Cable Antenna TV System

The Contractor shall also be responsible to supply any other equipment not specifically mentioned in these Documents but which is necessary for proper operation of the works/system included in the scope of this Contract. The Contractor shall solely be responsible for ensuring proper functional requirements of different equipment. He shall also be responsible for furnishing any additional piece of equipment and for making modification in the equipment as desired and/or approved by the Engineer to achieve proper co-ordination with various equipment offered in the bid and also with those installed by others.

2.0 RULES & REGULATIONS

The entire electrical installation/work shall be carried out by licensed Contractor, authorised to undertake such work under the provisions of the Electricity Act 1910 and The Electricity Rules 1937 as adopted and modified upto date by the Government of Pakistan.

All works shall be carried out in accordance with the latest edition of the Regulations of the Electrical Equipment of Buildings issued by the Institute of Electrical Engineers-London, the Contract Documents, The Electricity Rules 1937 and bye-laws that are in force from time to time. Any discrepancy between these Specifications and any other rules and regulations shall be brought to the notice of Engineer for his instructions and the discussion of the accepting/controlling shall be final and conclusive.

The Contractor shall be responsible for completing all formalities and submitting

the test certificates as per prevailing rules and regulations, and shall have the installation passed by the Government Electric Inspector of that region. All requirements of the Electric Inspector and the WAPDA / DISCO shall be complied with.

3.0 AMBIENT CONDITIONS

All material and equipment supplied and installed shall be designed, manufactured and tested to meet the following ambient conditions unless specifically stated otherwise for any material/ equipment.

Maximum indoors ambient temperature	:	45-Degree Celsius
Minimum indoors ambient temperature	:	Zero Degrees Celsius
Maximum outdoors-ambient temperature	:	50-Degree Celsius
Minimum outdoors-ambient temperature	:	Zero Degrees Celsius
Maximum Relative humidity	:	100 Percent
Maximum Altitude of project	:	220 meters above the mean sea level.

The atmospheric conditions are tropical and highly humid.

4.0 STANDARDS

The latest standards and codes of reputable organisations shall be applicable for the material and equipment specified herein and for installation work. Such organisations to be BSS, VDE, NFPA 99, NEC Article 517 etc. In case the Specifications laid down herein differ from those given in the standards, then the equivalent or better specifications shall govern. Wherever applicable the equipment shall also conform to the requirements of Pakistan Standard Institution (PSI).

Contractor shall maintain at the site office one copy of the standards / codes applicable to the works.

5.0 SYSTEM DATA

Unless otherwise specified elsewhere, all equipment and material shall be designed to operate satisfactorily with the following minimum requirements without any de-rating.

a) Voltage rating of equipment :	HT :	11 kV, 3 phase, +/- 10%
	LT :	400 V, 3 phase, +/- 10%
		230 V, 1 phase, +/- 10%
b) Frequency	:	50Hz $\pm$ 2Hz

In general, the electrical colour coding of switchgear cubicles, control panels, desks etc., shall be in accordance with the respective IEC Recommendations.

Live parts of electrical connections shall be colour coded according to IEC 446 as follows:

	Conductor Designation	Coding Alphanumeric	Colour
A.C. Network	Phase 1	L 1	red
	Phase 2	L 2	yellow
	Phase 3	L 3	blue
	Neutral	N	black
D.C. Network	Positive	L+	white
	Negative	L-	black
Earthing	Protective Earth	PE	green/yellow
	Earth	E	green/yellow

The colour coding for the secondary circuits of isolated power panel board is as follows:

Orange-Isolated Phase Conductor
Brown- Isolated Neutral Conductor
Green-Isolated Ground Conductor

Conductor insulation of secondary circuits of isolated power panel board shall be XLPE and PVC sheathed.

Control Cables

The Control Cables shall be manufactured according to specifications for L.T. Cables. The Control Cables shall be of multi-core, PVC insulated type withstanding without deterioration the conditions prevailing at the place of installation. The cross section of cable shall be as per the requirement of the system.

All the cores should be numbered and/or colour coded or otherwise properly identified. At-least 20% spare cores shall be provided in all Control Cables.
No separate payment is admissible for supplying, installing, testing and commissioning of control cables and is deemed to have been included in the BOQ rates of the respective equipment.

Distance in between power, communication and control cables shall be kept as per requirements laid down by NEC800, NFPA 70 and EN50174-2.

6.0 EQUIPMENT

6.1 IP Degree of Protection

The equipment shall have IP degree of protection as follows, unless mentioned other wise:

- IP 20 for indoor areas
- IP 42 for indoor damp areas
- IP 54 for outdoor areas

If properly rated equipment is not available, the Contractor shall provide field enclosures to attain the required IP degree of protection. If necessary cooling/exhaust fans and / or anti condensate heaters shall also be provided. No separate payment shall be made to attain the required IP degree of protection.

6.2 Identification & Labelling

All devices, meters, cabling, wiring and auxiliaries shall be properly labeled for identification. Labeling of equipment shall be done by means of flameproof material using indelible ink/marking. The labeling shall be such as to ensure uniformity and shall facilitate study of control diagrams/ drawings during operation and maintenance.

All labeling shall be of suitable size to be visible from the operating conditions/positions at site.

6.3 Lamp Test Facility

All equipment / switchboards, etc. shall be provided with common lamp test facility.

7.0 DRAWINGS AND DATA TO BE FURNISHED BY THE CONTRACTOR

The shop drawings, as-built drawings and/or technical data to be furnished by the Contractor for each electrical equipment, LT cable distribution layout & shall include, but not limited to the following:

(a) Structural drawings showing foundations, RCC details dimensional plans, elevation and sections on a suitable scale.

(b) Electrical drawings showing:

- Line diagrams of Switchboards, Motor Control Centres, distribution boards and isolated power panels with detailed wiring diagrams, elevations/internal component layout and other

standard details.

- LT Cabling, Grounding/Earthing including all cable routing and support details.
- Necessary execution details such as no. of cable/wires, size of conduits, cable routes, cable trays and cable trenches, etc.
- Substation and Generator Room Equipment installation detail.
- Manhole/Duct works.

(c) Layouts of all LT cable routes with coordinates and levels.

(d) Technical literature and manufacturer's characteristic data with the description of materials and weights of all equipment as instructed by the Engineer.

At least three (3) copies of the shop drawings and/or technical data of the equipment shall be submitted to the Engineer for checking and approval.

8.0 MANUFACTURER'S INSTRUCTIONS

The Contractor shall supply to the Engineer in properly bound form six (6) copies of manufacturer's instruction manuals for installation, testing, commissioning, operation and maintenance of the specified equipment including manuals of spare parts and tools of the equipment. At least two copies of the documents shall be submitted in original. The installation instructions shall be submitted 2 weeks prior to commencement of installation of each equipment, and operation and maintenance instruction at the time of commissioning. If the Contractor fails to provide the documents the Engineer shall withhold issuance of requisite certificates and deduct suitable amount from the payments to the Contractor.

9.0 GUARANTEE

The Contractor shall furnish written guarantee of the manufacturer or supplier with respect to satisfactory performance of each equipment. Guarantee shall be given for replacement and repair of part or whole of the equipment, which may be found defective in material or workmanship. The guarantee shall cover the duration of Maintenance Period as defined in the Conditions of Contract. This guarantee shall not relieve the Contractor of his obligations and he will be fully responsible for the repair or replacement of any defective material in time, so as not to cause any undue delay in carrying out the repairs and/or replacements.

10.0 DANGER BOARDS WITH SIGNS, DESIGNATION AND SHOCK / FIRST AID CHARTS AND FIRE FIGHTING EQUIPMENT

Danger Boards having signs and designation of the room shall be installed on the external door of HT, LT, Power transformer, Low Voltage DG Set Rooms. Shock/First Aid Charts shall be installed in H.T, L.T and Low Voltage DG Set Rooms.

Potable fire fighting extinguisher suitable to control electrical fire shall be provided in H.T, L.T, Power Transformer and Low Voltage DG Set Rooms.

All the above items shall also be provided, wherever required to comply the requirements of the Pakistan Electricity Rules/Electric Inspector.

Laminated single line and adequate detail drawings on proper boards highlighting the main system features shall be displayed/ fixed in respective electrical and communication rooms.

11.0 ASSOCIATED CIVIL WORKS

Except where separately stated in the Bill of Quantities the cost of all civil works associated with any BOQ item of electrical works, such as excavation and back filling of earth, compaction of the earth, foundation pads, chiselling, making openings, etc. shall be included in the price quoted against respective items. No separate payment for such works will be made. Such works will also include repair of any damage to civil works caused by the Contractor during electrical installation.

12.0 INSTALLATION INSTRUCTIONS - GENERAL

The Contractor shall furnish all labour, materials, tools and equipment required to install, connect, test and commission all electrical equipment specified herein, whether or not such equipment is furnished by him or by others.
For all equipment to be installed by the Contractor, the Contractor shall supply and install all erection materials such as foundation bolts, washers, nuts, etc. as required and without any additional costs.

The Contractor shall set out the works himself as per Specifications and Drawings and shall properly position the equipment on specified foundation/location. In general, the manufacturer's instructions for installation shall be followed. Any defect or faulty operation of equipment due to the Contractor not following the manufacturer's instructions shall be corrected and repaired by the Contractor at his own cost.

For any deviation from the working drawings or specification that are deemed necessary by the Contractor due to site conditions, he shall submit the details and obtain the Engineer approval before starting such works.

13.0 FACTORY TESTS

All type and routine tests on Low Voltage D.G Set, Power Transformer, H.T Switchboards, LT Switchboards, Motor Control Centre, H.T Cables, LT Cables, and all other equipment shall be performed at the manufacturer's works in the presence of the Engineer or his Representative. Type tests may be waived off in case test certificates are submitted as certified by an Engineer approved standard laboratory of international repute; but merely producing the test type certificates will not relieve the manufacturer to carry out the required standard/routine tests.

The Contractor shall inform the Engineer about the date and time of test of each equipment at least two weeks in advance. This shall, however, be done after the Contractor has got the test procedures duly approved by the Engineer. The witnessing of test by the Engineer and the Employer shall not absolve the Contractor from his responsibility for the proper functioning of the equipment, and for furnishing the guarantees referred to in clause 9.0. All test results shall be supplied in quadruplicate. All expenses for carrying out the tests as incurred by the Engineer and the Employer to witness it shall be borne by the Contractor and deemed to have been included in the bid. Provision for at least two person's visit for Factory Acceptance Tests shall be made to include one representative each from the Employer and the Consultant/Engineer. The contractor shall undertake all formalities as may be required for the Engineer or his representative to enable him make the visit.

14.0 TESTING - GENERAL

14.1 Scope

Upon completion of the installation, the Contractor shall perform field tests on all equipment, materials and systems. All tests shall be conducted in the presence of the Engineer for the purpose of demonstrating equipment or system compliance with Specifications. The Contractor shall submit for Engineer's approval complete details of tests to be performed describing the procedure, test observations and expected results.

The Contractor shall furnish all tools, instruments, test equipment, materials, etc., and all qualified personnel required for the testing, setting and adjustment of all electrical equipment and material including putting the same into operation.

All tests shall be made with proper regard for the protection of the personnel and equipment and the Contractor shall be responsible for adequate protection of all personnel and equipment during such tests. The cost of any damages or rectification work due to any accident during the tests shall be the sole responsibility of Contractor.

The Contractor shall record all test values of the tests made by him on all equipment. Four (4) copies of all test data and results certified by the Engineer shall be given to the Engineer for record purposes. These shall also include details of testing method, testing equipment, diagrams, etc.

The witnessing of any tests by the Engineer does not relieve the Contractor of his guarantees for materials, equipment and workmanship, or as any other obligations of Contract.

14.2 **Low Voltage D.G. Set**

Prior to the tests, the contractor shall submit manufacturer's recommended detailed description of the test procedures to be conducted for Engineer's approval.

The Contractor shall carry out full site load and no load tests in accordance with IEC, ISO or BS Specifications for site commissioning. The inspection and tests shall include but not be limited to:

Basic Tests:	Insulation Resistance Earth Continuity Earth Loop Impedance Polarity Phase Rotation Voltage and Frequency Starting System Protection Equipment
Battery:	Nominal Voltage Discharge Voltage Specific Gravity of Electrolyte Level of Electrolyte Charging System
Lubrication:	Check as required by manufacturer
Operational Check at Start-up	Oil Pressure Fuel Oil Leaks Operation of Safety Devices Operational Speed Automatic Control Instrument Check Exhaust Check Undue Vibration
Operational Check After one hour's run:	Oil Pressure Oil Leaks Cooling System Oil Temperature

Commissioning Test:	25% of full load	2 hrs.
	50% of full load	5 hrs.
	75% of full load	8 hrs.
	100% of full load	8 hrs.
	110% of full load	1 hr.

All commissioning and test results shall be recorded and compared with design data. A retest/commissioning shall take place if results are not satisfactory. All the tools, labour, POL, required for the testing and commissioning shall be provided by the Contractor at no extra cost. If required load is not available at site for testing the generators, the Contractor shall provide dummy load at site at no extra cost to the Employer. The correct functioning of the control equipment shall also be proved.

Battery Charger

Battery charger shall be static type and shall provide for both trickle and boost charging of the batteries when the engine is not in operation. The charger shall be of suitable capacity to fully recharge the completely discharged batteries within four hours at boost charge.

Control Panel

The Control Panel shall provide all the necessary control and monitoring devices of the Diesel Generating Sets. All the control and monitoring of the safety devices, alarms, protections, meters, lamps, etc. as mentioned in this Specifications and required as per good engineering practices for such an installation shall be provided in the Control Panel.

14.3 **Transformer Tests**

In addition to the insulation resistance test of the transformer, a polarity and phase rotation test shall also be made. Buchholz relay shall be tested for proper operation. Di-electric test shall be carried out on transformer oil prior to putting the same in operation.

14.4 **HT / LT Switchboards**

Each circuit breaker shall be operated electrically and mechanically. All interlocks and control circuits shall be checked for proper connections in accordance with the wiring diagrams given by the manufacturer.
The Contractor shall properly identify the phases of all switchgear and cables for connections to give proper phase sequence.

Trip circuits shall be checked for correct operation and rating of

equipment served. The correct size and function of fuses, disconnect switches, number of interlocks, indicating lights, alarms and remote control devices shall be in accordance with approved manufacturer drawings. Nameplates shall be checked for proper designation of equipment served. Protective relays shall be tested and set at site prior to commissioning of the equipment.

14.5 Insulation Resistance Test

Insulation resistance test shall be made on all electrical equipment by using a meggar of 500 volts for circuits upto 250 volts and 1000 volt for circuits between 250 and 500 volts. For testing of 11 kV circuits, upto 5 kV meggar shall be used; the exact voltage shall be as advised by the equipment manufacturer unless otherwise advised by the Engineer.

The insulation resistance values of cables, transformer, switchgears, etc., shall be as per BSS, IEEE, NEC, ICEA and Pakistan Electricity Rules.

Before making connections at the ends of each cable run or joint between cables, the insulation resistance test of each cable section shall be made. H.T. cables shall be subjected to high voltage test as per recommendations of standard to which the cable is manufactured. Each conductor of a multi-core cable shall be tested individually with each of the other conductor of the group and also with earth. If insulation resistance test readings are found to be less than the specified minimum in any conductor, the entire cable shall be replaced and tests repeated on new cable. If cable joint is provided, then each cable section shall be tested, and joint made only after the tests have been made satisfactorily. Finally the completed cable length including the joints shall be tested.
The transformer and switchgears shall be given an insulation resistance measurement test after installation, but before any wiring is connected. Insulation tests shall be made between open contacts of circuit breakers, switches and between each phase and earth.

If the insulation resistance of the circuit under test is less than the specified value, the cause of the low reading shall be determined and removed. Corrective measures shall include dry-out procedure by means of heaters, if equipment is found to contain moisture. Where corrective measures are carried out, the insulation resistance readings shall be taken after the correction has been made and repeated twice at 12 hours interval. The maximum range for each reading in the three successive tests shall not exceed 20% of the average value. After all tests have been made, the equipment shall be reconnected as required. Polarity test shall be made on single pole switching devices.

14.6 **Earth Resistance Test**

The Contractor shall make Earth resistance tests on the Earthing system, separating and reconnecting each earth connection.

If it is indicated that soil treatment or other corrective measures are required to lower the ground resistance values, the Engineer will determine the extent of such corrective measures.

The electrical resistance of the ECC together with the resistance of the Earthing leads measured from the connection with earth electrode to any other position in the complete installation shall not exceed one ohm.

Earth resistance test shall be performed as per Electrical Inspector's requirements. Where more than one earth electrodes are installed, the earth resistance test of each electrode shall be measured by means of resistance bridge instrument.

The complete lightning protection system shall be tested for continuity and earth resistance. The combined earth resistance at any point in the lightning protection system shall not exceed 10 ohms.

14.7 **Completed Tests**

After any equipment has been tested, checked for operation, etc., and is accepted by the Engineer the Contractor shall be responsible for the proper protection of that equipment so that subsequent testing of other equipment do not cause any damage to the already tested equipment.

14.8 **Expenses**

All expenses, i.e., travelling, boarding and lodging for carrying out the tests and witnessing by the Engineer shall be borne by the Contractor and are deemed to have been included in the BOQ rates of the respective equipment(s) by the Contractor.

14.9 **Spare Parts**

Contractor shall provide spare parts as identified in relevant appendix. The cost of each spare parts shall be carried over to relevant BOQ item and no extra payment shall be admissible in this regard.

14.10 **Special Tools**

Contractor shall provide special tools as indicated in Appendix-IV and as may be deemed essential for assembly, adjustment, dismantling, installation and maintenance reasons.

No separate payment shall be made for any special tools and cost shall be deemed to be included in the cost of the Contract.

15.0 APPENDICES TO BE FILLED IN BY THE BIDDER

The details regarding equipment manufacturers, deviations, etc., are to be furnished in the appendices attached with form of Bids, in accordance with the provisions of the clause "Requirements of Electrical Works" given in the instructions to Bidder, Volume - I.

16.0 PAYMENT

No separate payment shall be made for work involved within the scope of this section unless specifically stated in the Bill of Quantities or herein.

*** End of Section 8001 ***

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

SECTION – 8132

LT SWITCHBOARDS

1.0 SCOPE OF WORK

2.0 GENERAL

3.0 APPLICABLE STANDARDS/CODES

4.0 MATERIAL

5.0 INSTALLATIONS

6.0 MEASUREMENT AND PAYMENT

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

1.0 SCOPE OF WORK

The work under this section consists of supplying, installing, testing, connecting, commissioning of all material and services of the complete LT Switchboards as specified herein and/or shown on the Bidding Drawings and given in the Bill of Quantities.

The Contractor shall discuss the electrical layout with the Engineer and coordinate at site with other services for exact route, location and position of the LT Switchboards.

The LT Switchboards shall also comply with the General Specifications for Electrical Works Section-8001 and with other relevant provisions of the Bidding Documents.

2.0 GENERAL

The LT Switchboards shall be of sheet steel fabricated, floor mounting, cubicle type, totally enclosed, dust tight and vermin proof. It shall be complete in all respect with material and accessories, factory assembled, tested and finished all according to the specifications and to the normal requirements. The IP rating of LT Switchboards shall be at least IP54.

The switchboard with all components and accessories shall be suitable for front operation only and shall:

- have a rated service short circuit breaking capacity, (Ics) at 415 V AC conforming to IEC 60947-2 as shown on the drawings.
- be provided with adequate clearance from live parts so that flashovers cannot be caused by switching, vermin, pests, etc.
- have all components rated for insulation class of 600-volt minimum.
- be designed for flush mounting of all instruments on the front side.
- have all incoming and outgoing connection from the top or bottom as required.
- have the components mounted so as to facilitate ease of maintenance from the front.
- have common lamp test facility for all lamps.
- have wiring diagram in the pocket on the inside of each door of the panel.
- be suitable for 415 volts AC, 3 phase 4 wire, 50 Hz system.

- be labeled with stainless steel nameplate on the front side of door for each incoming and outgoing circuit.

- have doors grounded by flexible copper cable/strip.

- have arrangements for extension of panel in future.

3.0 APPLICABLE STANDARDS/CODES

The latest editions of the following standards and codes shall be applicable for the materials specified within the scope of this Section:

IEC 60947-3	-	Low Voltage Switchgear and Control Gear-Switches, Disconnector, Switch-disconnector and Fuse Combination Units.
IEC 60947-2	-	Low Voltage Switchgear and Control Gear-Circuit Breakers
IEC 60831	-	Power Capacitors
IEC 60439	-	Low Voltage Switchgear and Control gear Assemblies
IEC 60073	-	Colours for indicator lights and push buttons
BS EN 60529	-	Specifications for degrees of protection provided by enclosures (IP Code).
IEC 60044-1	-	Instrument Transformers - Current Transformers
IEC 60044-2	-	Instrument Transformers – Inductive Voltage Transformers
IEC 60051-1, 2, 3, 5 & 8	-	Direct acting indicating analogue electrical measuring instruments and their accessories
BS 88	-	Cartridge fuses for voltage upto and including 1000 V a.c and 1500 V d.c

4.0 MATERIAL

4.1 Sheet Metal Work

The LT Switchboards shall be fabricated, welded, grinded, finished with angle iron framework and cladded with 14/16 SWG MS sheet. It shall be suitably divided into panels and compartments for accommodating the required number of circuit components, instruments and accessories.

The switchboard shall be supplied complete with foundation bolts and other installation materials as recommended by the manufacturer. Proper size cable clamping channels with galvanized steel clamps and brass

cable glands respectively for unarmoured and armoured cables shall be provided. All holes, cutout shall be tool or jib manufactured and free from burrs and rough edges. An earth bar of appropriate cross section shall be provided and connected to the bodies of all sections of the switchboard. Two external earth terminals shall be provided for main earth connection to the body of switchboard. The doors shall be earthed by means of flexible copper strip**.** Means shall be provided to limit the opening angle of doors to about 100^0.

The cabling inside the switchboard shall be suitably numbered and harnessed by means of straps or cords. Wiring to door mounted components shall be in flexible PVC conduit. All indicating, selecting and control equipment shall be suitably arranged and clearly labelled by means of flame proof material using indelible ink/marking indicating the rating of fuse, switches, etc. The nameplates provided on the front of panel shall be of flame retardant material preferably stainless steel. Use of plastic or any inflammable material shall not be permitted for nameplates.

All metalwork of the switchboards shall be cleaned down to bare shining metal phosphated and the surfaces chemically prepared for powder coating. Then these shall be coated with powder of colour RAL 7032 and then baked in oven. The thickness of powder coating shall not be less than 100 microns.

4.2 Components

The switchboards shall be provided with all components as specified or shown on the Drawings and as necessary for the satisfactory operation of the switchboard and of the electrical system. Typical specifications are given hereunder.

4.2.1 Bus Bars

The bus bars shall be made of 99.99% pure high conductivity electrolytic tinned copper and shall be completely isolated and mechanically braced for the specified fault level according to relevant IEC standard. The phase identification of bus bars shall be by providing colours sleeves on bus bars ends and these shall be red, yellow and blue for phase and black for neutral. The earth bus bar shall be green.

The bus bars shall be triple pole, neutral & earth and shall be of appropriate size to meet the electrical and mechanical requirements of the system. The temperature rise shall not exceed 30^0C at rated current.

Neutral bus bar shall be of the same cross section as phase bus bars. Earth bus bar shall be of half cross section area as phase bus bars.

4.2.2 Circuit Breakers

The circuit breaker shall be triple pole, current limiting type, manually operated or motor operated, spring charged type as shown on the drawings with front drive grip handle. ON-TRIP-OFF indication shall be provided on circuit breakers. The all circuit breakers shall have the following protections and setting range unless otherwise shown on the drawings:

- Adjustable three pole, manual reset thermal overload release of setting range 80 to 100% of rated current.

- Magnetic triple pole short circuit release having range according to manufacturer's standard range.

The incoming circuit breakers of main LT panel (normal and emergency) shall be air circuit breakers whereas outgoing circuit breakers shall be moulded case type, unless stated otherwise on the drawings.

The incoming circuit breaker shall have two numbers normally open and two numbers normally closed auxiliary contacts rated for 2 Amp, 230 VAC. The incoming circuit breaker shall also have ON-TRIP-OFF indicating lamps. Where shown on the drawings indication lamps shall also be provided for outgoing circuit breakers. The circuit breaker shall have specified rupturing capacity without the use of back-up fuses. Auxiliary release and trip coils shall be provided for desired operation and/or interlockings as stated on the drawings.

The motor operated, spring charged type circuit breakers shall be provided with anti-pumping circuit to prevent repeating cycle of TRIP reset and ON even if the close command is given while the circuit breaker has tripped due to fault.

4.2.3 Switch - Fuse Units

The switch-fuse unit shall comprise a triple pole on load isolating switch with HRC fuses. The fuse shall be supplied complete with the fuse base and shall conform to BS-88 Class Q1 with a fusing factor of 1.5.

4.2.4 Ammeters and Voltmeters

All meters shall be flush mounting, moving iron, spring controlled. The front dimensions shall be 96 x 96 mm for meters.

The meters shall be of accuracy class 1.5 according to relevant IEC standard. The ammeter shall be suitable for connection to 5 Amps secondary of current transformers or directly through shunt as shown on drawings. The ammeters and voltmeters shall have measuring range as indicated on the drawings.

4.2.5 Current Transformers

Air-cooled, ring type current transformers shall be provided having transformation ratio as indicated on the drawings. The current transformers shall be of suitable burden having accuracy class 1.0 according to relevant IEC standard. The current transformers shall have 5 amps secondary.

4.2.6 Selector Switches

Ammeter and voltmeter selector switches shall be complete with front plate and grip handle. R-Y-B and OFF position for ammeters and RY-YB-BR-RN-YN-BN and OFF position for voltmeters shall be marked on the respective selector switches.

The selector switches for controls shall be rotary cam type, having required number of positions. It shall be provided complete with knob and front plate showing all positions as required.

4.2.7 Air Break Contactors

The contactors shall be air break, triple pole 400 VAC type and suitable for the AC3 type of duty to be performed. The main contacts shall be silver tipped, butt type with double break per pole. Each contactor shall be provided with single phase 230 VAC operating coil and minimum one spare normally open and one normally closed auxiliary contact. The number of working auxiliary contacts shall be provided according to the system requirements.

4.2.8 Push Buttons

The push buttons shall be illuminating momentary make/break contact type (normally open/normally close) and suitable for flush mounting. The push button for on and off switching shall be red and green respectively.

4.2.9 HRC Fuses

HRC fuses shall be provided complete with fuse bases, fuse etc. The fuses shall have a fusing factor as specified for class Q1 in accordance with BS 88.

4.2.10 Indicating Lamps

Indicating lamps shall be suitable for flush mounting, complete with base, 230 volt AC incandescent lamp and shall have rosettes of suitable colour.

4.2.11 Line up Terminals

Line up terminals wherever provided for control and power circuits shall be suitable for voltage and size of conductors as indicated on drawing.

The line-up terminals for controls shall be suitable for channel mounting. All necessary accessories such as end plates, fixing clips, transparent label holder caps and label sheets with marking shall be provided.

4.2.12 Power Factor Improvement Plant

The power factor improvement plant shall be used for improving the power factor of the system on 415 Volts side. The plant shall be automatic-cum-manual.

The power factor improvement plant shall be aligned with the Main LT Switchboard. The control panel for the plant shall be a part of Main LT Switchboard, whereas the power factor correction capacitors shall be mounted in a separate ventilated panel. The capacitors shall be suitable for three phase, 440/415 volts, 50 Hz system and shall be self cooled, designed for indoor use in tropical climate for maximum ambient temperature as specified in section - 8001, General Specifications for Electrical Works. The capacitors shall be in the form of banks divided for required stages. Each capacitor bank unit shall be of kVar capacity as shown on drawings. Each capacitor unit shall be complete with discharge resistors and internal fuses and shall be connected with control panel with proper size of single core PVC insulated cables.

The control panel of the plant with all accessories shall be installed within LT Switchboard. The panel shall be supplied complete with a set of 3-phase, full capacity, insulated copper busbars, interconnections, risers, designation labels, cable

sockets, holdings down bolts, wiring with cleats and ferrules, earthing sockets and studs, etc. The control panel shall at least accommodate, but not limited to the following:

- 1 No. Multi-stage power factor correction relay for automatic/manual control.

- 1 No. 3-phase, 4 wire, 415 volts, unbalanced load power factor indicator.

- 1 No. Current transformer with 5 amps secondary current, having suitable output burden and accuracy.

- 3 Nos. Instrument potential fuses.

Following equipment shall be provided for every capacitor bank:

- 1 No. triple pole 415 volts air break contactor with auxiliary contacts (125/63/40 amps for 50/25/12.5 kV Air bank respectively).

- 1 Set 3 Nos. HRC back-up fuses with base and carrier having the fuse factor as required for capacitors in accordance with BS- 88 (125/63/40 amps for 50/25/12.5 kVA bank respectively).

- 1 No. Auto-Off-Manual selector switch.

- 1 No. Red lamp for 'ON' indication of the contactor.

The cost of control panel and power factor connection capacitors panel shall deemed to be included in relevant BOQ item for LT Switchboard and no extra payment shall be admissible in this regard.

5.0 INSTALLATION

The LT Switchboards shall be installed at location shown on the drawing or as advise by the Engineer. The concrete pedestal shall be constructed as per relevant specifications for civil works. The Contractor shall be responsible to ensure co-ordination with the civil works for providing any openings, holes, etc., to avoid any breakage to completed works. In case the provisions in civil works for installation of electrical equipment are not made or made incorrect the same shall be rectified by the Contractor at his own cost and to the satisfaction of Engineer.

The Contractor shall provide foundation bolts and grout them in cement concrete floor using non-shrinkable material with the approval of Engineer.

All installation materials for physically erecting the switchboard, such as bolts, nuts, washers, supporting steel, etc., shall be provided and installed by the Contractor. The switchboard shall be installed upright and in level and shall be firmly and rigidly bolted to the floor and concrete supports.

The switchboard shall be completely erected as per manufacturer's instructions and as approved by the Engineer. Loose parts dispatched by the manufacturer shall be installed and connected as per assembly drawing provided by the manufacturer. Any safety locking of meter, relays, etc., provided by the manufacturer for safe transport shall be released only after the switchboard is erected in position. The incoming and outgoing cables shall be connected as recommended by cable manufacturer. The cable armour shall be connected effectively to ground.

The switchboard body shall be connected to earth as per instructions given in section "Earthing" of these Specifications. The switchboard shall be tested and commissioned in the presence of the Engineer.

The LT Switchboards shall be tested before energizing as per instructions contained in article "Testing" of General Specifications for Electrical Works, Section-8001 of these Specifications.

6.0 MEASUREMENT AND PAYMENT

6.1 General

The Contractor's bid amount against Bill of Quantities item as given below shall include design, fabrication, supply, installation, testing, commissioning and completion for all works specified herein and as shown on the Bidding Drawings related to the item.

6.2 LT Switchboards

6.2.1 Measurement:

Measurement shall be made for the number of each LT Switchboards given in BOQ acceptably supplied and installed by the Contractor as a complete job.

6.2.2 Payment:

Payment shall be made for the total number of each type of job measured, as provided above, at the Contract unit price each and shall constitute full compensation for design, fabricating, supplying, installing, connecting, testing and commissioning of the LT Switchboards as per single line diagram shown on the drawing including Power Factor Improvement Plant (including complete control panel and power factor connection capacitor’s

panel), all erecting material such as foundations bolts, supporting steel channels, nuts, washers, cable glands etc., complete with foundation and all related Civil works.

*** End of Section 8132***

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

SECTION – 8133

LT DISTRIBUTION BOARDS

1.0 SCOPE OF WORK

2.0 GENERAL

3.0 APPLICABLE STANDARDS/CODES

4.0 MATERIAL

5.0 INSTALLATIONS

6.0 MEASUREMENT AND PAYMENT

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

1.0 SCOPE OF WORK

The work under this section consists of supplying, installing, testing, and commissioning of all material and services of the complete Low Tension (LT) Distribution Boards as specified herein and/or shown on the Bidding Drawings and stated in the Bill of Quantities.

The Contractor shall discuss the electrical layout with the Engineer and co-ordinate at site with other services for exact location and position of the each L.T. Distribution Board.

The Low Tension Distribution Board with accessories shall also comply with the General Specifications for Electrical Works, Section - 8001 and with other relevant provisions of the Bidding Document.

2.0 GENERAL

The Low Tension Distribution Board (DB) shall be sheet steel fabricated suitable for surface/recessed mounting on wall or floor standing totally enclosed, dust tight and vermin proof. It shall be complete in all respect with material and accessories, factory assembled and finished according to the Specifications and to the normal requirements. The LT Distribution Board shall have protection class IP-20 for indoor installation, class IP-42 for indoor damp areas and class IP-54 for outdoor area.

The Low Tension Distribution Board shall be front operation type and shall:

- have a rated service short circuit breaking capacity (Ics), conforming to IEC 60947-2 and as shown on the drawings.
- be provided with adequate clearance from live parts so that the flashovers can not be caused by switching, vermin, pests etc.
- be suitable for 400 Volts, 3 phase 4 wire, 50 Hz system.
- be designed for flush mounting of all instruments on the front side.
- have incoming and outgoing cable termination arrangement, terminal block/line up terminals.
- be provided with stainless steel name plate on the front side of door.
- have all incoming and outgoing connections from top or bottom as per requirement of site conditions.
- have door grounded by flexible copper strip/cable.
- have wiring diagram in the pocket inside the door of Distribution Board

3.0 APPLICABLE STANDARDS/CODES

The latest editions of the following standards and codes shall be applicable for the materials specified within the scope for this section:

IEC 60051	-	Direct setting electrical measuring instruments
IEC 60073	-	Colours for indicator lights and push buttons
IEC 60947-2	-	Low voltage switchgear and control gear
IEC 60439	-	Low Voltage Switchgear and Control gear Assemblies.
BS 4752	-	Circuit Breaker
BS 3871	-	Miniature & Moulded Case Circuit Breakers
BS 88	-	HRC fuses
BS 89/90	-	Ammeters and Voltmeters
BS 3938	-	Low voltage current transformers
BS 1432	-	Bus Bars

4.0 MATERIAL

4.1 Sheet Metal Work

The Low Tension Distribution Board (DB) shall be fabricated with 16 SWG/14SWG sheet steel recess / surface mounting as approved by the Engineer. All the components shall be installed on a common component mounting plate inside the enclosure and protected from the front with screwed sheet steel front plate. The enclosure shall be provided with rubber gasketting and a lockable hinged door with cam fastener.

The distribution board shall be supplied complete with all installation materials as recommended by the manufacturer. The incoming and outgoing cable connections shall be according to the wiring requirements. If required, an adapter box for accommodating the cables and conduits may be provided. The box shall be of the same material and finish as the DB. All holes, cut-out etc. shall be tool and free from burrs and rough edges.

The cabling inside the DB shall be suitably harnessed by means of straps or cords. Colour sleeves shall be provided on each cable lugs connected to the bus bars, circuit breakers or terminals for phase identification. An

earth bar shall be provided for connection of incoming and outgoing earth conductors. The earth bar shall be permanently connected to the body of DB at two points. Flexible copper strip shall be provided for earthing of the door of DB.

Circuit numbers/ designation on all circuits shall be conspicuously marked to facilitate connection and maintenance.

All metal work of the DB shall be cleaned down to bare shining metal phosphated and the surfaces chemically prepared for powder coating. Then these shall be coated with powder of colour RAL 7032 and then baked in oven. The thickness of powder coating shall not be less than 120 microns.

4.2 Components

The Low Tension Distribution Boards (DB) shall be provided with components as specified, as shown on the Bidding Drawings and required for the satisfactory operation of the distribution board and of the electrical system.

Typical component specifications are given below:

4.2.1 Bus Bars

The Bus bars shall be made of 99.99% pure high conductivity electrolytic tinned copper and shall be completely isolated and mechanically braced for the specified fault level. The identification of bus bars shall be by providing colours sleeves on bus bar ends and these shall be red, yellow and blue for phases and black for neutral. The earth bus bar shall be green.

The bus bars shall be for three phase, neutral and earth and shall be of appropriate size to meet the electrical and mechanical requirements of the system. The temperature rise shall not exceed 30ºC at rated current.

4.2.2 Moulded Case Circuit Breaker (MCCB)

The MCCBs shall be moulded case triple pole 440 Volts or single/double pole 250 Volts of current ratings as shown on the drawings. These shall have fixed magnetic short circuit and adjustable/fixed thermal overload protection.

Under voltage and shunt trip etc. shall also be provided when so required for safe operation and interlock.

The MCCBs shall be installed such that their switching levers are

accessible through the front plate for operation.

The single and triple pole MCCBs shall have short circuit rupturing capacity suitable for the distribution system as approved by the Engineer or as shown on the drawings. The MCCBs shall be suitable for working on lighting and power circuits.

4.2.3 Ammeters and Voltmeters

All meters shall be flush mounting, moving iron, spring controlled. The front dimensions shall be 96 x 96 mm for meters.

The meters shall be of accuracy class 1.5 according to BS-89 and 90. The ammeter shall be suitable for connection to 5 Amps secondary of current transformers or directly through shunt as shown on drawings. The ammeters and voltmeters shall have measuring range as indicated on the drawings.

4.2.4 Current Transformers

Air cooled, ring type current transformers shall be provided having transformation ratio as indicated on the drawings. The current transformers shall be of suitable burden having accuracy class 1.0 according to BS 3938. The current transformers shall have 5 amps secondary.

4.2.5 Selector Switches

The ammeter and voltmeter selector switches shall be complete with front plate, grip handle, R-Y-B and OFF position for ammeters, and RY-YB-BR-RN-YN-BN and OFF position for voltmeters shall be marked on the respective selector switches.

4.2.6 Air Break Contactors

The contactors shall be air break, triple pole 400 VAC type and suitable for the type of duty (at least utilization Category AC3) to be performed. The main contacts shall be silver tipped, butt type with double break per pole. Each contactor shall be provided with single phase 230 VAC operating coil and minimum one spare normally open and one normally closed auxiliary contact. The number of working auxiliary contacts shall be provided according to the system requirements.

4.2.7 Push Buttons

The push buttons shall be illuminated, momentary make/break

contact type or latch type (push-on/push-off) as required and approved by the Engineer and suitable for flush mounting. The push button for ON and OFF switching shall be red and green respectively. They shall be provided as shown on the drawing.

4.2.8 Indicating Lamps

Indicating lamps shall be LED type suitable for flush mounting, complete with base. They shall be suitable for operation on 230 V AC and it shall have rosettes of suitable colours as approved by the Engineer. These shall be provided for R, Y, B phases on each distribution board.

4.2.9 Impulse Relay

Impulse Relay shall be 1 or 2 pole, 250 V rated and be provided with latching mechanism.

4.2.10 Line up Terminals

Line up terminals wherever provided for control or power circuits shall be suitable for voltage and size of conductors as indicated on drawing.

The line-up terminals for controls shall be suitable for channel mounting. All necessary accessories such as end plates, fixing clips, transparent label holder caps and label sheets with marking shall be provided.

5.0 INSTALLATION

The location of low tension distribution boards (DB) are shown diagramatically on the drawings. The actual location shall be determined at site, keeping in view the site conditions and in co-ordination with other equipment, as approved by the Engineer.

Low tension distribution board for recessed mounting in wall shall be installed such that the door shall finish flush with the surface of wall. The recess mounted distribution board shall be installed before the plastering of walls. The DB shall be protected to avoid any damage due to the civil work. Any cuttings, dismantling of the existing wall required for fixing the DB shall be coordinated at site with the approval of Engineer. Any damage done to civil structure shall be made good by the Contractor.

All loose parts dispatched separately with the DB shall be installed as per manufacturer instructions and all adjustments or setting shall be made as required. All screws, nuts and bolts used for fixing the distribution board shall be

galvanized.

The distribution boards' installation shall include connecting all incoming and outgoing cables. The cable entry in the boards shall be provided from top or bottom as required and/or as approved by the Engineer.

The distribution boards shall be tested as per instructions contained in article "Testing" of General Specifications for Electrical Works, Section-8001 of these Specifications.

6.0 MEASUREMENT AND PAYMENT

6.1 General

The Contractor's bid amount against each item of Bill of Quantities as given below shall include design, fabrication, supply, installation, testing, commissioning and completion for all works specified herein and/or as shown on the Bidding Drawings related to the item.

6.2 LT Distribution Boards (DBs)

6.2.1 Measurement:

Measurement shall be made for the number of each LT Distribution Board acceptably supplied and installed by the Contractor as a complete job.

6.2.2 Payment:

Payment shall be made for the number of jobs measured, as provided above, at the Contract unit price each and shall constitute full compensation for design, fabricating, supplying, installing, connecting, testing and commissioning of the LT Distribution Boards, including fixing arrangement, adapter box and other components/accessories for complete installation.

*** End of Section 8133 ***

SECTION – 8150

LIGHT FIXTURES

1.0 SCOPE OF WORK

2.0 GENERAL

3.0 APPLICABLE STANDARDS/CODES

4.0 MATERIAL

5.0 INSTALLATIONS

6.0 MEASUREMENT AND PAYMENT

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

1.0 SCOPE OF WORK

The work under this section consists of supplying, installing, testing and commissioning of all material and accessories of the complete Light fixtures as specified herein and/or shown on the Tender drawings and given in the Bill of Quantities.

The Contractor shall discuss the electrical layout with the Engineer and co-ordinate at Site with other services for exact locations and positions of the light fixtures.

The lighting fixtures with accessories shall also comply with the General Specifications for Electrical Works, Section-8001 and with other relevant provisions of the Tender Document.

2.0 GENERAL

The description of light fixtures is given in the bill of quantities, and stated on the drawings, and all relevant material is described in this Section. The determination of quality is based on certified photo-metric data covering the coefficient of utilisation, light distribution curves, construction material, shape, finish, operation, etc.

The Contractor shall submit at least two samples of each and every light fixture specified and obtain approval of the Engineer before purchasing. The quality and finishes of the local make light fixtures (if mentioned in BOQ) shall be same as that of standard manufacturer. The accessories such as ballast, LED drivers, lamps, ignitors, etc., for all type of light fixtures shall be of make as stated in list of approved manufacturers. Approved equivalent against those specified will be accepted if the specified one is/will not be available. For any substitution the Engineer's approval is necessary.

All fixtures shall be finished in standard colour schemes as mentioned in the manufacturer's catalogue for respective fixtures, unless specifically stated in the Specifications, Drawings or Bill of Quantities or directed by the Engineer.

3.0 APPLICABLE STANDARDS/CODES

The latest editions of the following standards/codes shall be applicable to the material specified within the scope of this section:

IEC 60598-2-1-		Particular requirement- Fixed general purpose luminaire
IEC 60598-2-2-		Electrical Insulation Class I
IEC 62471	-	Photo biological Safety of lamps and lamps system
IEC 62031	-	LED modules for general lighting – Safety specifications

IESNA LM80	-	Testing report for LED Chips with TM21 extrapolation graph
IEC 61048 & 61049	-	Capacitors for use in TL, HP mercury and LP sodium vapour discharge lamp circuits.
IEC 60598 & BS EN 60598	-	Luminaires
BS 2560	-	Exit Signs
ISO 7010	-	Signs for the purposes of accident prevention, Fire protection, health hazard information and Emergency evacuation.

4.0 MATERIAL

4.1 LED Essential/Waterproof Batten Light Fixture:

The Contractor shall furnish and install the complete LED Batten luminaires replacement for complete single conventional 1x18W TL-D/1x36W TL-D & double 2x36W TL-D fluorescent batten. The batten light fixtures shall be of proper rating as shown on the drawings. The LED batten light fixture shall be 1200mm long for 36/28watts and 600mm long for 14watts respectively as specified.

The luminaire shall be cool white, with colour rendering and light colour of 840 characteristics. The luminaire shall have such distribution to achieve general lighting application parameters. The luminaire shall use high efficiency diffuser to achieve at least 50% energy savings compared to conventional fluorescent and waterproof light fixture. The luminaire shall offer a composite system efficiency of at least 100 Lumen/Watt for Essential LED batten and at least 100 Lumen/Watt for Waterproof LED batten having an average lumen package of up to:

3800 lumens (±5%) in 36W replacement for 2x36W waterproof TL-D Batten
2700 lumens (±5%) in 28W replacement for 2x36W fluorescent TL-D Batten
1350 lumens (±5%) in 14W replacement for 1x36W fluorescent TL-D Batten

The LED luminaire shall be designed for lumen maintenance of L70 or 70% at the end of useful life at ambient temperature of 25 deg. C. The complete luminaire shall have a useful life of 40,000 burning hours. The luminaire shall be suitable for ambient temperature range of between -20 to +40 degrees Celsius. Third party IEC 60598 Test Report shall be

measured/corrected for Ta = 25 degrees Celsius. The luminaire including the driver will include a warranty of at least 3 years against manufacturing defects.

The housing of Essential LED Batten light fixture will include integrated heat sink and optical system. The housing will be made of galvanized sheet having white Powder coated & suitable for indoor & semi-indoor environment. The optical cover made up of Polycarbonate with UV Protected Shielding cover. The fixing mechanism will be through clip made of Stainless steel. Appropriate size bushed wire entry holes, fixing holes, and earth terminal shall be provided. The driver shall be integrated within the luminaire.

The housing of Waterproof LED Batten light fixture will be made of Polycarbonate & extrusion process & suitable for outdoor environment. The optical cover made up of Polycarbonate with UV Protected Shielding cover. The product shall be protected against harsh industry environments IP65 rating for dust & water protection. The luminaire shall have no harmful effect against water projected from any direction. The luminaire shall have impact protection classified as IK07 operating temperature. The driver shall be integrated with the luminaire in a separate gear compartment with similar Index protection.

The internal wiring of LED batten light fixtures shall be done with heat resistant wires at the manufacturer's factory. The internal wiring shall be clipped properly and heat resistant sleeves be provided on cables passing near driver. Connectors suitable for connecting 2.5 sq.mm cable conductors shall be provided for supply connections. An earth terminal for connection to 2.5-sq.mm cable conductor shall be provided.

The light fixtures shall be furnished with Perspex diffusing panels "040 opal acrylic" (minimum sheet thickness 3mm) etc. as specified on the drawings or in BOQ. The luminaire shall have provision of both surface, Suspended mounting with dimension compatible to conventional florescent fixture. Mounting Clips for installation must be available.

IP degree of Protection shall comply with the requirements laid down in Section 8001. Standard luminaries with manufacturer’s recommended modifications, such as additional gasket, etc., shall be provided to attain required protection level.

4.2 **LED Smart Panel Light Fixture:**

The Contractor shall furnish and install the complete LED Panel luminaires as replacement for complete double conventional 2x36W TL-D fluorescent light fixture. The Smart Panel shall be of proper rating as shown on the drawings. The LED Panel shall have dimensions of 297 x 1197 x 75mm/595 x 595 x 75mm for 36 watts respectively as specified.

The luminaire shall be cool white, with colour rendering and light colour of 840 characteristics. The LED shall have a colour consistency preferably within 5 SDCM (standard deviation of colour matching) as defined by McAdam. The colour temperature variation should be restricted as per ANSI C78.377A with CCT variation limiting within 500K for nominal CCT of 4000K / 6500K.

The luminaire shall offer a composite system efficiency of at least 110 Lumen/Watt and a lumen package of up to 3,800 lumens (±5%) in 36W replacement for 2x36W conventional TL-D fluorescent fixture. The luminaire shall use high efficiency diffuser and reflector to achieve at least 50% energy savings compared to conventional fluorescent light fixture.

The system should be designed for fully office lighting & possess higher uniformity to have a smooth white light of high colour consistency & high system efficiency. For the better UGR control one, the luminaire optics should fully comply with lighting norms with UGR value (Unified Glare Rating) < 25. The beam angle of the optic should be around 140º.

The LED luminaire shall be designed for lumen maintenance of L70 or 70% at the end of useful life at ambient temperature of 25 deg. C. The complete luminaire shall have a useful life of 50,000 burning hours. The luminaire shall be suitable for ambient temperature range of between -20 to +40 degrees Celsius. Third party IEC60598 Test Report shall be measured/corrected for Ta = 25 degrees Celsius. The luminaire including the driver will include a warranty of at least 3 years against manufacturing defects.

The housing will include integrated heat sink and optical system. The housing will be made of electrogalvanized cold rolled steel sheet, pre-treated, painted and stove enamelled in white colour & the fixture will be provided with a plastic cover that is aesthetical for the environment. The heat sink will design in such way to create better air-flow for better heat transfer. The light cover is made up of PMMA optics lens with PS diffuser & a suitable reflector for the best uniformity. Appropriate size bushed wire entry holes, fixing holes, and earth terminal shall be provided. The driver shall be integrated within the luminaire.

The internal wiring of LED batten light fixtures shall be done with heat resistant wires at the manufacturer's factory. The internal wiring shall be clipped properly and heat resistant sleeves be provided on cables passing near driver. Connectors suitable for connecting 2.5 sq.mm cable conductors shall be provided for supply connections. An earth terminal for connection to 2.5-sq.mm cable conductor shall be provided.

The luminaire shall have provision of recessed, surface or suspended mounting etc. as specified on the drawings or in BOQ with dimension

compatible to conventional florescent fixture. Mounting Clips for installation must be available. Shop drawings shall be submitted by contractor for approval of Engineer.

4.3 LED Down Light Fixtures

The Contractor shall furnish and install the surface mounted LED Downlight luminaires as replacement for single 1x18W or double conventional 2x18W PL-C incandescent/ compact fluorescent light fixture. The LED downlights shall be of proper rating as shown on the drawings. The LED Downlights shall have dimensions of 122/167/218mm dia. for 7/11.5/16 watts respectively as specified.

The luminaire shall be cool white, with colour rendering index greater than 80 and light colour of 840 characteristics. The Downlighter must be provided with a polycarbonate diffuser having high haze and light transmission for uniform light output. The beam angle must be in the ranges in between 95 to 100 degrees for better illumination.

The LED downlights shall have minimum system efficacy of at least 100 lm/W with 55% energy-saving as compared with conventional compact fluorescent lamp downlight fixtures and shall have a useful life of 50,000 burning hours for 70% lumen maintenance at the end of useful life at ambient temperature of 25 deg. C.

The downlighter shall have high reflectance white painted polycarbonate front element or High purity aluminium with high reflectance coated reflector along with tempered glass on the front cover. The housing will include integrated heat sink and optical system. The heat sink made with Die Cast Aluminum should be design in such way to create better air-flow for better heat transfer as furnished by the manufacturer or as specified in the drawings or BOQ. The fixing mechanism of recessed down light will be through spring fasteners.

Where surface mounted downlights are used, the housing will be made of Plastic and enclosed in white powder coated die-cast aluminium body for surface mounting installation. The body shall have fins as heat sink.

The types of fixtures with manufacturer’s catalogue reference are given on the fixture schedule and in bill of quantities. Equivalent fixture may be acceptable provided that the contractor submits for review all necessary data indicating photometric curves to show that the fixture proposed are of the same type, construction and quality.

4.4 Compact Fluorescent Light Fixtures

The compact fluorescent light fixtures shall be as stated on drawings and bill of quantities. The light fixture shall be finished in standard colours

unless otherwise stated on drawings or directed by Engineer. All compact fluorescent light fixtures shall be of international standard and quality.

The lamps for compact fluorescent light fixtures shall be CFL type with normal or electronic control gear and shall be supplied and installed according to the wattage/type as indicated on drawings.

Weatherproof bulkhead incandescent/compact fluorescent light fixture shall comprise of plastic body and gasketted clear glass cover secured to the body by means of wing nuts/screws to give a weatherproof and watertight fit. The gasket shall be weather resistance type. The lamp holder shall be of bi-pin brass having porcelain outer ring or 2/4-pin base for compact fluorescent lamps with normal control gear as per requirements.

The glass shade of the light fixtures shall be opal white or clear as furnished by the manufacturer with the light fixture unless specified and free from any air bubbles or voids. The shade may be spherical, cylindrical, flattened bottom or any other shape as specified in the drawings or BOQ.

4.5 Exit Sign – Emergency Light Fixture

The exit sign emergency light fixture shall be maintained type with self contained, polycarbonate body, Gear Type and sealed nickel metal hydride batteries providing a backup of at least 3 hours if not mentioned otherwise elsewhere. The light fixture shall have steel body powder coated in perma white finish, complete with screen printed acrylic legend panel. 2 X High Power 1W LED lamp and give 20 m route space. Legend panel shall be bottom entry for case of installation near walls. The legend pictogram shall be green colour and as approved by the Engineer.

4.6 LED Flood Light Fixture

The Contractor shall furnish and install the complete Boundary Wall luminaires maintaining avg. 30 lux for existing outdoor mixed traffic area, fully IP 66 with corrosion resistant die cast aluminum housing, silicon gas kit, thermally hardened glass complete with LED drivers, surge protection and all accessories/ components required for the proper operation of the system. The luminaries shall be fully flexible for future upgrades and easy replacements for maintenance purposes.

The luminaire shall have such distribution to achieve flood lighting application parameters. The luminaire shall offer a composite system efficiency of at least 100 Lumen/Watt and a lumen package of up to 13,000 for 120W+/-5W. The light fixture has three different optical beam angles Symmetric Wide Beam & Asymmetric Medium Beam & Narrow Beam optics according to application.

The LED light fixture should be designed for lumen maintenance of L70 or 70% at the end of useful life at ambient temperature of 45 ºC and shall be capable to operate efficiently within the temperature limit of -40 ºC to 50 ºC. The complete light fixture should have useful life of 50,000 burning hours.

4.7 High Pressure Sodium Lamp

The high-pressure sodium SON-T plus lamp shall be of increased output tubular of rating 70 Watt and 400 watt as shown on the drawings. The base of the lamp shall be E40 with 6600 and 55,000 lumens output for 70 Watt and 400 Watt lamps respectively. The colour-rendering index Ra shall be 23. These lamps shall comply with EN60662.

4.8 Ballast for High Pressure Sodium Lamps

The ballast for high pressure Sodium lamps shall be polyester resin filled, totally encapsulated electromagnetic of copper / iron construction with leak proof body for use in combination with an external ignitor. The ballast shall fully comply with international Standards on Safety and performance, design compliance to IEC 60922/60923. The ballast shall be suitable for application in luminaries or poles under normal humid conditions. The ballast shall conform to the characteristics and wattage of the lamps. The wattage of lamp and ballast and a wiring diagram and other relevant data shall be printed on the body of the ballast. The power loss of the ballast shall not be more than 13.5-Watts for 70-Watts lamp and 28-Watts for 400-Watts lamp. The ballast shall be provided with insulated block of terminals for connecting up to 6 sq.mm cable with separate earth terminal.

4.9 Electronic Ignitors for High Pressure Sodium Lamps

The electronic ignitors for high-pressure sodium lamps shall be compact and light in weight with reliable and smooth starting behaviour. The ignitors shall be suitable for specified wattage of high-pressure sodium lamps and other requirements. The ignitors shall fully comply with IEC 60662 and EN 60926 regulations. The ignitors shall be provided with screw terminal / blocks and simple stud or screw mounting arrangement.

4.10 Capacitors for High Pressure Sodium Lamps

The capacitors for use in combination with high-pressure sodium lamp circuits shall be high-quality electrolytic capacitors for correction of power factor. The capacitors shall be of appropriate rating and type for the relevant lamp wattage. All capacitors shall be fitted with an internal discharge resistor, have a fuse fitted and be of self-healing type. Capacitor shall conform to IEC 61048/61049.

4.11 Flood Light Lanterns

The flood light lanterns shall have lamps of ratings specified in BOQ/ Drawings and shall be fully equipped with high grade reflector, corrosion proof housing with integral gear box, (Double insulation Class-II), compensated electrical control gear etc. complete with all internal wiring.

The flood light lanterns shall have non-corrosive, injection moulded, heat and UV-stabilized body, hammered aluminium reflector brightened and anodised, thermally – hardened 5 mm minimum glass, stainless steel snap-on hinged-clips, stainless steel protractor, hot dipped galvanized steel mounting brackets and stainless steel fixing accessories.

The housing shall be dust proof and jet proof to IP66, such that no internal cleaning shall be required.

4.12 LED Street Light Fixture

The road light fixture shall be an attractive modern appearance, high performance lantern suitable for 90W or 200W LED lamp as given in the BOQ/drawing.

Light fixture shall be provided with solid die cast aluminium housing, heat resistant silicon rubber gasket in optical LED compartment, DME type optic, tampered glass cover and shall be coated with powder of colour RAL 7040 ensuring no discoloration when exposed to UV light.

The light fixture shall be designed to receive power either from the battery or from the AC source. The light fixture shall have the following characteristics:

Voltage	=	220-240 VAC
Surge Protector	=	10 kV
Power Factor	>	0.9 (nominal power)

The light fixture shall have IP 66 protection to ensure long reliable performance and minimize maintenance requirement and an Impact resistance of IK 08 with insulation Class I. Use of chemical glue shall NOT be allowed to avoid probable breakdown of water-proof and dust-proof seal.

The light fixture should have a minimum color rendering index (Ra) of 70 + 5 and a color temperature of 4000K for maximum efficacy with an average output of at least 10,000 lumens for 90 Watt and 22,000 lumens for 200 Watt LED Fixture. The LED should have a color consistency within 5 SDCM (Standard Deviation of Color Matching). The color temperature variation of the LEDs should be restricted as per ANSI

C78.377A with CCT variation limiting within 500K for nominal CCT of 4000K.

The LED light fixture should be designed for lumen maintenance of L70 or 70% at the end of useful life at ambient temperature of 45 ºC and shall be capable to operate efficiently within the temperature limit of -40 ºC to 55 ºC. The complete light fixture should have useful life of 50,000 burning hours.

The light fixture shall be fully compatible with future LED upgrades when they become available. It shall have a modular design to upgrade / replace with new LED modules or LED drivers at site conveniently with minimum effort. All electronic components/drivers shall be mounted on a separate removable gear tray. Light fixture housing shall have a tool less access by opening the cover.

The proposed LED road lighting light fixture shall be provided with in-built surge protection system to protect the electronic driver and LED system. Minimum surge protection rating is 10kV.

The housing shell, under the circuit board, shall be specially designed to ensure perfect contact between the circuit board and the light fixture housing for efficient heat dissipation. Only Metal Core PCBs shall be used to maximize heat transfer process and to offer reinforced electrical insulation via di-electric layer. The Metal Core PCB should be mounted on the housing using a highly efficient thermal interface material.

The optical LED compartment shall have a thermally hardened glass cover and high quality silicon gasket. The Glass cover will be tightly secured with the housing. The light fixture should have flexible optical system to achieve lighting parameters for required class of roads. The light fixture should offer a composite system efficiency of at least 100 lumen/Watt.

Specially designed lens system with unique inner and outer profile for high efficiency LED shall be provided to ensure maximum spacing between the poles and cover higher road widths. Multi layer optics design to ensure adequate luminance and luminance uniformity in the unlikely event of individual LED failure. The light fixture should offer choice of narrow, medium and wide beam light distribution.

The lamp position shall be adjustable to at least three positions to facilitate the changing of photometric distributions.. The photometric data of the lantern shall be authenticated by an Internationally Accredited Lighting Organisation.

Luminance level calculation with average luminance of the road surface, overall uniformity of road luminance, threshold increment, longitudinal

uniformity of road surface luminance and surround ratio achieved shall be submitted by the Contractor / manufacturer for verifying conformance to international lighting standards and approval of the Engineer.

4.13 LED Chips and Driver

The LED chip shall be from Cree / Nichia / Lumileds make or approved equivalent. The LED driver shall be designed to operate large array of high power LED's through current controlled output. The driver shall be suitable for operate up to 250VAC 50/60Hz mains supply. The LED driver shall have an efficiency of at least 90%. Fixed Output LED Driver (PSU) shall be integrated within each LED luminaire. The Driver compartment cavity and gear tray shall be designed with tool-less access for maintenance and replacement.

The light fixtures including the driver will include a warranty of at least 3 years against manufacturing defects. The cost of such provision will deemed to have been respective BOQ item of light fixture and no separate payment shall be admissible in this regard.

The LED driver shall fully conform to following specifications:-

1) BS-EN 61347-1 - General and safety requirements.
2) BS-EN 61347-2-13 - Particular requirements for DC or AC supplied electronic control gear for LED modules.
3) BS EN 55015: 2013 – Emission – Electrical lighting and similar equipment
4) BS EN 61547: 2009 – Immunity – Equipment for general lighting purpose
5) BS EN 61000-3-2: 2009 – Limits for harmonic currents emissions.
6) BS EN 61000-3-3: 2008 – Limits for voltage fluctuation and flicker.
7) BS EN 62493 – Assessment of lighting equipment related to human exposure to electromagnetic fields

5.0 INSTALLATION

5.1 General

The mounting heights of light fixtures are indicated on the drawings, and positions of fixtures are according to the mentioned scale.

The Contractor must ensure that the light fixtures are installed uniformly with respect to the dimensions of the area. Any modifications due to site conditions may be made with the approval of Engineer. All fixtures shall be carefully aligned before fixing in position.

The wiring between ceiling rose or terminal box and the fixture shall be carried out with 3-core 1.0 sq.mm and 1.5-sq.mm flexible copper

conductor PVC/PVC cable respectively for circuits protected by 10 amps and 15/20 amps MCBs. The wiring inside light fixture body shall be done with heat resistant cables or PVC insulated cable in heat resistant sleeves as approved by the Engineer.

Glasses, shades, reflectors, diffusers, etc., must be in a clear condition after installation. All light fixtures shall be earthed by an earth wire connected to the earth terminal in the fixture.

5.2 **Street Light / Flood Light Fixture**

The proposed street light fixture / flood light fixture shall be installed on the light pole/mast as per manufacturer's installation instructions. The road light fixture shall be properly levelled and the lamp adjusted to the appropriate position and all screws, bolts checked for tightness, etc. The light fixture shall be connected to the supply and earth at the proper terminals in the fixture.

5.3 **Flood Light Lanterns**

The flood light lanterns shall be installed on truss/G.I. bracket as per details shown on the drawing. Manufacturer’s installation instructions shall be followed. The G.I. bracket shall be installed on column as shown on drawing. The exact location, rating and tilt/pan angles of light fixtures shall be finalized at site to suit the flood lighting requirements. Engineer’s decision will be binding and final.

5.4 **LED Batten / Panel Light Fixture:**

LED Batten or Panel light fixtures on the surface of ceiling shall be installed with the back of the body flush with the ceiling surface, and in a manner so as to facilitate wiring. Nylon plugs and galvanized steel bolts or screws shall be used for fixing the light fixture to the ceiling. For light fixtures installation on false ceiling the installation method/detail shall be coordinated with ceiling design and submitted for approval of Engineer. Care shall be taken to prevent the weight of the fixture from being transferred to the false ceiling.
Pendant light fixtures shall have two holes in the top of each casing for supporting to the ceiling by a 3/4" dia. galvanized pipe or any other standard method as approved by the Engineer. Wiring from ceiling rose to the fixture shall be done through the pipe. Proper arrangements such as long threads with check nuts, etc. for minor adjustment in the mounting heights of the fixtures shall also be provided.

5.5 **LED Down Light Fixture**

LED downlight fixtures shall be installed on the surface of ceiling or wall by means of nylon plugs and galvanized steel screws, such that their

back finish flush with the surface for exposed conduits and flush with outlet box for concealed conduit system. Wherever convenient, screws for fixing light fixtures shall be screwed into the holes of the outlet box. The lights on false ceiling shall be installed in a manner as described for LED Panel light fixture.

6.0 MEASUREMENT AND PAYMENT

6.1 General

The Contractor's bid amount against each Bill of Quantities item as given below shall include supply, installation, testing, commissioning and completion for all work specified herein and/or shown on the Bidding Drawings related to the item.

6.2 LED Batten / LED Smart Panel / LED Downlight / LED Exit Light / CFL Bulkhead / LED or Conventional Flood Light/ LED Street Light Fixture

The Contractor's bid amount against each Bill of Quantities item as given below shall include supply, installation, testing, commissioning and completion for all work specified herein and/or shown on the Bidding Drawings related to the item.

6.2.1 Measurement

Measurement shall be made for each type of light fixture including all accessories acceptably supplied and installed by the Contractor as complete unit.

6.2.2 Payment

Payment shall be made for the number of units measured as provided above at the contract unit price each and constitute full compensation for supplying, installing, connecting, testing and completion of LED Battens / LED Smart Panel / LED Downlight / LED Exit Sign / compact fluorescent Bulkhead including all accessories such as capacitors , LED drivers, LED Chips, LED optics, connecting cables & connectors, suspension rods and pendent arrangement, GI pipe bracket, ceiling supports, internal wiring, nuts, bolts, screws, etc., as required and complete in all respects.

6.3 High Pressure Sodium Flood Light/ LED Flood Light / LED Street Light Fixture

The Contractor's bid amount against each Bill of Quantities item as given below shall include supply, installation, testing,

commissioning and completion for all work specified herein and/or shown on the Bidding Drawings related to the item.

6.3.1 Measurement

Measurement shall be made for each type of light fixture including all accessories acceptably supplied and installed by the Contractor as complete unit.

6.3.2 Payment

Payment shall be made for the number of units measured as provided above at the contract unit price each and constitute full compensation for supplying, installing, connecting, testing and completion of High Pressure Sodium Flood Light / LED Flood Light Fixtures/ LED Street lights including all accessories such as ballasts, capacitors, igniters, LED drivers, nuts, bolts, screws, etc., including PVC pipe, foundation etc., as required and complete in all respects.

*** End of Section 8150***

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

SECTION – 8212

LOW TENSION CABLES

1.0 SCOPE OF WORK

2.0 GENERAL

3.0 APPLICABLE STANDARDS/CODES

4.0 MATERIAL

5.0 INSTALLATIONS

6.0 MEASUREMENT AND PAYMENT

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

1.0 SCOPE OF WORK

The work under this section consists of supplying, installing, testing and commissioning of all material and services of low tension (LT) cables and the accessories as specified herein or as shown on the Bidding Drawings and stated in the Bill of Quantities.

The Contractor shall discuss the electrical layout with the Engineer and coordinate at site with other services for exact route, location and position of the L.T. cables.

The LT cables with accessories shall also comply with the General Specifications for Electrical Works, Section-8001 and with other relevant provisions of the Bidding Document.

2.0 GENERAL

All multi-core and single core PVC insulated and sheathed cables LSZH for light circuits, socket outlets and circuits operating upto 250 volts shall be 300/500 volts grade. All single core PVC insulated, non-sheathed cables shall be of 450/750-volt grade. Power cables for main feeders, main to sub main feeders, power equipment, etc., armoured or unarmoured shall be of 600/1000 volt grad/XLPE. Armouring of multi-core/ single core cables shall be done with appropriate size galvanized steel/aluminium wire as per relevant codes.

The conductors shall be stranded high conductivity, soft annealed copper. Conductors of single core cables shall be circular, whereas of multi-core cables may be circular or shaped according to standard practices and codes. The PVC insulation, bedding and overall sheath shall be of extruded PVC compound having good flexibility, resistance to ageing and ability to withstand deformation at high temperatures. Non-hygroscopic filler shall be provided in multicore cable to fill empty gaps between the cores to make the cable a smooth round finish. In all shaped cables a non-hygroscopic high strength binding tape shall be provided on the core assembly. All cables shall be treated for vermin proofing and be protected against rodents during storage, laying and all protective pipe/sleeves shall be plugged to attain the same after installation.

Embossed marking on the oversheath at 3 meters intervals shall give the following information:

- name of Manufacturer
- year of Manufacture
- No. of cores and size of cable in sq.mm.
- voltage grade
- type of cable i.e. Cu./PVC/SWA/PVC

3.0 APPLICABLE STANDARDS/CODES

The latest editions of the following standards and codes shall be applicable for the materials specified within the scope of this section:

BS 6004	-	Electric cables PVC insulated, non armoured cables for voltages upto and including 450/750 volts for electric power, lighting and internal wiring
BS 6346	-	Electric cables PVC insulated, armoured cables for voltages of 600/1000 V and 1900/3300 V
BS 6746	-	PVC insulation for electrical cables
BS 60228	-	Copper conductors of insulated cables
BS 6500	-	Insulated flexible cords
BS 7846	-	Electric cables 600/1000 V armoured fire resistant cables having thermosetting insulation and low emission of smoke and corrosive gases when affected by fire
BS 7889	-	Electric cables. Thermosetting insulated, unarmoured cables for a voltage of 600/1000 V
BS EN 50266	-	Common test methods for cables under fire conditions

4.0 MATERIAL

4.1 General

The power, lighting and control cables shall be furnished and installed in accordance with the routes and requirements shown on the drawings.

All cables shall have phase identification colours on insulation of each core. The colour code for three phase circuits shall be red, yellow and blue for phase conductors and black for neutral conductor. Where insulated earth conductor is installed, it shall have green or green-yellow colour insulation.

Single-phase circuits shall have insulation of red colour for phase/line, black colour for neutral and green or green-yellow colour for earth conductor. All DC circuits shall have insulation of white colour for positive, black colour for negative and green or green-yellow colour for earth conductor.

The ends of each length of multi-core armoured or unarmoured cables shall be properly marked for clock-wise and anti clock-wise sequence of core colours.

4.2 Cables for Conduit or Channel Wiring

All cables/wiring in concealed or surface mounted PVC conduits or in covered channel shall be single core PVC insulated LSZH of specified grade and size, unless specifically shown on the drawings or given in BOQ.

The contractor shall wire all power receptacles/points from the panels using copper stranded conductor having proper insulation and PVC sheathing. Under no circumstances shall wire pulling compound be used when pulling the wire for isolated circuits. All wiring shall be color-coded in accordance with applicable standards.

4.3 Cables on surface/concrete trenches/cable trays

Cables for distribution system to be installed on surface, in cable ducts, in concrete trenches or on trays shall be single or multi-core PVC insulated and PVC sheathed of specified voltage grade and size, unless specifically shown on the drawings or given in BOQ.

4.4 Cable Accessories

All cable accessories shall be provided for the complete cabling and wiring system without any additional cost unless specifically mentioned in BOQ. These shall include but not limited to the items such as saddles, clamps, fixing channels, connectors, cable joints (where necessary and as approved by the Engineer), clips, lugs, colour sleeves, identification tags, bushes, glands, etc.

5.0 INSTALLATION

5.1 General

All installation material, labour, tools, cable rollers and accessories for cable installation shall be furnished by the Contractor. The cable and accessories shall be installed as described in accordance with these Specifications, drawings and manufacturer's instructions.

The Contractor shall confirm the exact cut lengths for cable by actual measurements at site prior to the ordering. The cable lengths where shown on the drawings or in BOQ are tentative and only for general guidance. The Contractor shall be solely responsible for furnishing

correct lengths of cable to avoid joints in cable length except where necessary, after obtaining approval of the Engineer.

No separate payment for such joints is admissible.

Necessary precautions for safety of cables shall be taken during the laying of cables to avoid scratches/ cuts to the cable surface. Pulling force on cable at all times shall remain well within the manufacturer's recommended limits.

Prior to installation of jointing and termination kits, the cable lengths shall be checked and tested to ensure that the cables are in sound condition, and no damage has been done during handling and installation. After installation, these shall again be tested prior to commissioning as per recommendations of the standards according to which the cable is manufactured.

5.2 Conduit or Channel Wiring

The wiring through conduit shall be started only after the conduit and channel system is completely installed and all outlet boxes, junction boxes, etc., are fixed in position.
The wires shall be pulled in conduit or channel with care, preferably without the use of any lubricant. Where necessary and if approved by the Engineer, the cable manufacturer's recommended lubricant may be used. Where several wires are to be installed in the same conduit, they shall be pulled together along with the earth conductor. All wires of same circuit shall be run in one conduit.

The wires shall not be bent to a radius less than ten times the overall diameter of the wire, if otherwise recommended by the manufacturer.

The wiring shall be continuous between terminations and looping-in system shall be followed throughout. Any joint in wires shall not be allowed. The use of connectors shall only be allowed at locations where looping-in is rendered difficult. The consent of the Engineer shall be required for using connectors. The connector shall be of suitable rating having porcelain body with sunk-in screw terminals. The connector shall be wrapped with PVC insulation tape after its installation. A minimum of 150 mm extra length of cable/wire shall be provided at each termination to facilitate repairs in future.

5.3 Cables on Surface/Trenches/Cable Trays

All cables for installation on surface of wall, column, ceiling, trenches, etc., shall be fixed to the surface by means of galvanized steel clips secured to a steel channel using suitable stud plate, nuts and washers. The distance between each cable clip shall be such so as to support the

entire weight of the cable and that distance between the cable & surface and also the vertical clearance between two adjacent cables at any point is 50mm minimum. Common mounting channels are to be furnished for cable along the same route. The Contractor can offer alternate cable fixing arrangement, which shall be approved by the Engineer before commencement of installation.

6.0 MEASUREMENT AND PAYMENT

6.1 General

The Contractor's bid amount against each Bill of Quantities item as given below shall include supply, installation, testing, commissioning and completion for all work specified herein and/or as shown on the Bidding Drawing related to the item.

6.2 Light Circuit Wiring

6.2.1 Measurement

Measurement shall be made for the total number of light circuit wiring from LT distribution board to point/switch/push button including wiring between switches/push buttons on the same circuit, acceptably carried out by the Contractor as a complete unit.

6.2.2 Payment

Payment shall be made for the total number of units measured, as provided above, at the Contract unit price each and shall constitute full compensation for supplying, installing, connecting, testing, commissioning and completion of the circuit wiring from the LT distribution board to point/switch/push button including wiring between switches/push buttons on the same circuit complete with specified type of surface mounted/concealed conduit, (PVC or steel) required No. specified size single core PVC insulated cable, earth continuity conductor, accessories, etc.

6.3 Wiring of Light/Fan Point (Point to Switch/ Impulse Relay, Point to Point, or Group Controlled Light Points)

6.3.1 Measurement

Measurement shall be made for the total no. of wiring of light/fan points (point to switch, point to point, or group controlled light point), acceptably carried out by the Contractor as a complete unit.

6.3.2 Payment

Payment shall be made for the total number of units measured, as provided above, at the Contract unit price each, and shall constitute full compensation for supplying, installing, connecting, testing, commissioning and completion of the wiring between light point to switch/ impulse relay, point to point or group controlled points including required no. of specified size single core PVC insulated cable, specified type of surface mounted/concealed conduit (PVC or Steel), earth continuity conductor, flexible cable, ceiling rose, one way or two way 10A light control switch, sheet steel box and other accessories, etc.

6.4 Wiring of Power Circuits (Distributor to socket outlets & between sockets)

6.4.1 Measurement

Measurement shall be made for the total number of each type of wiring acceptably carried out by the Contractor as a complete unit.

6.4.2 Payment:

Payment shall be made for the total number of units measured, as provided above, at the Contract unit price each and shall constitute full compensation for supplying, installing, connecting, testing, commissioning and completion of wiring of socket outlets etc. from distributor to sockets or between sockets with specified size and number of single core PVC cables LSZH cables including specified type of surface mounted / concealed conduit (PVC or Steel), ECC and all other accessories etc.

6.5 LT Cables

6.5.1 Measurement:

Measurement shall be made for the total running feet for each size and type of LT cable acceptably supplied and installed by the Contractor.

6.5.2 Payment:

Payment shall be made for the total running feet of each size and type of LT cable measured, as provided above, at the Contract unit price each and shall constitute full compensation for supplying, installing, connecting, testing and commissioning of the LT cables including all accessories such as cable joints, lugs,

colour sleeves, glands, bush, etc. complete with plugging of protective pipe/ sleeve ends for water tightening.

*** End of Section 8212 ***

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

SECTION – 8220

WIRING ACCESSORIES

1.0 SCOPE OF WORK

2.0 GENERAL

3.0 APPLICABLE STANDARDS/CODES

4.0 MATERIAL

5.0 INSTALLATIONS

6.0 MEASUREMENT AND PAYMENT

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

1.0 SCOPE OF WORK

The work under this Section consists of supplying, installing, and commissioning of all material and services of the complete Wiring Accessories including switches, switch sockets, etc., as specified herein and/or shown on the Bidding drawings and stated in the Bill of Quantities.

The Contractor shall discuss the electrical layout with the Engineer and coordinate at Site with other services for exact location and position of all wiring accessories.

The wiring accessories such as switches, switch socket outlets, socket outlets and ceiling roses, etc. shall also comply with the General Specifications for Electrical Works Section 8001 and with other relevant provisions of the Bidding Documents.

2.0 GENERAL

The locations of the wiring accessories such as switches, sockets, etc. are tentatively shown on the drawings. The Contractor shall ensure the exact positions and locations of wiring accessories in coordination with other services drawings, as per site requirements and as directed by the Engineer. The Contractor shall be responsible for proper functioning of wiring accessories after installation and commissioning.

The description of switches, switch sockets, socket outlets etc. are given in the Bill of Quantities, stated as drawings and in this section. The Contractor shall submit sample of each and every item of wiring accessories for the approval of the Engineer.

3.0 APPLICABLE STANDARDS/CODES

The latest edition of following standards & codes shall be applicable for the materials specified within the scope of this section :

BS 3676	-	Switches for domestic and similar purposes.
BS 4343	-	Industrial plugs, socket outlets and couplers for AC and DC supplies.
BS 2135	-	Capacitors for radio interference suppression.
BS 67	-	Ceiling roses.
BS 546	-	2-pole and earthing pin plugs, socket outlets and socket outlet adaptors.
BS 1362	-	Specification for general purpose fuse links for domestic and similar purposes.

BS 1363 (Part 4-1995)	-	Specification for 13A fused connection units: switched and unswitched.
BS 5733 (1995)	-	Specification for general requirements for electrical accessories.
DIN EN 60669-1	-	Switches for household and similar fixed electrical installations.

4.0 MATERIAL

4.1 Switches/Blank Face Plates

Switches for controlling light and fan points shall be single pole, rated for 10 Amps, 250 volts AC. The body of the switches shall be of thermoplastic with faceplate suitable for flush mounting and colour as approved by the Engineer. The switches shall be gang type having silver tipped contacts and shall operate with snap action.

Unless otherwise specified wherever switches control only the light points, these shall be plate type gang switches installed on common outlet boxes. Where only sheet steel back box is indicated on drawings, blank face plates shall be provided of same make and model as that of switches.

Where specified weather proof or metal front plates shall be used with single grid type switches. The plate shall be finished in specified colour or as otherwise directed by the Engineer.

The bell push switches shall be spring loaded type with the identification symbol embossed on it.

Two-way and intermediate switches shall be used to control lights from two or more different locations particularly in staircase as shown on the drawings.

4.2 13A Switch-Socket/Socket Outlets

Switch socket/Socket units shall be 3 pin, 13 A 250V, AC with faceplate of colour as approved by Engineer. The outlets shall be heavy-duty type suitable for mounting on sheet steel outlet box. The 13 Amps Switch socket/Socket outlets shall have sheltered live contacts and designed such that the earth pin of plug is engaged to socket earth before making of live contacts.

Where metal plate switches are installed, the switch socket units shall also be provided with front plate of similar design.

4.3 15A Socket Outlets

15 Amps Socket Outlets shall be 2 pin + earth, 250V AC socket outlets with faceplate of colour as approved by the Engineer.

The outlets shall be heavy-duty type suitable for mounting on sheet steel outlet box. The 15 Amps Socket Outlets shall be designed such that the earth pin of plug is engaged to socket earth prior to making contact to the live contacts.

4.4 32A Industrial Socket Outlet

The 32A, industrial socket outlet shall be weather proof conforming to the standard and requirements of relevant IEC codes.

The socket outlets shall be of heavy-duty type suitable for outdoor installation. The socket outlet shall be mounted on polycarbonate enclosure and have gasketed cover and window, captive cover screw type. All socket outlets shall be supplied with matching plugs.

4.5 64A Industrial Socket Outlet

The 64A, industrial socket outlet shall be weather proof conforming to the standard and requirements of relevant IEC codes.

The socket outlets shall be of heavy-duty type suitable for outdoor installation. The socket outlet shall be mounted on polycarbonate enclosure and have gasketed cover and window, captive cover screw type. All socket outlets shall be supplied with matching plugs.

4.6 Connection Unit

Connection Unit shall be used to supply to appliances where so specified or shown on drawings. (Air conditioner/Hand drier / Water heaters etc.).

It shall be rated for 20A, 250V AC or as shown on drawings/BOQ. The body shall be of thermoplastic material. Installation shall be surface/ concealed as required.

Face plate and colour to be as per approval of Engineer.

Connectors shall be of best quality (for Phase, Neutral and Earth) and suitable for the size of wiring.

The connection unit shall have the following features as per requirement in B.O.Q or as shown on drawing.

- 20 A Double Pole Switch
- Fuse – Rating as per requirement of appliance
- Neon Indication light
- Grommetted outlet on face plate suitable for flexible wiring connection to appliance

4.7 Fan Dimmers

The fan regulator/dimmer shall be made of low voltage electronic components with essential radio frequency compressor and shall be designed for smooth speed control/variation of fans. The regulators/dimmer and fan control switches shall be of same make and colour as that of the approved wiring accessories. The regulator/dimmer and fan-controlling switch shall preferably be mounted on same face plate. They shall be suitable for flush mounting on a sheet steel outlet back box.

4.8 Sheet Steel Back Boxes

The sheet steel boxes for installation of switches, fan dimmers, socket, outlets and blank face plates shall be made of 16 SWG sheet steel having appropriate dimensions. The box shall have suitable arrangement for receiving the conduit(s). An earth terminal shall be provided for connecting at least three earth wires of 4-sq.mm size. The outlet box shall be finished in powder-coated paint. The sheet steel back box shall be as approved by the Engineer.

4.9 Ceiling Roses

The ceiling roses shall be suitable for 5 amps 250 volts single-phase ac. It shall have white plastic moulded base plate and copper or brass terminals suitable for connecting at least two wires of 2.5 sq. mm size. The ceiling rose shall have a cover with cable inlet hole suitable for multicore PVC insulated and PVC sheathed cable.

5.0 INSTALLATION

5.1 General

The mounting heights of all wiring accessories are stated on the drawings. In case the mounting height is not mentioned, the instructions of the Engineer shall be obtained before fixing.

5.2 Wiring Accessories Installation

All wiring accessories such as Switches, Blank Face Plates, 13/15A Switch Socket, 32/64/125A Industrial Socket Outlet, Connection Units & ground jack modules shall be installed on 1.63 mm (16 SWG) thick sheet steel box recessed in wall/column/floor. The faceplate shall be fixed on sheet steel box by means of flat head galvanized or brass screws sunk in the faceplate so as to finish flush with the surface. Matching screw caps shall be installed on the opening for screw in faceplates.

6.0 MEASUREMENT AND PAYMENT

6.1 General

The Contractor's bid amount against each Bill of Quantities item as given below shall include supply, installation, testing, commissioning and completion for all work specified herein and/or as shown on the Bidding Drawing related to the item.

6.2 13A Switch Socket/Socket Outlets, 15 Amps Switch Socket/Socket Outlets, 32/64/125A Industrial Socket Outlet & Connection Units

6.2.1 Measurement:

Measurement shall be made for the total number of each type of socket outlet complete with sheet steel back boxes, polycarbonate enclosure and all accessories acceptably supplied and installed by the Contractor as a complete unit.

6.2.2 Payment:

Payment shall be made for the total number of units measured, as provided above, at the Contract unit price each and shall constitute full compensation for supplying, installing, connecting, testing and completion of each type and rating of outlet including screws, screw caps, sheet steel box, polycarbonate enclosure, nuts, bolts and other accessories as required.

*** End of Section 8220***

SECTION - 8230

CONDUITS AND PIPES

1.0 SCOPE OF WORK

2.0 GENERAL

3.0 APPLICABLE STANDARDS/CODES

4.0 MATERIAL

5.0 INSTALLATION

6.0 MEASUREMENT AND PAYMENT

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

1.0 SCOPE

The work under this section consists of supplying, installing and commissioning of all material and services of the complete Conduits and Pipes as specified herein and/or shown on Tender Drawings and stated in the Bill of Quantities.

The Contractor shall discuss the electrical layout with the Engineer and co-ordinate at Site with other services for exact route, location and position of the conduits and pipes.

The conduits and pipes with accessories shall also comply with the General Specifications for Electrical Works, Section-8001 and with other relevant provisions of the Tender Document.

2.0 GENERAL

The extent of works shown on the drawing does not indicate the exact position of conduits and pipes. The Contractor shall ensure exact location and route of conduit and pipes in coordination with other services drawings, as per site requirements and as directed by the Engineer.

The conduit system shall be continuous with manufacturer's recommended accessories.

The quality and material for the accessories of conduits and pipes such as sockets, end cap, elbows, bushings, bends, inspection/pull boxes, round boxes, etc., necessary for the complete installation shall be similar to that of conduits or pipes. All the accessories shall be supplied by the Contractor without any extra cost and deemed to have been included in the price of conduits/pipes.

Pull wire shall be laid in all empty conduits.

3.0 APPLICABLE STANDARD/CODES

The latest edition of the following standards and codes shall be applicable for the materials specified within the scope of this section:

BS 31	-	Steel conduits and fittings for Electrical Wiring.
BS 4607	-	Non-metallic conduits and fittings for electrical installations.
BS 1387	-	Galvanized Iron (GI) pipes and fittings.
BS 3505	-	uPVC pressure pipe and fittings.

4.0 MATERIAL

4.1 PVC Conduit and Accessories

The PVC conduits and accessories for lighting and power circuits shall be furnished by the Contractor as shown on the drawings or given in BOQ. The PVC bends shall have enlarged ends to receive conduit without any reduction in the internal diameter at joint. Manufactured smooth bends shall be used where conduit changes direction. Bending of conduits by heating or otherwise will be allowed in special situations only for which the consent of the Engineer shall be required. The use of sharp 90 degree bends and tees will not be allowed for concealed wiring.

The round PVC junction boxes for ceiling light or fan points shall have minimum dimensions of 63 mm diameter and depth. The junction boxes for wall light points shall have minimum dimensions of 63 mm diameter and 38 mm deep. Round junction boxes shall be provided with one piece PVC cover plate fixed to the box by means of brass screws.

4.2 Inspection/Pull and Adaptable Boxes

Inspection/Pull boxes and adaptable boxes shall be provided in conduit runs wherever required to facilitate pulling operation. The drawings are diagrammatic and do not indicate the position and spacing of inspection/pull boxes or adaptable boxes. However, these shall be as per Engineer's approval.

4.3 uPVC Pipes and fittings

Unplasticised PVC pressure pipes and fittings shall conform to BS 3505:1968 and shall be of class-D (working pressure - 12 bars). The buried uPVC pipes should be able to withstand the external load acting upon it by continuous movements of heavy duty vehicles such as trucks, cranes, forklift etc. where pipe changes direction, manufacturer smooth bend shall be used.

Fittings and accessories for use with uPVC pressure pipes shall be of the same class and manufacture as the pipe and shall have the required shapes and dimensions of turned ends to fit the uPVC pressure pipes. uPVC pipes and accessories shall be suitable for jointing with rubber rings or solvent.

Bending of pipes by heating or otherwise will not be allowed. The use of sharp 90 degree bends and tees will not be allowed. The bends shall conform to same specifications as given for PVC conduits. For joining of pipe all precautions and procedures recommended by manufacturer shall be allowed.

Hard PVC or reinforced concrete pipe range spacers shall be used if there is more than one pipe running in parallel. The distance between range spacers shall be maximum 2 meters. Range spacers shall be prefabricated/precast and decay resistant.

Flexible pipes shall be used as deemed essential or as approved by the Engineer.

5.0 INSTALLATION

5.1 PVC Conduits and Accessories

5.1.1 Concealed Conduit

Where concealed conduit system is shown on drawings/ mentioned in BOQ, the conduit shall be installed concealed in roof, wall, column, etc. Conduits shall be laid under floor only where specifically stated. The entire conduit system shall be installed and checked before wring is carried out. Any obstruction found shall be cleared before the installation of cable.

When concealed, the conduit shall have a minimum of 32mm cover of concrete measured from the top of conduit to finished surface. In the reinforced cement concrete (RCC) work the conduit shall be laid before pouring of concrete. Under no circumstances shall chases be made in the RCC structure for concealing conduit and accessories after pouring of concrete. The conduit shall be supported on top of bottom reinforcement of slab. All outlet boxes to be firmly supported and installed such that they finish flush with the soffit of slab or beam.

Where conduits have to be concealed in cement concrete (CC) work after concreting or in block masonry, chase shall be made with appropriate tools and shall not be made deeper than required. The conduit shall then be fixed firmly in the recess and covered with cement concrete mixture. The work of cutting in the cement concrete work or block masonry work shall be coordinated with the civil work. The Contractor shall obtain approval from the Engineer before starting chasing and cutting.

The termination of conduits at or near the equipment / switchboard is shown diagrammatically on the drawings. The exact locations of the termination shall be coordinated with the equipment/switchboard to be installed. Any extension of conduit to suit the site condition shall be made without any extra cost.

Conduit ends pointing upwards or downwards shall be properly plugged in order to present the entry of foreign materials. All openings through which concrete may leak shall be carefully plugged in order to prevent the entry of foreign materials. All opening through which concrete may leak shall be carefully plugged and boxes shall be suitably protected against filling with concrete. At all terminations of conduit, sharp edges of conduit ends shall be prevented to avoid the cutting or damaging of wires or cables during pulling through the conduits.

Under floor conduit shall be installed at a minimum depth of 2 inch from the finished floor level or as shown on the drawings. The conduits shall be installed empty, before finishing of floor or in RCC work, with an 18 SWG steel wire drawn through the conduit for pulling cable. No conduits shall be laid under floor in bathroom.

5.1.2 Surface Conduits

The surface conduits shall be installed where shown on drawings mentioned in BOQ. The conduits shall be installed parallel or perpendicular to the surface of wall, structural members, ceiling, etc., by means of PVC saddles and clamps of approved design. The conduits shall be kept at least 150 mm away from parallel runs of flues, steam pipes and hot water pipes.

The saddles shall be installed on surface by means of nylon or wooden plugs and galvanized screws. Appropriate size of holes in structure shall made by drilling, the thickness of saddles and clamps shall be at appropriate thickness and prime quality. The surface conduits shall be supported at maximum of one meter spacing along horizontal and vertical runs. The Contractor shall provide all accessories for complete installing of conduit system. The pull boxes, etc. as stated for concealed conduits shall also be applicable for surface conduit system.

5.2 uPVC Pipe and Fittings

uPVC pipes shall be installed as shown in the drawings. The depth of the pipe shall vary according to the conditions at site, and approval of Engineer shall be obtained prior to installation. In general the pipes shall be installed underground at the following depths measured from the top of the pipe.

- Under roads/pavement : 900 mm below finished surface.
- When crossing other services : 250/500 mm vertical/horizontal.

The trench of required dimensions shall be excavated and the bottom of trench cleaned and leveled. A 100 mm bed of fine sand shall be provided over which the PVC pipes installed after proper alignment. Where two or more pipes are installed in the same trench the clearance between pipes shall not less than 50 mm. This shall be done by the provision of pipe range spacers as per Engineers approval. After laying of pipe the trench shall be backfilled with clean screened sand at least 100 mm above the top most pipes. The remaining portion of trench shall be backfilled with selected earth in layers well compacted.

After installation, the ends of the pipe shall be plugged with manufactured end cap impervious to water and chemicals. All joints shall be sealed adequately not only to prevent entry of foreign elements but water tightness shall be ensured.

The installation of pipes shall be completed in all respects including its fixing at terminations, before cabling work is started. All sharp edges and burrs shall be removed by using reamer or any approved device. The pipe shall be through cleaned of dirt and dust from inside, the pipes shall be installed in proper co-ordination with other works.

The protective PVC pipe for cable entering building shall be installed so as to lead cable into the cable trench. The required number of pipes shall be fixed before completing the work in the plinth. If an opening is provided to the cable trench from outside, the required number of pipes shall be installed and part of the opening remained unutilized shall be properly packed and sealed using suitable packing material impervious to water and chemical to make it completely water-tight.
Spare pipes shall be provided with 5 mm dia rope pulled from end to end and plugged with manufactured end cap.

Flexible pipes of compatible material and size shall be used wherever deemed essential.

6.0 MEASUREMENT AND PAYMENT

6.1 General

The Contractors bid amount against each item of Bill of Quantities as given below shall include supply, installation, testing, commissioning and completion for all work specified herein and/or as shown on the Tender Drawings related to the item.

6.2 Conduits PVC / Pipes PVC and Accessories

6.2.1 **Measurement:** Measurement shall be made for the total running feet of each type and size of conduits / pipes and accessories acceptably supplied and installed by the Contractor according to specification and as shown on drawings.

6.2.2 **Payment:** Payment shall be made for the total running feet of each type and size of conduits or pipes measured as provided above at the contract unit price each and shall constitute full compensation for supplying, installing and completion of the laying of the conduits and pipes including all accessories related to the item.

No separate payments shall be made for the under mentioned specified work related to the supply and installation of conduit and pipe. The cost thereof shall be deemed to have been included in the quoted rates of above work.

- Excavation and backfilling.
- Dewatering during excavation and backfilling.
- Providing and filling of fine sand in trenches.
- Providing pipe range spacers.
- Providing flexible pipes and accessories, jointing material/ compound, saddles, sockets, elbows, bend, junction boxes reducers, 16SWG GI pull wire for empty conduit, and 5 mm rope for empty pipe, soft metal bush, making threads and plugging of pipe with manufactured end cap etc. whether used or left spare.
- Compacted backfilling of trenches with specified material and disposal of surplus and rejected material.
- Watertight sealing of any unutilized opening to the buildings after installing the protective pipes entering the buildings.

*** End of Section 8230 ***

SECTION - 8240

EARTHING

1.0 SCOPE OF WORK

The work under this section consists of supplying, installing, testing and commissioning of all material and services of the complete Earthing system as specified herein, as shown on the Tender Drawings and given in the Bill of Quantities.

The Contractor shall discuss the electrical layout with the Engineer and co-ordinate at Site with other services for exact route, location and position of the earth electrode and ECC etc.

The Earthing system shall also comply with the General Specifications for Electrical Works Section - 8001 and with other relevant provisions of the Tender Documents.

2.0 GENERAL

The earthing system consists of earth electrodes, earthing leads, earth connecting points, earth continuity conductors and all accessories necessary for the satisfactory operation of the associated electrical system.

3.0 APPLICABLE STANDARDS/CODES

The latest editions of following standards / codes shall be applicable for the materials specified within the scope of this section:

- BS 951 - Earthing clamps
- CP 1013 - Earthing
- BS 2874 - Nuts, bolts, washers, screws and rivets fixing for use on copper
- BS 6346 - PVC insulated cables

4.0 MATERIAL

4.1 Earth Electrode

4.1.1 Plate Type

The plate type earth electrode shall comprise a 600 x 600 x 3mm electrolytic copper plate. The surface of the plate shall be tinned for protection. The plate shall have four terminals for connecting the earthing leads. Nuts bolts and washers shall be either of brass or tinned copper. A 50mm dia. G.I. pipe shall be provided from inspection chamber to earth plate for watering purpose. This pipe shall have 10mm dia. holes at 500mm centre to centre all along the length.

At the ground level an inspection chamber with cast iron cover shall be constructed having dimensions as shown on the drawings. The inspection chamber shall have a cover supported on angle iron frame. The cover shall be hinged type, as approved by the Engineer and shall finish flush with the ground level.

4.1.2 Copper Clad Steel Rod Type

This type of earth electrode shall comprise a 3 meter long, 20 mm dia. copper clad steel rod having flat head at drive end and pointed conical tip at the driven end. The tip shall be hardened to facilitate driving. At the top of the rod, a brass clamp for bolted connections shall be provided suitable for connection to the down conductor or earthing lead as required.

The inspection chamber with C.I. cover shall be provided as instructed by the Engineer.

4.2 Earthing Lead

The earthing lead shall connect the earth electrode to earth connecting point or equipment in the building. It shall be of stranded bare electrolytic copper of size shown on the drawings. The cost of earthing leads deemed to have been included in the price of earth electrode and no separate payment shall be made for it.

4.3 Earth Continuity Conductor

Earth continuity conductor (ECC) shall be stranded bare copper wire or single core PVC insulated copper conductor cable of sizes indicated on the drawings. All thimbles, lugs, sockets, nuts, washers & other accessories necessary for the complete installation of ECC shall be provided by the Contractor without any extra cost.

The specifications for single core PVC insulated cables used as ECC shall be same as those given in section "LT Cables" of the technical specifications. PVC insulated cables when used as ECC shall be green or green/yellow.

4.4 Earth Connecting Point

Earth connecting points shall comprise tinned copper bar, rectangular in shape, having dimensions of 300 x 50 x 6 mm. At least six terminals for connection shall be arranged on the bar, which can be increased or decreased as required by the Engineer.

The terminals shall have brass or tinned copper bolts, nuts and washers for protection against corrosion. Two holes shall be provided off centre of the copper bar for fixing to the wall by means of 10 mm dia. nut and bolt and shall be insulated by means of rubber gaskets/washers.

5.0 INSTALLATION

5.1 General

Complete earthing systems as shown on the drawing shall be installed by the Contractor. The earthing system shall give earth resistance, including the resistance of soil, earth leads and ECC equal to or less than one ohm.

At all connections of earth continuity conductor to Generator, Transformer, LT Switch Board, LT Distribution Board, or any other metallic body, proper size copper or brass sockets, thimbles or lugs shall be used to which the copper wire shall be connected by copper brazing. The soldering of copper wire at joints or terminations shall not be allowed. All tee-off connections shall be by copper brazing using suitable socket and clamps. After brazing, the jointed surface shall be protected by oxide inhibiting compound of low electrical resistance. For connections to metallic body, the surface shall be thoroughly cleaned before bolting the lug or socket.

The earth continuity conductor shall in general run in cable trench or in conduits/pipes as shown on the drawings. For under floor runs, these shall be installed in pipe/conduit of appropriate sizes. Where laid along underground cables, these shall be laid directly underground in unpaved areas and in pipes under paved areas.

The earthing system shall be tested after complete installation of earth electrodes.

5.2 Earth Electrode

5.2.1 Plate Type

The electrode plate shall be installed at a minimum depth of 5 meters from finished ground level or 1 meter below permanent water level whichever is less. The minimum horizontal distance between earth electrodes shall be 3 meters. Proper mixture of lime and charcoal shall be made and buried along with the copper plate in the ground to increase the soil conductivity. The electrode shall be installed as per details shown on the drawings. The inspection chambers shall be constructed at locations approved by the Engineer.

5.2.2 Copper Clad Steel Rod Type

In case the soil conditions at site permit and approved by the Engineer this type of earth electrode may be installed by hammering the electrode in soil, until the top of the rod is about 300 mm below the proposed finished ground level. If hammering down of rod is not possible due to site conditions, a pit shall be first excavated in bare ground upto the required depth and electrode shall be installed upright in the pit. The excavated pit shall be backfilled in layers of 500 mm, each layer tamped and compacted.

5.3 Earth Continuity Conductor

The earth continuity conductor of sizes shown on the drawing shall be installed all along the cable runs and connected to the earthing bar/terminals provided in equipment. The body of generator, transformer and all switchboards shall also be connected to earth by specified size of ECC. All other metal work shall also be connected to earth by specified size of ECC.

At any joint or terminations, the ECC shall be connected using proper accessories. No connection shall be made by twisting of earth conductors.

5.4 Earth Connecting Point

The earth connecting point shall be installed at locations shown on the drawings. It shall be fixed on wall surface by means of brass screws with nuts, washers and other insulating material as instructed by the Engineer.

6.0 MEASUREMENT AND PAYMENT

6.1 General

The Contractor's bid amount against each Bill of Quantities item as given below shall include supplying, installation, testing, and commissioning of all work specified herein, as shown on the Tender drawing related to the item.

6.2 Earth Electrode

6.2.1 Measurement

Measurement shall be made for the total no. of each type of earth electrode acceptably supplied and installed by the Contractor as a complete unit.

6.2.2 Payment

Payment shall be made for the number of units measured, as provided above, at the Contract unit price each, and shall constitute full compensation for supplying, installing, testing, commissioning and completion of earth electrodes including copper plate or copper clad steel rod, earthing leads, excavation, backfilling, lime and charcoal, inspection chamber with cover, GI pipes for earthing leads/watering, nuts, bolts, washers, lugs, brazing and all related civil works.

6.3 Earth Continuity Conductor (ECC)

6.3.1 Measurement

Measurement shall be made for the total running feet of each size and type of earth continuity conductor (ECC) acceptably supplied and installed by the Contractor.

6.3.2 Payment

Payment shall be made for the total running feet of each size and type of ECC measured, as provided above, at the Contract unit price and shall constitute full compensation for supplying, installing, connecting, testing and completing of ECC including all accessories such as sockets, thimbles, lugs, bolts, nuts, washers, brazing, etc.

6.4 Earth Connecting Point

6.4.1 Measurement

Measurement shall be made for the total no. of earth connecting points acceptably supplied and installed by the Contractor as a complete unit.

6.4.2 Payment

Payment shall be made for the total number of units measured, as provided above, at the Contract unit price each and shall constitute full compensation for supplying, installing and completion of earth connecting point and all other associated accessories such as nuts, bolts, washers, lugs, etc.

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

SECTION – 8310

TELEPHONE SYSTEM

1.0 SCOPE OF WORK

2.0 GENERAL

3.0 APPLICABLE STANDARDS/CODES

4.0 EQUIPENT

5.0 INSTALLATIONS

6.0 MEASUREMENT AND PAYMENT

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

1.0 SCOPE OF WORK

The work under this section consists of supplying, installing, testing, and commissioning of all material and services of complete telephone system as specified herein, as shown on the Tender Drawings and stated in the Bill of Quantities.

The Contractor shall discuss the electrical layout with the Engineer and co-ordinate at site with other services for exact route, location and position of the system.

The telephone system with accessories shall also comply with the General Specifications, Section 8001 and with other relevant provisions of the Tender Document.

The work shall be undertaken in accordance with applicable rules and regulations of Pak Telecomm Corporation Limited. Any approval/NOC required from PTCL shall be contractors' responsibility.

2.0 GENERAL

The system shall comply with the general requirements for telephone system as specified by the Pakistan Telecommunication Authority (PTA). The system shall be capable of accepting analog as well as digital incoming signals. The system shall be capable of connecting tele fax / tele text etc.

3.0 APPLICABLE STANDARDS AND CODE

The latest editions of the following standards/codes shall be applicable for the materials covered within the scope of this section:

DIN 47614	-	Terminal Strips
DIN 40040	-	Class and Reliability of units in Telecommunication
DIN 57800	-	Regulations for installation and operation of telecommunication.
DIN 57804	-	Telecommunications, Manufacture and Test of Apparatus.
		CCITT recommendations for ISDN system and Local PTCL/PTA regulations.
ISO 9000-Series Certified	-	Manufacturer for quality control

4.0 EQUIPMENT

4.1 Telephone Cable

Cat-5 cable shall be provided for telephone network.

4.2 Telephone Socket Outlet (RJ11)

The telephone socket outlet back boxes shall have appropriate dimensions made of 16 SWG (1.63mm) sheet steel and suitable arrangement for termination of conduits or of teak wood for installation in dry partitions.

The telephone outlet shall be type RJ11 single/two/three ports as required. The outlet shall be of Clipsal Australia or 'MK' UK make or approved equivalent.

4.4 Distribution Box

Telephone distribution box shall be made of 16 SWG (1.63mm) sheet steel having required dimensions to accommodate the terminal strips with adequate space available for wiring. The terminal strips shall have provision for tag numbers for telephone extension and with suitable capacity for terminating all incoming and outgoing cables including direct lines. The strip shall be installed on insulated material sheet inside the sheet steel boxes. The termination strip shall provide Insulation Displacement Contact (IDC) technique for easy and quick connection for 0.6 mm. wire size. The termination strip shall have following minimum specifications:

Insulation Resistance	> 105 ohm
Dielectric Strength	> 2 kVrms
Termination Resistance	< 1 ohm
Capacitance between adjacent Contacts.	< 5 pF
Current Carrying Capacity	Disconnection Contact 5 kA 8/20U Sec. Connection Contact 10 kA 8/20U Sec.
Contacts	Silver plated brass alloy
Material	Self extinguishing plastic Component according to UL94

The steel box shall be provided with a lockable hinged door. The distribution box shall be suitable for recess mounting.

The distribution box shall be of Krone make or approved equivalent.

4.5 EPABX

The EPABX shall initially be provided with minimum 100 subscriber lines and 10 trunk lines. Future extension lines shall be possible for 200 subscriber lines and 20 truck lines. The system shall allow simultaneous voice and data communication over one pair telephone cable. The system shall be capable of connecting tele fax and tele text etc.

The system shall operate on single phase 230 Volt, 50Hz supply. Power supply of the system shall be based on modular components and shall use low power dissipation. The system shall operate without the need of forced cooling. Back –up batteries shall be of sufficient size to keep the system fully operational per an hour in case of power failure.

The system shall be able to operate in the following environmental operating conditions.

- Temperature : 0 to 49C.
- Humidity : 5 to 95%

The system shall make use of Stored Program Control (SPC) and pulse code modulated signaling and meet the latest ISDN standard. The system shall be capable of accepting analog as well as digital incoming signals.

The EPABX system shall be able to manage internally:

- Analog telephone extensions
- Digital telephones (2B+D)
- Operator consoles
- Ethernet connection

The system shall be of modular design with plug-in cards for simple installation, maintenance and up gradation. The system shall be customer programmable, with user friendly operating procedures, so that operation, maintenance and servicing of the system can be easily out.

The system shall have the following minimum features

- General System features:
  - Trunk direct inward dialing
  - Call data recording with customized report option
  - Night service
  - Dial/call by name
  - Pass word for up/down grading of traffic class.

- Attendant Console Features:
  - Call grouping by origin and preference

- Parallel call or single call signaling
- Timer
- monitoring
- Overriding
- Trunk queuing
- Attendant console charge metering

- Station Features:

- Direct connecting between stations
- Direct access of stations to trunks
- Automatic dialing
- Call hold
- Voice/data transmission and reception

- Software requirement:

The equipment shall be supplied with a facility for metering, operational maintenance and traffic analysis. The tax metering system shall offer cost statistics and assist in managing charging per user group. On termination of a call a “ticket” i.e. a call record shall be generated.

Provision shall be provided for recording of following minimum parameters:

- Calling party: operator, trunk group and trunk line
- Called party : group & ;line of outgoing truck
- User group code
- Cost-centre code
- Start data and time
- Duration and number of meter pulses.

It shall be possible to generate hourly cost reports per user or other selection as chosen by the system operator.

The system shall have following maintenance features:

- Fault identification
- Diagnostic tests
- Manual controlled tests

5.0 INSTALLATION

5.1 Conduit

Telephone and data conduit shall be laid 150mm away from the electrical conduits or cables, and wherever electrical conduits or cables, and telephone and data conduits cross each other, they shall do so at right angles.

Identification marking shall be given at the termination or free end of conduit so that it may not be confused with the electrical conduits. The marking shall be both by colour and by attaching an approved brass tag using brass or bronze tie wire. Each tag shall be clearly stamped with “T" for telephone conduit.

5.2 Telephone Distribution Box

Distribution boxes for telephone cables shall generally be recessed type. The frame of the telephone distribution box shall finish flush with the surface of wall. However, surface type telephone distribution box shall also be acceptable with the approval of the Engineer.

All screws, nuts and bolts used for fixing the box shall be galvanized. Soft metal bushes shall be used at conduit entries in the box.

5.3 Telephone Socket Outlet

These shall be installed on the outlet box fixed in the wall, partition and floor.

5.4 Telephone Cable

The telephone cable shall be installed as outlined in section `L.T. Cables' of these specifications. All cables shall be provided with plastic identification tags at termination, which shall be clearly shown on the As-Built drawings. The complete wiring shall be checked for continuity, identification and insulation before connections are made.

5.5 EPABX

The telephone exchange shall be installed as per manuals provided by the manufacturer and as per the Engineer’s instructions. The EPABX shall be checked for proper working before connections are made.

5.6 Training

The Contractor shall provide the services of competent instructors who will give full instruction to the designated personnel in the operation, maintenance of the telephone system. Training manuals shall be provided for each trainee, which shall describe in detail the information and data imparted in the training programmed.

6.0 MEASUREMENT AND PAYMENT

6.1 General

The Contractor's bid amount against each Bill of Quantities item as given below shall include supply, installation, testing, commissioning and completion for all works specified herein and/or as shown on the Tender Drawings related to the item.

6.2 Telephone Set

6.2.1 Measurement:

Measurement shall be made for the number of each type of telephone sets including 3m extension cable acceptably supplied and installed by the Contractor as a complete unit.

6.2.2 Payment:

Payment shall be made for the number of units measured as provided above at the contract unit price each and shall constitute full compensation for supplying, installing, testing and commissioning of each type of telephone sets, including 3m extension cable and accessories.

6.3 Conduits / Pipes

6.3.1 Measurement:

Measurement shall be made for the total running feet of each size of conduits/pipes acceptably supplied and installed by the Contractor.

6.3.2 Payment:

Payment shall be made for the total running feet of conduit measured as provided above at the Contract unit price and shall constitute full compensation for supplying, installing & completion of the laying of the conduits/pipes including jointing materials and accessories, cutting chasing of civil works, excavation and backfilling of ground for underground PVC conduits, painting, plugging, tagging, etc., as applicable for each type of work.

6.4 Telephone Cable

6.4.1 Measurement:

Measurement shall be made for each size and type of telephone

cable including earth wire as shown on drawing and given in BOQ acceptably supplied and installed by the Contractor between MDF and telephone distribution box as a complete unit.

6.4.2 Payment:

Payment shall be made for the total number of each type of unit measured as provided above at the Contract unit price each and shall constitute full compensation for supplying, installing, testing and commissioning of the required pair of telephone cables including earth wire installed between MDF and telephone distribution box as shown on the drawing and all accessories.

6.5 Telephone Socket Outlet

6.5.1 Measurement:

Measurement shall be made of the total number of telephone socket outlet acceptably supplied and installed by the Contractor as a complete unit.

6.5.2 Payment:

Payment shall be made for number of units measured as provided above at the contract unit price each and shall constitute full compensation for supplying, installing, testing, and commissioning of the telephone socket outlet including civil works and all accessories.

6.6 Telephone Distribution Box

6.6.1 Measurement:

Measurement shall be made of the total number of each type of telephone distribution box as given in BOQ acceptably supplied and installed by the Contractor as a complete job.

6.6.2 Payment:

Payment shall be made for the number of job measured as provided above at the Contract unit price each and shall constitute full compensation for supplying, installing and completion of the telephone distribution box including civil works and all accessories.

6.7 Wiring of Telephone Outlet/Distribution Boxes

6.7.1 Measurement:

Measurement shall be made for the total number of each type of wiring of telephone outlet/distribution boxes, acceptably carried out by the Contractor as a complete unit.

6.7.2 Payment:

Payment shall be made for the total number of units measured, as provided above at the contract unit price each, and shall constitute for supplying, installing, connecting, testing, commissioning and completion of the wiring between telephone outlet, telephone outlet and distribution box and between distribution boxes including required pair of multi-core telephone cable and appropriate size conduit and all accessories.

6.8 EPABX:

6.8.1 Measurement:

Measurement shall be made for the number of EPABX acceptably supplied and installed by the Contractor as a complete unit.

6.8.2 Payment:

Payment shall be made for the unit measured as provided above at the Contractor unit price and shall constitute full compensation for supplying, installing and commissioning of EPABX along with all accessories.

*** End of Section 8310 ***

NATIONAL POLICE FOUNDATION
GOVERNMENT OF PAKISTAN

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD

CONSTRUCTION OF
INFRASTRUCTURE WORKS & 1-KANAL HOUSES

DRAWINGS

BIDDING DOCUMENTS

VOLUME - III

OCTOBER, 2026

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DRAWINGS

(INFRASTRUCTURE WORKS)

NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS

TENDER DRAWINGS

LIST OF DRAWINGS (SHEET 1 OF 1)

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01.	SA-578/324/TD/C01	MASTER PLAN SUPERIMPOSED ON SURVEY (Sheet 01 of 01)	0
02.	SA-578/324/TD/C02	SETTING OUT PLAN ROADS (Sheet 01 of 01)	0
03.	SA-578/324/TD/C03	SETTING OUT PLAN PLOTS (Sheet 01 of 01)	0
04.	SA-578/324/TD/C04	ANNOTATION / RD PLAN (Sheet 01 of 01)	0
05.	SA-578/324/TD/C05	FINISHED ROAD LEVEL PLAN (Sheet 01 of 01)	0
06.	SA-578/324/TD/C06	TYPICAL ROAD CROSS SECTIONS & DETAILS (Sheet 01 of 01)	0
07.	SA-578/324/TD/C07	PLAN & PROFILE OF ROAD – 01 (Sheet 01 of 01)	0
08.	SA-578/324/TD/C08	PLAN & PROFILE OF ROAD – 02 (Sheet 01 of 01)	0
09.	SA-578/324/TD/C09	PLAN & PROFILE OF ROAD – 03 (Sheet 01 of 01)	0
10.	SA-578/324/TD/C10	PLAN & PROFILE OF ROAD – 04 (Sheet 01 of 01)	0
11.	SA-578/324/TD/C11	PLAN & PROFILE OF ROAD – 05 (Sheet 01 of 01)	0
12.	SA-578/324/TD/C12	STORM DRAINAGE LAYOUT PLAN (Sheet 01 of 01)	0
13.	SA-578/324/TD/C13	DRAINAGE MISCELLANEOUS DETAILS (Sheet 01 of 01)	0
14.	SA-578/324/TD/C14	SEWER LAYOUT PLAN (Sheet 01 of 01)	0
15.	SA-578/324/TD/C15	SEWER MISCELLANEOUS DETAILS (Sheet 01 of 02)	0
16.	SA-578/324/TD/C16	SEWER MISCELLANEOUS DETAILS (Sheet 02 of 02)	0
17.	SA-578/324/TD/C17	WATER SUPPLY LAYOUT PLAN (Sheet 01 of 01)	0
18.	SA-578/324/TD/C18	TYPICAL DETAILS OF VALVE CHAMBER (Sheet 01 of 01)	0
19.	SA-578/324/TD/C19	MISCELLANEOUS DETAILS (Sheet 01 of 01)	0
20.	SA-578/324/TD/C20	BENDS DETAILS (Sheet 01 of 01)	0
20.	SA-578/324/TD/C21	SUI GAS LAYOUT PLAN (Sheet 01 of 01)	0

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S.No	PLOT SIZE	NOs
1.	50 X 90	14
2.	60 X 120	16
3.	72 X 100	19
TOTAL		49

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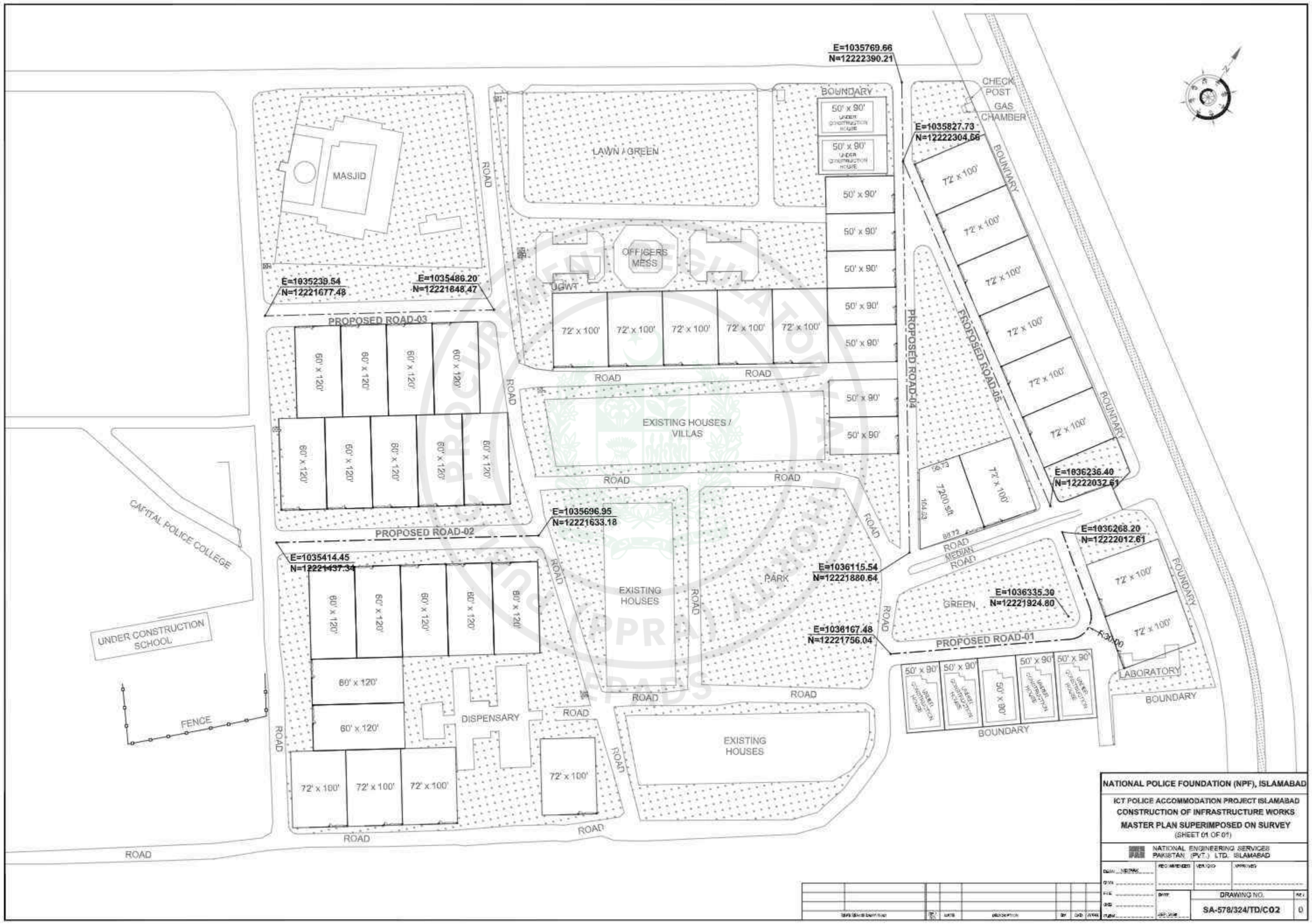
CONSTRUCTION OF INFRASTRUCTURE WORKS

MASTER PLAN SUPERIMPOSED ON SURVEY

(SHEET 01 OF 01)

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DRAWN: NEPAK	REC'D AMENDED	VERIFIED	APPROVED
CHKD			
DES	DATE	DRAWING NO.	REV
QTD		SA-578/324/TD/C01	0



NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD

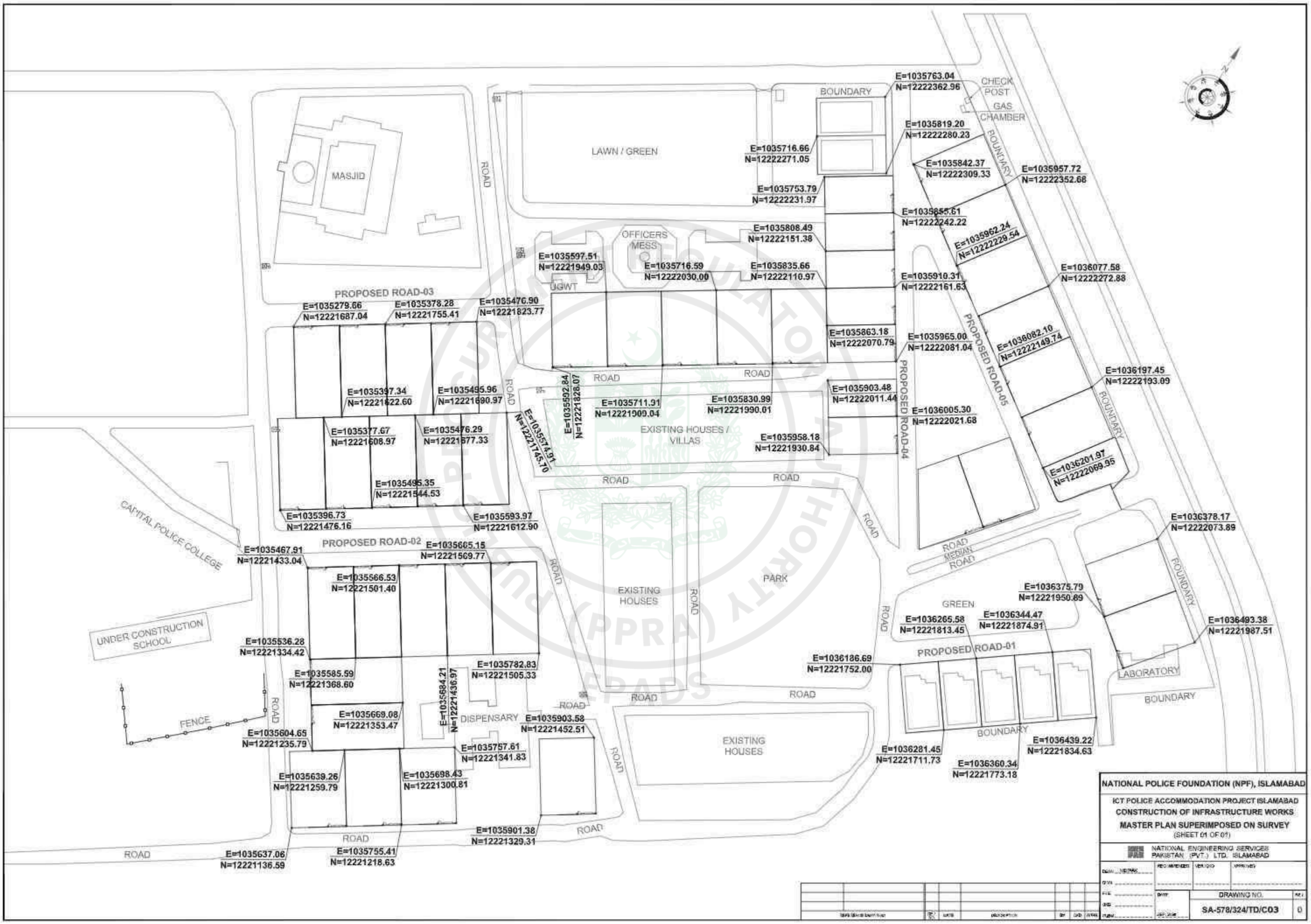
CONSTRUCTION OF INFRASTRUCTURE WORKS

MASTER PLAN SUPERIMPOSED ON SURVEY

(SHEET 01 OF 01)

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DRAWING NO. SA-578/324/TD/C02 REV. 0



NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD

CONSTRUCTION OF INFRASTRUCTURE WORKS

MASTER PLAN SUPERIMPOSED ON SURVEY

(SHEET 01 OF 01)

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DRAWING NO.	REV.
SA-578/324/TD/C03	0

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MASJID

ROAD

LAWN / GREEN

BOUNDARY

50' x 90' UNDER CONSTRUCTION HOUSE

50' x 90' UNDER CONSTRUCTION HOUSE

CHECK POST

GAS CHAMBER

OFFICERS MESS

UGWT

50' x 90'

72' x 100'

PROPOSED ROAD-03

60' x 120'

PROPOSED ROAD-04

PROPOSED ROAD-05

EXISTING HOUSES / VILLAS

CAPITAL POLICE COLLEGE

PROPOSED ROAD-02

80' x 120'

EXISTING HOUSES

PARK

UNDER CONSTRUCTION SCHOOL

FENCE

DISPENSARY

GREEN

PROPOSED ROAD-01

LABORATORY

BOUNDARY

MEDIAN

NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD

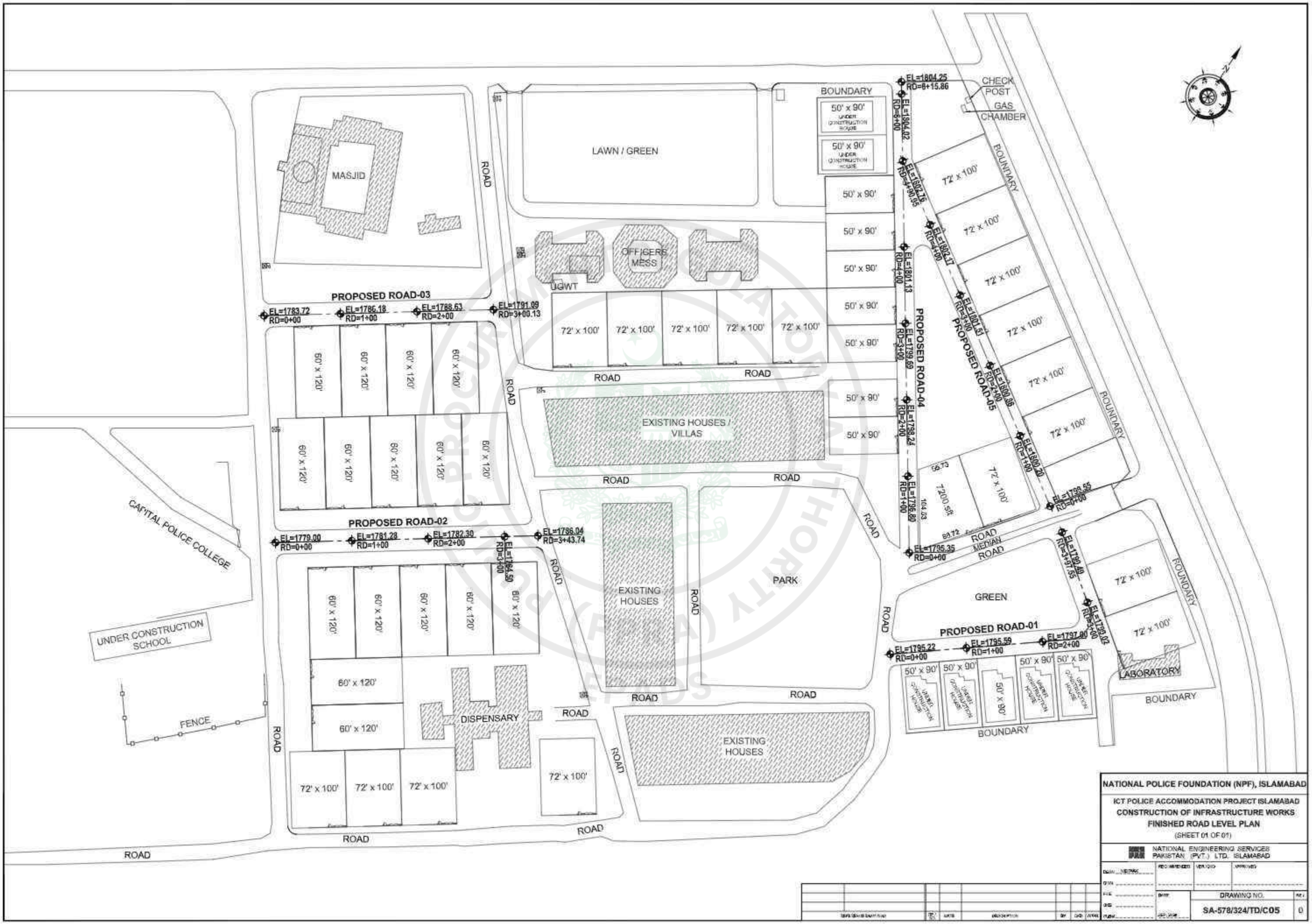
CONSTRUCTION OF INFRASTRUCTURE WORKS

ANNOTATION PLAN

(SHEET 01 OF 01)

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DRAWING NO. SA-578/324/TD/C04

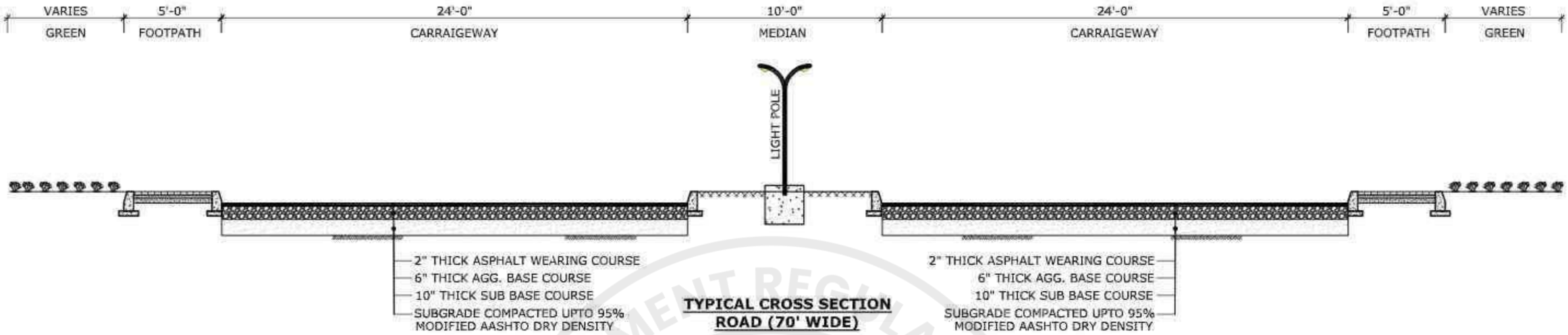


NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

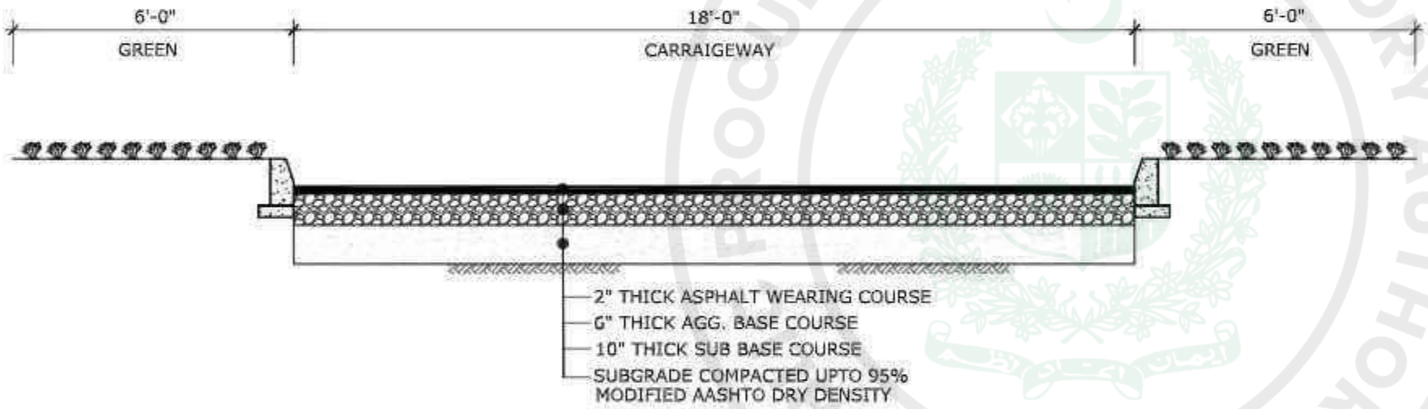
ICT POLICE ACCOMMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS
FINISHED ROAD LEVEL PLAN
(SHEET 01 OF 01)

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

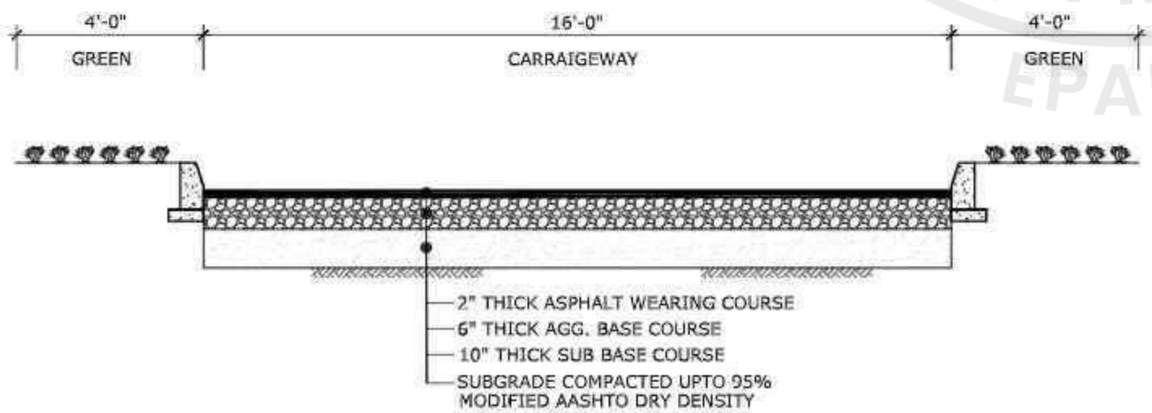
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CHK			
DES	DATE	DRAWING NO.	REV
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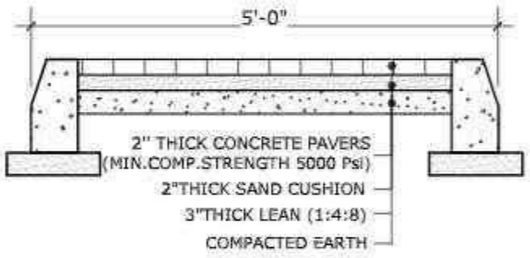
TYPICAL CROSS SECTION
ROAD (70' WIDE)



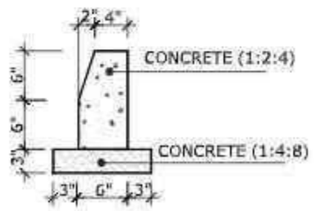
TYPICAL CROSS SECTION
ROAD (30' ROW)



TYPICAL CROSS SECTION
ROAD (24' ROW)



TYPICAL WALKWAY DETAIL



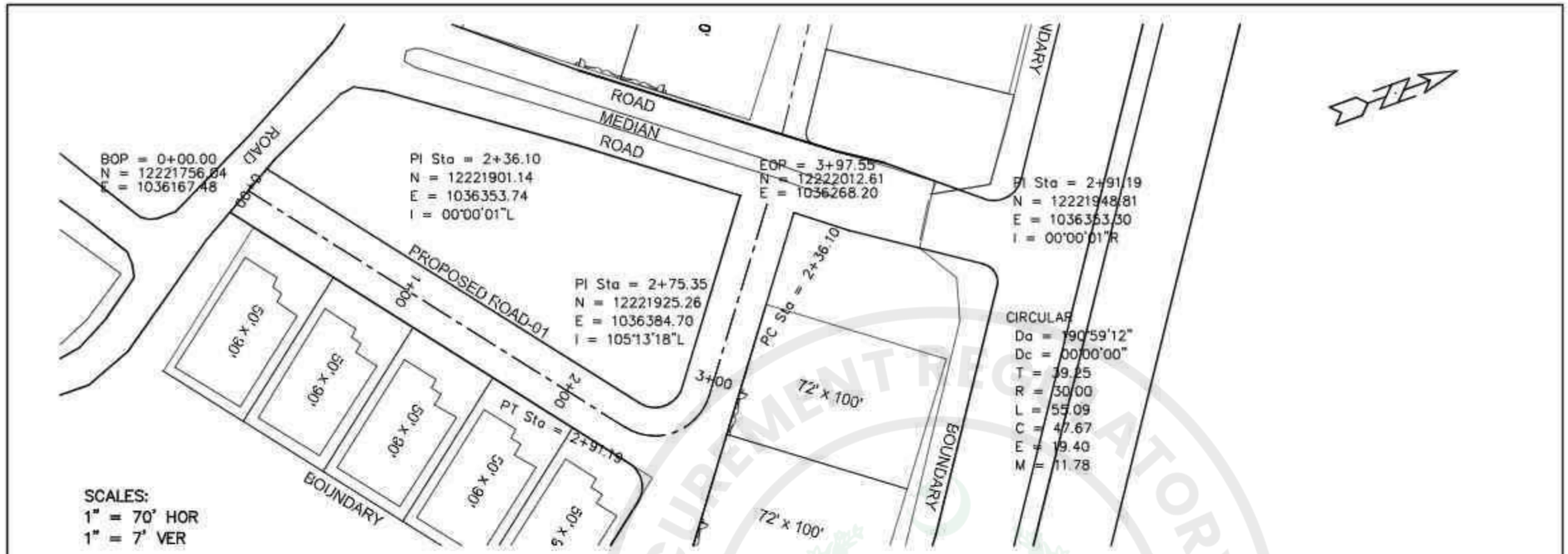
TYPICAL DETAIL OF
KERB STONE

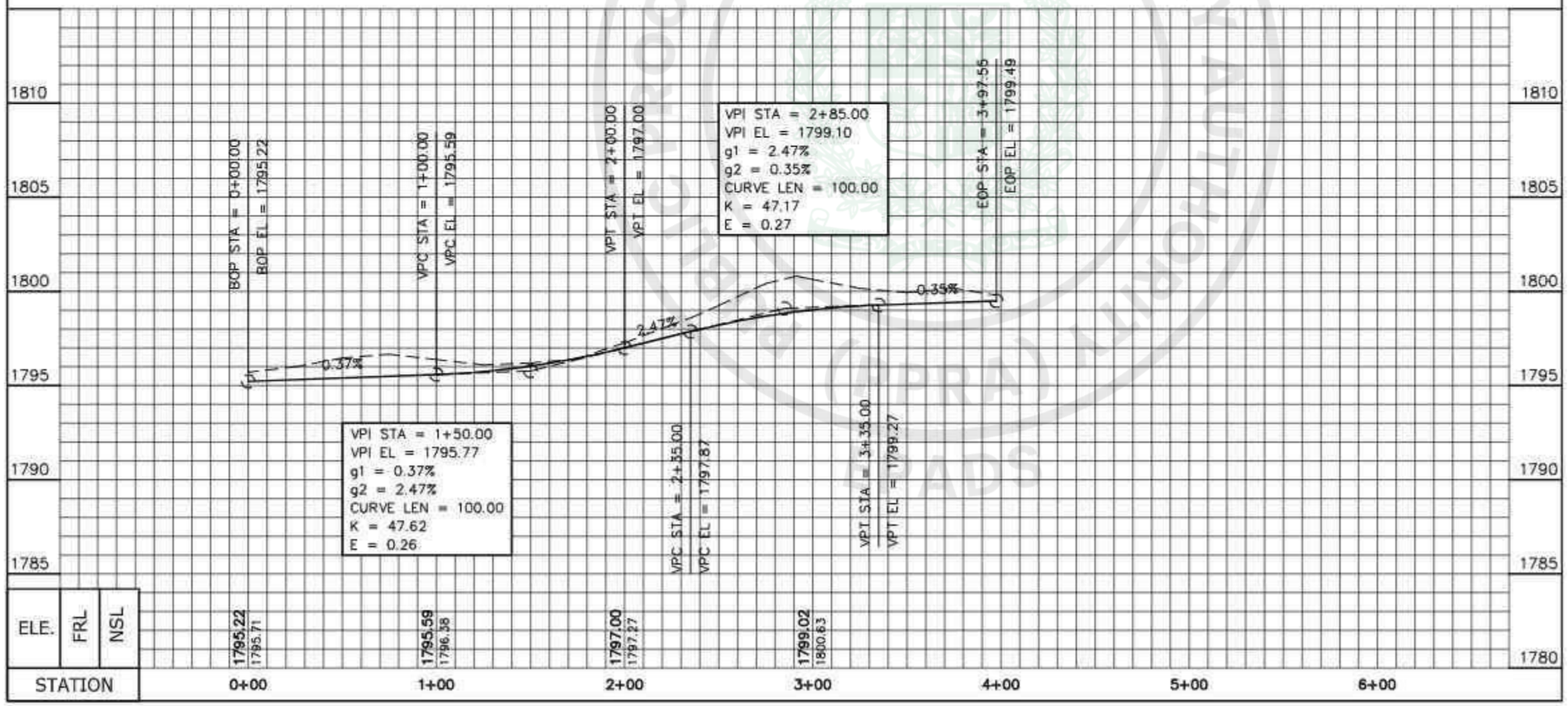
NOTES:

1. ALL DIMENSIONS ARE IN FPS UNITS, EXCEPT NOTED OTHERWISE.
2. READ THIS DRAWING IN CONJUNCTION WITH RELEVANT PROJECT DRAWINGS.

NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD	
ICT POLICE ACCOMMODATION PROJECT ISLAMABAD CONSTRUCTION OF INFRASTRUCTURE WORKS TYPICAL CROSS SECTIONS OF ROAD (SHEET 01 OF 01)	
NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD	
DRAWING NO.	SA-578/324/TD/C06
REV	0

PROCUREMENT REGULATORY AUTHORITY
PPRA
EPADS





NOTES:

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NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS

PLAN & PROFILE OF PROPOSED ROAD-01
(SHEET 1 OF 1)

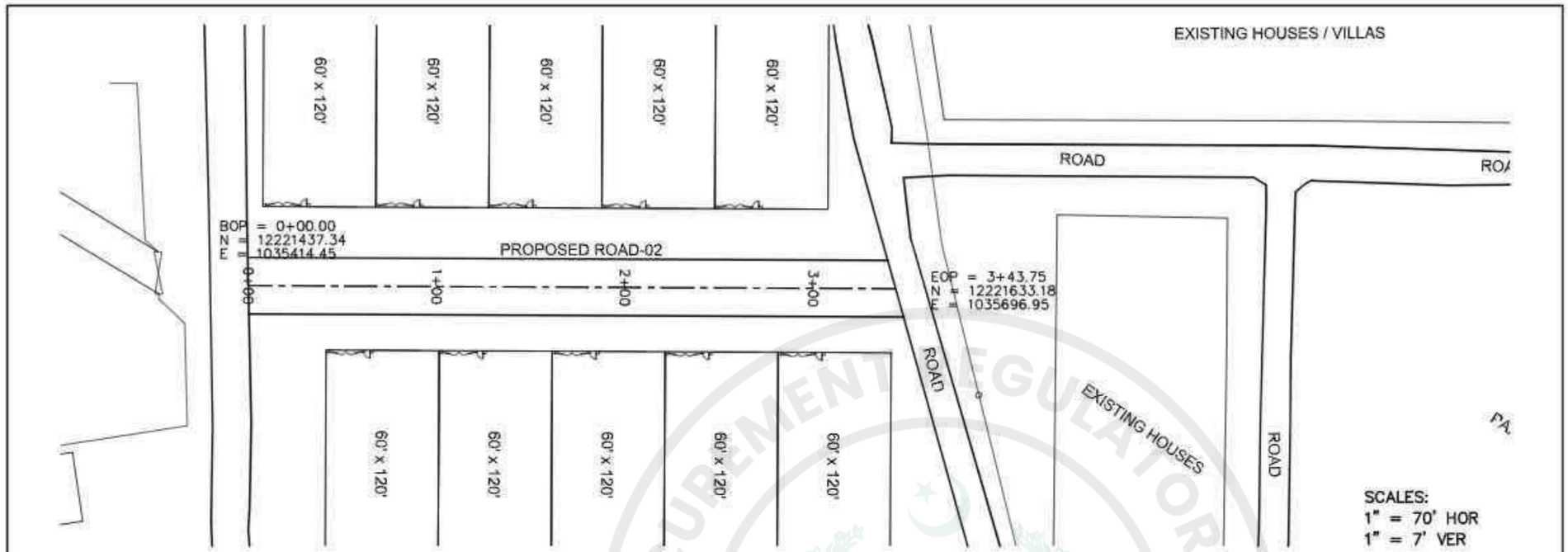
NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

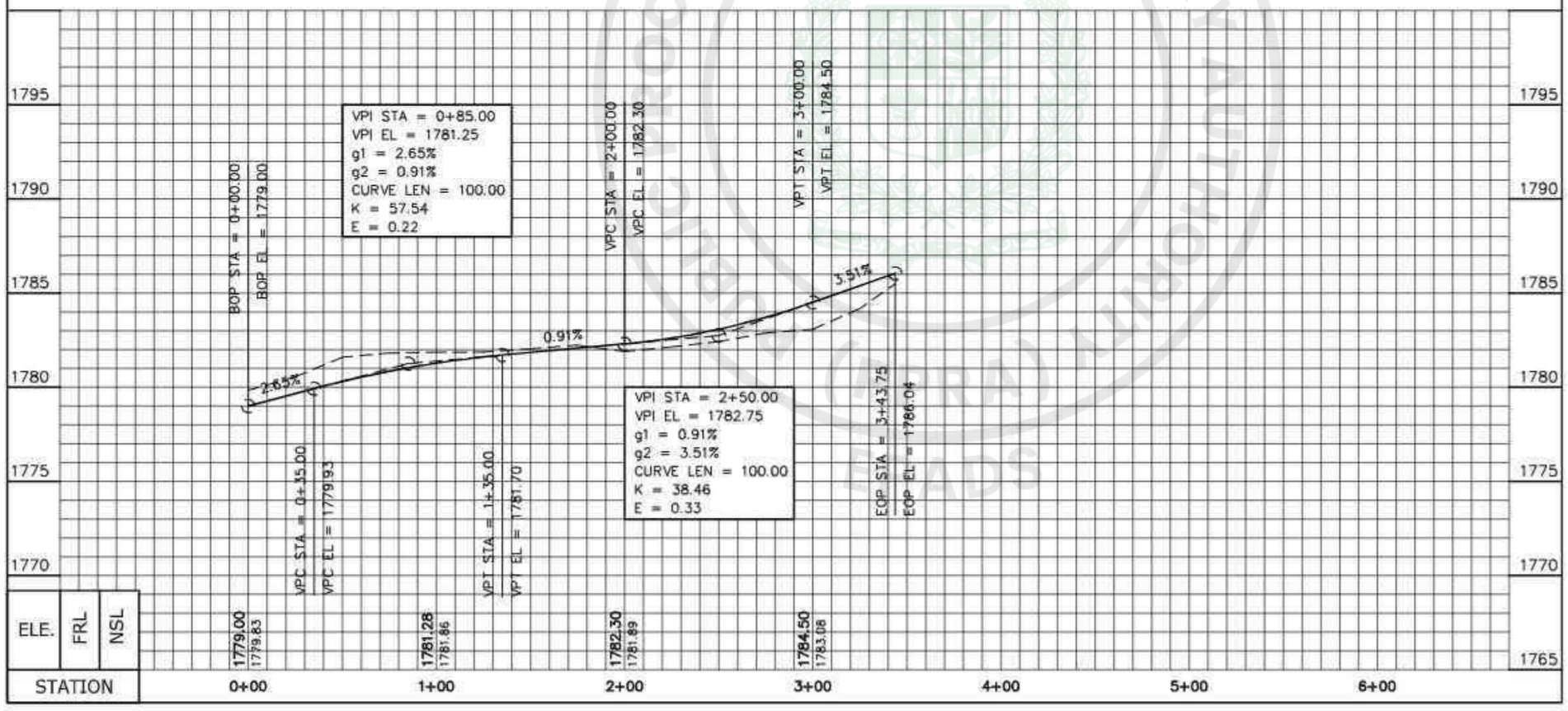
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DRAWN			
FILE			
CHD			
CHECK			

DATE: FEB, 2026
DRAWING NO.: SA-578/324/TD/C07
REV: 0

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	BY	CHD.	APPD.





NOTES:

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NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS

PLAN & PROFILE OF PROPOSED ROAD-02
(SHEET 1 OF 1)

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DESIGN	RECOMMENDED	VERIFIED	APPROVED
DRAWN			
TRACED			
CHKD			
SUBM.			

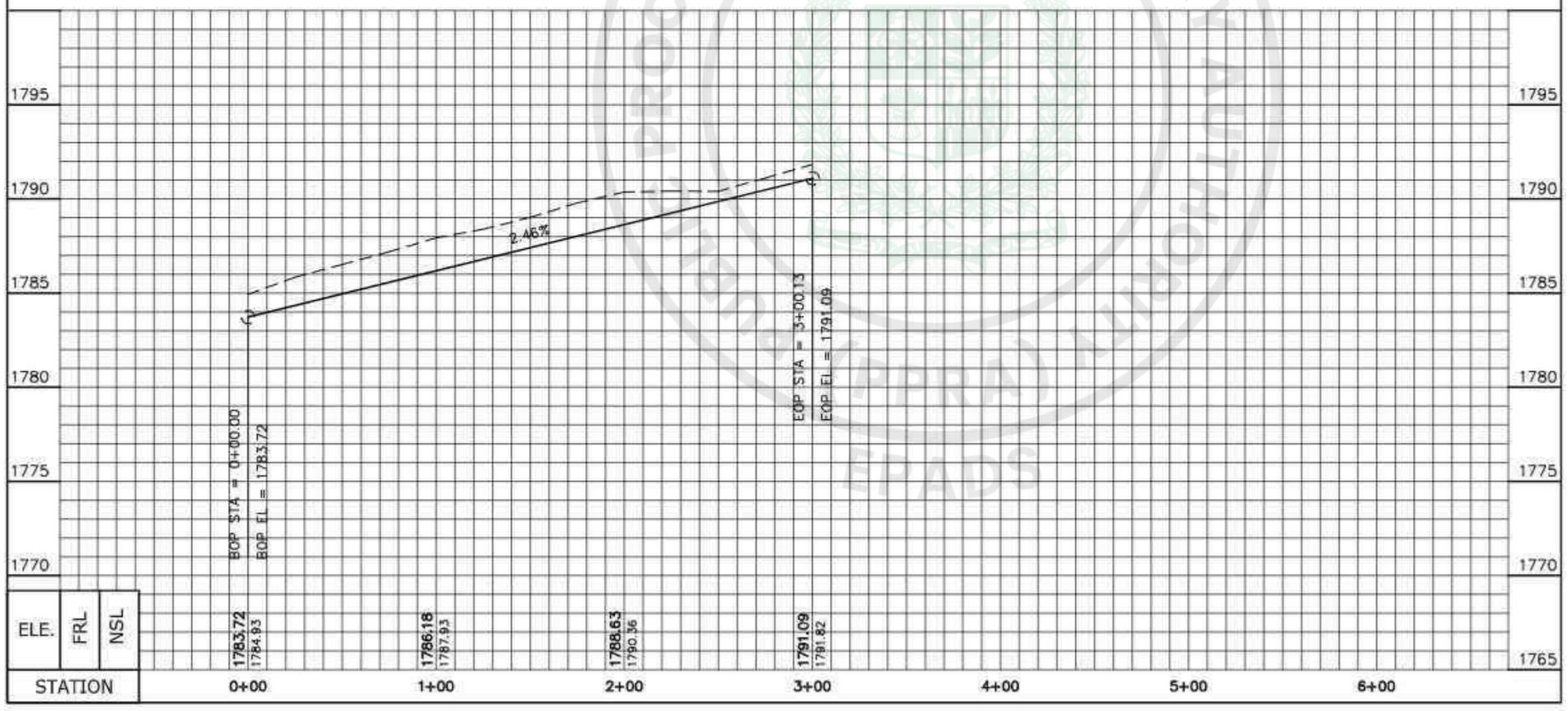
DATE: FEB, 2026
DRAWING NO.: SA-578/324/TD/C 08
REV.: 0

REFERENCE DRAWINGS	REV.	DATE	DESCRIPTION	BY	CHD.	APPR.

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SCALES:
1" = 70' HOR
1" = 7' VER



NOTES:

1- READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.
2- ALL DIMENSIONS ARE IN F.P.S. UNLESS MENTIONED OTHERWISE.

NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS

PLAN & PROFILE OF PROPOSED ROAD-03
(SHEET 1 OF 1)

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DESIGN	RECOMMENDED	VERIFIED	APPROVED
DRAWN			
TRACED			
CHKD			
SUBM			

DATE: FEB, 2026
DRAWING NO.: SA-578/324/TD/C 09
REV.: 0

REFERENCE DRAWINGS	REV.	DATE	DESCRIPTION	BY	CHD.	APPR.

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NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS

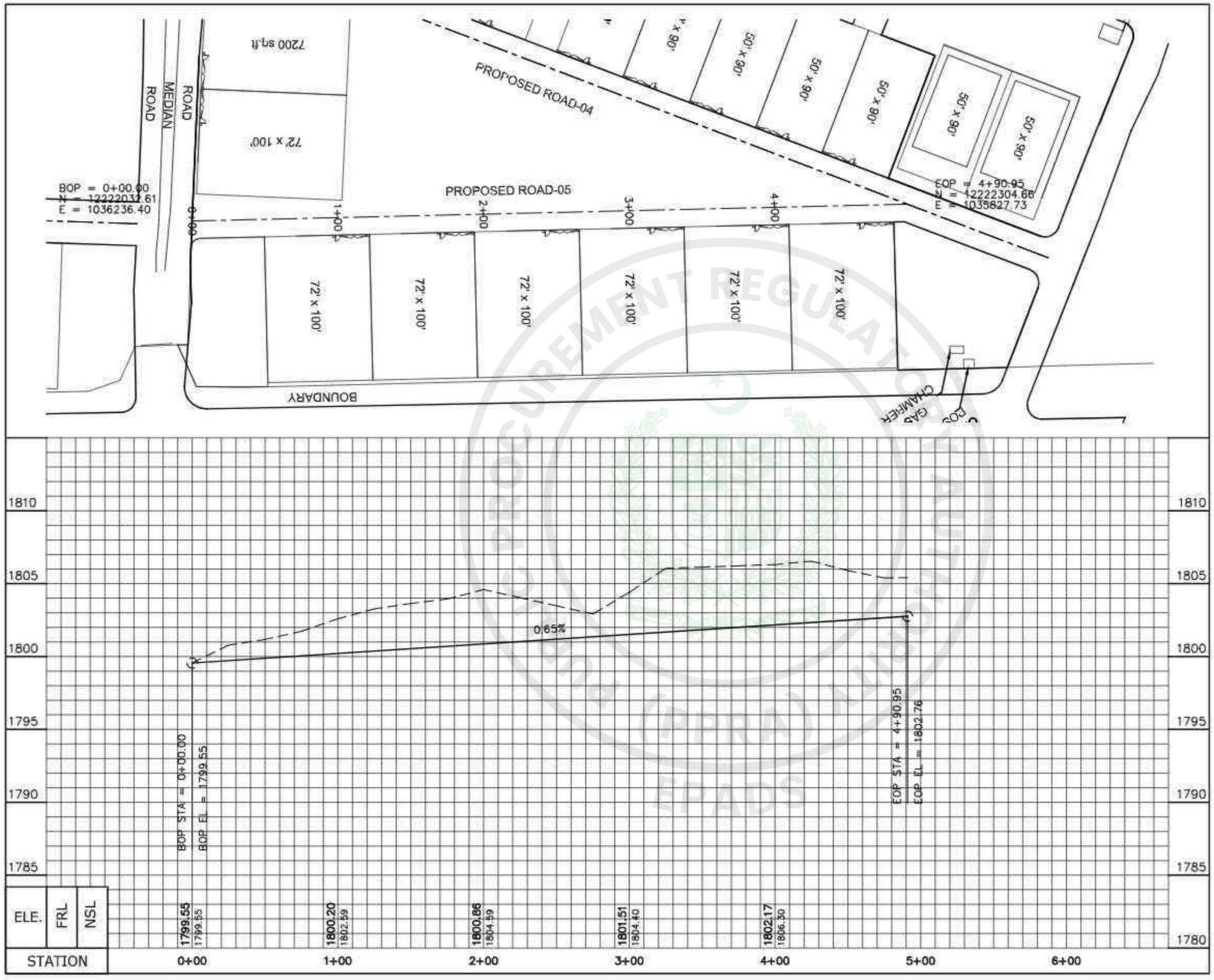
PLAN & PROFILE OF PROPOSED ROAD-04
(SHEET 1 OF 1)

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

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DATE | DRAWING NO. | SA-578/324/TD/C10 | 0

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SCALES:
1" = 70' HOR
1" = 7' VER

NOTES:

1- READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.
2- ALL DIMENSIONS ARE IN F.P.S. UNLESS MENTIONED OTHERWISE.

NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS

PLAN & PROFILE OF PROPOSED ROAD-05
(SHEET 1 OF 1)

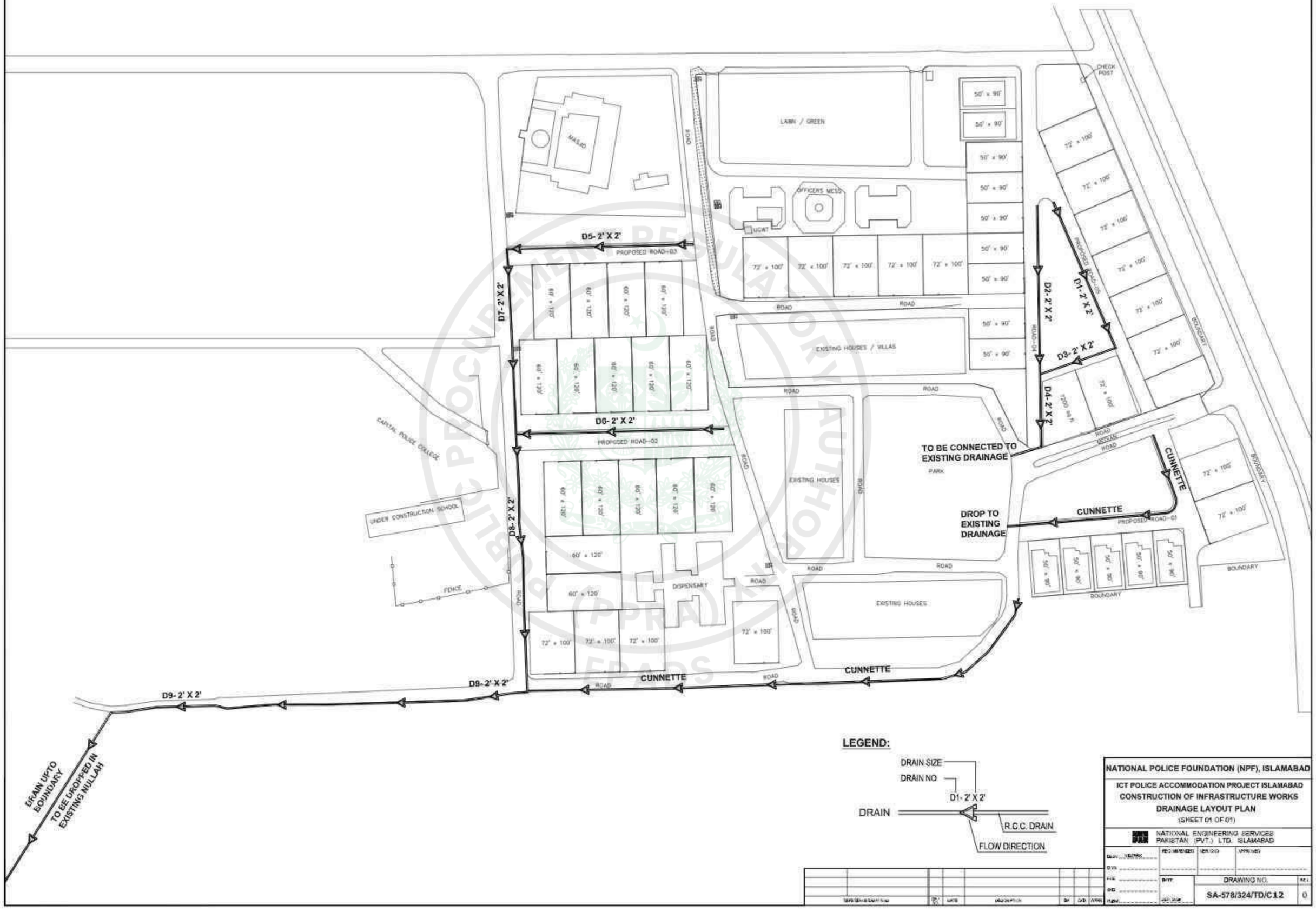
NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

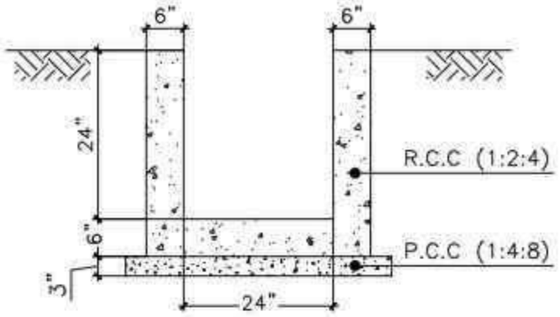
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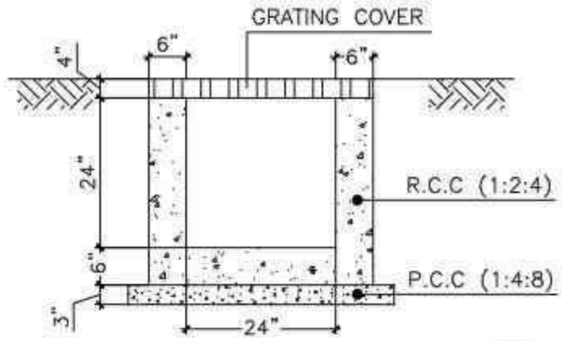
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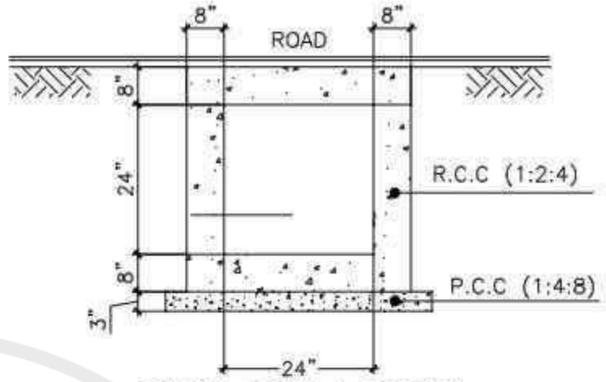

MASJID
ROAD
LAWN / GREEN
50' x 90'
CHECK POST
OFFICERS MESS
LIGHT
72' x 100'
D5- 2' X 2'
PROPOSED ROAD-03
D7- 2' X 2'
60' x 120'
EXISTING HOUSES / VILLAS
D2- 2' X 2'
D1- 2' X 2'
PROPOSED ROAD-05
D3- 2' X 2'
ROAD-04
D4- 2' X 2'
7200 sq.ft.
BOUNDARY
TO BE CONNECTED TO EXISTING DRAINAGE
PARK
CUNNETTE
PROPOSED ROAD-01
DROP TO EXISTING DRAINAGE
D6- 2' X 2'
PROPOSED ROAD-02
CAPITAL POLICE COLLEGE
UNDER CONSTRUCTION SCHOOL
FENCE
D8- 2' X 2'
DISPENSARY
EXISTING HOUSES
D9- 2' X 2'
DRAIN UPTO BOUNDARY TO BE DROPPED IN EXISTING NULLAH
LEGEND:
DRAIN SIZE
DRAIN NO
D1- 2' X 2'
DRAIN
R.C.C. DRAIN
FLOW DIRECTION
NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD
ICT POLICE ACCOMMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS
DRAINAGE LAYOUT PLAN
(SHEET 01 OF 01)
NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD
DRAWING NO.
SA-578/324/TD/C12
0



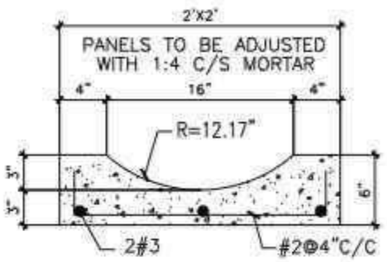
TYPICAL OPEN DRAIN X-SECTION
(WHERE REQUIRED)
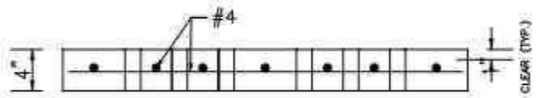


TYPICAL OPEN DRAIN X-SECTION
AT COLLECTION CHAMBER LOCATIONS



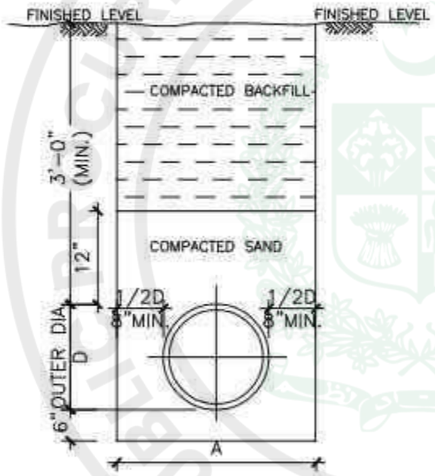
TYPICAL DRAIN X-SECTION
ROAD CROSSING



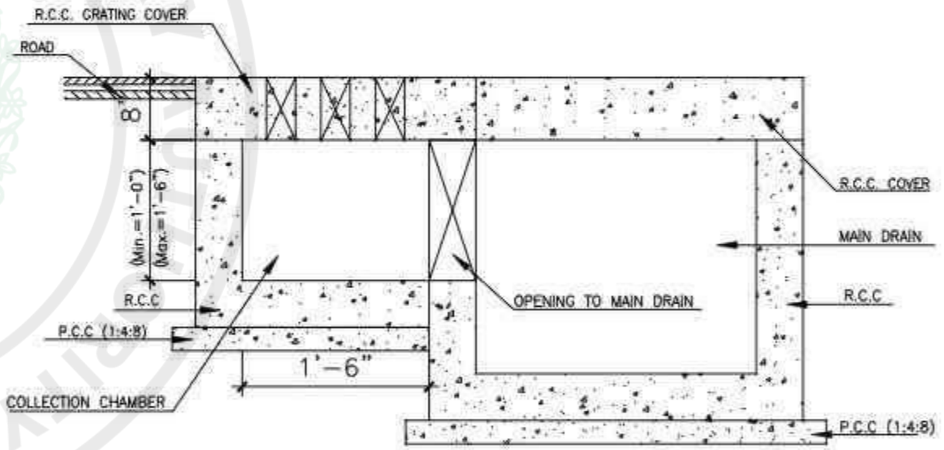
TYP. DETAIL OF CUNNETTE



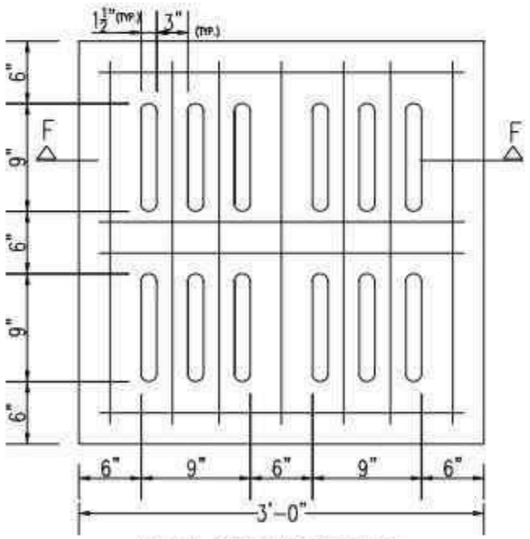
SECTION F-F



TRENCH DETAIL
(GENERAL)



TYPICAL SECTION OF R.C.C. COLLECTION CHAMBER
AND DRAIN UNDER WALKWAYS



PLAN GRATING COVER

NOTE: 4" THICK PRECAST R.C.C GRATING WITH #4 BARS BOTH WAYS IN SINGLE LAYER AT MID DEPTH SHALL BE USED IN CENTRAL MEDIAN.

TABLE

SEHEDULE OF TRENCH

SR. NO.	PIPE INSIDE DIA.	WIDTH (A) WITH TIMBERING	WIDTH (A) WITHOUT TIMBERING
1	9"	2'-6"	3'-0"
2	12"	3'-0"	3'-6"
3	15"	3'-3"	4'-0"
4	18"	3'-6"	4'-6"
5	24"	4'-0"	5'-0"
6	30	4'-6"	5'-6"

TABLE -3 (SLOPE OF DRAINS)

DRAIN SIZE		MININMUM SLOPE	MAXIMUM SLOPE
WIDTH	DEPTH		
18"	18"	0.0015	0.015
18"	24"	0.0015	0.013
24"	24"	0.0015	0.010
24"	30"	0.0010	0.009
24"	36"	0.0010	0.008
36"	36"	0.0010	0.006

NOTES:

1- READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.
2- ALL DIMENSIONS ARE IN F.P.S. UNLESS MENTIONED OTHERWISE.

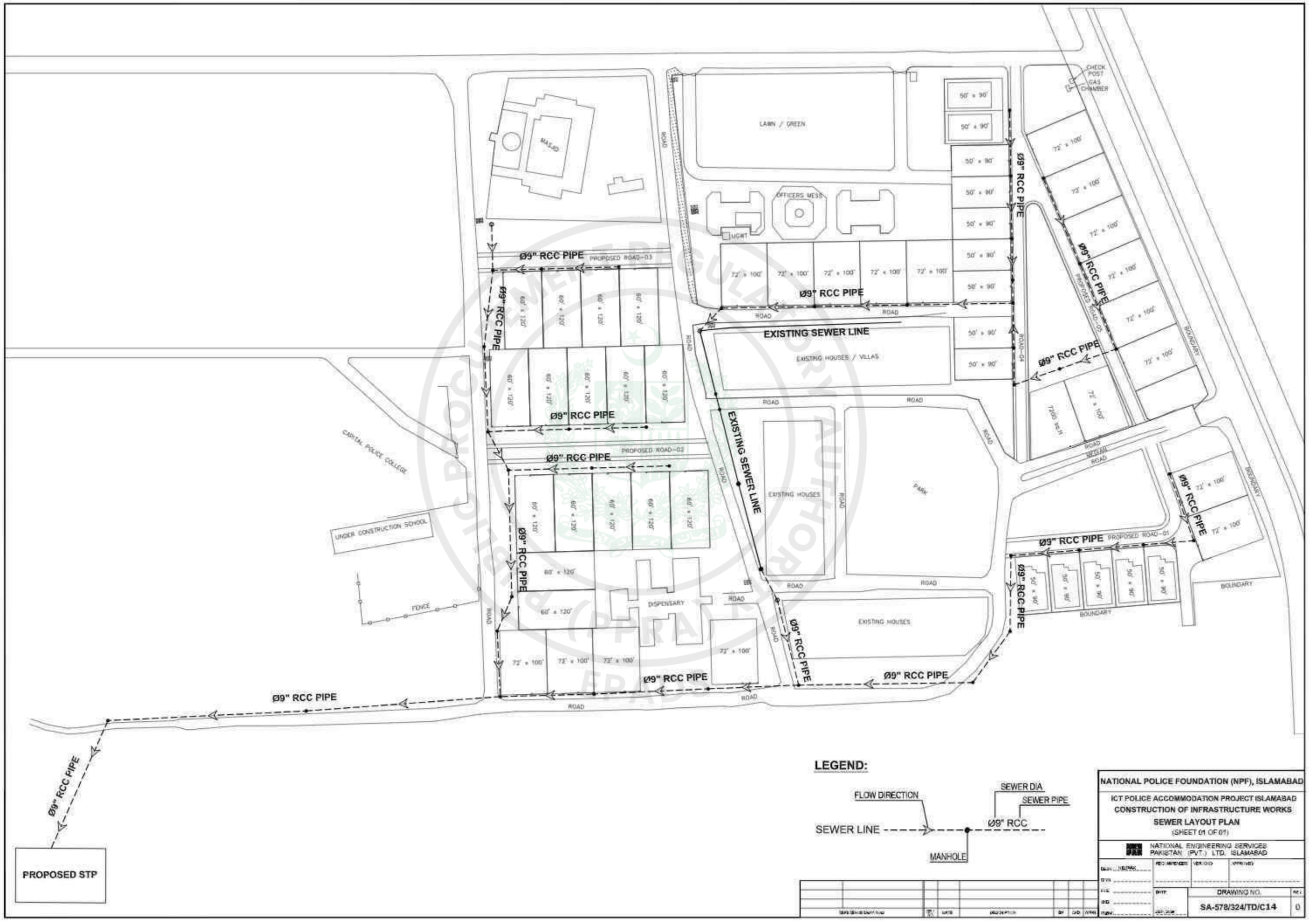
NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

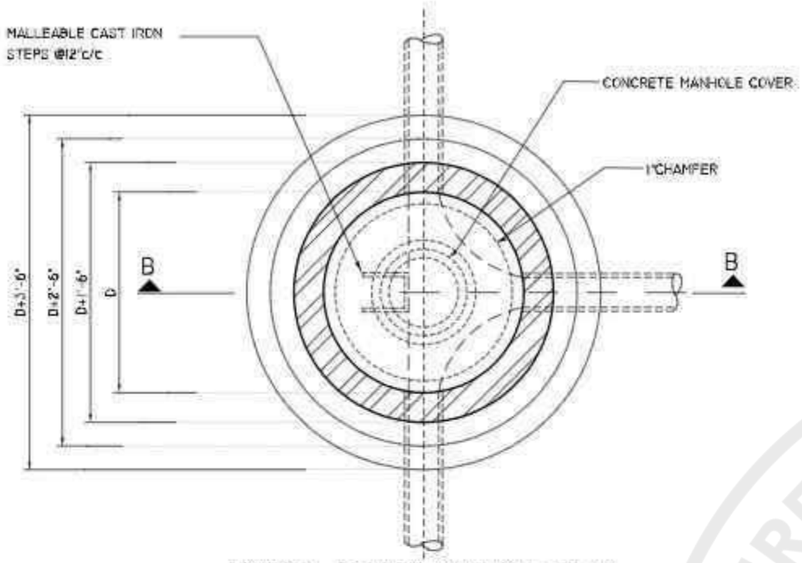
ICT POLICE ACCOMMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS
DRAINAGE MISCELLEANOUS DETAILS
(SHEET 01 OF 01)

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

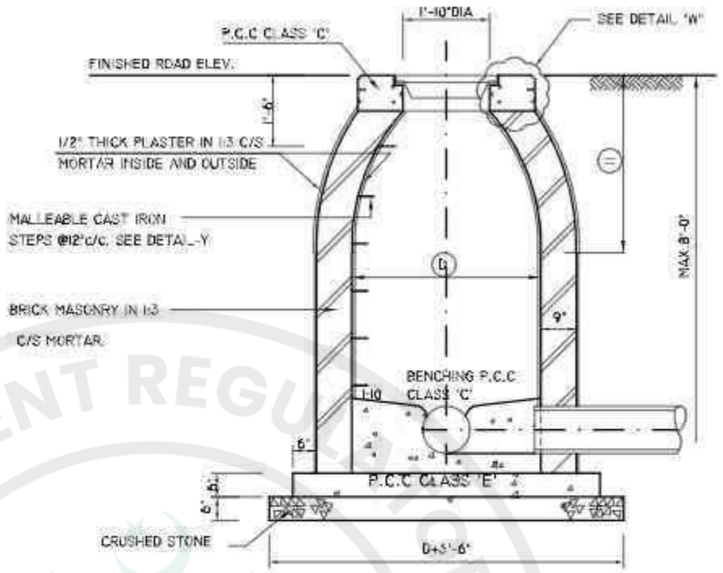
DRAWING NO.	REV.
SA-578/324/TD/C13	0

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MASJID
LAWN / GREEN
OFFICERS MESS
CHECK POST
GAS CHAMBER
UG/WT
Ø9" RCC PIPE
PROPOSED ROAD-03
PROPOSED ROAD-02
PROPOSED ROAD-01
ROAD-04
EXISTING SEWER LINE
EXISTING HOUSES / VILLAS
EXISTING HOUSES
DISPENSARY
PARK
ROAD
BOUNDARY
FENCE
CAPITAL POLICE COLLEGE
UNDER CONSTRUCTION SCHOOL
PROPOSED STP
50' x 90'
72' x 100'
60' x 120'
LEGEND:
FLOW DIRECTION
SEWER DIA
SEWER PIPE
SEWER LINE
Ø9" RCC
MANHOLE
NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD
ICT POLICE ACCOMMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS
SEWER LAYOUT PLAN
(SHEET 01 OF 01)
NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD
DRAWING NO.
SA-578/324/TD/C14
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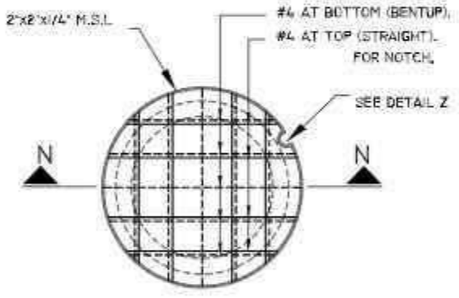


TYPICAL SEWER MANHOLE PLAN
(FOR DEPTH ≤ 8.FT.)

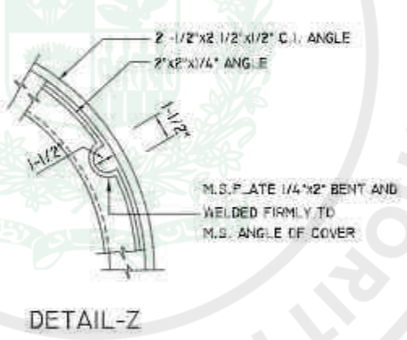


SECTION B-B

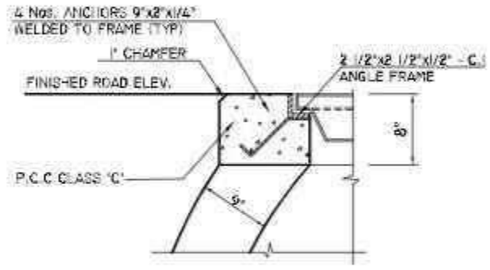
TABLE -I			
SEHEDULE OF MANHOLE			
SR. NO.	PIPE DIA. (INCH)	Ⓓ	Ⓗ
1	9 TO 15	4'-0"	3'-6"
2	18 TO 30	5'-0"	4'-0"



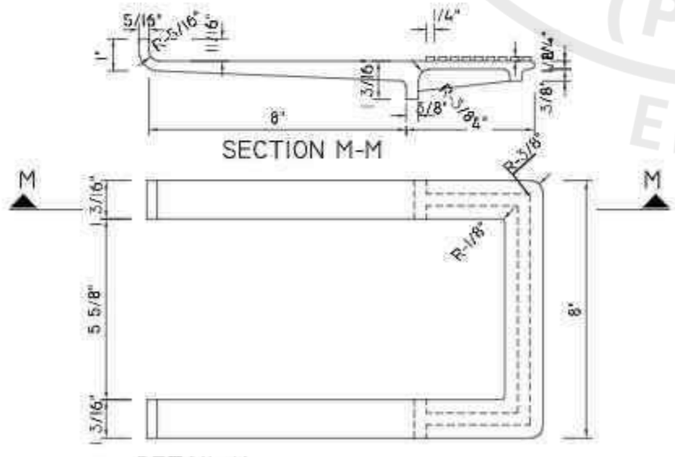
MANHOLE COVER PLAN



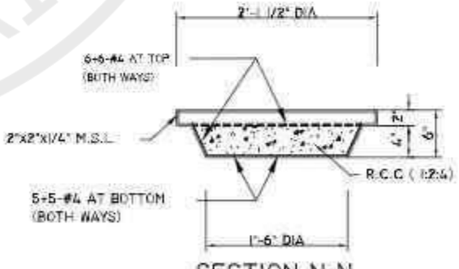
DETAIL-Z



DETAIL-W



DETAIL-Y
PLAN OF CAST IRON STEP



SECTION N-N

NOTES:

1– READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.
2– ALL DIMENSIONS ARE IN F.P.S. UNLESS MENTIONED OTHERWISE.
3– RCC PIPE TRENCH WILL BE 3FT WIDE.
4– THE LOCATION OF MANHOLES NEAR RESIDENTIAL UNITS MAY BE ADJUSTED AS PER SITE CONDITIONS.

NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS

SEWER MISCELLEANOUS DETAILS (MANHOLE)
(SHEET 1 OF 2)

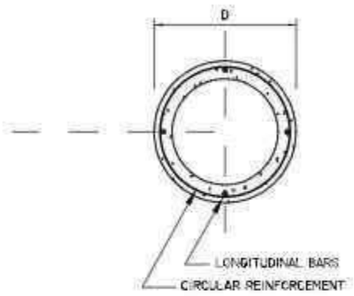
NESPAK NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

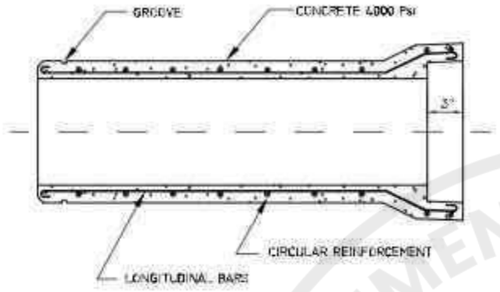
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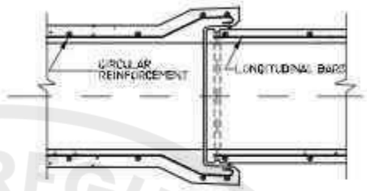
DESN. NESPAK	RECOMMENDED	VERIFIED	APPROVED
DWN.			
FILE			
CKD			
SUBM			

DATE	DRAWING NO.	REV.
SEP, 2020	SA-578/324/TD/C15	0

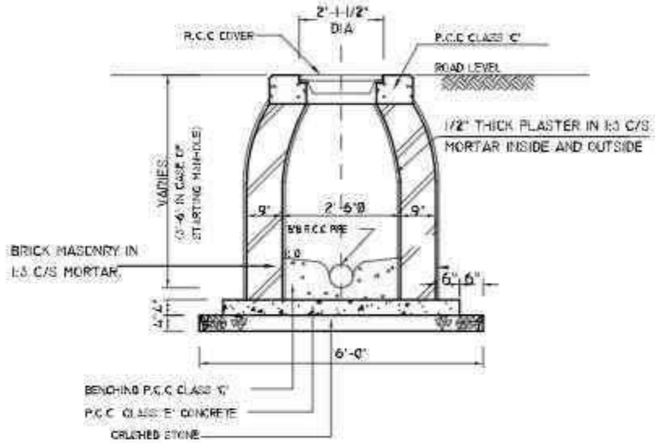
PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS



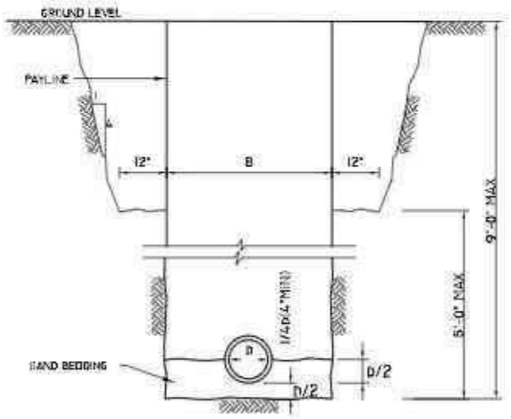




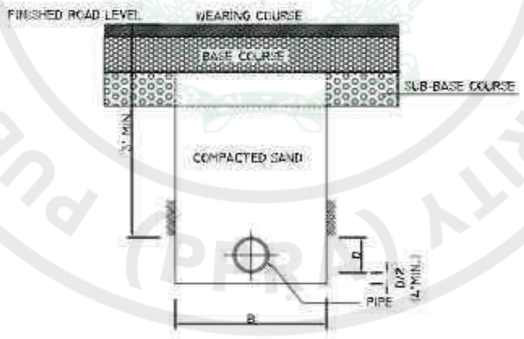
SPECIFIC SOCKET AND SPIGOT JOINT AND REINFORCEMENT DETAILS



TYPICAL DETAIL OF HOUSE CHAMBER



SECTION OF TRENCH WITHOUT TIMBERING & BRACING



DETAIL FOR PIPE CROSSING UNDER PAVED AREA

TABLE - 3

RECOMMENDED R.C.C PIPES OF 8FT. BARREL LENGTH
(WALL THICKNESS AND REINFORCEMANT DETAILS)

SR. NO.	PIPE INNER DIA.	WALL THICKNESS	SIZE OF RING BARS	NOS.OF CIRCULAR RINGS		NO.OF RINGS FOR BELL	STAIGHT BARS	
				INNER GAUGE	OUTER GAUGE		DIA.	NO. OF BARS INNER GAUGE	NO. OF BARS OUTER GAUGE
1	6" **	1"	3/16"	28	-	2	3/16"	4	-
2	9" **	1"	3/16"	28	-	2	3/16"	4	-
3	12" *	2"	3/16"	28	-	2	3/16"	4	-
4	15" *	2 1/4"	3/16"	28	-	2	3/16"	4	-
5	18" *	2 1/2"	3/16"	28	-	2	3/16"	4	-
6	24" *	3"	3/16"	28	-	2	3/16"	5	-

* ASTM C76/90 CLASS II WALL 'B' PIPES
** BSS 601I PART I 1981 CLASS 'L'

NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS

SEWER MISCELLEANOUS DETAILS (RCC PIPE)
(SHEET 2 OF 2)

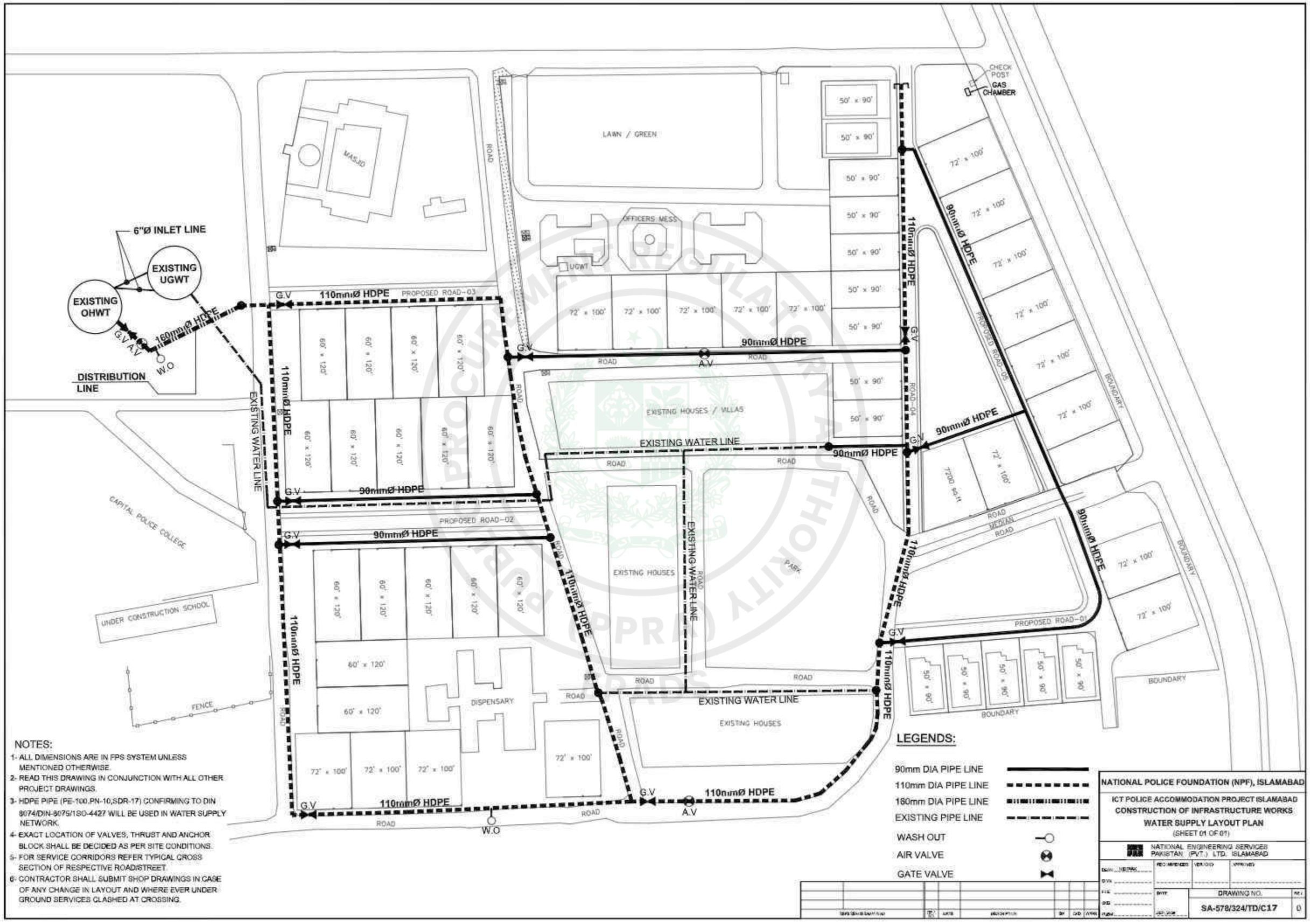
NESPAK NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LBD. ISLAMABAD

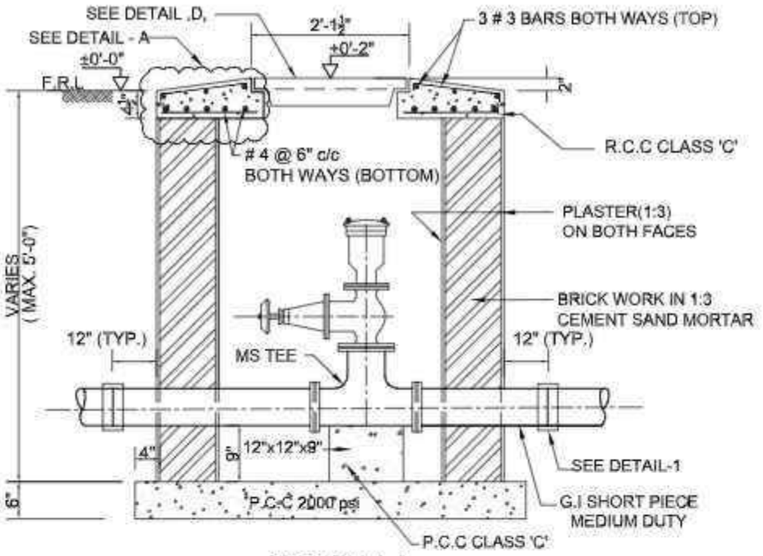
REFERENCE DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

DESN. NESPAK	RECOMMENDED	VERIFIED	APPROVED
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FILE			
CKD			
SUBM			

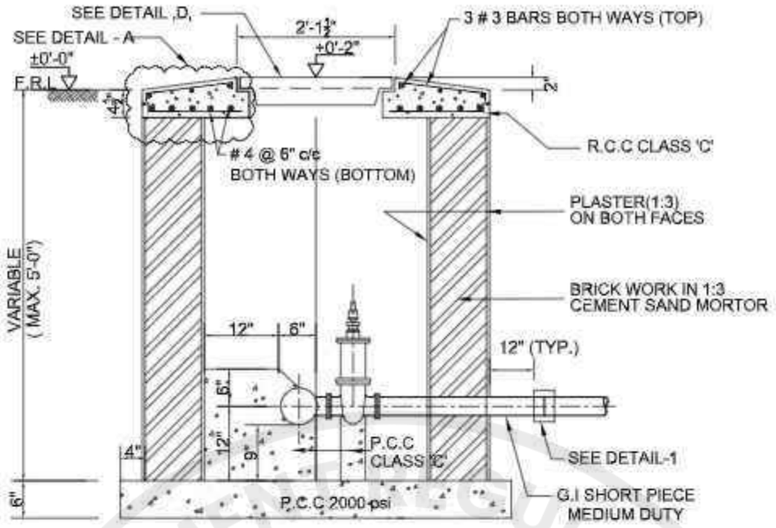
DATE	DRAWING NO.	REV.
SEP, 2020	SA-578/324/TD/C16	0

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA)

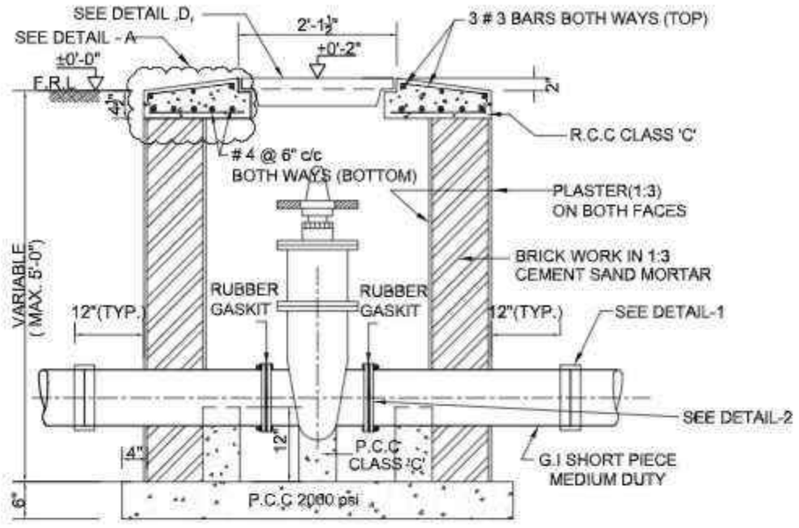

6"Ø INLET LINE
EXISTING UGWT
EXISTING OHWT
160mmØ HDPE
G.V
A.V
W.O
DISTRIBUTION LINE
110mmØ HDPE
PROPOSED ROAD-03
EXISTING WATER LINE
90mmØ HDPE
PROPOSED ROAD-02
CAPITAL POLICE COLLEGE
UNDER CONSTRUCTION SCHOOL
FENCE
MASJID
LAWN / GREEN
OFFICERS MESS
UGWT
CHECK POST
GAS CHAMBER
EXISTING HOUSES / VILLAS
EXISTING HOUSES
DISPENSARY
PROPOSED ROAD-01
PROPOSED ROAD-05
ROAD-04
ROAD
MEDIAN
PARK
BOUNDARY
50' x 90'
60' x 120'
72' x 100'
NOTES:
1- ALL DIMENSIONS ARE IN FPS SYSTEM UNLESS MENTIONED OTHERWISE.
2- READ THIS DRAWING IN CONJUNCTION WITH ALL OTHER PROJECT DRAWINGS.
3- HDPE PIPE (PE-100,PN-10,SDR-17) CONFIRMING TO DIN 8074/DIN-8075/ISO-4427 WILL BE USED IN WATER SUPPLY NETWORK.
4- EXACT LOCATION OF VALVES, THRUST AND ANCHOR BLOCK SHALL BE DECIDED AS PER SITE CONDITIONS.
5- FOR SERVICE CORRIDORS REFER TYPICAL CROSS SECTION OF RESPECTIVE ROAD/STREET.
6- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS IN CASE OF ANY CHANGE IN LAYOUT AND WHERE EVER UNDER GROUND SERVICES CLASHED AT CROSSING.
LEGENDS:
90mm DIA PIPE LINE
110mm DIA PIPE LINE
160mm DIA PIPE LINE
EXISTING PIPE LINE
WASH OUT
AIR VALVE
GATE VALVE
NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD
ICT POLICE ACCOMMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS
WATER SUPPLY LAYOUT PLAN
(SHEET 01 OF 01)
NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD
DRAWING NO.
SA-578/324/TD/C17
0



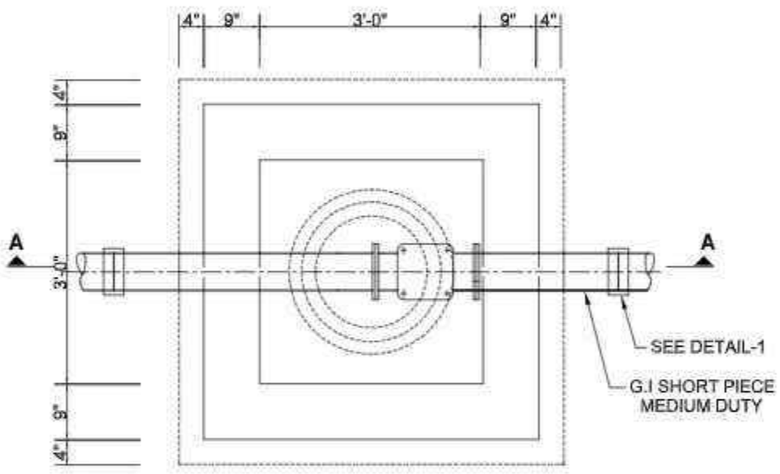
SECTION A-A



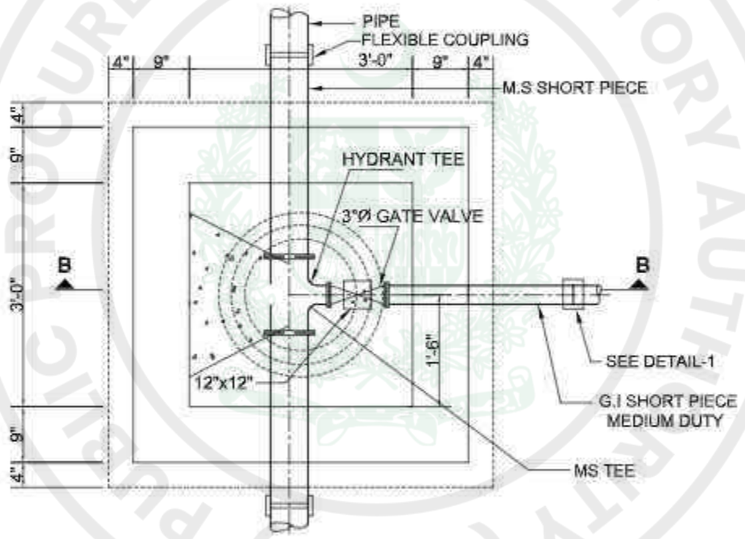
SECTION B-B



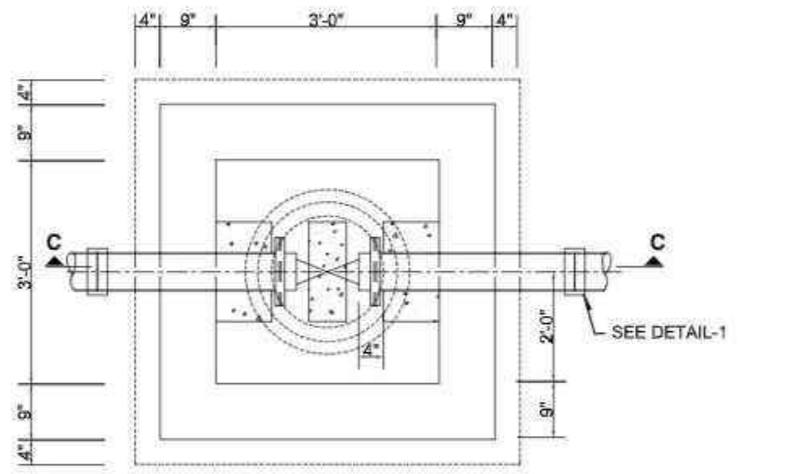
SECTION C-C



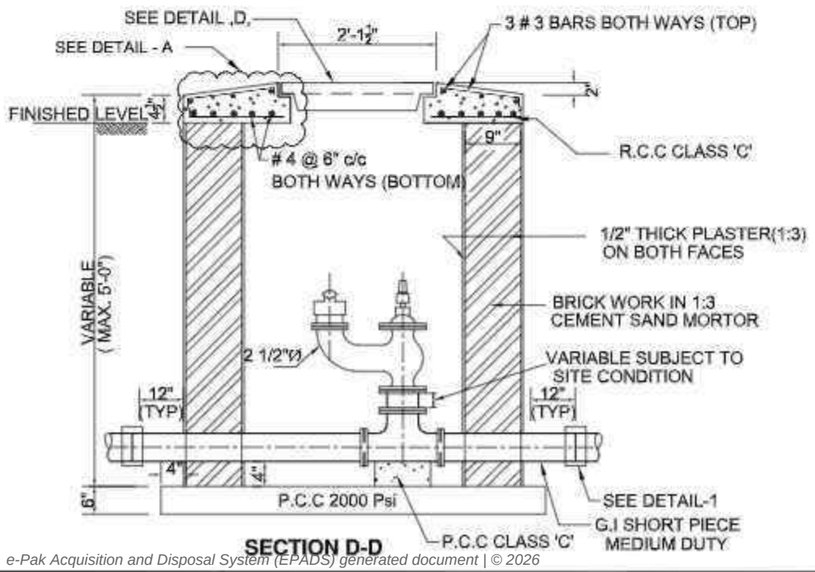
SECTIONAL PLAN OF AIR VALVE CHAMBER



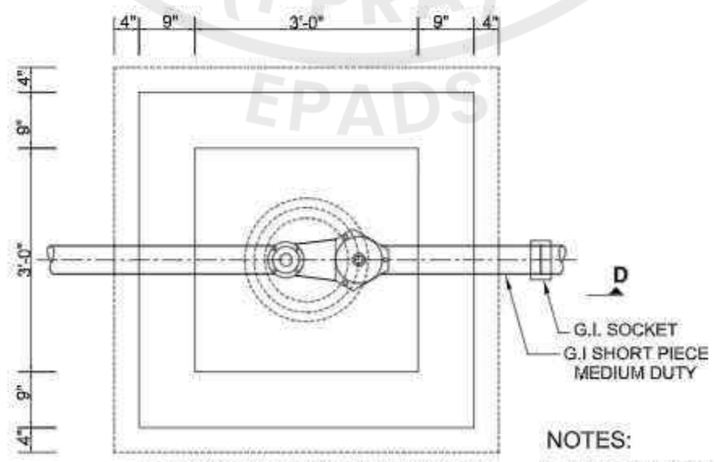
SECTIONAL PLAN OF WASHOUT CHAMBER



SECTIONAL PLAN OF GATE / SLUICE VALVE CHAMBER



SECTION D-D



PLAN OF FIRE HYDRANT TYPICAL

NOTES:

1. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT DRAWINGS.

REFERENCE DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CKD	APPR.

NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS

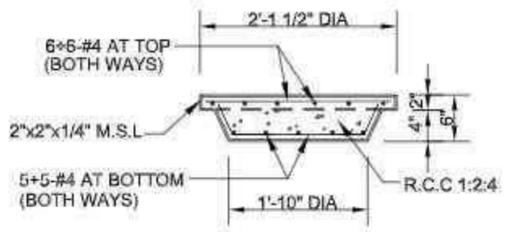
WATER DISTRIBUTION NETWORK
TYPICAL DETAILS OF VALVE CHAMBER

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD. ISLAMABAD

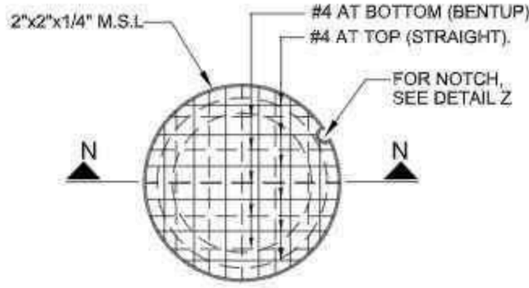
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CHECKED	DATE	DRAWING NO.	REV.
		SA-578/324/TD/C18	0

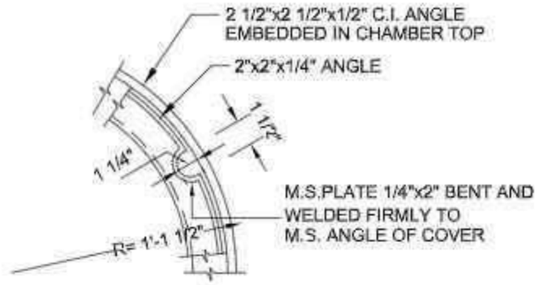
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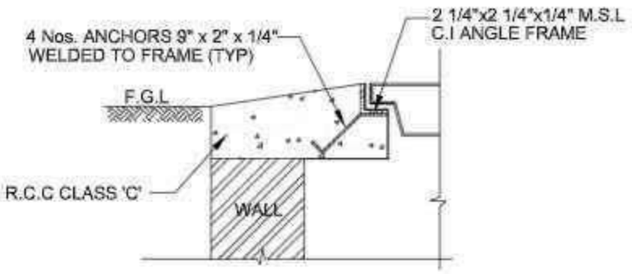
SECTION N-N



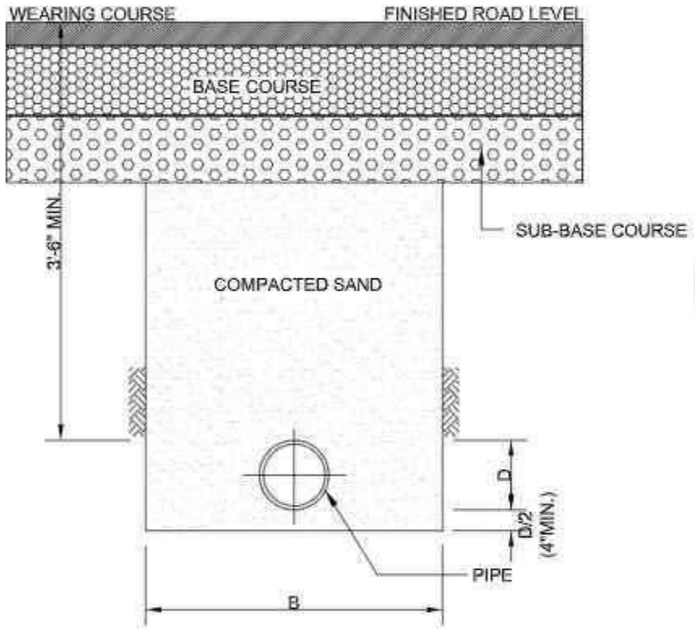
DETAIL D
MANHOLE COVER PLAN



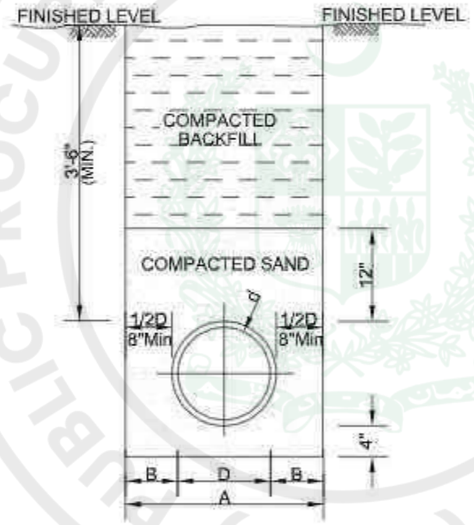
DETAIL-Z



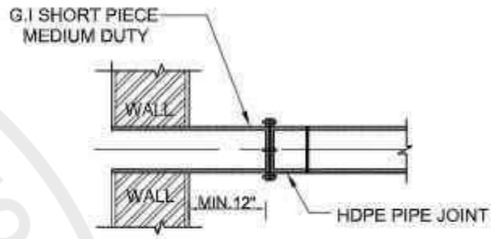
DETAIL - A



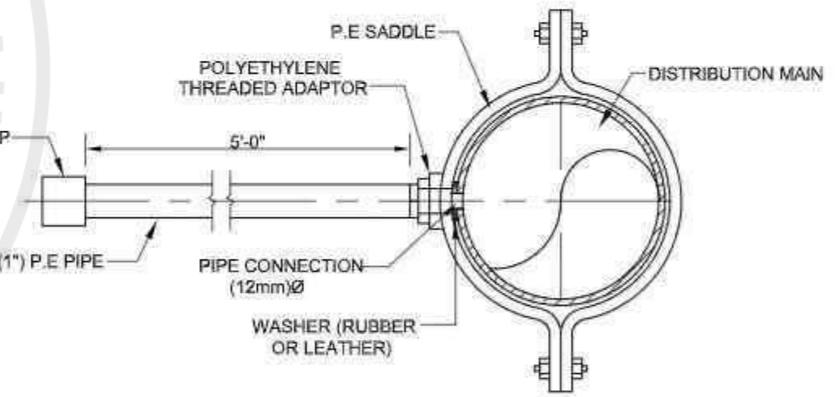
DETAIL FOR PIPE CROSSING
UNDER PAVED AREA



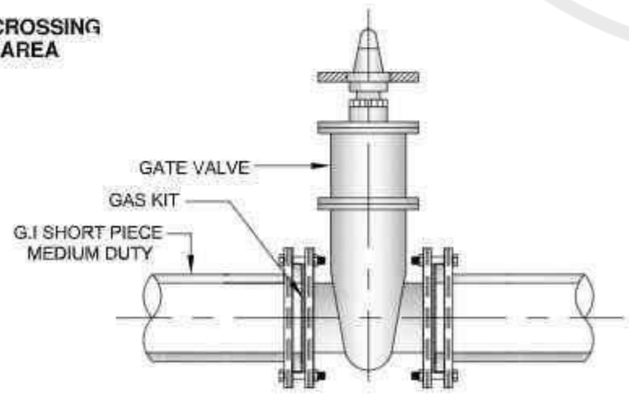
TRENCH DETAIL



DETAIL-1
CONNECTION DETAIL
OF G.I & HDPE PIPE



HOUSE CONNECTION DETAIL
FOR BUILDING



DETAIL-2

TRENCH WIDITH SCHEDULE	
NOMINAL INTERNAL DIA OF PIPE	MIN-TRENCH WIDTH A
3"	24"
4"	24"
6"	30"
8"	30"
10"	36"
12"	36"

NOTES:

1. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT DRAWINGS.

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	BY	CKD	APVD

NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS

WATER DISTRIBUTION NETWORK
MISCELLANEOUS DETAILS

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DESIGN	RECOMMENDED	VERIFIED	APPROVED
DWN.			
CKD.			
CHKD.			

DATE: Feb 2026

DRAWING NO: SA-578/324/TD/C19

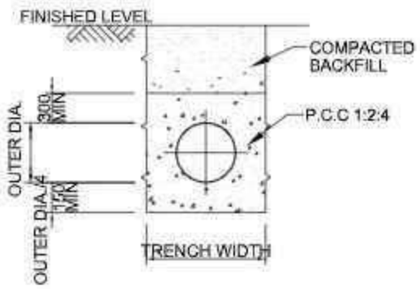
REV: 0

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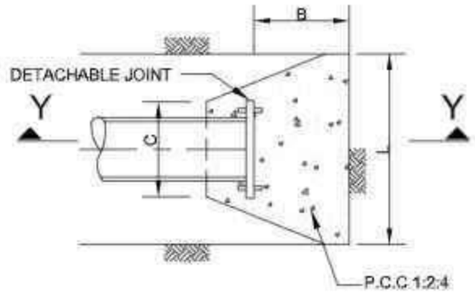
ANCHOR BLOCK DIMENSIONS FOR PIPE FITTINGS

DIA IN INCH	AT TEES AND DEAD ENDS				AT 90° BENDS				AT 45° BENDS				AT 22 1/2° BENDS			
	C	B	D	L	C	B	D	L	C	B	D	L	C	B	D	L
3	4	12	12	12	2	12	24	12	4	12	12	12	6	12	12	12
4	6	12	12	12	2	12	24	18	4	12	12	12	6	12	12	12
6	8	12	15	24	2	18	24	30	4	12	18	18	6	12	18	12
8	12	12	18	33	6	18	27	36	12	12	21	24	18	12	18	21
10	12	12	24	42	8	27	27	48	14	12	27	30	18	12	24	21
12	21	12	30	48	10	30	33	60	16	15	30	36	21	12	27	24

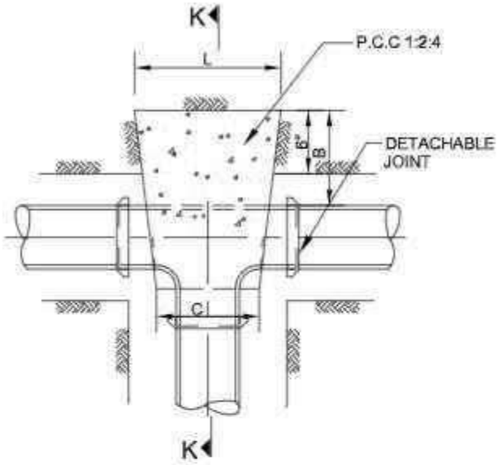
NOTE:- ALL DIMENSIONS ARE IN INCHES.



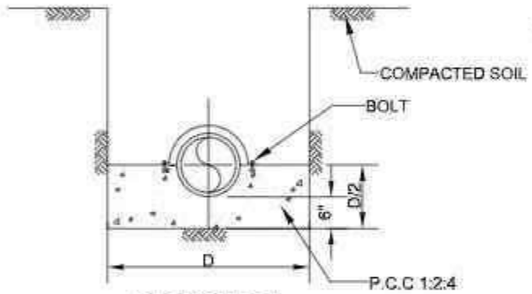
CONCRETE ENCASEMENT
(ONLY AT LOCATIONS APPROVED BY THE ENGINEER)



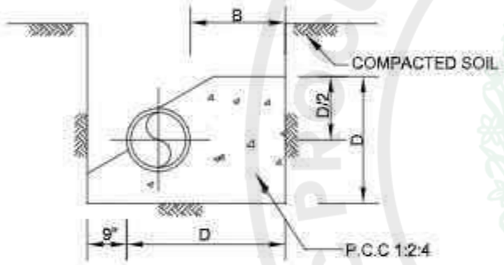
PLAN DEAD END BLOCK



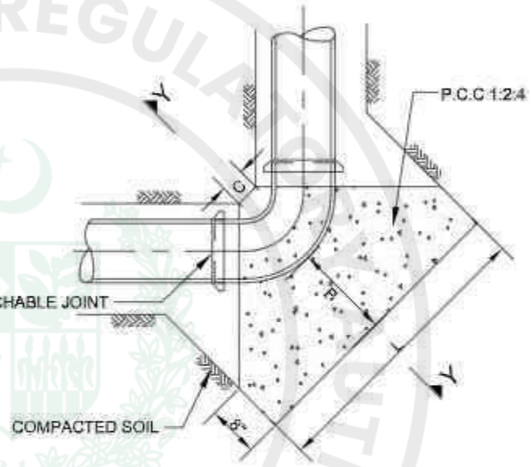
PLAN TEE



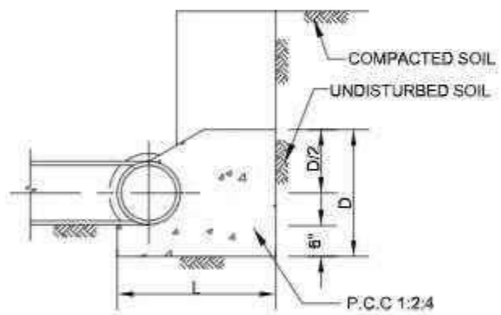
SECTION Z-Z



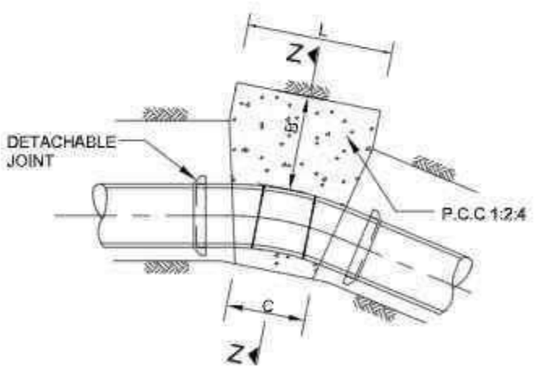
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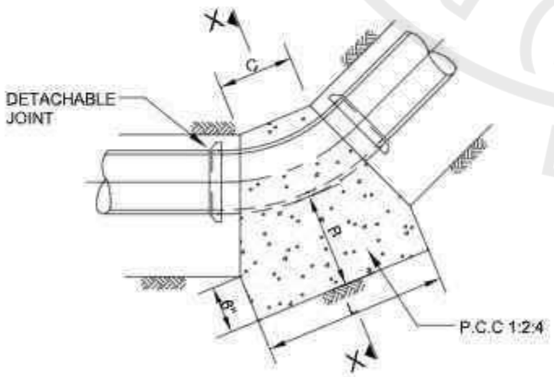
PLAN 90° BEND



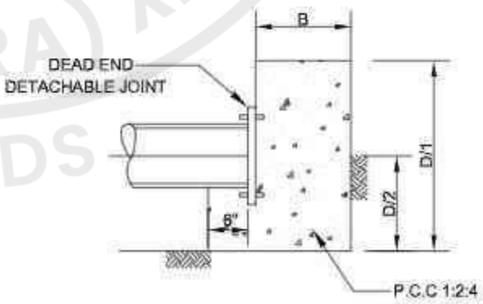
SECTION K-K



PLAN 22 1/2° BEND



PLAN 45° BEND



SECTION Y-Y

NOTES:

1. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT DRAWINGS.

REFERENCE DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CKD	APPR.

NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

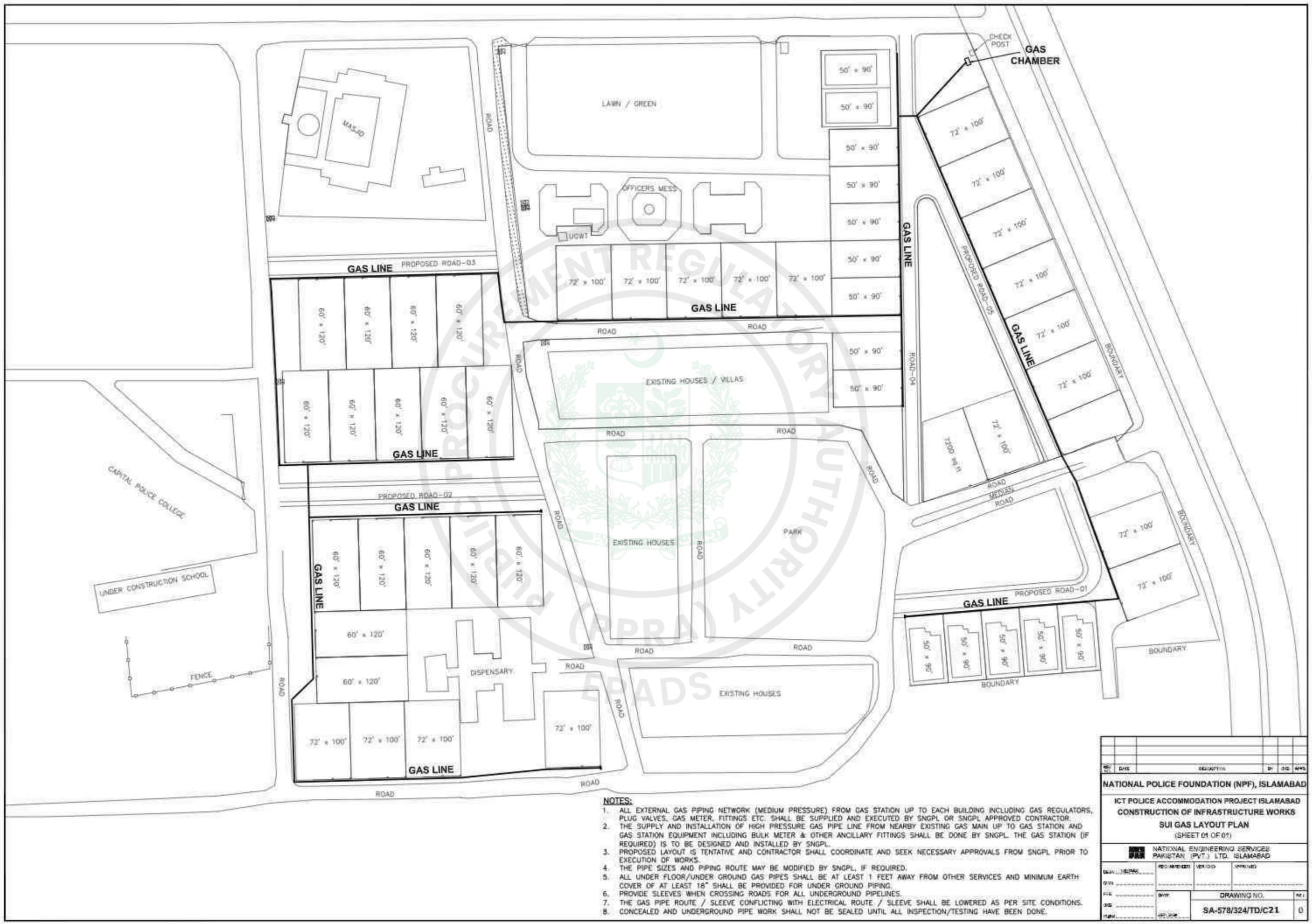
ICT POLICE ACCOMMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS

WATER DISTRIBUTION NETWORK
BENDS DETAILS

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DESIGN	RECOMMENDED	VERIFIED	APPROVED
DWN.			
CKD.			
SUBM.	DATE	DRAWING NO.	REV.
	Aug 2025	SA-578/324/TD/C20	0

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NOTES:

1. ALL EXTERNAL GAS PIPING NETWORK (MEDIUM PRESSURE) FROM GAS STATION UP TO EACH BUILDING INCLUDING GAS REGULATORS, PLUG VALVES, GAS METER, FITTINGS ETC. SHALL BE SUPPLIED AND EXECUTED BY SNGPL OR SNGPL APPROVED CONTRACTOR.
2. THE SUPPLY AND INSTALLATION OF HIGH PRESSURE GAS PIPE LINE FROM NEARBY EXISTING GAS MAIN UP TO GAS STATION AND GAS STATION EQUIPMENT INCLUDING BULK METER & OTHER ANCILLARY FITTINGS SHALL BE DONE BY SNGPL. THE GAS STATION (IF REQUIRED) IS TO BE DESIGNED AND INSTALLED BY SNGPL.
3. PROPOSED LAYOUT IS TENTATIVE AND CONTRACTOR SHALL COORDINATE AND SEEK NECESSARY APPROVALS FROM SNGPL PRIOR TO EXECUTION OF WORKS.
4. THE PIPE SIZES AND PIPING ROUTE MAY BE MODIFIED BY SNGPL, IF REQUIRED.
5. ALL UNDER FLOOR/UNDER GROUND GAS PIPES SHALL BE AT LEAST 1 FEET AWAY FROM OTHER SERVICES AND MINIMUM EARTH COVER OF AT LEAST 18" SHALL BE PROVIDED FOR UNDER GROUND PIPING.
6. PROVIDE SLEEVES WHEN CROSSING ROADS FOR ALL UNDERGROUND PIPELINES.
7. THE GAS PIPE ROUTE / SLEEVE CONFLICTING WITH ELECTRICAL ROUTE / SLEEVE SHALL BE LOWERED AS PER SITE CONDITIONS.
8. CONCEALED AND UNDERGROUND PIPE WORK SHALL NOT BE SEALED UNTIL ALL INSPECTION/TESTING HAVE BEEN DONE.

NO.	DATE	DESCRIPTION	BY	CHD	APPD

NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD

CONSTRUCTION OF INFRASTRUCTURE WORKS

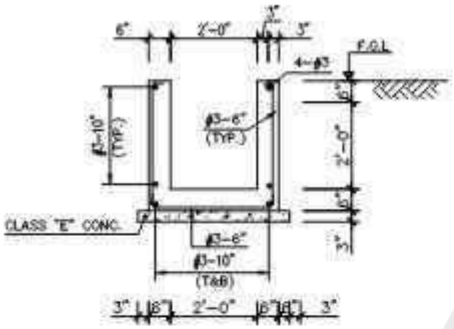
SUI GAS LAYOUT PLAN

(SHEET 01 OF 01)

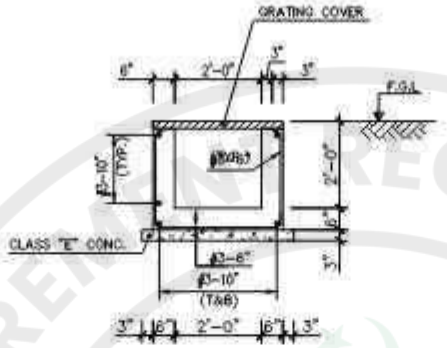
NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DESIGN	RECOMMENDED	VERIFIED	APPROVED
DRAWN			
CHECKED	DATE	DRAWING NO.	REV.
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PROJ. MGR.			

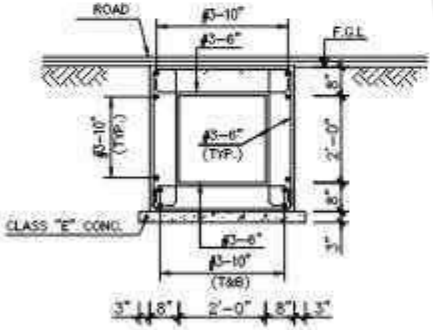
PROCUREMENT REGULATORY AUTHORITY
EPADS



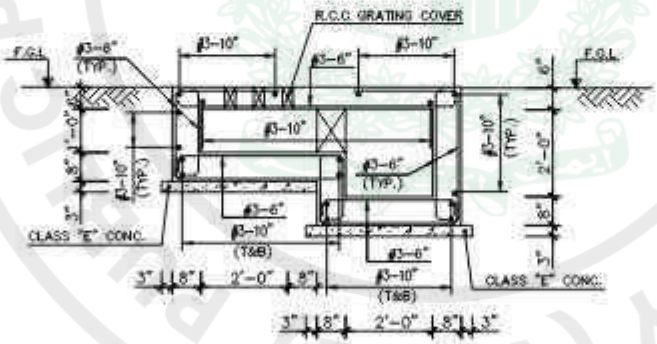
TYPICAL SECTION OF OPEN DRAIN



TYPICAL OPEN DRAIN
AT COLLECTION CHAMBER LOCATION



TYPICAL SECTION OF DRAIN ROAD CROSSING



TYPICAL SECTION OF R.C.C COLLECTION
CHAMBER AND DRAIN UNDER WALKWAYS

NOTES:

1. READ THIS DRAWING IN CONJUNCTION WITH THE RELEVANT PLUMBING AND OTHER SERVICES DRAWINGS.
2. THE DESIGN OF FOUNDATION IS BASED ON THE PARAMETERS LAID DOWN IN THE GEOTECHNICAL INVESTIGATION REPORT OF THE PROJECT.
3. IF THE COMPETENT BEARING STRATA IS NOT FOUND AT INDICATED DEPTHS, THE ENGINEER SHALL BE NOTIFIED FOR HIS INSTRUCTIONS.
4. ALL STRUCTURAL CONCRETE SHALL BE TYP 'C' HAVING MINIMUM 28-DAYS CUBE STRENGTH OF 2,400.00 psi
5. LEAN CONCRETE SHALL BE TYP "E" TYPE HAVING MINIMUM 28-DAYS CUBE STRENGTH OF 1200 psi
6. ALL REINFORCING BARS SHALL BE GRADE-60 DEFORMED STEEL HAVING MINIMUM 6. YIELD STRENGTH OF 60,000.00 psi, CONFORMING TO ASTM A615.
7. CLEAR COVER TO REINFORCEMNET SHALL BE AS UNDER:
   BOTTOM SLAB = 1½" (ALL FACES)
   TOP SLAB = 3/4" (ALL FACES)
   WALLS = 1½" (BOTH FACES)
8. BACKFILLING AGAINST THE WALLS SHALL NOT BE DONE UNTILL TOP SLAB IS CAST AND CURED.
9. ALL THE STRUCTURAL SURFACES AGAINST WHICH EARTH IS TO BE FILLED SHALL BE COATED WITH TWO (02) COATS OF HOT BITUMEN AS PER SPECIFICATIONS.

REV	DATE	DESCRIPTION	BY	CHD.	APPR.

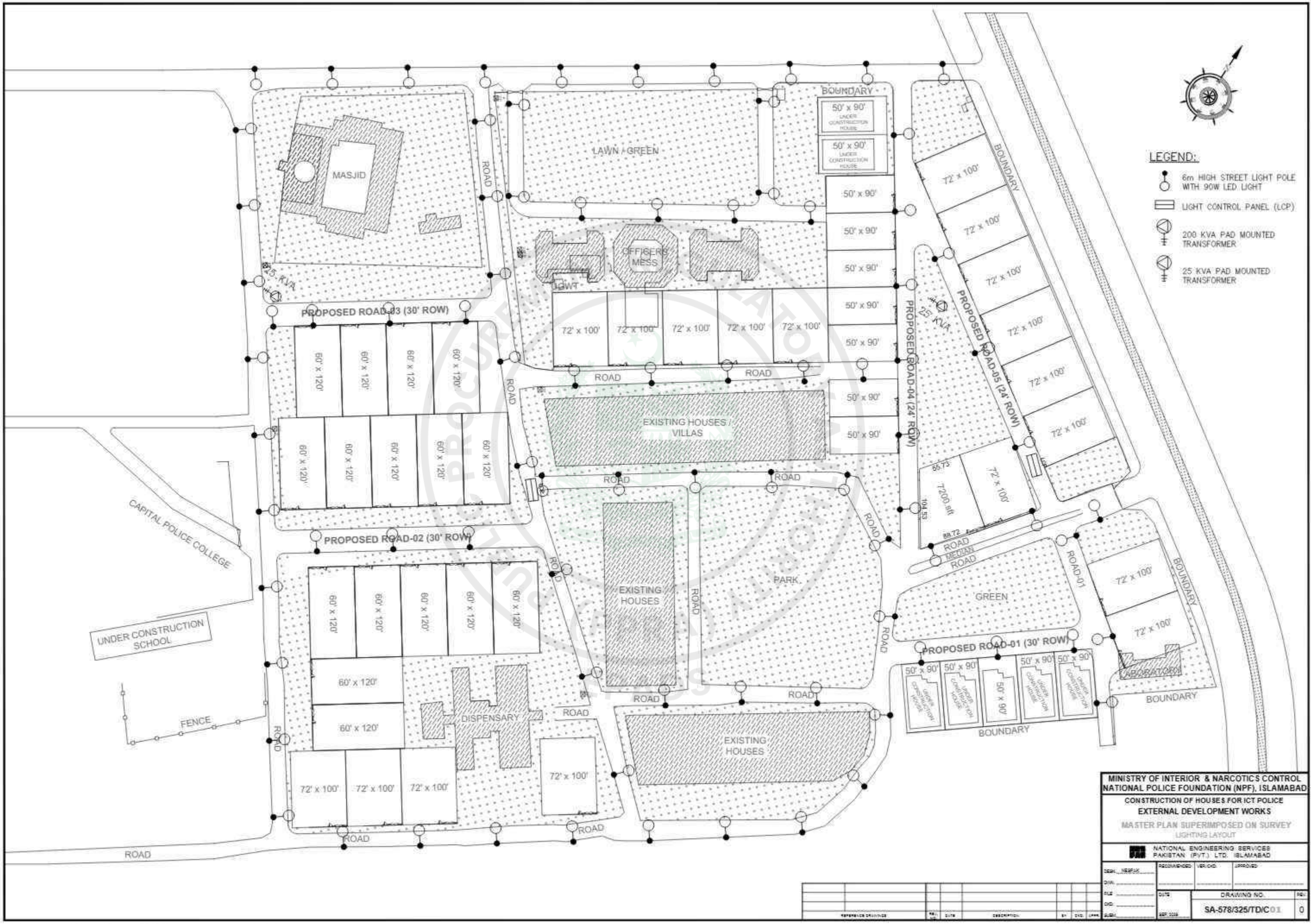
NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

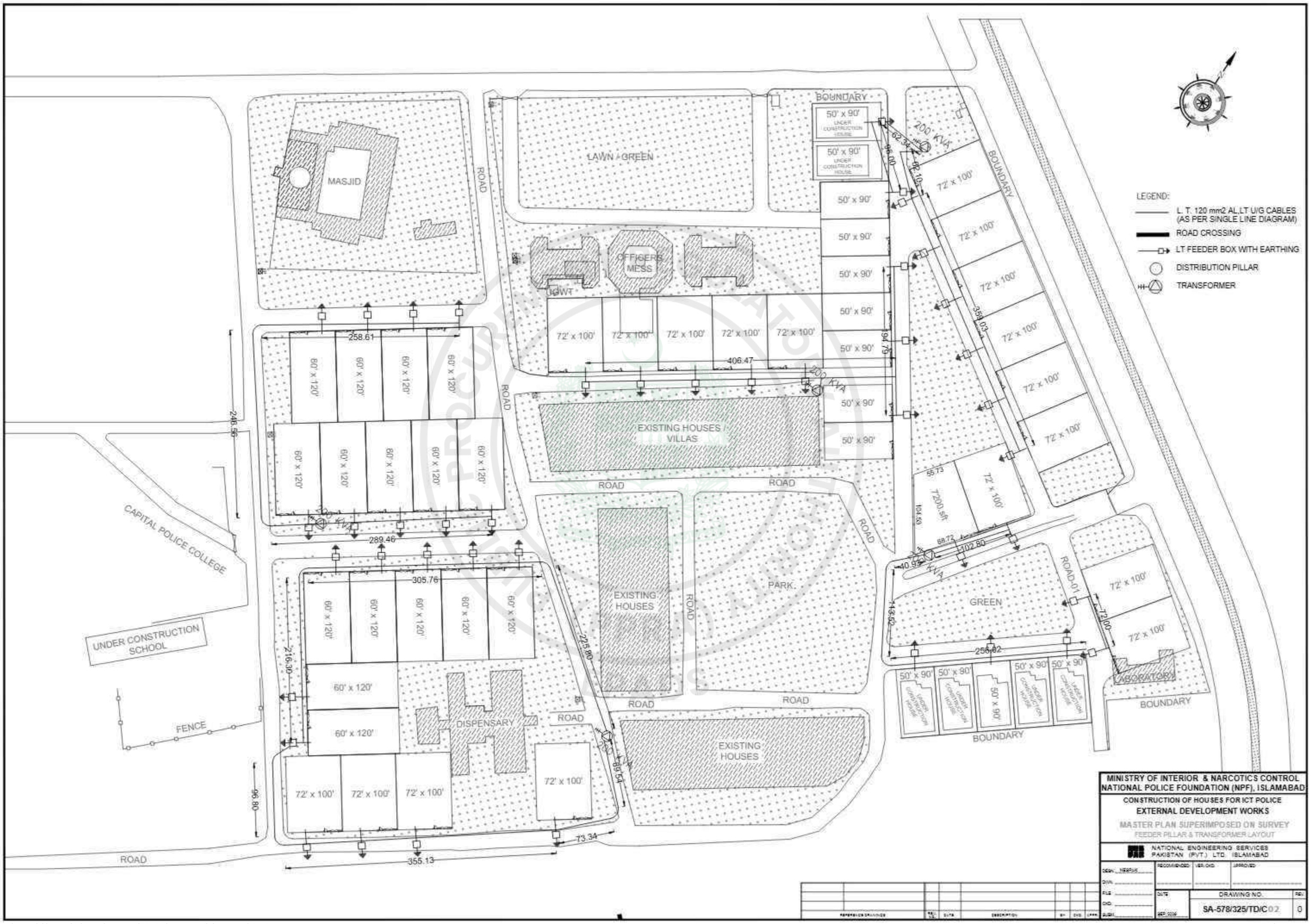
ICT POLICE ACCOMMODATION PROJECT ISLAMABAD
CONSTRUCTION OF INFRASTRUCTURE WORKS
STRUCTURAL DETAILS OF R.C.C DRAINS

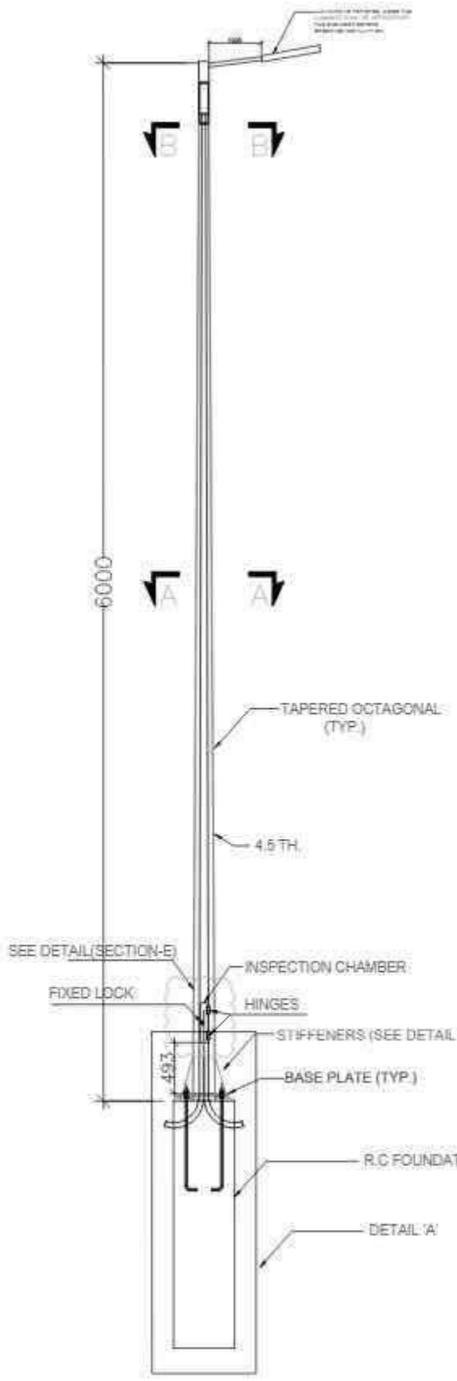
NATIONAL ENGINEERING SERVICES PAKISTAN (PVT) LTD. ISLAMABAD

DRAWING NO.	REV.
SA-578/323/TD/01G01	0

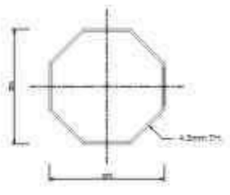
PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS


LEGEND:
6m HIGH STREET LIGHT POLE WITH 90W LED LIGHT
LIGHT CONTROL PANEL (LCP)
200 KVA PAD MOUNTED TRANSFORMER
25 KVA PAD MOUNTED TRANSFORMER
MASJID
LAWN / GREEN
OFFICERS MESS
UGWT
EXISTING HOUSES / VILLAS
EXISTING HOUSES
PARK
GREEN
DISPENSARY
LABORATORY
CAPITAL POLICE COLLEGE
UNDER CONSTRUCTION SCHOOL
FENCE
BOUNDARY
ROAD
MEDIAN
PROPOSED ROAD-01 (30' ROW)
PROPOSED ROAD-02 (30' ROW)
PROPOSED ROAD-03 (30' ROW)
PROPOSED ROAD-04 (24' ROW)
PROPOSED ROAD-05 (24' ROW)
ROAD-01
25 KVA
50' x 90'
UNDER CONSTRUCTION HOUSE
72' x 100'
60' x 120'
7200 sft
55.73
104.53
88.72
MINISTRY OF INTERIOR & NARCOTICS CONTROL
NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD
CONSTRUCTION OF HOUSES FOR ICT POLICE
EXTERNAL DEVELOPMENT WORKS
MASTER PLAN SUPERIMPOSED ON SURVEY
LIGHTING LAYOUT
NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD
DESIGN
DRAWN
FILE
CHECKED
SIGNED
RECOMMENDED
VERIFIED
APPROVED
DATE
DRAWING NO.
REV.
SA-578/325/TD/C01
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REFERENCE DRAWINGS
DESCRIPTION

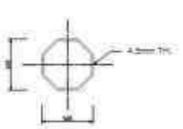

MASJID
LAWN GREEN
BOUNDARY
50' x 90' UNDER CONSTRUCTION HOUSE
50' x 90' UNDER CONSTRUCTION HOUSE
ROAD
OFFICERS MESS
IGWT
72' x 100'
72' x 100'
72' x 100'
72' x 100'
72' x 100'
406.47
258.61
60' x 120'
60' x 120'
60' x 120'
60' x 120'
60' x 120'
60' x 120'
60' x 120'
60' x 120'
60' x 120'
60' x 120'
289.46
315 KVA
200 KVA
62.34
96.00
96.10
50' x 90'
50' x 90'
50' x 90'
50' x 90'
50' x 90'
50' x 90'
50' x 90'
194.79
354.03
72' x 100'
72' x 100'
72' x 100'
72' x 100'
72' x 100'



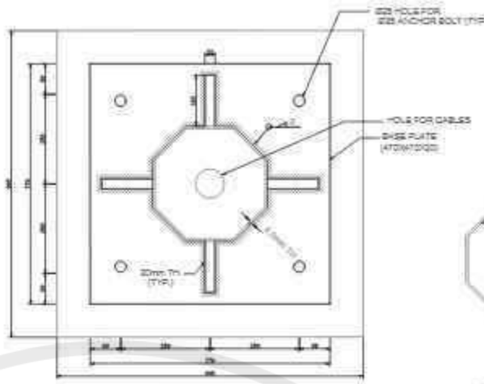
SINGLE ARM HOT DIP GALVANIZED STEEL 6 METER OCTAGONAL POLE



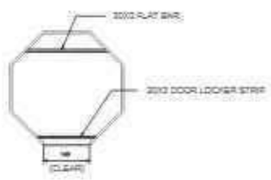
SECTION A–A



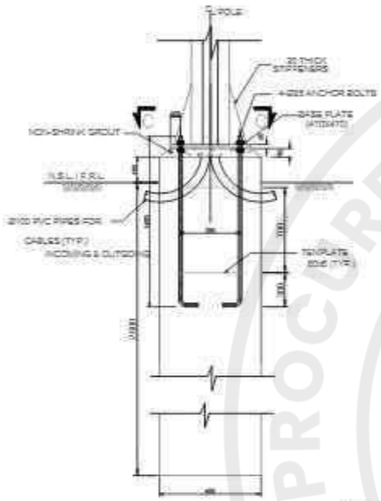
SECTION B–B



SECTION C–C



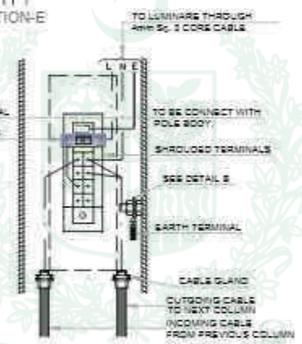
SECTION D–D



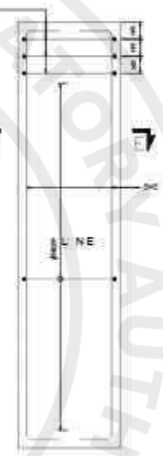
DETAIL–A (CONCRETE OUTLINE)



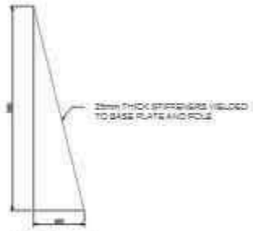
SECTION-E



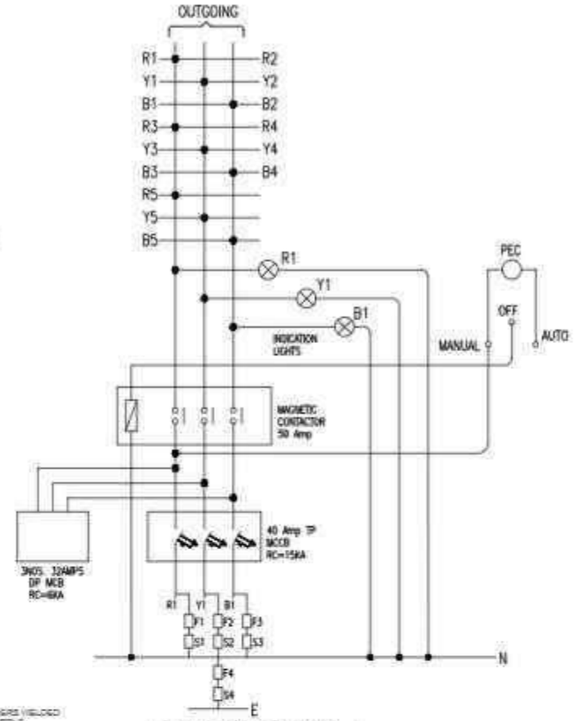
DETAIL OF INSPECTION/ CONNECTION CHAMBER



FOUNDATION (REINFORCEMENT)

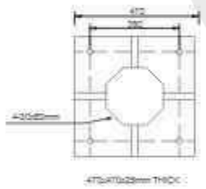


DETAIL–B



LIGHTING CONTROL PANEL 1

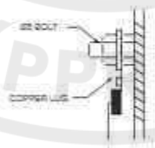
NOTE:
F1, F2, F3, F4 = FUSES
S1, S2, S3, S4 = SURGE PROTECTION DEVICES.



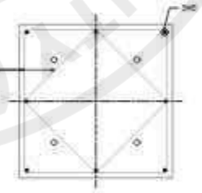
BASE PLATE



ANCHOR BOLT



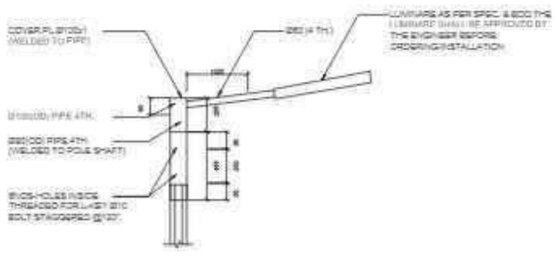
DETAIL–D



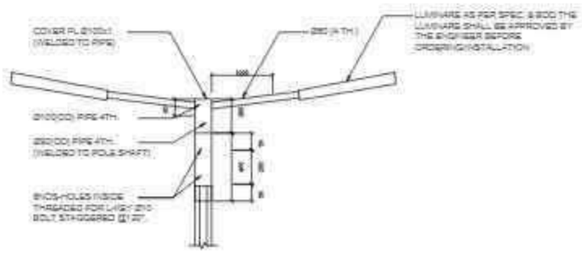
SECTION E–E

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. UNLESS OTHERWISE NOTED, CONCRETE SHALL BE CLASSIFIED AS FOLLOWS:
   CONCRETE CLASS 28 DAYS (150x300 CM) CYLINDER STRENGTH Kg/sq. Cm
   REINFORCED A 210 (3000 psi)
3. THE STEEL FOR POLE & BASE PLATE SHALL BE OF YIELD STRENGTH OF 350(MPa(50Ksi) & SHALL CONFORM TO ASTM A36 STEEL.
4. THE ANCHOR BOLTS SHALL CONFORM TO ASTM A307.
5. ALL WELDING SHALL CONFORM TO THE APPLICABLE PROVISIONS OF A.W.S (AMERICAN WELDING SOCIETY) CODE.
6. HOT DIP GALVANIZATION SHALL CONFORM TO BS EN ISO 1461 (IN SIDE & OUT SIDE) OR IN ACCORDANCE WITH ASTM A123 AND A325.



DETAIL–C



DETAIL–C

MINISTRY OF INTERIOR & NARCOTICS CONTROL
NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

CONSTRUCTION OF HOUSES FOR ICT POLICE
EXTERNAL DEVELOPMENT WORKS

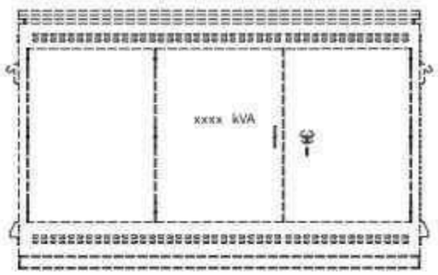
STREET LIGHT DETAILS

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

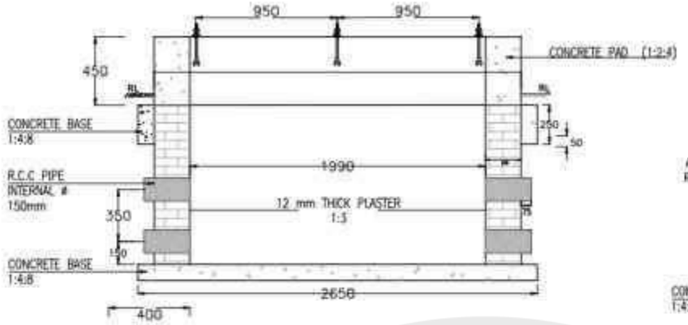
DESN. NEPAK	RECOMMENDED	VERIFIED	APPROVED
DWN.			
FILE	DATE	DRAWING NO.	REV.
CHD.	SEP 2026	SA-578/325/TD/C03	0
AUTH.			

REVISION DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CHD.	APPR.

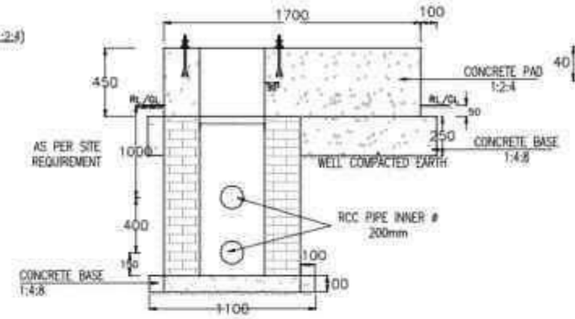
PROCUREMENT REGULATORY AUTHORITY EPADS



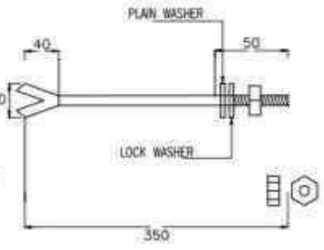
100KVA, 200KVA, 400KVA & 630KVA
PAD MOUNTED TRANSFORMER TYPICAL
VIEW



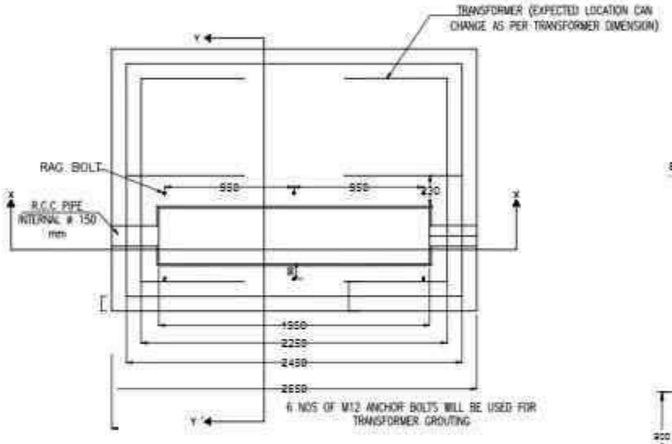
SECTION X–X ' CONCRETE PAD FOR
100KVA, 200KVA,400KVA & 630KVA
PAD MOUNTED TRANSFORMER



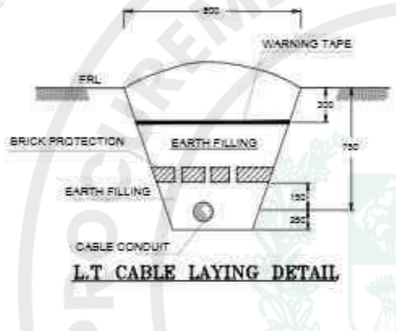
SECTION Y – Y '
CONCRETE PAD FOR 100KVA, 200KVA,
400KVA & 630KVA PAD MOUNTED



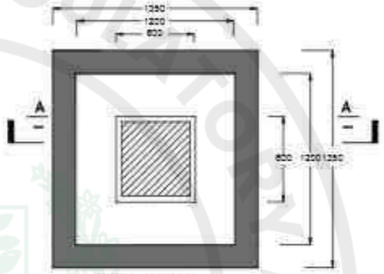
RAG BOLT



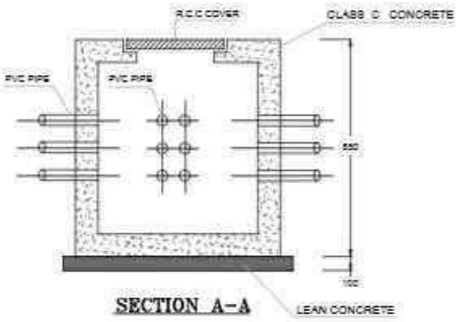
PLAN VIEW CONCRETE PAD FOR
100KVA, 200KVA, 400KVA & 630KVA
PAD MOUNTED TRANSFORMER



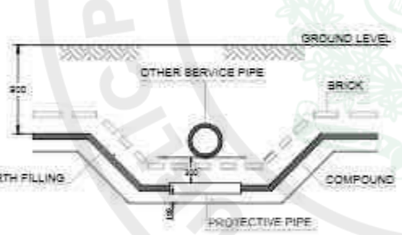
L.T CABLE LAYING DETAIL



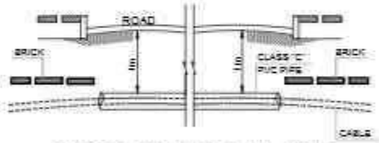
TOP VIEW
ELECTRICAL MANHOLE DETAIL



SECTION A–A



L.T. CABLE CROSSING
OTHER SERVICE PIPE



LAYING OF CABLE AT ROAD
CROSSING

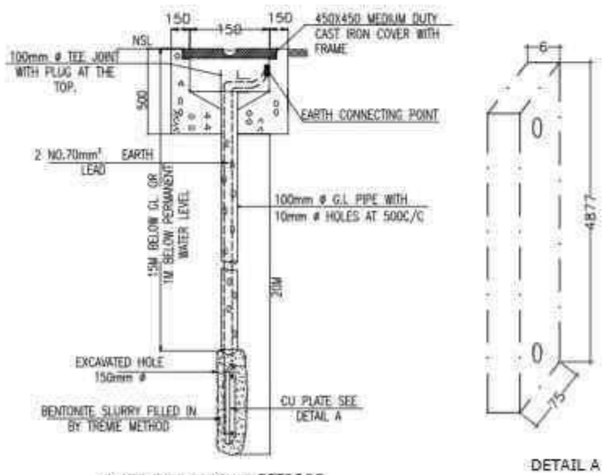
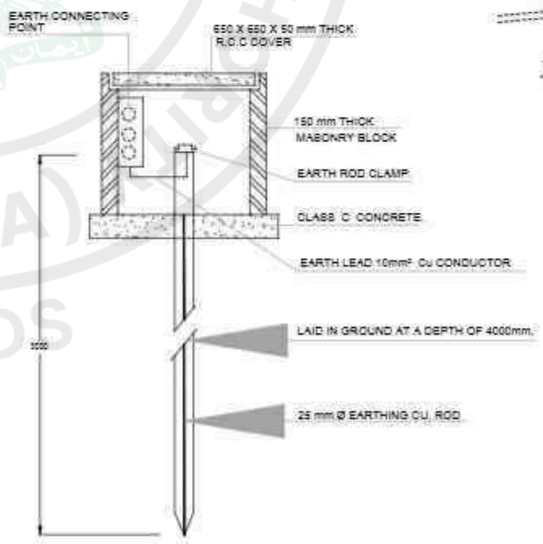


PLATE TYPE EARTH ELECTRODE

DETAIL A



EARTH ELECTRODE DETAIL

MINISTRY OF INTERIOR & NARCOTICS CONTROL
NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD
CONSTRUCTION OF HOUSES FOR ICT POLICE
EXTERNAL DEVELOPMENT WORKS
TRANSFORMER DETAILS LAYOUT
NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD. ISLAMABAD
DESIGN: NEPCON
DRAWN
FILE
CHKD
SUBM
RECOMMENDED
VER. CHD.
APPROVED
DATE
SEP. 2026
DRAWING NO.
SA-578/325/TD/C04
REV.
0

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DRAWINGS
(1-KANAL HOUSES)

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS



FRONT VIEW

SCALE: 3/32" = 1'-0"

REFERENCE DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

ISLAMABAD CAPITAL TERRITORY POLICE

ICT POLICE ACCOMMODATION PROJECT
ISLAMABAD

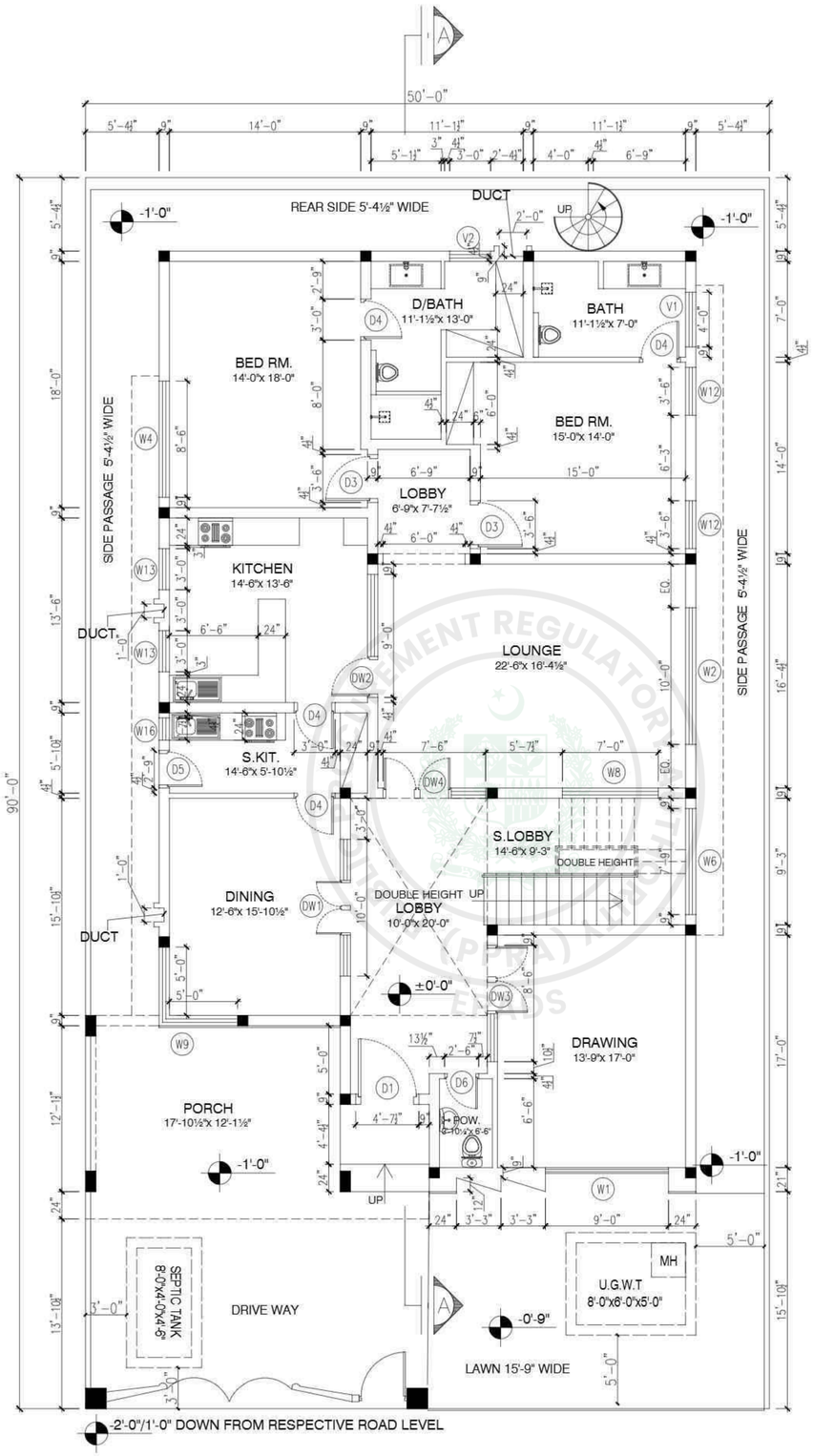
FRONT VIEW

NESPAK — NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN. M. SALEEM			
FILE			
CKD.			
SUBM.			

DATE	DRAWING NO.	REV.
JUL 2026	156/322/BD/01B01	.

EPADS



GROUND FLOOR PLAN

SCHEDULE OF OPENING

S.NO	TYPE	SIZE	SILL	REMARKS
1	DW1	10'-0"x 8'-0"	0'-0"	DOUBLE LEAF DOOR
2	DW2	9'-0"x 8'-0"	0'-0"	DOUBLE LEAF DOOR
3	DW3	8'-6"x 8'-0"	0'-0"	DOUBLE LEAF DOOR
4	DW4	7'-6"x 8'-0"	0'-0"	DOUBLE LEAF DOOR
5	D1	4'-7½"x 8'-0"	0'-0"	SINGLE LEAF DOOR
6	D2	4'-6"x 8'-0"	0'-0"	DOUBLE LEAF DOOR
7	D3	3'-6"x 8'-0"	0'-0"	SINGLE LEAF DOOR
8	D4	3'-0"x 8'-0"	0'-0"	SINGLE LEAF DOOR
9	D4a	3'-0"x 7'-0"	0'-0"	SINGLE LEAF DOOR
10	D5	2'-9"x 8'-0"	0'-0"	SINGLE LEAF DOOR
11	D6	2'-6"x 8'-0"	0'-0"	SINGLE LEAF DOOR
12	D6a	3'-0"x 7'-0"	0'-0"	SINGLE LEAF DOOR
13	W1	9'-0"x 19'-0"	1'-0"	WINDOW
14	W2	10'-0"x 7'-0"	1'-0"	WINDOW
15	W3	9'-0"x 7'-0"	1'-0"	WINDOW
16	W4	8'-6"x 7'-0"	1'-0"	WINDOW
17	W5	8'-0"x 7'-0"	1'-0"	WINDOW
18	W6	7'-9"x 7'-0"	1'-0"	WINDOW
19	W7	7'-3"x 7'-0"	1'-0"	WINDOW
20	W8	7'-0"x 7'-0"	1'-0"	WINDOW
21	W9	5'+ 5'x 7'-0"	1'-0"	WINDOW
22	W10	4'-10½"x 7'-0"	1'-0"	WINDOW
23	W11	4'-3"x 7'-0"	1'-0"	WINDOW
24	W12	3'-6"x 7'-0"	1'-0"	WINDOW
25	W13	3'-0"x 7'-0"	1'-0"	WINDOW
26	W14	4'-0"x 6'-0"	2'-0"	WINDOW
27	W15	3'+3'x 4'-6"	3'-6"	WINDOW
28	W16	1'-7½"x 4'-6"	3'-6"	WINDOW
29	V1	4'-0"x 3'-0"	5'-0"	VENTILATOR
30	V2	3'-0"x 3'-0"	5'-0"	VENTILATOR

SCALE: 3/32" = 1'-0"

REFERENCE DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

ISLAMABAD CAPITAL TERRITORY POLICE

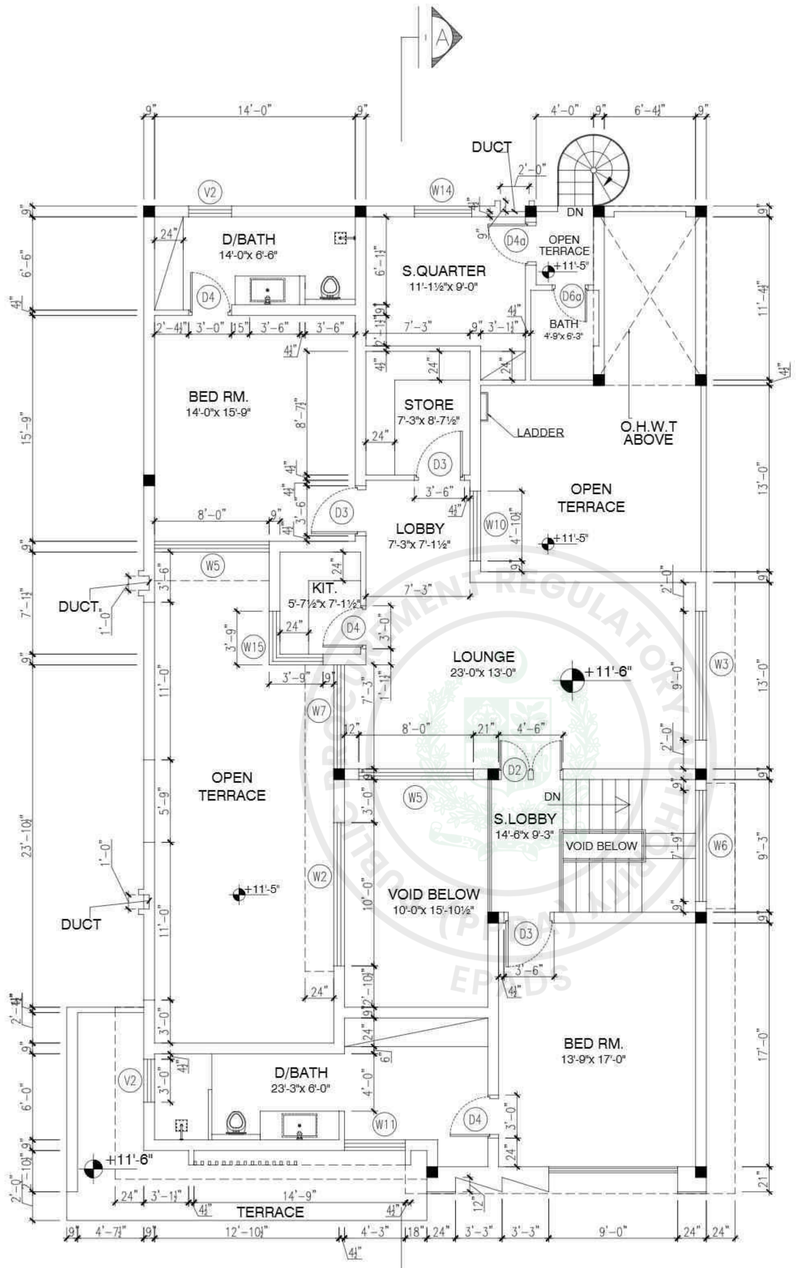
ICT POLICE ACCOMMODATION PROJECT
ISLAMABAD

GROUND FLOOR PLAN

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN. M. SALEEM			
FILE			
CKD.	DATE	DRAWING NO.	REV.
SUBM.	JUL.2026.	156/322/BD/01B02	.

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FIRST FLOOR PLAN

SCHEDULE OF OPENING

S.NO	TYPE	SIZE	SILL	REMARKS
1	DW1	10'-0"x 8'-0"	0'-0"	DOUBLE LEAF DOOR
2	DW2	9'-0"x 8'-0"	0'-0"	DOUBLE LEAF DOOR
3	DW3	8'-6"x 8'-0"	0'-0"	DOUBLE LEAF DOOR
4	DW4	7'-6"x 8'-0"	0'-0"	DOUBLE LEAF DOOR
5	D1	4'-7½"x 8'-0"	0'-0"	SINGLE LEAF DOOR
6	D2	4'-6"x 8'-0"	0'-0"	DOUBLE LEAF DOOR
7	D3	3'-6"x 8'-0"	0'-0"	SINGLE LEAF DOOR
8	D4	3'-0"x 8'-0"	0'-0"	SINGLE LEAF DOOR
9	D4a	3'-0"x 7'-0"	0'-0"	SINGLE LEAF DOOR
10	D5	2'-9"x 8'-0"	0'-0"	SINGLE LEAF DOOR
11	D6	2'-6"x 8'-0"	0'-0"	SINGLE LEAF DOOR
12	D6a	3'-0"x 7'-0"	0'-0"	SINGLE LEAF DOOR
13	W1	9'-0"x 19'-0"	1'-0"	WINDOW
14	W2	10'-0"x 7'-0"	1'-0"	WINDOW
15	W3	9'-0"x 7'-0"	1'-0"	WINDOW
16	W4	8'-6"x 7'-0"	1'-0"	WINDOW
17	W5	8'-0"x 7'-0"	1'-0"	WINDOW
18	W6	7'-9"x 7'-0"	1'-0"	WINDOW
19	W7	7'-3"x 7'-0"	1'-0"	WINDOW
20	W8	7'-0"x 7'-0"	1'-0"	WINDOW
21	W9	5'+ 5'x 7'-0"	1'-0"	WINDOW
22	W10	4'-10½"x 7'-0"	1'-0"	WINDOW
23	W11	4'-3"x 7'-0"	1'-0"	WINDOW
24	W12	3'-6"x 7'-0"	1'-0"	WINDOW
25	W13	3'-0"x 7'-0"	1'-0"	WINDOW
26	W14	4'-0"x 6'-0"	2'-0"	WINDOW
27	W15	3'+3'x 4'-6"	3'-6"	WINDOW
28	W16	1'-7½"x 4'-6"	3'-6"	WINDOW
29	V1	4'-0"x 3'-0"	5'-0"	VENTILATOR
30	V2	3'-0"x 3'-0"	5'-0"	VENTILATOR

SCALE: 3/32" = 1'-0"

REFERENCE DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

ISLAMABAD CAPITAL TERRITORY POLICE

ICT POLICE ACCOMMODATION PROJECT
ISLAMABAD

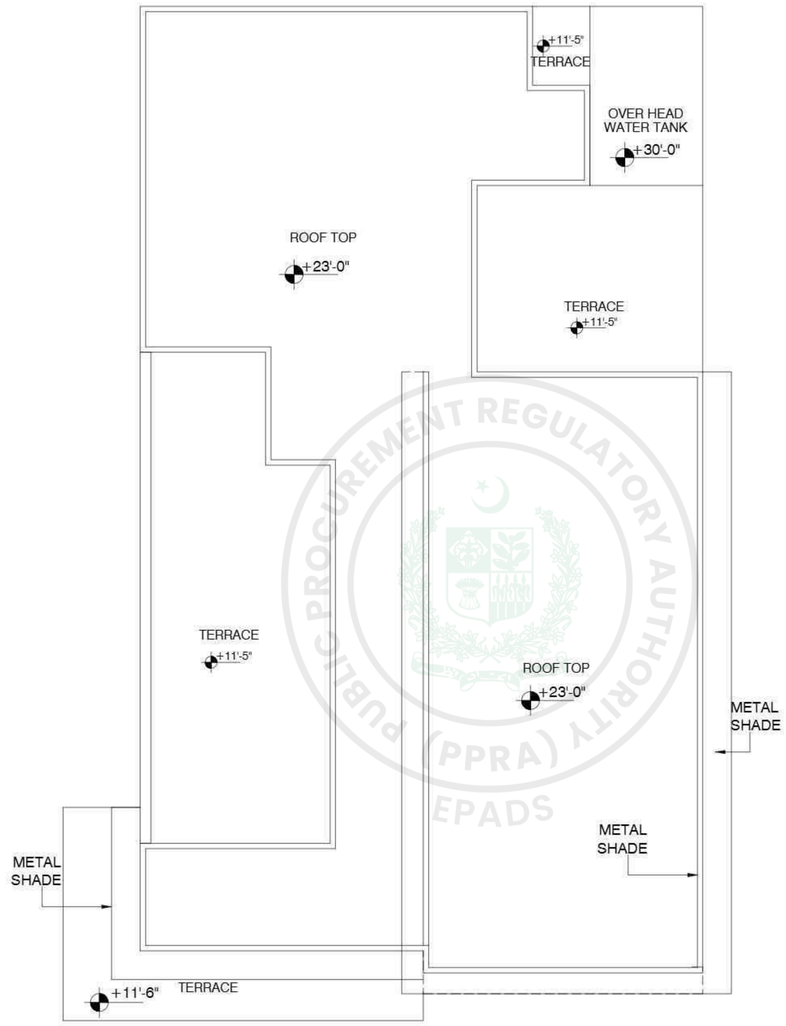
FIRST FLOOR PALN

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
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ROOF TOP PLAN

SCALE: 3/32" = 1'-0"

REFERENCE DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

ISLAMABAD CAPITAL TERRITORY POLICE

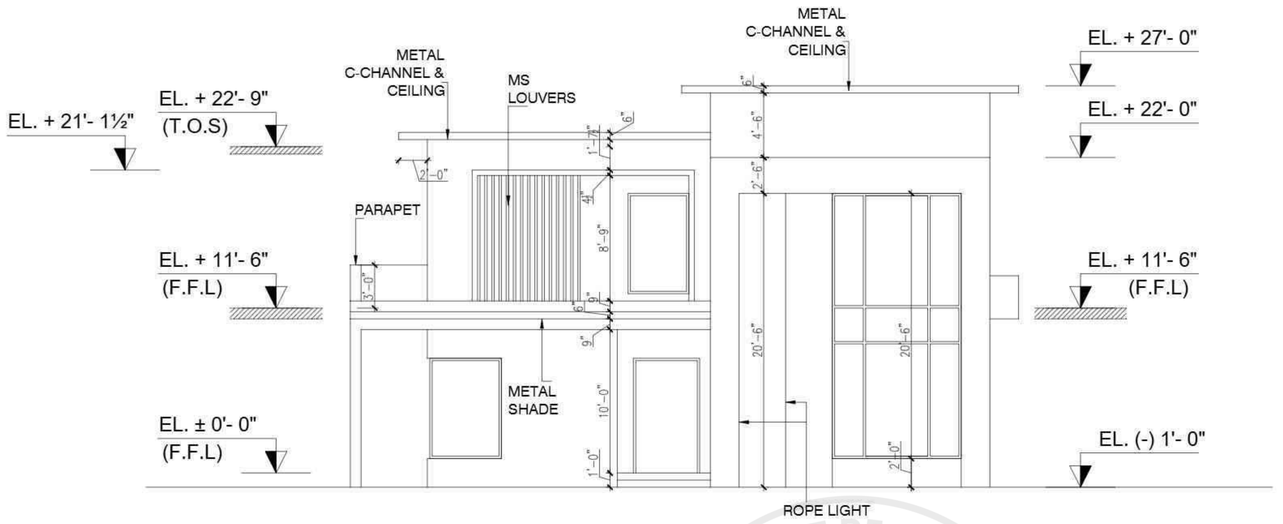
ICT POLICE ACCOMMODATION PROJECT
ISLAMABAD

ROOF TOP PLAN

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
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FILE			
CKD.			
SUBM.	DATE JUL.2026.	DRAWING NO. 156/322/BD/01B04	REV. .

PROCUREMENT REGULATORY AUTHORITY (PPRA) PUBLIC EPADS



FRONT ELEVATION



REAR ELEVATION

SCALE: 3/32" = 1'-0"

REFERENCE DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

ISLAMABAD CAPITAL TERRITORY POLICE

ICT POLICE ACCOMMODATION PROJECT
ISLAMABAD

ELEVATIONS

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN. M. SALEEM			
FILE			
CKD.			
SUBM.			

DATE	DRAWING NO.	REV.
JUL.2026.	156/322/BD/01B05	.

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS



RIGHT SIDE ELEVATION



LEFT SIDE ELEVATION

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

SCALE: 3/32" = 1'-0"

REFERENCE DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

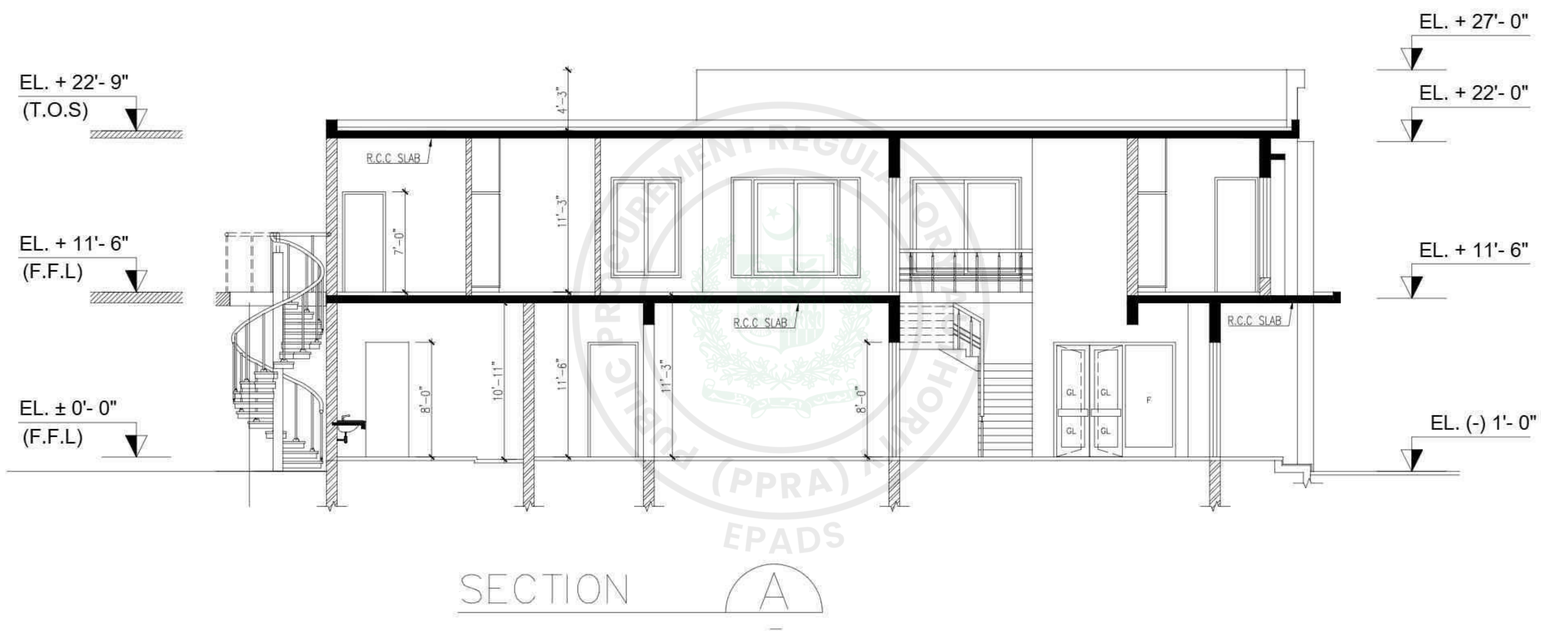
ISLAMABAD CAPITAL TERRITORY POLICE

ICT POLICE ACCOMMODATION PROJECT
ISLAMABAD

ELEVATIONS

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
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FILE			
CKD.	DATE	DRAWING NO.	REV.
SUBM.	JUL.2026.	156/322/BD/01B06	.



SECTION A

SCALE: 3/32" = 1'-0"

ISLAMABAD CAPITAL TERRITORY POLICE

ICT POLICE ACCOMMODATION PROJECT
ISLAMABAD

SECTION-AA

NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD. ISLAMABAD

REFERENCE DRAWINGS		REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.	

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FILE	DATE	DRAWING NO.	REV.
CKD.	JUL.2026.	156/322/BD/01B07	.
SUBM.			

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A. GENERAL

1. NOTES GIVEN ON THIS DRAWING ARE APPLICABLE TO ALL STRUCTURAL DRAWINGS UNLESS OTHERWISE NOTED. NOTES WRITTEN ON ANY OTHER DRAWING SHALL BE APPLICABLE TO THAT PARTICULAR DRAWING ONLY UNLESS OTHERWISE CROSS REFERRED.
2. SYSTEM OF UNITS IS FPS.
3. ALL LEVELS MARKED ON THE DRAWINGS ARE LEVELS OF STRUCTURAL ELEMENTS. FINISH LEVELS SHALL BE IN ACCORDANCE WITH THE ARCHITECTURAL DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY AND STABILITY OF THE STRUCTURE AND ALL TEMPORARY WORKS DURING CONSTRUCTION.
5. THE CONTRACTOR SHALL INFORM THE ENGINEER ABOUT ANTICIPATED CONSTRUCTION LOADS IN THE STRUCTURE AND OBTAIN ENGINEER'S APPROVAL THEREOF BEFORE COMMENCING THE WORK.
6. THE CONTRACTOR SHALL CO-ORDINATE ALL DRAWINGS OF ALL DISCIPLINES FOR ALL ITEMS INCLUDING BUT NOT LIMITED TO SIZES AND LOCATION OF ALL OPENINGS REQUIRED FOR DUCTS, PIPES AND PIPE SLEEVES, ELECTRICAL CONDUITS AND OTHER ITEMS TO BE EMBEDDED IN CONCRETE OR OTHERWISE INCORPORATED IN STRUCTURAL WORK AND SHALL BRING TO THE NOTICE OF THE ENGINEER DISCREPANCIES, IF ANY, FOR HIS INSTRUCTIONS, PRIOR TO THE START OF WORK.
7. THE CONTRACTOR SHALL VERIFY LAYOUT, CONFIGURATION, ALL DIMENSIONS AND LEVELS PERTAINING TO EXISTING WORKS BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL ADOPT ADEQUATE AND APPROPRIATE MEASURES SO AS NOT TO DAMAGE THE EXISTING WORKS.
8. THE CONTRACTOR SHALL EXERCISE UTMOST CARE AND PRECAUTION DURING THE WORKS, AGAINST ANY MISHAPS OR ACCIDENTS, FOR WHICH THE CONTRACTOR SHALL BE WHOLLY AND SOLELY RESPONSIBLE. THE CONTRACTOR SHALL INDEMNIFY THE OWNER AGAINST ANY ACCIDENTS AND ANY LOSSES THEREFROM AND SHALL REPAIR AND RECTIFY THEM AT HIS OWN COST AND TIME.
9. THE CONTRACTOR SHALL COORDINATE SCHEDULE OF CONSTRUCTION WITH SUPPLY AND INSTALLATION OF EQUIPMENT.
10. PROVISIONS SHALL BE MADE FOR INSTALLATION OF EQUIPMENT AS PER MANUFACTURER'S RECOMMENDATIONS.
11. ANY DEPARTURES/DEVIATIONS DESIRED FROM THE DESIGN OR SPECIFICATIONS, OR SOLUTIONS TO ANY PROBLEMS ENCOUNTERED, SHALL BE GOT APPROVED FROM THE ENGINEER PRIOR TO IMPLEMENTATION. UNAPPROVED DEPARTURES/DEVIATIONS MAY LEAD TO REJECTION/REPLACEMENT OF THE ENTIRE WORK AT THE CONTRACTOR'S COST.
12. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO SPECIFICATIONS OF THE CONTRACT. IN ABSENCE OF ANY EXPRESS OR IMPLIED SPECIFICATION IN THE CONTRACT, ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO RELEVANT AMERICAN STANDARDS AND SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
13. THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP DRAWINGS AND BAR BENDING SCHEDULES FOR ENGINEER'S APPROVAL AND OBTAIN HIS APPROVAL BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE ACCURACY OF SHOP DRAWINGS AND BAR BENDING SCHEDULES. THE ENGINEER'S APPROVAL SHALL NOT RELIEVE THE CONTRACTOR FROM HIS RESPONSIBILITY.

B. FOUNDATION AND EARTHWORK

1. THE CONTRACTOR SHALL STUDY THE AVAILABLE GEOTECHNICAL INVESTIGATION REPORT BEFORE COMMENCING THE WORK.
2. FOUNDATION DESIGN IS BASED ON PARAMETERS PROVIDED IN GEOTECH. INVESTIGATION REPORT.
3. FOUNDATION IS TO BE PLACED 4'-0" BELOW N.S.L.
4. TERMITE CONTROL TREATMENT SHALL BE CARRIED OUT AS PER SPECIFICATIONS.
5. THE TYPE AND COMPACTION OF SOIL BELOW GRADE SLAB SHALL BE AS PER JOB SPECIFICATIONS.

   NO FOOTING SHALL BE PLACED ON FILL. HOWEVER, AREAS WHERE FILLING BELOW THE FOOTINGS BECOMES INEVITABLE DUE TO OVER-EXCAVATION (IF ANY), SHALL BE FILLED WITH P.C.C. (1:4:8) WITH PRIOR APPROVAL OF TH ENGINEER, AT NO EXTRA COST.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING SYSTEM IF AND WHERE SO REQUIRED DURING CONSTRUCTION.
7. ALL STRUCTURAL CONCRETE SURFACES AGAINST WHICH EARTH IS TO BE FILLED SHALL BE COATED WITH TWO COATS OF HOT BITUMEN (10/20 GRADE) APPLIED AT THE RATE OF 0.49 kg/sqm PER COAT, EXCEPT FOR P.C.C. (1:3:6) AND P.C.C. (1:4:8).
8. BACKFILLING AND COMPACTION SHALL BE CARRIED OUT EQUALLY ON BOTH SIDES OF PLINTH BEAMS TO AVOID IMBALANCE OF LATERAL EARTH PRESSURE.
9. THE CONTRACTOR SHALL SUPPLY AND ERECT ADEQUATE SHORING AND SUPPORT THE SIDES OF ALL EXCAVATIONS WHERE REQUIRED TO SAFEGUARD WORKMEN AND PROTECT ANY ADJACENT STRUCTURES.
10. EXISTING UNDERGROUND SERVICES, REQUIRED TO BE LEFT IN POSITION, SHALL BE CAREFULLY PROTECTED DURING EXCAVATION AND BACKFILLING OPERATIONS.
11. EXCAVATIONS ADJACENT TO EXISTING STRUCTURES AND/OR UNDERGROUND SERVICES SHALL BE MADE BY HAND.

C. REINFORCED CONCRETE

1. ALL CONCRETE SHALL BE TESTED IN ACCORDANCE WITH ASTM STANDARDS C31, C39, C172 & SPECIFICATIONS AND THE MINIMUM CUBE CRUSHING STRENGTH OF CONCRETE AT 28 DAYS SHALL BE AS FOLLOWS. TESTING OF CLASS D & E CONCRETE SHALL BE PERFORMED IF SO DIRECTED BY THE ENGINEER.

CLASS	CYLINDER STRENGTH AT 28-DAYS (psi.)
A	4,000
B	3,000
C	2,400
D	1,200
E	800

C. REINFORCED / PLAIN CEMENT CONCRETE (CONTINUED)

2. CLASS OF CONCRETE FOR DIFFERENT COMPONENTS OF THE STRUCTURE SHALL BE AS FOLLOWS UNLESS NOTED OTHER WISE:

COMPONENT	CONCRETE CLASS
MASONRY WALL FOUNDATION	B
FOUNDATION OF RCC COLUMNS	B
COLUMNS, SLABS & BEAMS	B
P.C.C. STEPS	D
LEAN CONCRETE	E

3. ORDINARY PORTLAND CEMENT SHALL BE USED FOR ALL CONCRETE WORKS.
4. AN INTEGRAL WATER PROOFING AGENT SHALL BE USED IN CONCRETE THAT IS CONSTANTLY OR INTERMITTENTLY IN CONTACT WITH WATER AS PER MANUFACTURER'S RECOMMENDATIONS
5. CONCRETE CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

STRUCTURAL MEMBER / ELEMENT	MINIMUM COVER (INCHES)
FOUNDATIONS (ALL TYPES)	2"
COLUMNS & BEAMS	1½"
RETAINING WALLS	1½"
SLABS	¾"
PLINTH / LINTEL BAND	¾"

6. ALL REINFORCING STEEL BARS SHALL BE DEFORMED, HOT ROLLED BILLET STEEL BARS CONFORMING TO ASTM A-615/A-706,GRADE-60 WITH SPECIFIED YIELD STRENGTH OF NOT LESS THAN 60,000 psi. NOR MORE THAN 78,000 psi, AND RATIO OF ULTIMATE STRENGTH TO YIELD STRENGTH SHALL NOT BE LESS THAN 1.25.
7. GRADE-60 STEEL BARS ARE REPRESENTED USING PREFIX SYMBOL "#". WHEREAS, THE NUMBER INDICATES THE BAR DIAMETER/SIZE, AS UNDER:

BAR NUMBER	DIAMETER (INCHES)
3	⅜"
4	½"
5	⅝"
6	¾"
8	1"

C. REINFORCED / PLAIN CEMENT CONCRETE (CONTINUED)

8. ALL DETAILING SHALL BE DONE AS PER ACI STANDARDS ACI-315, ACI-318 & ACI-350R.
9. ALL REINFORCING STEEL SHALL BE HELD FIRMLY IN PLACE BEFORE AND DURING THE PLACING OF CONCRETE BY MEANS OF WIRES AND SUPPORTS ADEQUATE TO PREVENT DISPLACEMENT DURING THE COURSE OF CONSTRUCTION.

D. CONCRETE CONSTRUCTION

1. THE CONTRACTOR SHALL SUBMIT CONCRETE POURING SCHEDULE FOR ENGINEER'S APPROVAL. NO CONCRETE SHALL BE POURED UNTIL ITS FORMWORK AND REINFORCEMENT HAS BEEN INSPECTED AND APPROVED BY THE ENGINEER.
2. DURING CONSTRUCTION, STACKING OF CONSTRUCTION MATERIALS, BLOCKS ETC. SHOULD BE AVOIDED ON SLAB PANELS.
3. BEFORE CASTING OF ANY STRUCTURAL MEMBER, THE CONTRACTOR SHALL ENSURE THAT ALL EMBEDDED ITEMS FOR ELECTRICAL, MECHANICAL, HVAC, PLUMBING, STRUCTURAL STEEL AND OTHER WORKS, AND DOWELS FOR STRUCTURAL MEMBERS AND/OR MASONARY ARE PROPERLY LOCATED IN PLACE.

E. CONSTRUCTION JOINTS

1. JOINTS, NOT SHOWN ON THE DRAWING, SHALL BE SO MADE AND LOCATED AS TO LEAST IMPAIR THE STRENGTH OF THE STRUCTURE AND SHALL NEED PRIOR APPROVAL OF THE ENGINEER. THEY SHALL BE LOCATED NEAR THE MIDDLE OF THE SPANS OF SLAB & BEAMS. JOINTS IN WALLS & COLUMNS SHALL BE AT THE UNDER-SIDE OF FLOORS, SLABS OR BEAMS AND AT THE TOP OF FOOTINGS OR FLOOR SLABS.
2. JOINTS SHALL BE PERPENDICULAR TO MAIN REINFORCEMENT. ALL REINFORCING STEEL SHALL BE CONTINUED ACROSS THE JOINTS.
3. JOINTS IN BASE SLAB & WALLS AND ROOF SLAB, IN ADDITION TO THOSE SHOWN ON THE DRAWINGS SHALL BE BORNE BY THE CONTRACTOR. BEAMS & BRACKETS SHALL BE PLACED AT THE SAME TIME AS SLABS.

F. ELECTRICAL CONDUITS

1. CONDUITS, FOR ELECTRICAL WORKS, SHALL BE PLACED WITHIN THE REINFORCED CONCRETE. THEY SHALL BE PLACED WITHIN THE MIDDLE THIRD OF THE SECTION IN BEAMS & SLABS AND WITHIN THE MIDDLE HALF OF THE THICKNESS. SPACING BETWEEN PARALLEL CONDUITS SHALL NOT BE LESS THAN 6"(150 MM).

SCALE = 1/8" = 1'-0"

REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

CONSTRUCTION OF HOUSES FOR ICT POLICE

GENERAL NOTES & TYPICAL DETAILS
(SHEET 1 OF 2)

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN. MUNIR KHATTAK			
FILE	NIDA AFZAL	TALHA AFZAL	AAMIR RASHEED
CKD. NIDA AFZAL	DATE	DRAWING NO.	REV.
SUBM. AAMIR RASHEED	JULY' 2026	156/323/TD/01G01	0

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G. PROPS, FORMWORK & CURING

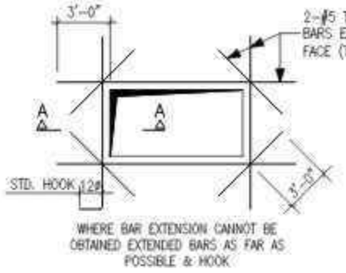
1. SHORE & BRACE ALL PARTS OF THE BUILDING DURING CONSTRUCTION, TO THE EXTENT NECESSARY TO ENSURE COMPLETE SAFETY, STRENGTH & SERVICEABILITY OF ALL STRUCTURAL ELEMENTS UNDER ALL CONDITIONS OF LOADS WHICH MAY OCCUR DURING CONSTRUCTION. SUCH SHORING & BRACING IS THE CONTRACTOR'S SOLE RESPONSIBILITY AND IS NOT SHOWN ON STRUCTURAL DRAWINGS OR SPECIFIED IN THE PROJECT.
2. SEQUENCE OF REMOVAL OF FORMWORK SHALL BE APPROVED BY THE ENGINEER.
3. AT LEAST ONE LOWER FLOOR SHALL REMAIN PROPPED UNTILL THE UPPER FLOOR IS CAST AND CURED.

H. BRICK MASONRY WORKS

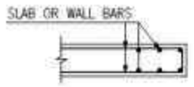
1. ALL BRICK WORKS SHALL CONFORM TO THE REQUIREMENTS OF SPECIFICATIONS FOR BUILDING AND ROAD WORKS GOVERNMENT OF PAKISTAN, PAKISTAN PUBLIC WORKS DEPARTMENT, BEING REFERENCE SPECIFICATIONS FOR SCHEDULE OF RATES–2022.

J. STRUCTURAL STEEL WORKS

1. ALL STRUCTURAL STEEL WORKS SHALL CONFORM TO THE REQUIREMENTS OF SPECIFICATIONS FOR BUILDING AND ROAD WORKS GOVERNMENT OF PAKISTAN, PAKISTAN PUBLIC WORKS DEPARTMENT, BEING REFERENCE SPECIFICATIONS FOR SCHEDULE OF RATES–2022.
2. ALL FABRICATION, PAINTING, ERECTION AND QUALITY CONTROL IS TO BE DONE IN ACCORDANCE WITH THE LATEST AISC SPECIFICATIONS.
3. ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A–36 OR EQUIVALENT.
4. ALL WELDING SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF AMERICAN WELDING SOCIETY, AWS, SPECIFICATIONS USING ELECTRODES E70XX.
5. ALL BOLTS SHALL CONFORM TO ASTM A307 OR A325.
6. SURFACE PREPARATION OF ALL STRUCTURAL STEEL FOR PAINTING SHALL BE IN ACCORDANCE WITH THE LATEST ISSUE OF "STEEL STRUCTURES PAINTING COUNCIL" SPECIFICATIONS SSPC–SP6 FOR COMMERCIAL BLAST CLEANING.
7. ALL STEEL SHALL BE GIVEN ONE SHOP COAT OF RED LEAD OXIDE PRIMER AND FIELD TOUCHUP EXCEPT FOR SURFACES TO BE EMBEDDED IN CONCRETE OR CONTACT SURFACES OF FRICTION BOLTED CONNECTIONS.



WHERE BAR EXTENSION CANNOT BE OBTAINED EXTENDED BARS AS FAR AS POSSIBLE & HOOK

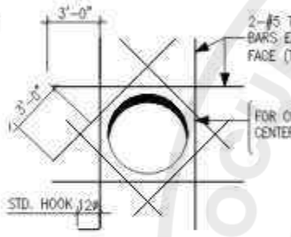


SECTION A–A

NOTES

- FOR OPENING WITH MAXIMUM DIMENSION OVER 5'–0" REFER TO OTHER DETAILS.
- USE THIS DETAILS IF NOT SHOWN IN DESIGN DRAWINGS

REINFORCEMENT DETAIL AT OPENING IN SLAB & WALLS (TYP)



WHERE BAR EXTENSION CANNOT BE OBTAINED EXTENDED BARS AS FAR AS POSSIBLE & HOOK

NOTES

MAXIMUM DIAMETER OF SLEVE IS 1'–0" FOR TRIM BARS BARS AROUND LARGE SLEEVE, REFER TO OTHER DETAILS

REINFORCEMENT AROUND SLEEVE IN SLABS & WALLS (TYP.)



BAR SPACING IN BEAM



VERTICAL BAR SPACING

K. ABBREVIATIONS & SYMBOLS

@	AT THE RATE OF
B	BOTTOM
BC	BRICK COLUMN
BW	BOTHWAYS
c/c	CENTRE TO CENTRE
CL	CLEAR
D,d	DEPTH, THICKNESS
EF	EACH FACE
EJ	EXPANSION JOINT
EL	STRUCTURAL ELEVATION
EQ	EQUAL
FF	FAR FACE
FFL	FINISHED FLOOR LEVEL
FGL	FINISHED GROUND LEVEL
GS	SLAB ON GRADE
H	HORIZONTAL
NF	NEAR FACE
NSL	NATURAL SURFACE LEVEL
NSP	NOT SHOWN ON PLAN
NTS	NOT TO SCALE
SOP	SURVEY OF PAKISTAN
ST	STIRUPPS
T	TOP
TH.	THICK
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
V	VERTICAL
≥	GREATER THAN OR EQUAL TO
≤	LESS THAN OR EQUAL TO
ø	DIAMETER IN INCHES
	LEVEL ON PLAN
℄	CENTRE LINE
L	ANGLE
[	CHANNEL

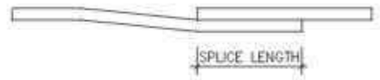
SPLICE LENGHTH (LS) *

fc' = 2,500 PSI		
BAR SIZES	(LS1) TOP BARS	(LS2) OTHER BARS
#3 TO #6	57db	44db
#7 TO #18	72db	55db

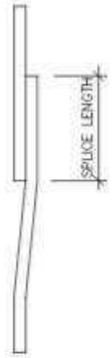
* ALL LAP SPLICE SHALL BE STAGGARED BY AT LEAST 50 %

DEVELOPMENT LENGHT (LD)

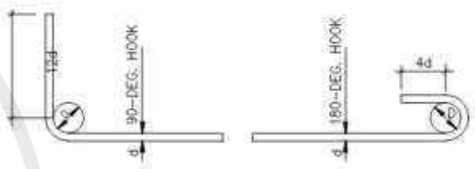
LD = LS



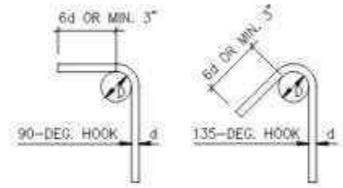
BEAM SPLICE (TYP.)



COLUMN SPLICE (TYP.)



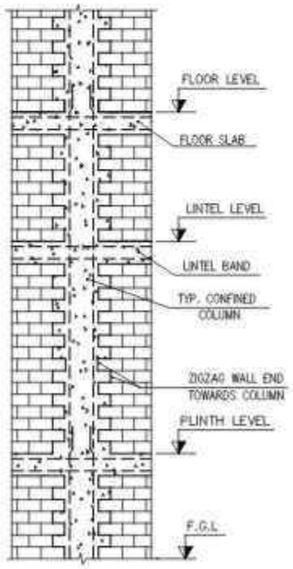
STANDARD BAR HOOKS (MAIN BARS)



STIRRUPS AND TIE HOOKS

BAR DIA	D
ø3	2½"
#4	3"
#5	4"
#6	4"
#8	6"
#9	7"
#11	8½"

BAR DIA	D
ø3	1½"
#4	2"
#5	2½"



TYPICAL ELEVATION OF CONFINED COLUMN (SHOWING TOOTHING)

SCALE = 1/8" = 1'-0"

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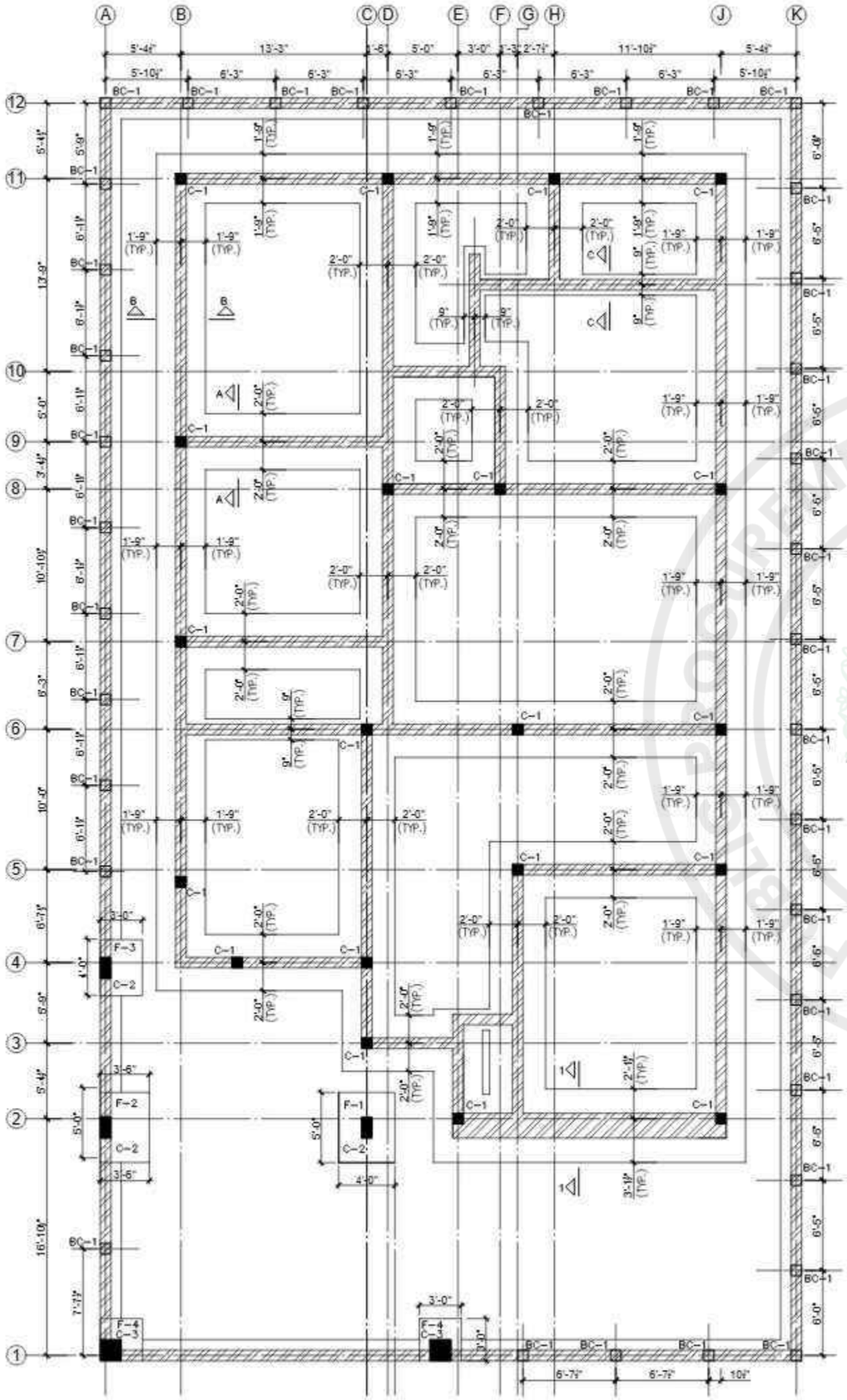
CONSTRUCTION OF HOUSES FOR ICT POLICE

GENERAL NOTES & TYPICAL DETAILS (SHEET 2 OF 2)

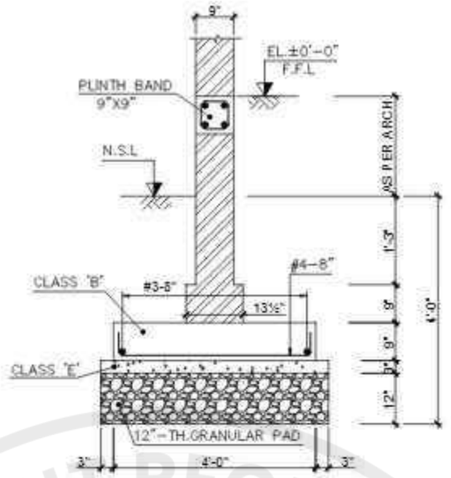
NESPAK NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN. MUNIR KHATTAK			
FILE	NIDA AFZAL	TALHA AFZAL	AAMIR RASHEED
CKD. NIDA AFZAL	DATE	DRAWING NO.	REV.
SUBM. AAMIR RASHEED	JULY 2026	156/323/TD/01G02	0

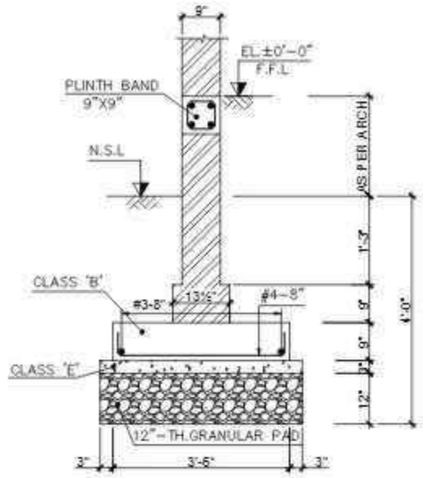
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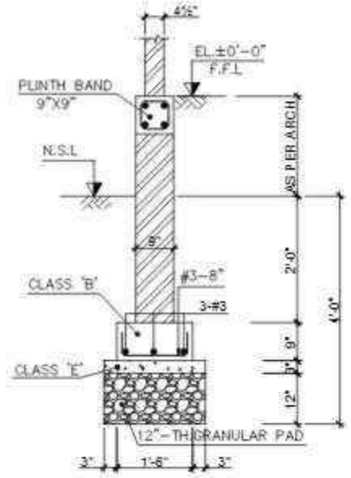
FOUNDATION AND COLUMN LAYOUT PLAN



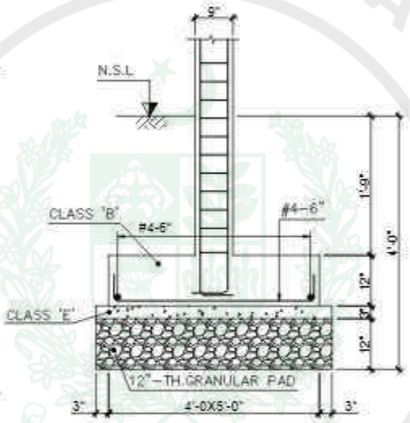
SECTION OF FOOTING A-A



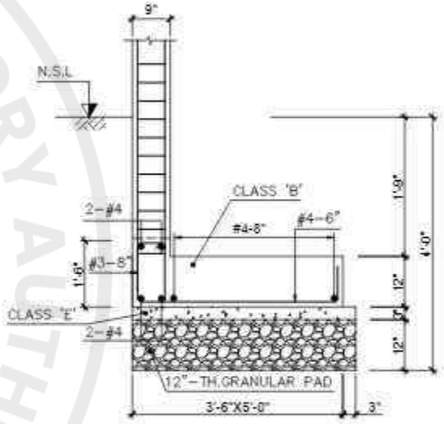
SECTION OF FOOTING B-B



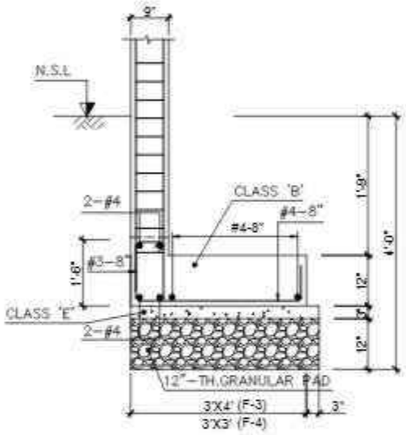
SECTION OF FOOTING C-C
(4½"-TH. WALL FOOTING)



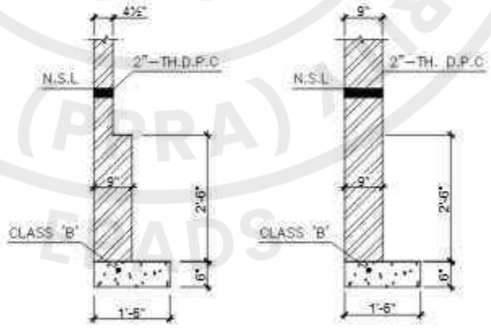
DETAIL OF FOOTING F-1



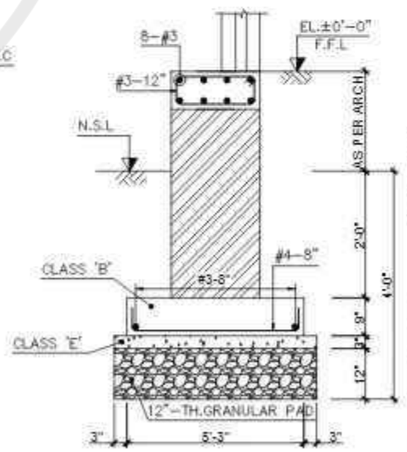
DETAIL OF FOOTING F-2



DETAIL OF FOOTING F-3 & F-4

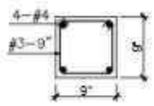


DETAIL OF BOUNDARY WALL

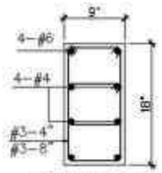


SECTION 1-1

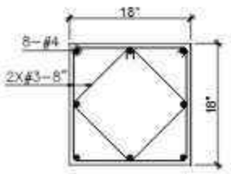




COLUMN C-1



COLUMN C-2



COLUMN C-3

NOTES:-

1-FOR GENERAL NOTES REFER DWG. NO. 156/323/C/01G01 & 02.
2-READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.
3-ALL UNITS ARE IN 'FPS' EXCEPT NOTED OTHERWISE.
4-DESIGN OF FOUNDATION IS BASED ON ALLOWABLE BEARING CAPACITY OF 0.75 TSF.

SCALE = 1/8" = 1'-0"

REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

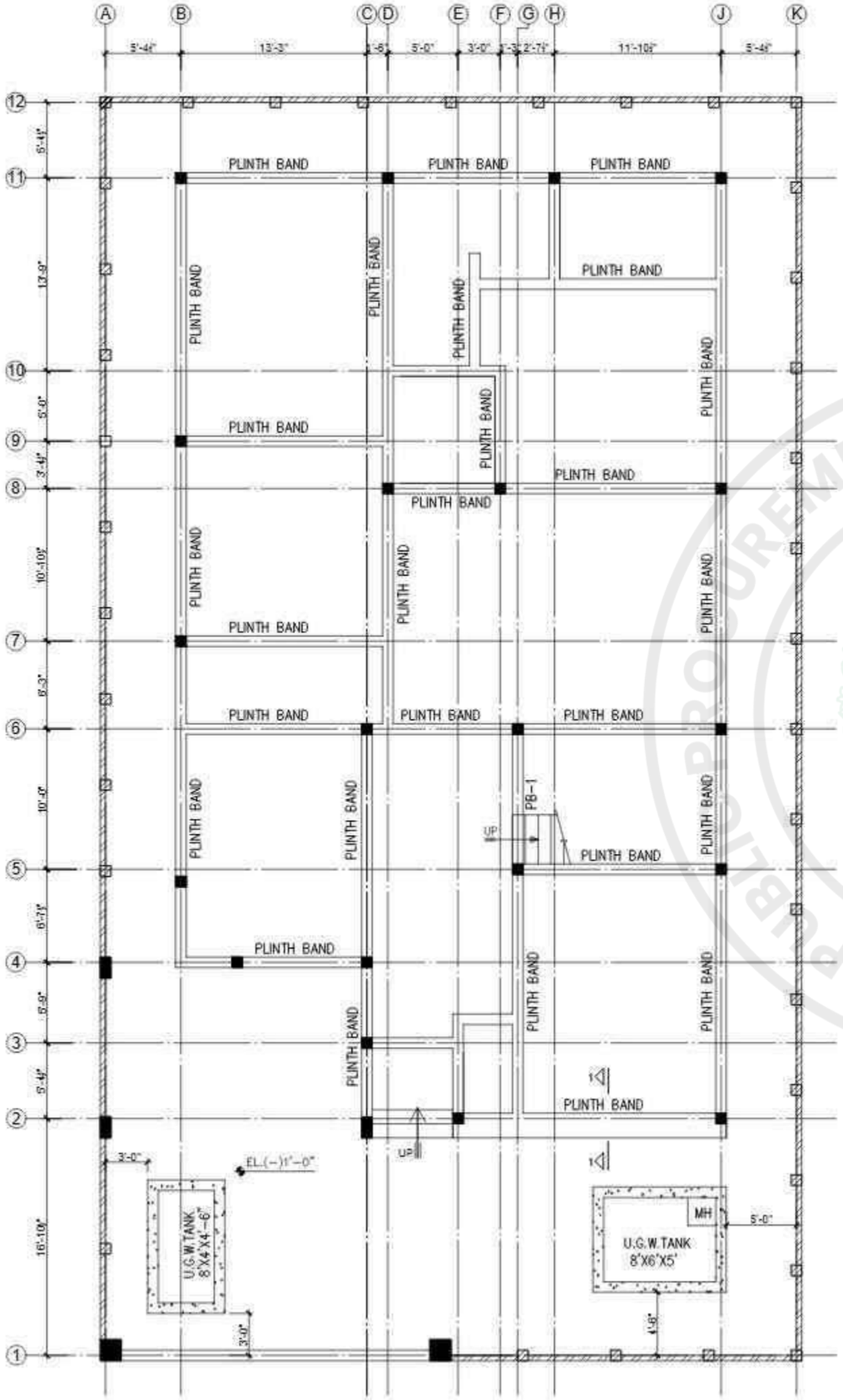
CONSTRUCTION OF HOUSES FOR ICT POLICE

FOUNDATION AND COLUMN LAYOUT PLAN

NES PAK NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

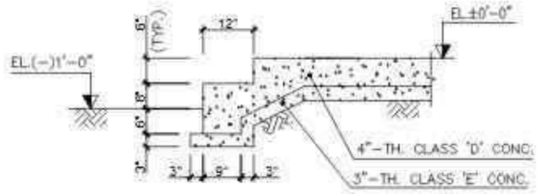
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DWN. MUNIR KHATTAK			
FILE	NIDA AFZAL	TALHA AFZAL	AAMIR RASHEED
CKD. NIDA AFZAL	DATE	DRAWING NO.	REV.
SUBM. AAMIR RASHEED	JULY' 2026	156/323/TD/01G03	0

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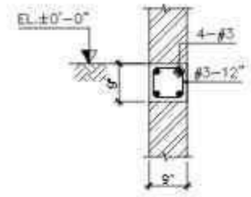


PLINTH BEAM & PLINTH BAND PLAN

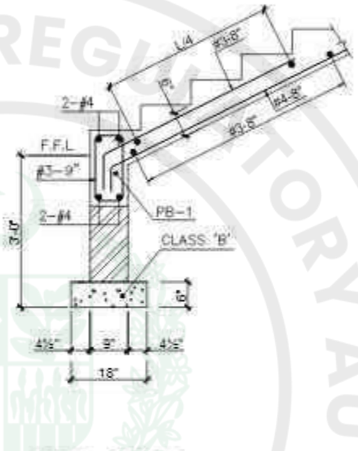
(ALL PLINTH BEAM & PLINTH BAND TOP SHALL BE AT EL.+0'-0" EXCEPT MENTIONED OTHERWISE)



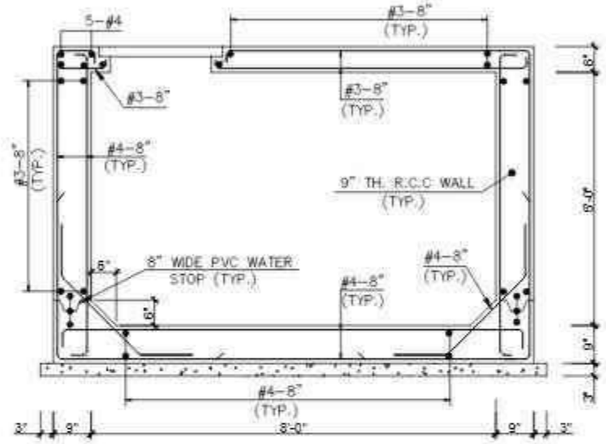
TYP. SECTION OF STEPS



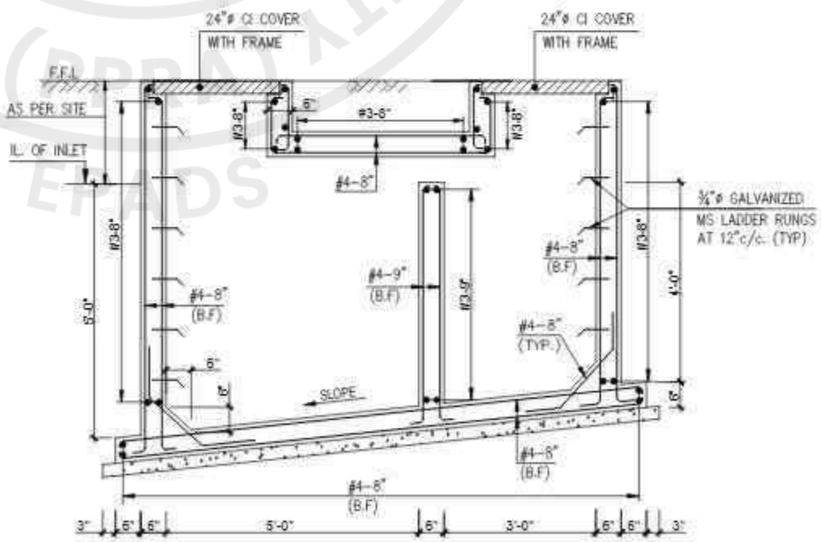
TYP. SEC. OF PLINTH BAND



DETAIL OF STAIR



SECTIONAL DETAIL OF UNDER GROUND WATER TANK



SECTIONAL DETAIL OF SEPTIC TANK

NOTES:-

1-FOR GENERAL NOTES REFER DWG. NO. 156/323/C/01G01 &.02.
2-READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.
3-ALL UNITS ARE IN 'FPS' EXCEPT NOTED OTHERWISE.
4-DESIGN OF FOUNDATION IS BASED ON ALLOWABLE BEARING CAPACITY OF 0.75 TSF.

SCALE = 1/8" = 1'-0"

REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

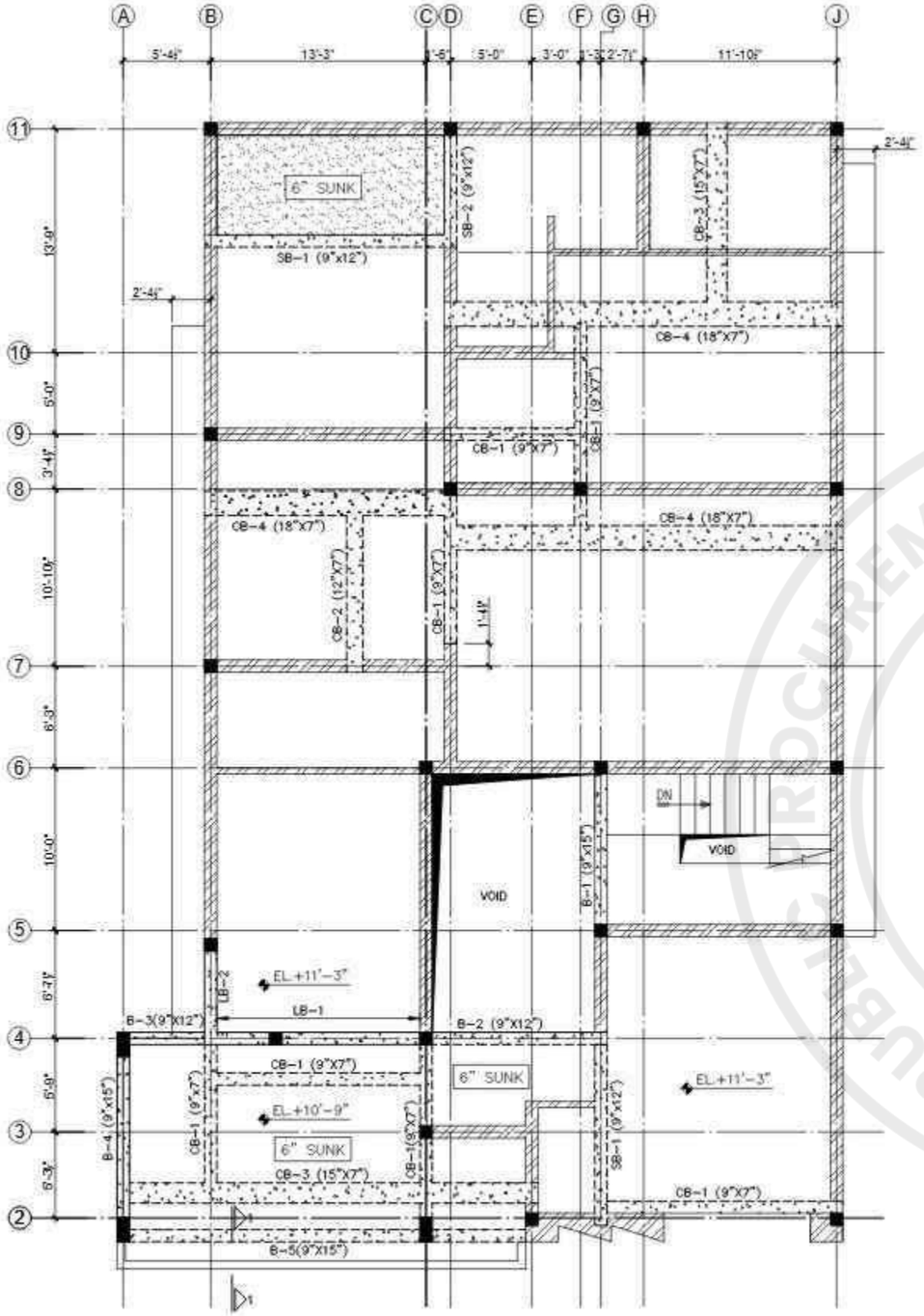
CONSTRUCTION OF HOUSES FOR ICT POLICE

PLINTH BEAM & PLINTH BAND PLAN

NES PAK NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

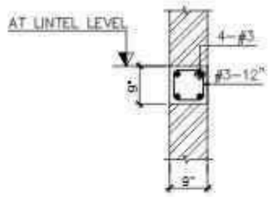
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DWN. MUNIR KHATTAK			
FILE	NIDA AFZAL	TALHA AFZAL	AAMIR RASHEED
CKD. NIDA AFZAL	DATE	DRAWING NO.	REV.
SUBM. AAMIR RASHEED	JULY' 2026	156/323/TD/01G04	0

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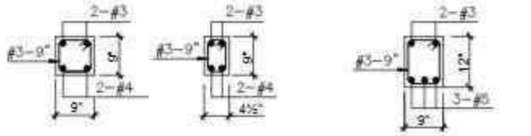


FRAMING PLAN AT EL.+11'-3"

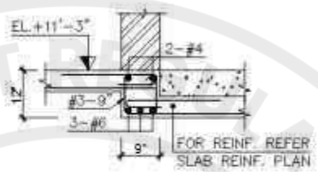
(ALL SLABS ARE 6"-TH. EXCEPT NOTED OTHERWISE)



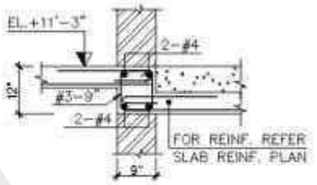
TYP. SECTION DETAIL OF LINTEL BAND



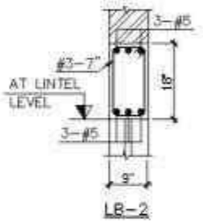
TYPICAL DETAIL OF LINTELS



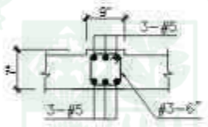
SB-1



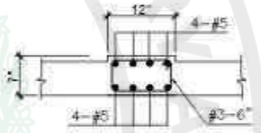
SB-2



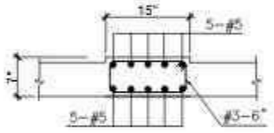
LB-2



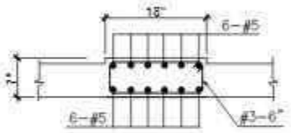
CB-1



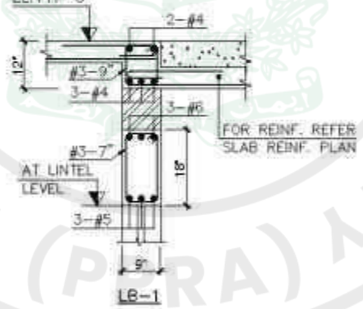
CB-2



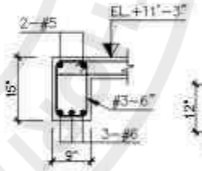
CB-3



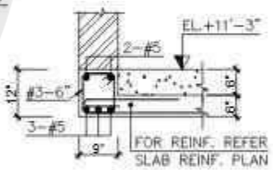
CB-4



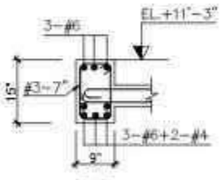
LB-1



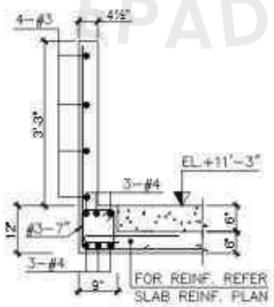
B-1



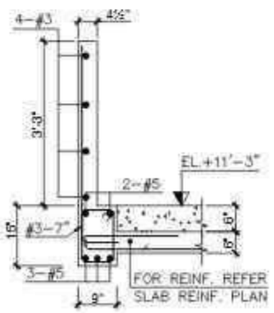
B-2



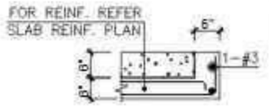
B-5



B-3



B-4



SECTION 1-1

NOTES:-

1. FOR GENERAL NOTES REFER DWG. NO. 156/323/C/01G01 & 02.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.
3. ALL UNITS ARE IN 'FPS' EXCEPT NOTED OTHERWISE.
4. R.C.C LINTEL SHALL BE PLACED WITH ITS BOTH ENDS EXTENDING 9" IN BRICK MASONRY ON BOTH SIDES IN WALL.
5. TYPICAL LINTEL BANDS SHALL BE REPLACED WITH LINTEL BEAM AT DOOR AND WINDOWS LOCATION.
6. ALL SLABS ARE 6" TH. EXCEPT NOTED OTHERWISE.
7. FOR SLAB TOP & BOTTOM REINFORCEMENT REFER, RESPECTIVE SLAB REINF. PLANS.

SCALE = 1/8" = 1'-0"

REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

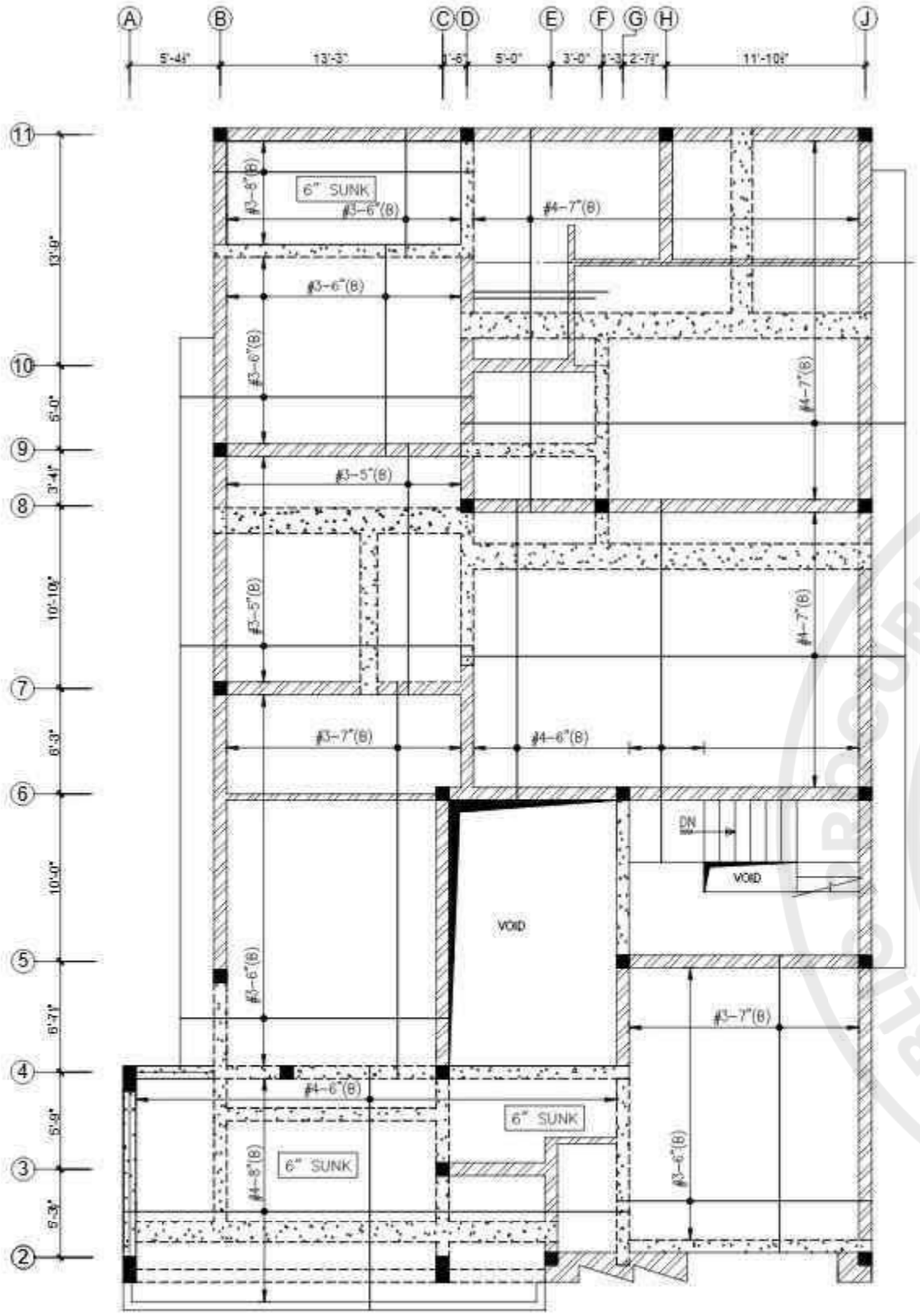
CONSTRUCTION OF HOUSES FOR ICT POLICE

FRAMING PLAN AT EL.+11'-3"

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

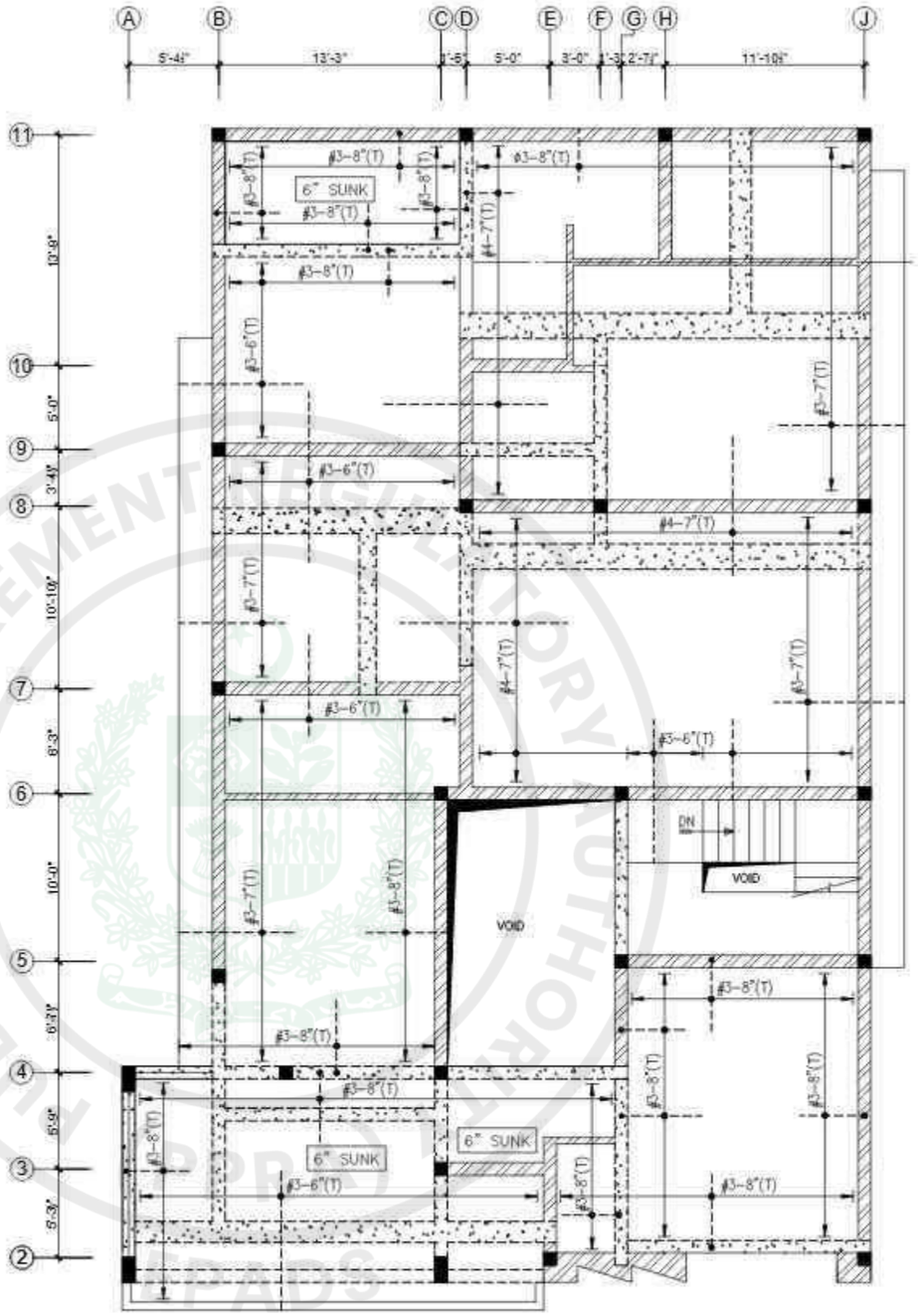
DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN. MUNIR KHATTAK			
FILE	NIDA AFZAL	TALHA AFZAL	AAMIR RASHEED
CKD. NIDA AFZAL	DATE	DRAWING NO.	REV.
SUBM. AAMIR RASHEED	JULY' 2026	156/323/TD/01G05	0

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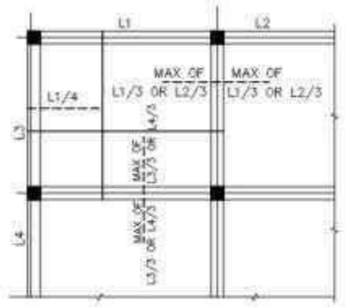
BOTTOM SLAB REINFORCEMENT PLAN AT EL.+11'-3"

(ALL SLABS ARE 6"-TH. EXCEPT NOTED OTHERWISE)



TOP SLAB REINFORCEMENT PLAN AT EL.+11'-3"

(ALL SLABS ARE 6"-TH. EXCEPT NOTED OTHERWISE)



TYP. SLAB REINFORCEMENT PLAN

NOTES:-

1. FOR GENERAL NOTES REFER DWG. NO. 156/323/C/01G01 & 02.
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3. ALL UNITS ARE IN 'FPS' EXCEPT NOTED OTHERWISE.
4. R.C.C LINTEL SHALL BE PLACED WITH ITS BOTH ENDS EXTENDING 9" IN BRICK MASONRY ON BOTH SIDES IN WALL.
5. TYPICAL LINTEL BANDS SHALL BE REPLACED WITH LINTEL BEAM AT DOOR AND WINDOWS LOCATION.
6. WALLS THAT ARE NOT SHOWN IN FRAMING PLANS SHALL BE CONSTRUCTED AFTER THE SLAB ABOVE HAS GAINED ITS FULL STRENGTH AND SHUTTERING IS REMOVED.

NOTES FOR SLAB REINF.

1. ALL BINDERS BARS SHALL BE #3-12" c/c.
2. TOP REINF. AT EACH CONTINUOUS EDGE SHALL BE EXTENDED ON BOTH SIDES UPTO MAX. SPAN/3.
3. TOP REINF. AT EACH DISCONTINUOUS EDGE SHALL BE PROVIDED UPTO SPAN/4.
4. ALL SLABS ARE 6" TH. EXCEPT NOTED OTHERWISE.

SCALE = 1/8" = 1'-0"

REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

CONSTRUCTION OF HOUSES FOR ICT POLICE

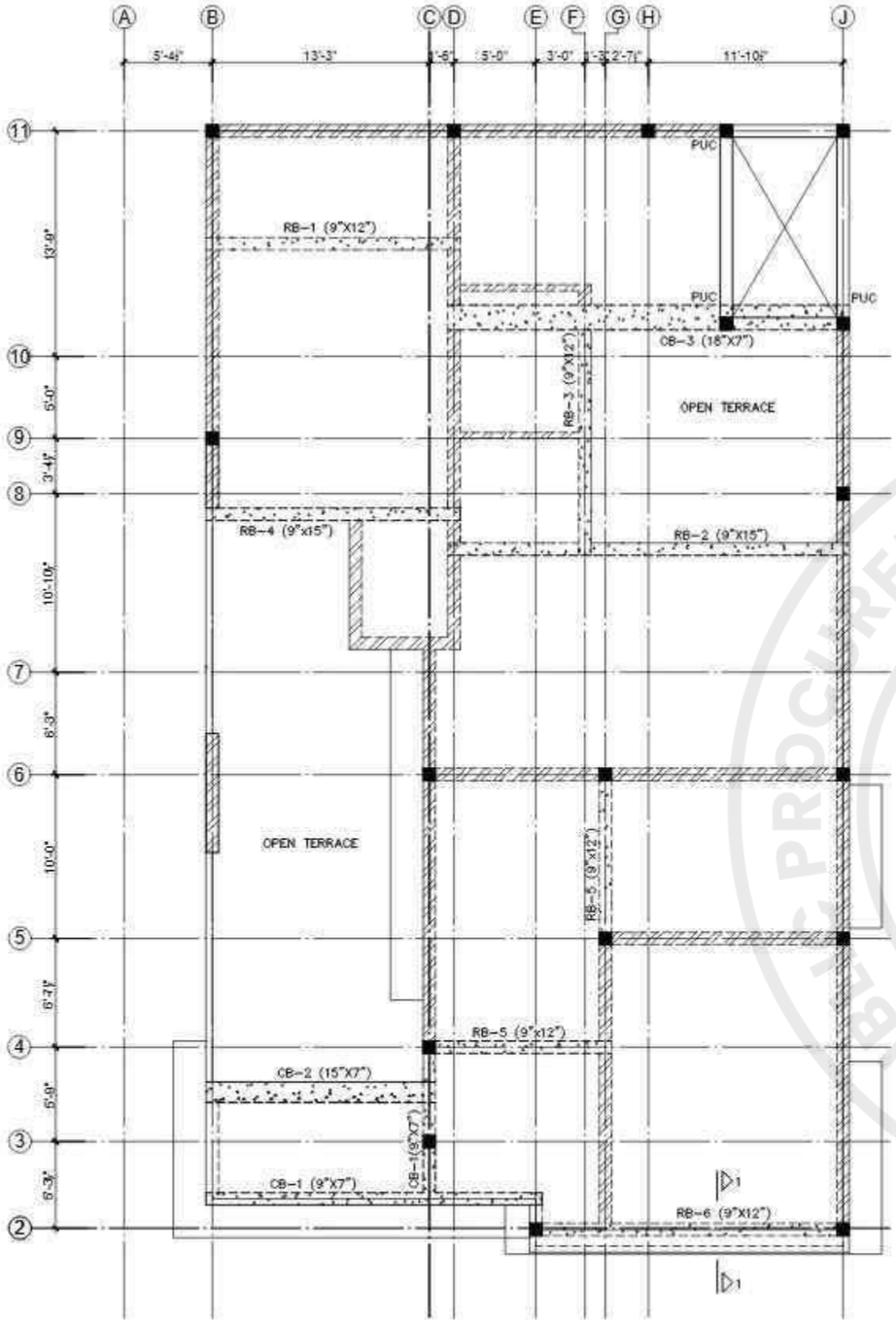
BOTTOM & TOP REINF. PLAN AT EL.+11'-3"

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN. MUNIR KHATTAK	NIDA AFZAL	TALHA AFZAL	AAMIR RASHEED
FILE			
CKD. NIDA AFZAL			
SUBM. AAMIR RASHEED			

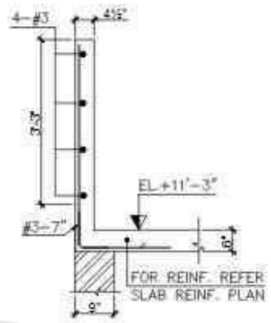
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JULY' 2026	156/323/TD/01G06	0

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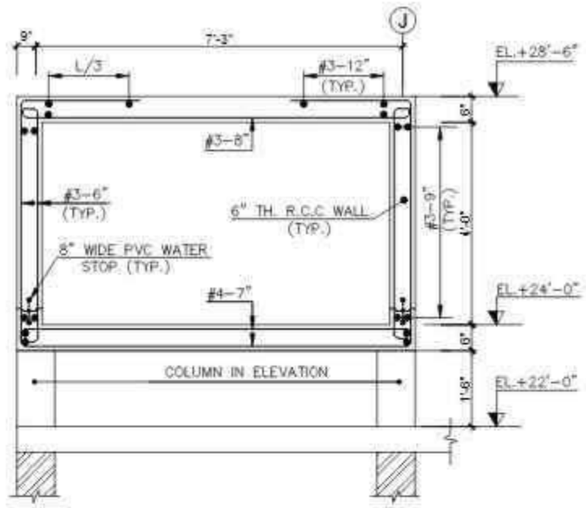


FRAMING PLAN AT EL.+22'-9"

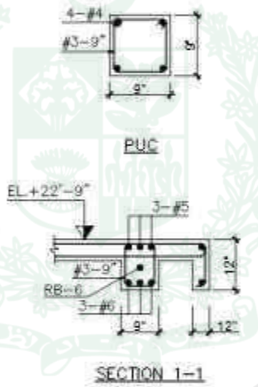
(ALL SLABS ARE 5"-TH. EXCEPT NOTED OTHERWISE)

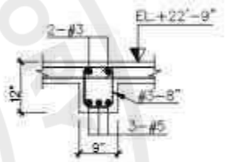


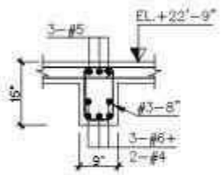
TYP. SEC. OF PARAPET WALL

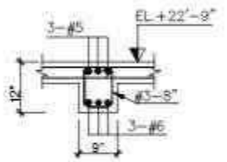


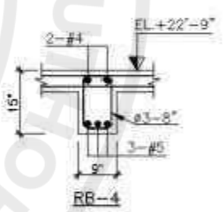
TYP. SECTION OF O.H.W.T

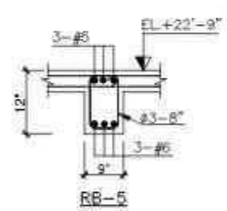


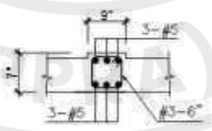


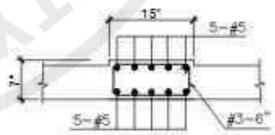


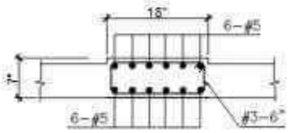












NOTES:-

1. FOR GENERAL NOTES REFER DWG.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.
3. ALL UNITS ARE IN 'FPS' EXCEPT NOTED OTHERWISE.
4. R.C.C LINTEL SHALL BE PLACED WITH ITS BOTH ENDS EXTENDING 9" IN BRICK MASONRY ON BOTH SIDES IN WALL.
5. TYPICAL LINTEL BANDS SHALL BE REPLACED WITH LINTEL BEAM AT DOOR AND WINDOWS LOCATION.
6. ALL SLABS ARE 5" TH. EXCEPT NOTED OTHERWISE.

SCALE = 1/8" = 1'-0"

REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

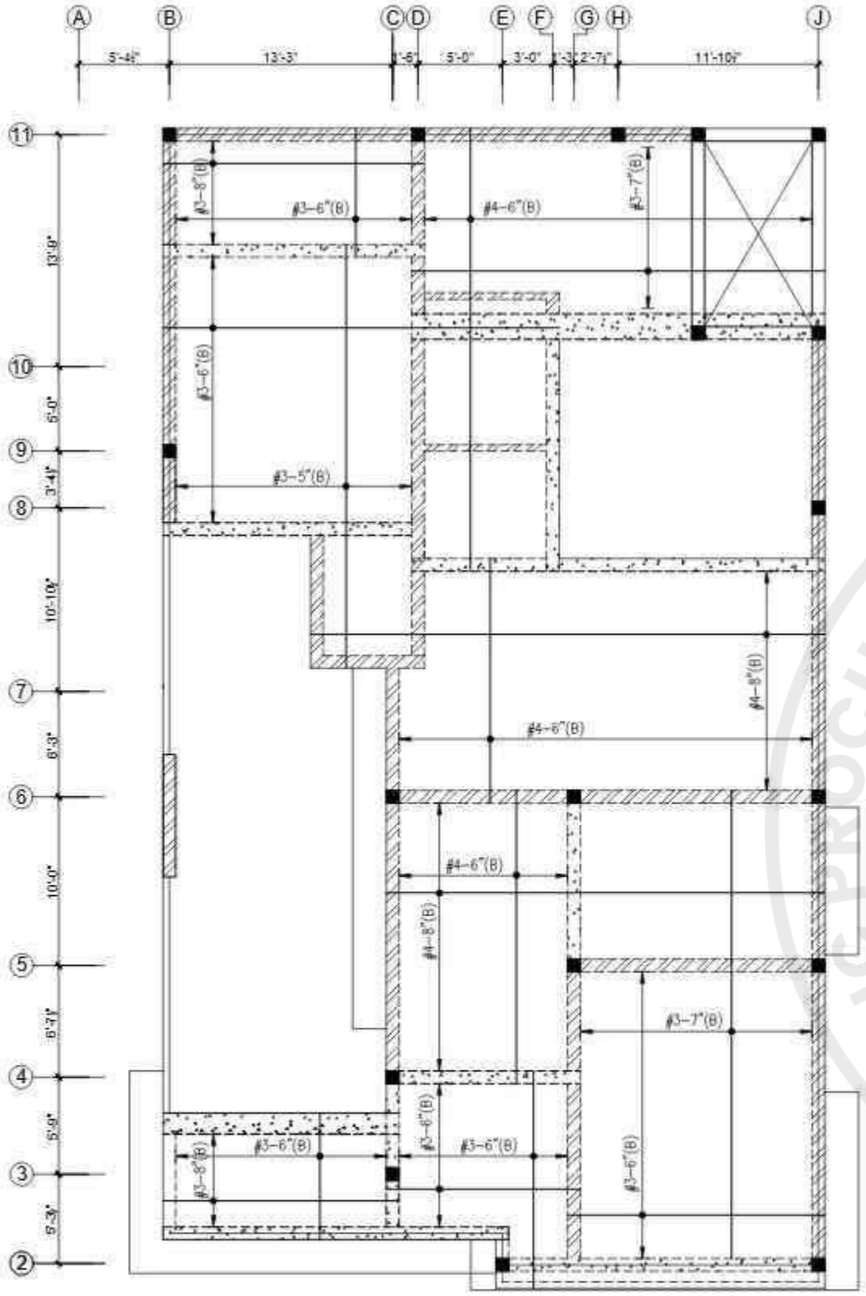
CONSTRUCTION OF HOUSES FOR ICT POLICE

FRAMING PLAN AT EL.+22'-9"

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

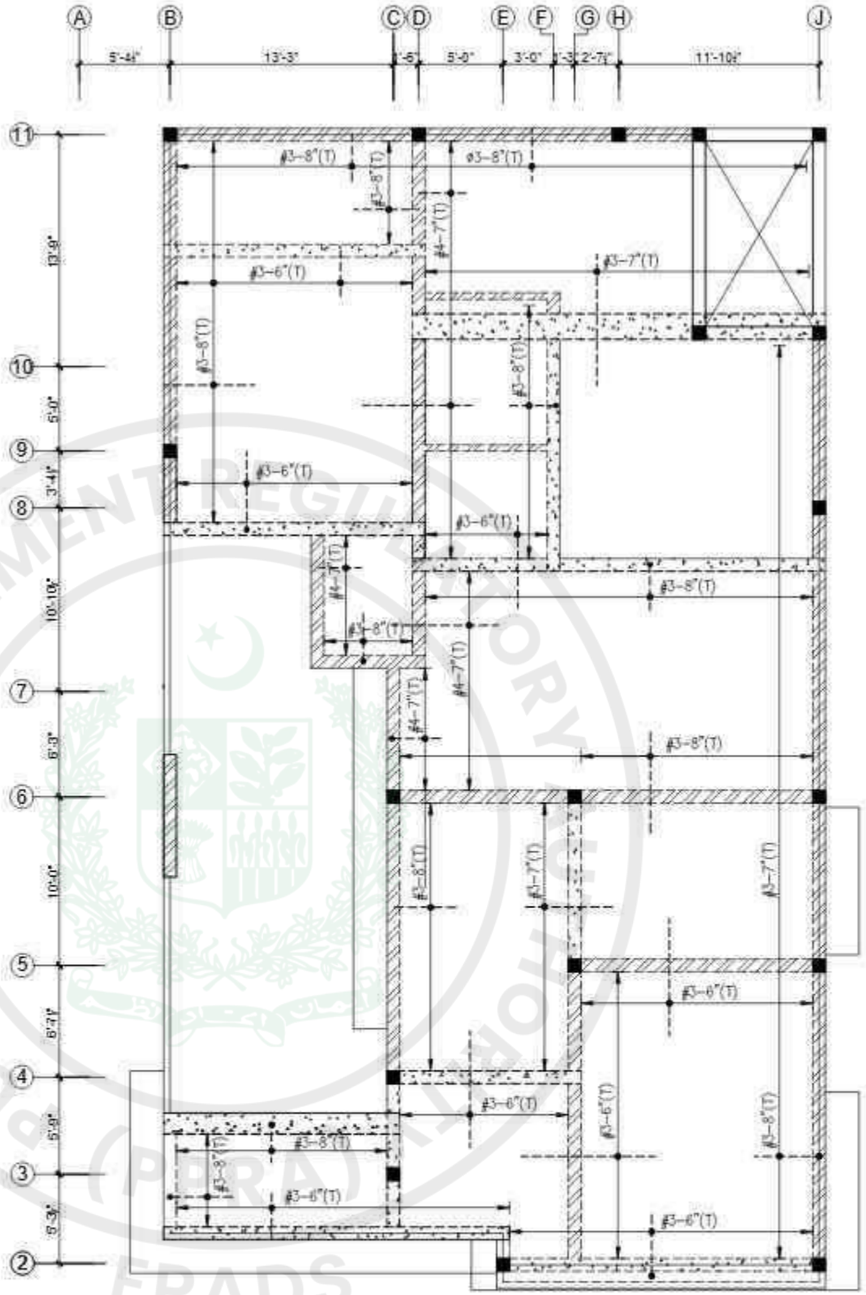
DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN. MUNIR KHATTAK			
FILE	NIDA AFZAL	TALHA AFZAL	AAMIR RASHEED
CKD. NIDA AFZAL	DATE	DRAWING NO.	REV.
SUBM. AAMIR RASHEED	JULY 2026	156/323/TD/01G07	0

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS



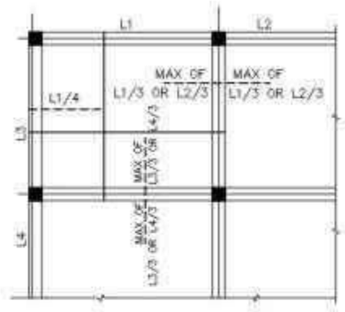
FRAMING PLAN AT EL.+22'-9"

(ALL SLABS ARE 5"-TH. EXCEPT NOTED OTHERWISE)



FRAMING PLAN AT EL.+22'-9"

(ALL SLABS ARE 5"-TH. EXCEPT NOTED OTHERWISE)



TYP. SLAB REINFORCEMENT PLAN

NOTES:-

1. FOR GENERAL NOTES REFER DWG. NO. 156/323/C/01G01 & 02.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.
3. ALL UNITS ARE IN 'FPS' EXCEPT NOTED OTHERWISE.
4. R.C.C LINTEL SHALL BE PLACED WITH ITS BOTH ENDS EXTENDING 9" IN BRICK MASONRY ON BOTH SIDES IN WALL.
5. TYPICAL LINTEL BANDS SHALL BE REPLACED WITH LINTEL BEAM AT DOOR AND WINDOWS LOCATION.
6. WALLS THAT ARE NOT SHOWN IN FRAMING PLANS SHALL BE CONSTRUCTED AFTER THE SLAB ABOVE HAS GAINED ITS FULL STRENGTH AND SHUTTERING IS REMOVED.

NOTES FOR SLAB REINF.

1. ALL BINDERS BARS SHALL BE #3-12" c/c.
2. TOP REINF. AT EACH CONTINUOUS EDGE SHALL BE EXTENDED ON BOTH SIDES UPTO MAX. SPAN/3.
3. TOP REINF. AT EACH DISCONTINUOUS EDGE SHALL BE PROVIDED UPTO SPAN/4.
4. ALL SLABS ARE 6" TH. EXCEPT NOTED OTHERWISE.

SCALE = 1/8" = 1'-0"

REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

CONSTRUCTION OF HOUSES FOR ICT POLICE

BOTTOM & TOP REINF. PLAN AT EL.+22'-9"

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN. MUNIR KHATTAK			
FILE	NIDA AFZAL	TALHA AFZAL	AAMIR RASHEED
CKD. NIDA AFZAL	DATE	DRAWING NO.	REV.
SUBM. AAMIR RASHEED	JULY' 2026	156/323/TD/01G08	0

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ABBREVIATION	DESCRIPTION
Ø	DIAMETER OF PIPE
CW	COLD WATER PIPE
HW	HOT WATER PIPE
HWR	HOT WATER RETURN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
S/S	SOIL STACK
W/S	WASTE STACK
V/S	VENT STACK
T/A	TO ABOVE
T/B	TO BELOW
F/A	FROM ABOVE
F/B	FROM BELOW
U/G.	UNDER GROUND
U/F.	UNDER FLOOR
GWH	GAS WATER HEATER
SH	BATH SHOWER
MS	MUSLIM SHOWER

ABBREVIATION	DESCRIPTION
RWP	RAIN WATER PIPE
WMH	WASTE MANHOLE
SMH	SOIL MANHOLE
CP	CATCH PIT
GI	GALVANIZED IRON
GV	GATE VALVE
CV	CHECK VALVE
WC	WATER CLOSET
AF/C	ABOVE FALSE CEILING
(TYP)	TYPICAL
FT	FLOOR TRAP
H/L	HIGH LEVEL
U/F	UNDER FLOOR / LOW LEVEL
WC	WATER CLOSET
N.T.S.	NOT TO SCALE

SYMBOL	DESCRIPTION
	COLD WATER PIPE
	HOT WATER PIPE
	SOIL PIPE
	WASTE PIPE
	VENT PIPE
	GATE VALVE ON HORIZONTAL PIPE
	GATE VALVE ON VERTICAL PIPE
	CHECK VALVE OR NON-RETURN VALVE
CO	FLOOR CLEAN OUT
COP	FLOOR CLEAN OUT PLUG
	MULTI FLOOR TRAP
	FLOOR TRAP
	DIRECTION OF FLOW
MS	MUSLIM SHOWER
Gr.T	GREASE TRAP
G.T	GULLY TRAP
GWH/EWH	GAS /ELECTRIC WATER HEATER
	SHOWER
	WATER COOLER
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
	ASIAN WATER CLOSET
	ENGLISH WATER CLOSET
	VANITY
	WASH HAND BASIN

GENERAL NOTES.

1 – PIPE PASSING THROUGH WALL, FLOOR OR ROOF SHALL BE PROTECTED WITH SLEEVES
2 – CLEANOUT OR ACCESS DOOR SHALL BE PROVIDED AT THE BASE OF ALL DRAINAGE STACK AND AT EACH FLOOR LEVEL.
3 – DRAINAGE STACKS SHALL BE CONNECTED TO HORIZONTAL FIXTURE DRAIN PIPES BY 90° SWEEP TEE OR Y AND 45° BEND.
4 – DRAINAGE STACKS SHALL BE CONNECTED TO UNDERGROUND DRAIN PIPE BY EITHER 90° LARGE/LONG RADIUS BEND OR TWO 45° BENDS.
5 – PIPE SIZES ARE IN INCHES.
6 – PLUMBING SERVICES, SHALL BE CO-ORDINATED WITH OTHER SERVICES SUCH AS ELECTRICAL, HVAC ETC. TO AVOID CONFLICT OR INTERFERENCE WITH THEM.
7 – SIZE OF FLOOR DRAIN UNLESS OTHERWISE STATED SHALL BE SAME AS THE SIZE OF OUTLET DRAIN PIPE.
8 – WHEREVER FLOOR DRAIN/TRAP IS SHOWN, SLOPE FLOOR TOWARDS DRAIN/TRAP.
9 – HORIZONTAL DRAINAGE PIPING OF 3 INCH DIAMETER & LESS SHALL BE INSTALLED WITH A SLOPE OF NOT LESS THEN 1/4 INCH PER FOOT, LARGER ONES WITH A SLPOE OF NOT LESS THEN 1/8 INCH PER FOOT.
10 – VENT PIPES SHALL BE EXENDED ONE METER ABOVE ROOF FINISHED LEVEL AND VENT COWLS SHALL BE PROVIDED ON EACH VENT OUTLET.
11 – THE "VERTICAL DISTANCE" FROM FIXTURE OUTLET TO THE TRAP WEIR SHALL PREFERABLY BE NOT MORE THAN 12 INCHES. HOWEVER, THIS "VERTICAL DISTANCE" FROM THE FIXTURE OUTLET TO THE TRAP WEIR SHALL NOT EXCEED 24 INCHES.

GENERAL NOTES.

12 – WHERE THE CHANGE OF DIRECTION IS 45° OR LESS, IT IS NOT NECESSARY TO PROVIDE A CLEAN OUT. BUT WHEN THE CHANGE IN DIRECTION IS MORE THAN 45°, A CLEAN OUT SHOULD BE REQUIRED.
13 – CLEANOUTS SHALL BE SO INSTALLED THAT THERE IS A CLEARANCE OF NOT LESS THAN 18 INCHES FOR THE PURPOSE OF RODDING.
14 – ALL TRAPS AND FLOOR DRAINS SHALL HAVE A WATER SEAL NOT LESS THAN 2 INCHES.
15 – NO T-CONNECTION IS ALLOWED IN SOIL AND WASTE PIPING.
16 – ALL PLUMBING DUCTS MUST HAVE ACCESS PANELS AT EACH FLOOR.
17 – ALL PLUMBING DUCTS MUST BE PLASTERED WITH 1:3 C/S WATER PROOF PLASTER BEFORE INSTALLATION OF PIPES ETC.
18 – TYPICAL OUTLET SIZE OF FIXTURES SHALL BE AS FOLLOWS;
WATER CLOSET 4"
FLOOR DRAIN 3"
SHOWER / TUB 2"
19 – MINIMUM SIZE OF WATER SUPPLY DISTRIBUTION PIPE SHALL BE 25mm.
20 – MINIMUM SIZE OF SOIL PIPE DIAMETER FOR SHALL BE 100mm.
21 – WATER FILTERS SHALL BE PROVIDED AT EACH WATER COOLER LOCATION, WITH THE SOURCE LINE.

NOTE:
1. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.

REFERENCE DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

SCALE: 3/32" = 1'-0"

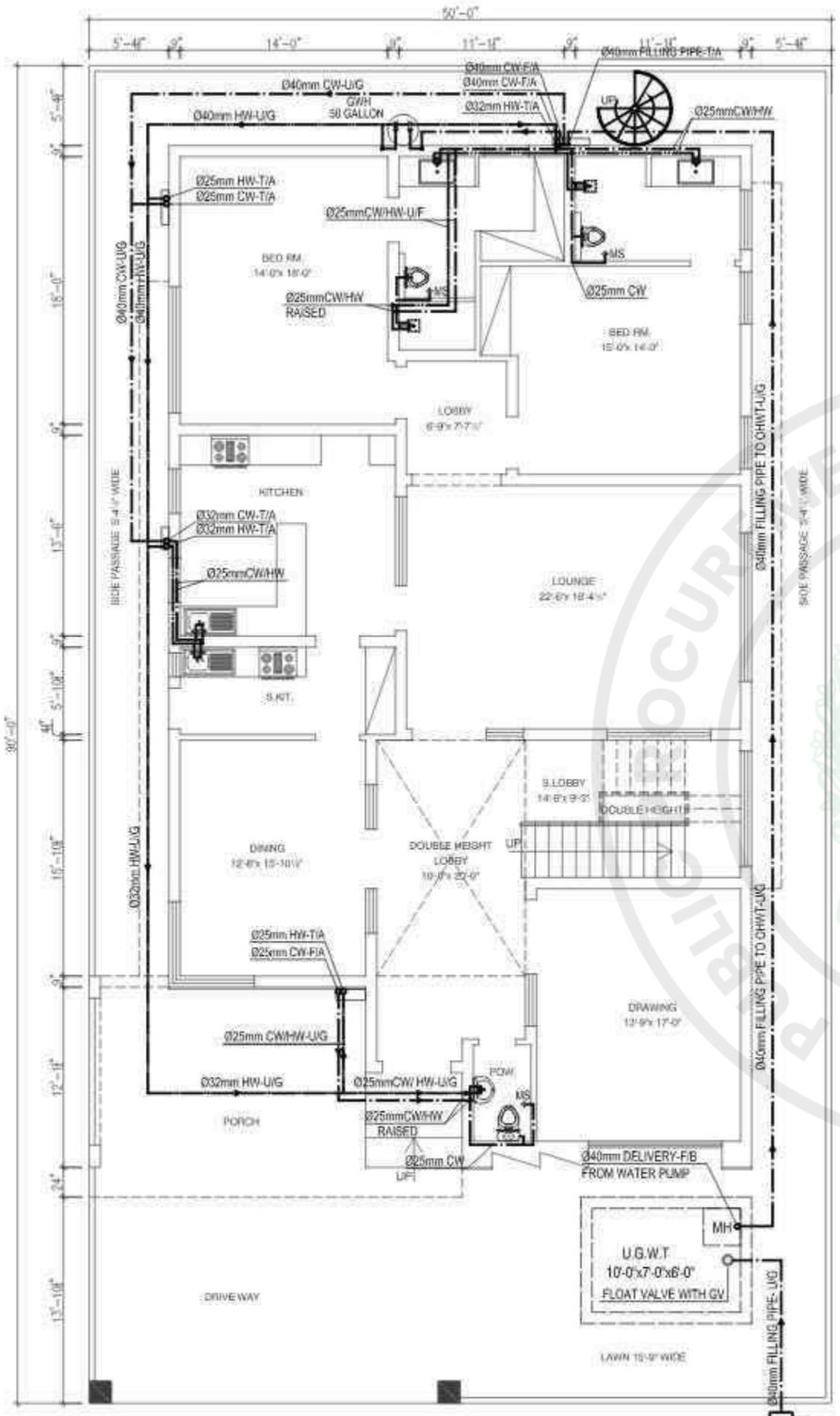
ISLAMABAD CAPITAL TERRITORY POLICE

ICT POLICE ACCOMMODATION PROJECT
ISLAMABAD
GENERAL NOTES, SYMBOLS & ABBREVIATIONS
(PLUMBING WORKS)

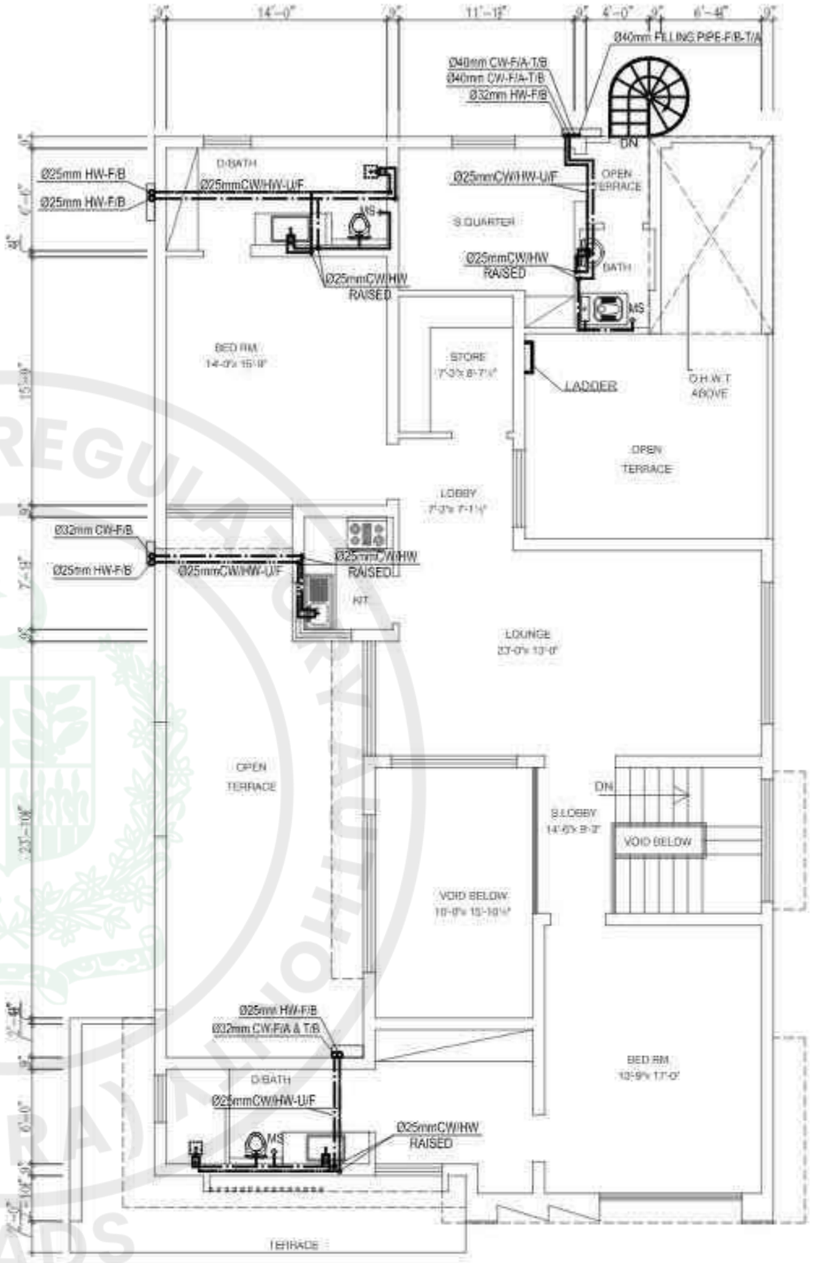
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DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN. HASNAT	BUSHRA	M.A.JAVED	M.A.JAVED
FILE	DATE	DRAWING NO.	REV.
CKD. M.A.JAVED	AUG 2026	156/326/BD/01F01	
SUBM. M.A.JAVED			

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GROUND FLOOR PLAN



FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

NOTE:

1. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.

REFERENCE DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

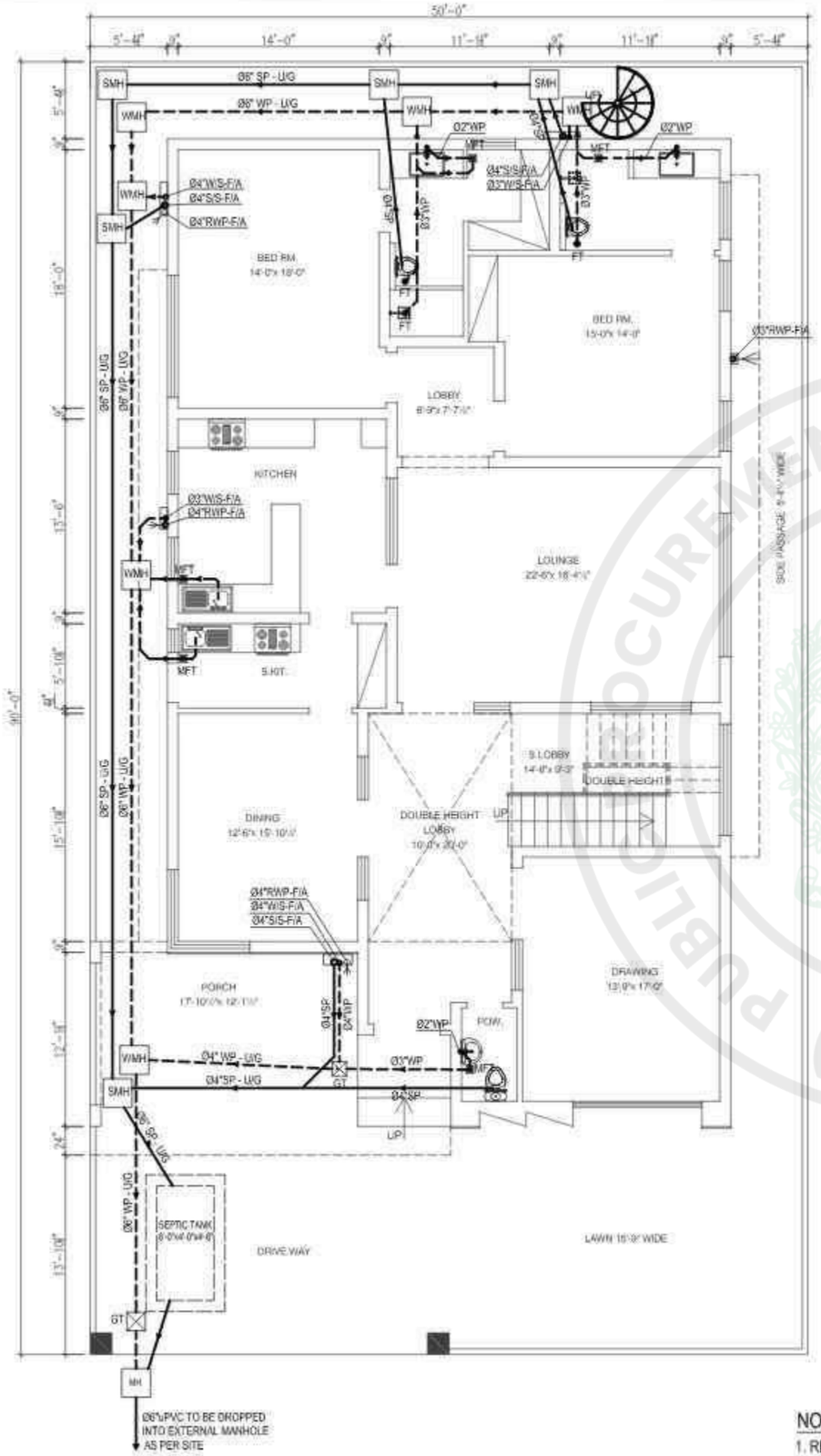
ISLAMABAD CAPITAL TERRITORY POLICE

ICT POLICE ACCOMMODATION PROJECT
ISLAMABAD
GROUND & FIRST FLOOR PLAN
PLUMBING (WATER SUPPLY LAYOUT)

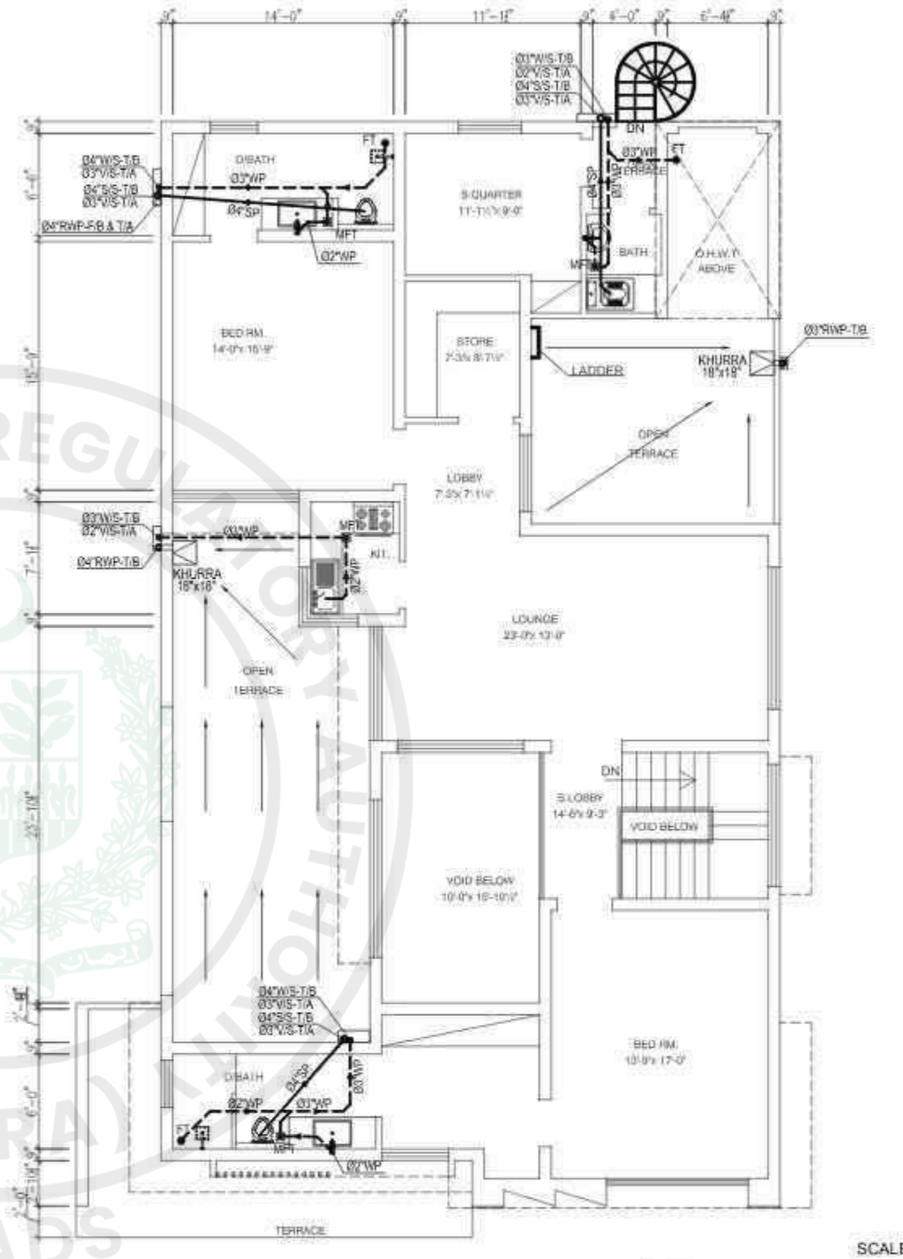
NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN. HASNAT	BUSHRA	M.A.JAVED	M.A.JAVED
FILE	DATE	DRAWING NO.	REV.
CKD. M.A.JAVED	AUG.2026	156/326/BD/01F02	
SUBM. M.A.JAVED			

PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS



GROUND FLOOR PLAN



FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

NOTE:

1. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.

REFERENCE DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

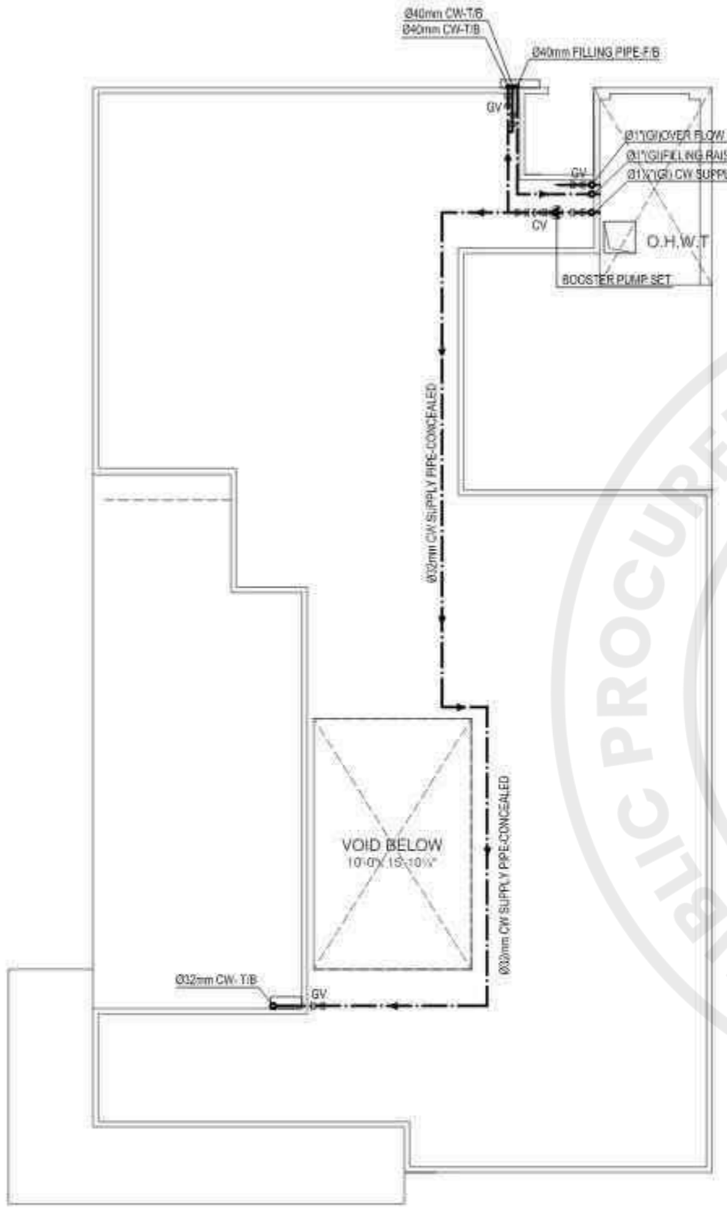
ISLAMABAD CAPITAL TERRITORY POLICE

ICT POLICE ACCOMMODATION PROJECT
ISLAMABAD
GROUND & FIRST FLOOR PLAN
PLUMBING (SANITARY DRAINAGE LAYOUT)

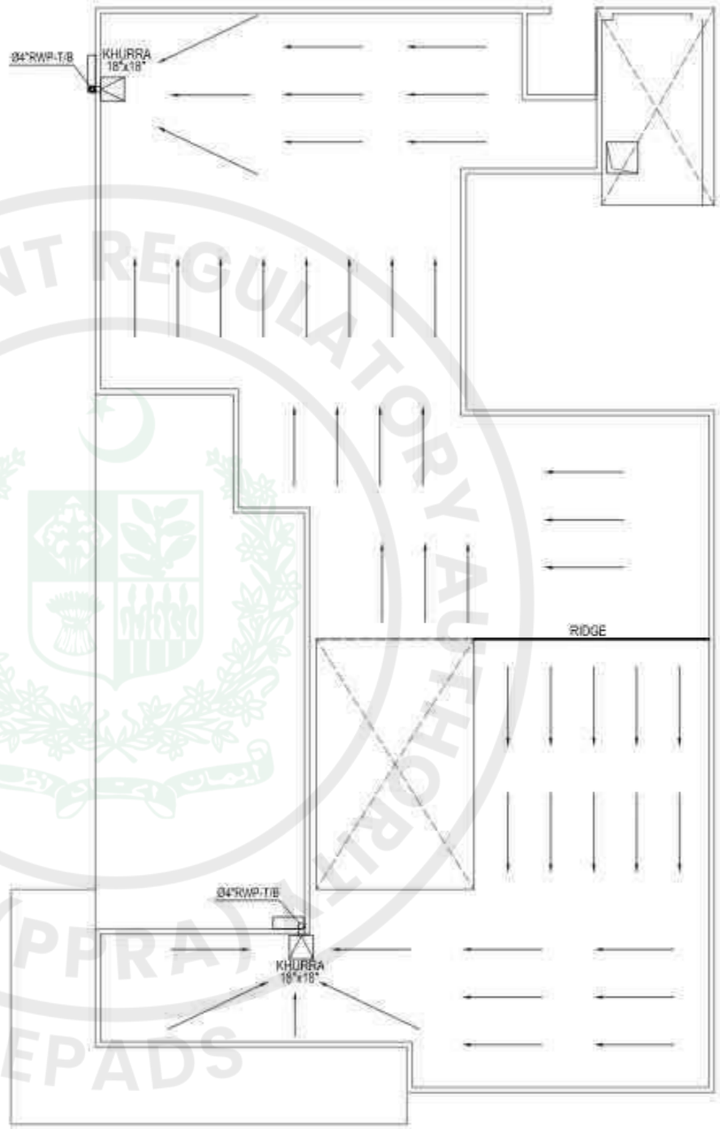
NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN. HASNAT	BUSHRA	M.A.JAVED	M.A.JAVED
FILE	DATE	DRAWING NO.	REV.
CKD. M.A.JAVED	AUG.2026	156/326/BD/01F03	
SUBM. M.A.JAVED			

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ROOF PLAN



ROOF PLAN

SCALE: 3/32" = 1'-0"

NOTE:

1. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.

REFERENCE DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

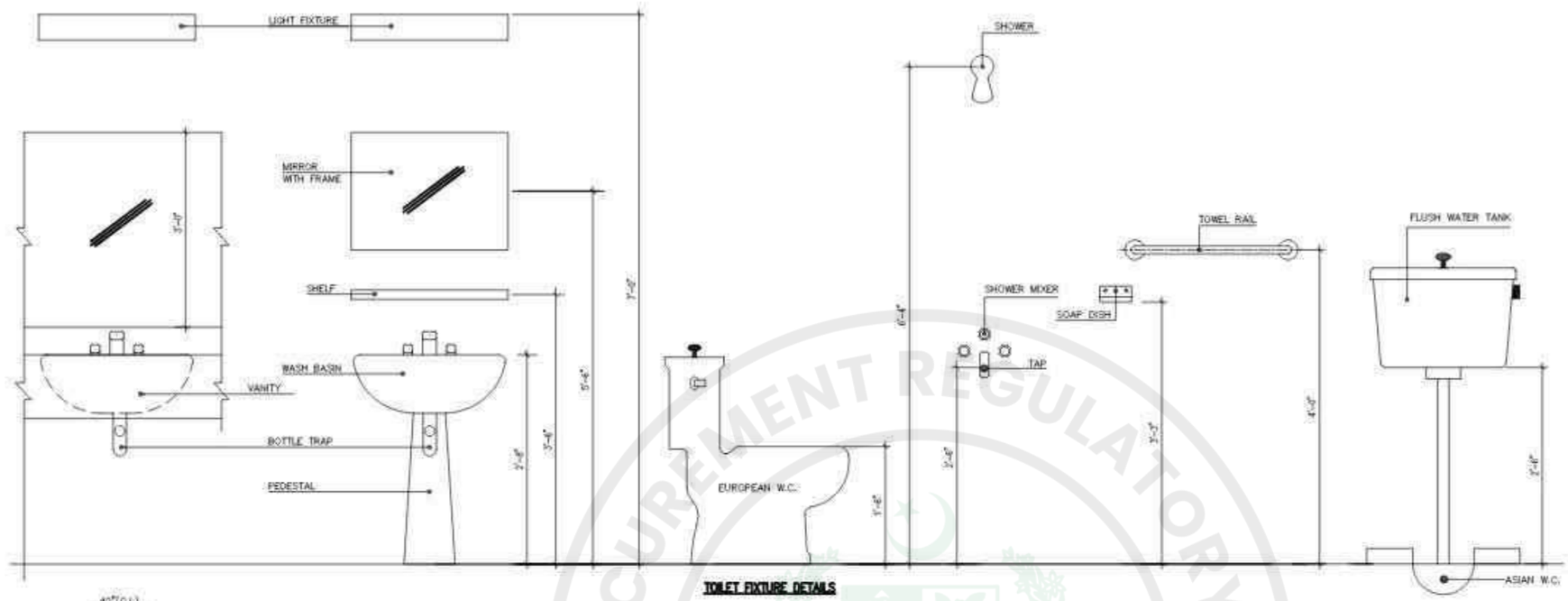
ISLAMABAD CAPITAL TERRITORY POLICE

ICT POLICE ACCOMMODATION PROJECT
ISLAMABAD
GROUND & FIRST FLOOR PLAN
(WATER SUPPLY & STORM DRAINAGE LAYOUT)

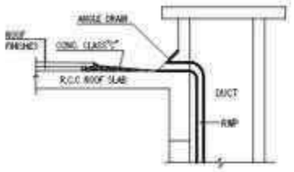
NATIONAL ENGINEERING SERVICES
PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN. HASNAT	BUSHRA	M.A.JAVED	M.A.JAVED
FILE	DATE	DRAWING NO.	REV.
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SUBM. M.A.JAVED			

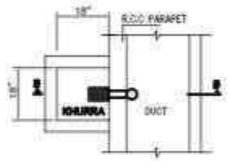
PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS



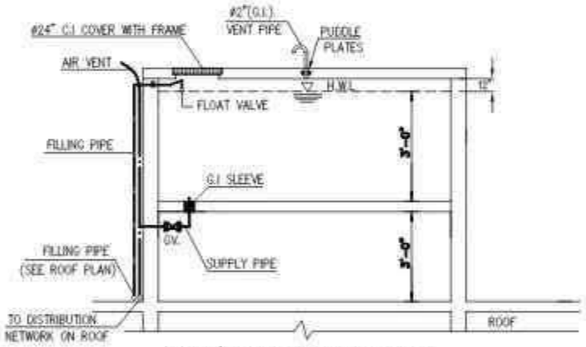
TOILET FIXTURE DETAILS



SECTION B-B



PLAN
DETAIL OF KHURRA (TYPE-B)

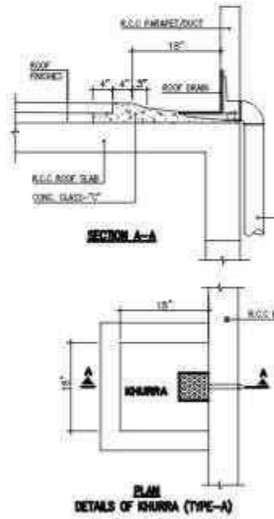


O.H.W.T (DETAIL OF FILLING & SUPPLY PIPE

DETAIL OF FLOOR CLEANOUT

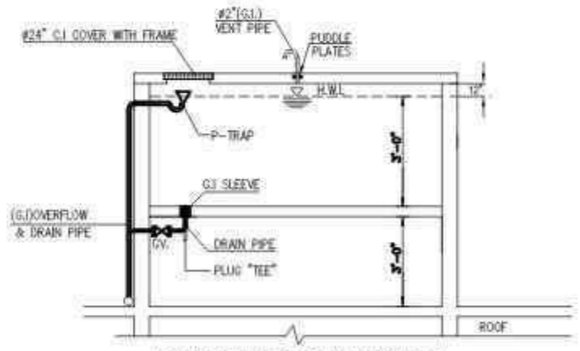
ELEVATION (DETAILS OF MULTI FLOOR TRAP)

DETAIL OF FLOOR TRAP



SECTION A-A

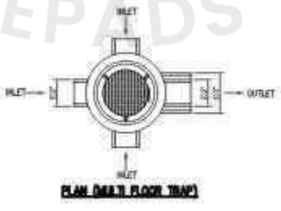
PLAN
DETAILS OF KHURRA (TYPE-A)



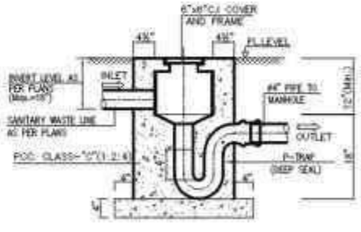
O.H.W.T DETAIL OF OVER FLOW & DRAIN PIPE



CLEANOUT INSTALLATION IN FALSE CEILING



PLAN (MULTI FLOOR TRAP)



DETAILS OF GULLY TRAP

SCALE: 3/32" = 1'-0"

NOTE:

1. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.

REFERENCE DRAWINGS	REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

ISLAMABAD CAPITAL TERRITORY POLICE

ICT POLICE ACCOMMODATION PROJECT
ISLAMABAD
MISCELLANEOUS DETAILS
(PLUMBING WORKS)

NESPAK NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
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CKD. M.A.JAVED	AUG.2026	156/326/BD/01F05	
SUBM. M.A.JAVED			

PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

SYMBOLS AND DESCRIPTIONS GENERAL NOTES

ELECTRICAL WORKS

S. #	SYMBOL	DESCRIPTION
1		MSB — MAIN SWITCH BOARD
2		LDB — LIGHTING DISTRIBUTION BOARD
3		INSTRUMENTS PROTECTION FUSES (THREE NOS.)
4		PDB — POWER DISTRIBUTION BOARD
5		TRIPLE POLE, 500 VOLTS, MOULDED CASE CIRCUIT BREAKER (RUPTURING CAPACITY INDICATED ON THE DRAWING & MENTIONED IN THE RELEVANT BOQ ITEM)
6		TRIPLE POLE, 500 VOLTS, MINIATURE CIRCUIT BREAKER (RUPTURING CAPACITY INDICATED ON THE DRAWING & MENTIONED IN THE RELEVANT BOQ ITEM)
7		SINGLE POLE, 250 VOLTS, MINIATURE CIRCUIT BREAKER (RUPTURING CAPACITY INDICATED ON THE DRAWING & MENTIONED IN THE RELEVANT BOQ ITEM)
8		THREE NOS. SINGLE PHASE CURRENT TRANSFORMERS (TRANSFORMATION RATIOS INDICATED ON DRAWINGS)
9		PHASE INDICATION LAMPS R – RED Y – YELLOW B – BLUE
10		CEILING FAN 56 INCH
11	10"	EXHAUST FAN WITH METALLIC BLADES (10" DIA)
12		WALL BRACKET FAN
13	VSS	VSS – VOLTMETER SELECTOR SWITCH (RY–YB–BR–OFF–RY)
14	ASS	ASS – AMMETER SELECTOR SWITCH (R–Y–B–OFF)
15	A	AC AMMETER (MEASURING RANGE INDICATED ON DRAWING) (DIGITAL)
16	V	AC VOLTMETER (MEASURING RANGE INDICATED ON DRAWING) (DIGITAL)
17	12"	EXHAUST FAN WITH METALIC BLADES & MOUNTING RING (12" DIA)
18		CCTV CAMERA POINT
19		LIGHT CONTROL SWITCHES AND FAN DIMMERS
20		13 AMPS 250 VOLTS COMBINED 2 + 3 PIN SWITCH SOCKET UNIT
21		15 AMPS 250 VOLTS COMBINED 3 PIN SWITCH SOCKET UNIT
22		20 AMPS FLEX OUTLET 250 VOLTS FOR AC
23		

LIGHTING FIXTURES

S. #	SYMBOL	DESCRIPTION
1		SURFACE MOUNTED 20W LED BATTEN, 2 FEET
2		BULKHEAD OUTDOOR LIGHT 12W
3		SURFACE/ CEILING MOUNTED LED DOWNLIGHT 7W
4		10W SURFACE/ RECESSED MOUNTED LED DOWN LIGHT
5		CEILING MOUNTED LED DOWNLIGHT 15W
6		SURFACE MOUNTED LIGHT FIXTURE WITH 3800 LUMENS
7		PLANTER LIGHT
8		

COMMUNICATIONS SYSTEMS

S. #	SYMBOL	DESCRIPTION
1		RJ 45 OUTLET FOR VOICE (WEST UNIT)
2		RJ 45 OUTLET FOR VOICE (EAST UNIT)
3		TV POINT
4		SMOKE DETECTOR
5		HEAT DETECTOR
6		MANUAL CALL POINT WITH SOUNDER
7		FACP
8		RJ 45 SOCKET OUTLET (FOR NETWORKING)

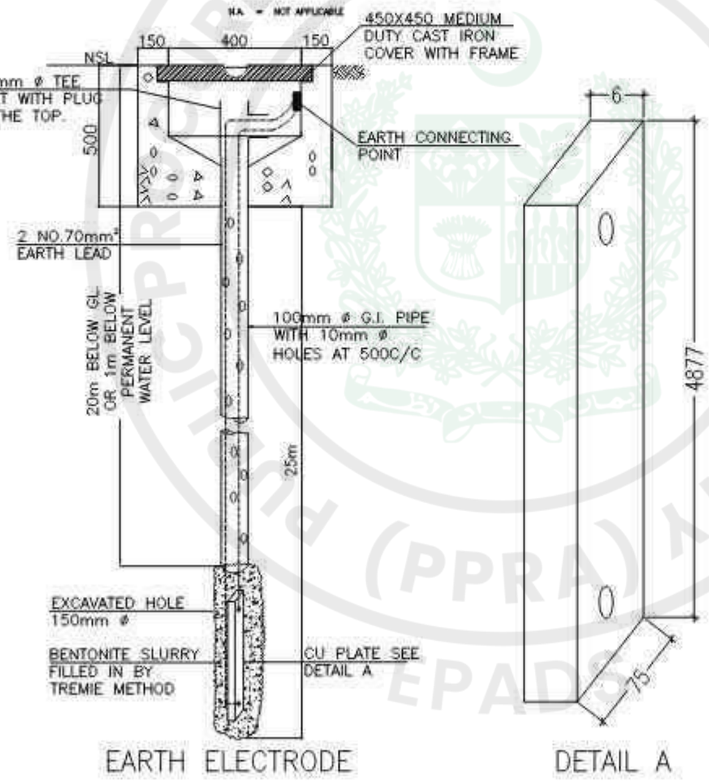


PLATE TYPE EARTH ELECTRODE

ELECTRICAL SYSTEMS

1. FOLLOWING NOTES SHALL IN GENERAL APPLY TO ALL ELECTRICAL DRAWINGS. THE INSTRUCTIONS IN THESE NOTES SHALL BE FOLLOWED UNLESS STATED OTHERWISE.
2. THESE NOTES SHALL BE APPLICABLE TO THE ENTIRE ELECTRICAL WORKS. IF THE SITE CONDITIONS NECESSITATE ANY ALTERATIONS OR DEVIATIONS THE DIRECTIONS OF THE ENGINEER SHALL BE OBSERVED AS FINAL INSTRUCTIONS.
3. ALL ELECTRICAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH BOQ, TECHNICAL SPECIFICATIONS, ARCHITECTURAL, STRUCTURAL, PLUMBING AND HVAC DRAWINGS & ALL OTHER RELEVANT DETAILS.
4. DIMENSIONS/MEASUREMENTS GIVEN IN LAYOUT AND DETAILED DRAWINGS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALCULATE THE ACTUAL DIMENSIONS/ MEASUREMENTS ACCORDING TO STRUCTURAL AND ARCHITECTURAL DRAWINGS.
5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS WITH ALL RELEVANT DETAILS TO THE ENGINEER FOR APPROVAL ACCORDING TO THE GENERAL CONDITIONS OF CONTRACT WELL IN TIME BEFORE COMMENCEMENT OF THAT WORK.
6. PROPER CO-ORDINATION OF ELECTRICAL WORKS WITH OTHER SERVICES SHALL BE CARRIED OUT AT SITE.
7. ALL NON-CURRENT CARRYING PARTS i.e. OUTER CASINGS OF EQUIPMENT SUCH AS HT & LT PANELS, DISTRIBUTIONS BOARDS, CABLE TRAYS, ADDJUNCTIONS FOR EQUIPMENT ETC. SHALL BE CONNECTED TO THE GROUNDING/EARTHING SYSTEM AT REQUIRED NUMBER OF POINTS WITH SPECIFIED SIZES OF CONDUCTORS. WATER PIPES ALONG ELECTRICAL LINE SHALL BE BONDED TO THE EARTHING SYSTEM WITH 16mm² SINGLE CORE, COPPER CONDUCTOR PVC CABLE.
8. ELECTRICAL POINTS FOR EQUIPMENT SHALL BE INSTALLED IN CO-ORDINATION WITH THE RELEVANT DRAWINGS OF OTHER SERVICES, SUCH AS COMMUNICATION SYSTEMS, HVAC, PLUMBING ETC. THE LOCATION ON ELECTRICAL DRAWINGS IS ONLY INDICATIVE.
9. ARRANGEMENT OF ELECTRICAL EQUIPMENTS ON ELECTRICAL DRAWINGS ARE TENTATIVE. EXACT ARRANGEMENT OF EQUIPMENTS SHALL BE MADE IN VIEW OF ITS PHYSICAL DIMENSIONS AND EASE OF MAINTENANCE.
10. LOADS ON ALL PHASES SHALL BE BALANCED AT THE TESTING/ COMMISSIONING STAGE.
11. CONDUIT/DUCT RUN UNDER FLOOR SHALL HAVE A MINIMUM COVER OF TWO INCHES FROM TOP OF CONDUIT/DUCT TO FINISH FLOOR LEVEL.
12. RUN GREEN-YELLOW OR GREEN SINGLE CORE PVC INSULATED COPPER CONDUCTOR CABLE OF SPECIFIED SIZES AS PROTECTIVE EARTH CONDUCTOR (ECC) ALL ALONG LIGHT AND POWER WIRING. WHEREVER THE SIZE IS NOT SPECIFIED THE FOLLOWING CRITERIA SHALL BE OBSERVED TO DETERMINE MINIMUM CROSS SECTIONAL AREA OF EARTH CONTINUITY CONDUCTOR(ECC) IN RELATION TO THE AREA OF ITS PHASE CONDUCTORS. RUN SEPARATE ECC FOR EACH CIRCUIT.
   - ECC IS PHASE CONDUCTOR OF SAME SIZE FOR UPTO AND INCLUDING 16mm² CABLES.
   - 16mm² ECC FOR PHASE CONDUCTOR OF 16mm², 25mm² & 35 mm² CABLES.
   - FOR CABLES OF 50mm² AND ABOVE SIZES, ECC IS HALF SIZE OF PHASE CONDUCTOR.
   - MAXIMUM SIZE OF ECC IS 70mm².
13. THE MAXIMUM CAPACITY OF PVC CONDUITS FOR SIMULTANEOUS DRAWING OF PVC INSULATED CABLES SHALL BE DETERMINED AS PER BS 4607. THE FOLLOWING TABLE SHALL BE USED TO DETERMINE THE MAXIMUM NUMBER OF CABLES.

S. #	NOMINAL CROSS SECTIONAL AREA	NO. & DIA OF WIRES	NOMINAL OVERALL DIA	20 MM DIA (3/4" DIA)	25 MM DIA (1" DIA)	32 MM DIA (1¼" DIA)
1	2.5	1/1.76	3.1	10	16	30
2	2.5	1/1.76	3.5	8	14	25
3	2.5	7/0.67	3.8	7	12	20
4	4	7/0.85	4.3	5	9	15
5	6	7/1.04	4.9	4	7	12
6	10	7/1.35	6.2	2	4	7
7	16	7/1.70	7.3	–	3	5
8	25	7/2.14	9.0	–	2	3
9	35	19/1.53	10.2	–	–	2

14. NORMAL & EMERGENCY CIRCUITS SHALL RUN IN SEPARATE CONDUITS.
15. ALL WIRING FOR CONTROLS SHALL BE CARRIED OUT WITH 1 CORE PVC CABLES OF SPECIFIED VOLTAGE GRADE AND SIZES.
16. THE WIRING SHALL BE CONTINUOUS LOOPING–IN TYPE AND NO JOINT IN WIRES SHALL BE ALLOWED.
17. THE WIRING SYSTEM SHALL BE CARRIED OUT ONLY AFTER THE CONDUIT SYSTEM IS COMPLETELY INSTALLED AND ALL OUTLET BOXES, ETC. ARE FIXED IN POSITION.
18. MOUNTING HEIGHTS OF ELECTRICAL FITTINGS WHEN MEASURED FROM FINISHED FLOOR LEVEL(F.F.L.) TO THE BOTTOM OF FITTINGS SHALL BE AS UNDER, UNLESS OTHERWISE SHOWN OR INSTRUCTED.

MAIN IGNITION BOARD	48 INCHES
DISTRIBUTION BOARD	48 INCHES
CONTROL PANEL	48 INCHES
ON/OFF PUSH BUTTON STATION	48 INCHES
DIMMER CONTROL UNIT	48 INCHES
LIGHT CONTROL SWITCH(ONE WAY/TWO WAY)	48 INCHES
5A SOCKET OUTLETS IN GENERAL AREAS	10 INCHES
15A SOCKET OUTLETS IN GENERAL AREAS	10 INCHES
20A SOCKET OUTLETS IN GENERAL AREAS	10 INCHES
20A SOCKET FOR A/C OUTLET	66 INCHES
15A SOCKET OUTLETS IN KITCHEN(ABOVE COUNTER)	10 INCHES
15A SOCKET OUTLETS IN TOILETS	48 INCHES
16A TP 5PIN INDUSTRIAL SOCKET OUTLETS IN LABS.	48INCHES
32A TP 5PIN INDUSTRIAL SOCKET OUTLETS IN LABS.	48 INCHES
63A TP 5PIN INDUSTRIAL SOCKET OUTLETS IN LABS.	48 INCHES
CEILING FAN	96 INCHES
WALL FAN	84 INCHES
EXHAUST FAN	REFER ARCH. DRGS.

COMMUNICATION SYSTEMS

1. FOLLOWING NOTES SHALL IN GENERAL APPLY TO ALL COMMUNICATION SYSTEMS DRAWINGS. THE INSTRUCTIONS IN THESE NOTES SHALL BE FOLLOWED UNLESS STATED OTHERWISE.
2. THESE NOTES SHALL BE APPLICABLE TO THE ENTIRE COMMUNICATION SYSTEMS WORKS. IF THE SITE CONDITIONS NECESSITATE ANY ALTERATIONS OR DEVIATIONS THE DIRECTIONS OF THE ENGINEER SHALL BE OBSERVED AS FINAL INSTRUCTIONS.
3. ALL COMMUNICATION SYSTEMS DRAWINGS SHALL BE READ IN CONJUNCTION WITH TECHNICAL SPECIFICATIONS, ITEMS OF B.O.Q., ARCHITECTURAL, STRUCTURAL, HVAC, PLUMBING DRAWINGS AND ALL OTHER RELEVANT DETAILS.
4. DIMENSIONS/MEASUREMENTS GIVEN IN LAYOUT AND DETAILED DRAWINGS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALCULATE THE ACTUAL DIMENSIONS/MEASUREMENTS ACCORDING TO STRUCTURAL AND ARCHITECTURAL DRAWINGS.
5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS WITH ALL RELEVANT DETAILS TO THE ENGINEER FOR APPROVAL ACCORDING TO THE GENERAL CONDITIONS OF CONTRACT WELL IN TIME BEFORE COMMENCEMENT OF THAT WORK.
6. PROPER CO-ORDINATION OF COMMUNICATION SYSTEMS WORKS WITH OTHER SERVICES SHALL BE CARRIED OUT AT SITE.
7. TELEPHONE SYSTEM SHALL BE COMPLETE WITH INSTRUMENTS, EQUIPMENT AND INTERCONNECTING WIRING, TELEPHONE EXCHANGE, TELEPHONE OUTLETS, JUNCTION BOXES, CONDUITS OF SPECIFIED SIZES IN THE BUILDING AND UNDERGROUND PIPES OF SPECIFIED SIZES SHOWN ON DRAWINGS SHALL BE PROVIDED. WHERE SIZE OF CONDUIT/PIPE IS NOT SPECIFIED SUITABLE SIZE SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.
8. POINTS FOR COMMUNICATION SYSTEMS EQUIPMENT SHALL BE INSTALLED IN CO-ORDINATION WITH THE RELEVANT DRAWINGS OF OTHER SERVICES, SUCH AS ELECTRICAL, HVAC, PLUMBING ETC. THE LOCATION ON COMMUNICATION SYSTEMS DRAWINGS IS ONLY INDICATIVE.
9. ARRANGEMENT OF COMMUNICATION SYSTEMS EQUIPMENTS ON DRAWINGS ARE TENTATIVE EXACT ARRANGEMENT OF EQUIPMENTS SHALL BE MADE IN VIEW OF ITS PHYSICAL DIMENSIONS AND EASE OF MAINTENANCE.
10. CONDUIT/DUCT RUN UNDER FLOOR SHALL HAVE A MINIMUM COVER 2 INCHES FROM TOP OF CONDUIT/DUCT TO FINISH FLOOR LEVEL.
11. RUN GREEN-YELLOW OR GREEN SINGLE CORE PVC INSULATED COPPER CONDUCTOR CABLE OF SPECIFIED SIZES AS PROTECTIVE EARTH CONDUCTOR (ECC) ALL ALONG COMMUNICATION SYSTEMS WIRING.
12. ALL WIRING FOR CONTROLS SHALL BE CARRIED OUT WITH 1 CORE PVC CABLES OF SPECIFIED VOLTAGE GRADE AND SIZES.
13. THE WIRING SHALL BE CONTINUOUS LOOPING–IN TYPE AND NO JOINT IN WIRES SHALL BE ALLOWED.
14. THE WIRING SYSTEM SHALL BE CARRIED OUT ONLY AFTER THE CONDUIT SYSTEM IS COMPLETELY INSTALLED AND ALL OUTLET BOXES, ETC. ARE FIXED IN POSITION.
15. MOUNTING HEIGHTS OF ELECTRICAL FITTINGS WHEN MEASURED FROM FINISHED FLOOR LEVEL (F.F.L.) TO THE BOTTOM OF FITTINGS SHALL BE AS UNDER, UNLESS OTHERWISE SHOWN OR INSTRUCTED.

TELEPHONE JUNCTION BOX	10 INCHES
TELEPHONE OUTLET	10 INCHES
INTERCOM CONTROL PACK	10 INCHES
INTERCOM STATION (WALL MOUNTED)	36 INCHES
FA SYSTEM CONTROL PANEL	10 INCHES
MANUAL CALL STATION	42 INCHES
AUDIO ALARM	102 INCHES

SCALE = 1/8" = 1'-0"

REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

CONSTRUCTION OF HOUSES FOR ICT POLICE

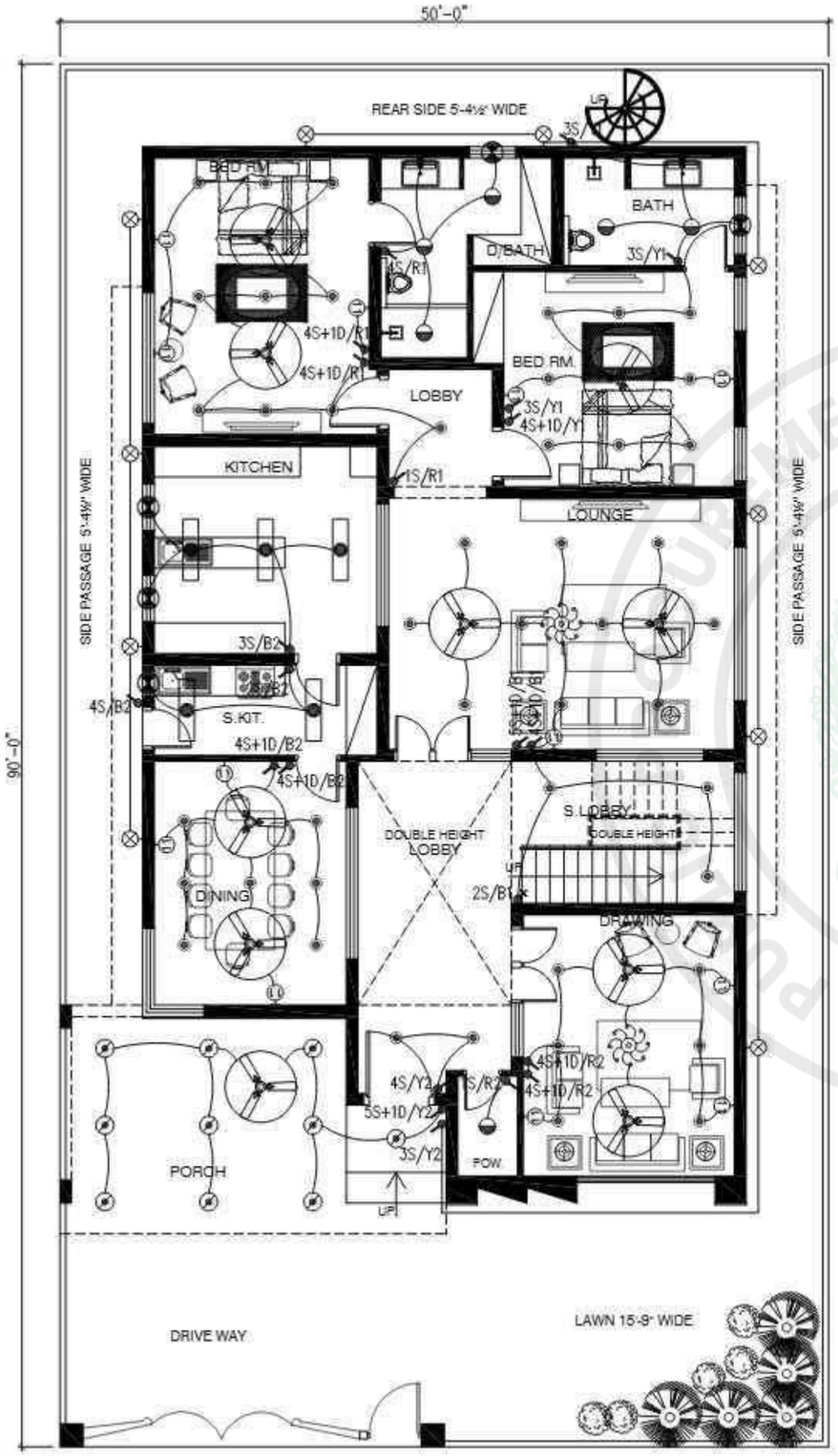
LEGEND & GENERAL NOTES

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

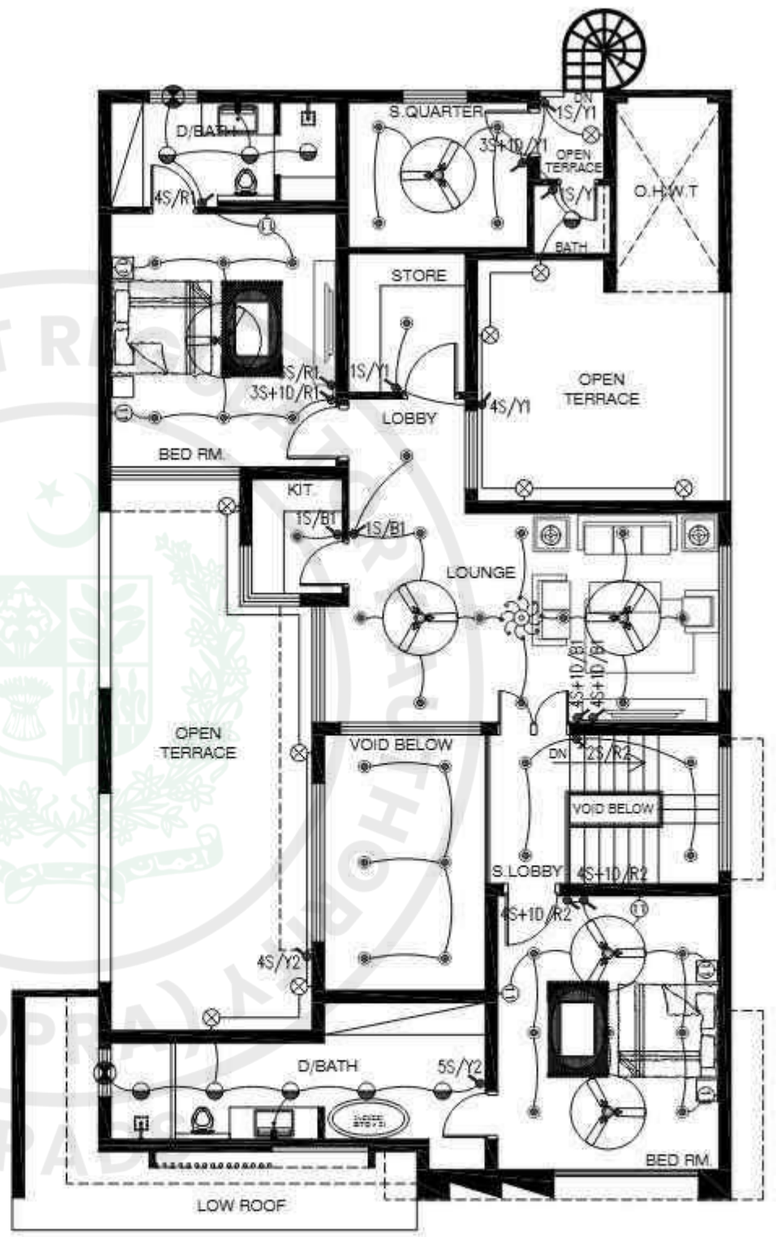
DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN.			
FILE			
CKD.			
SUBM.			

DATE	DRAWING NO.	REV.
JULY 2026	156/325/BD/01E01	0

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GROUND FLOOR PLAN



FIRST FLOOR PLAN

NOTES:-

1. FOR GENERAL NOTES REFER DWG. NO.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.

SCALE = 1/8" = 1'-0"

REV. NO	DATE	DESCRIPTION	BY	CKD.	APPR.

CONSTRUCTION OF HOUSES FOR ICT POLICE

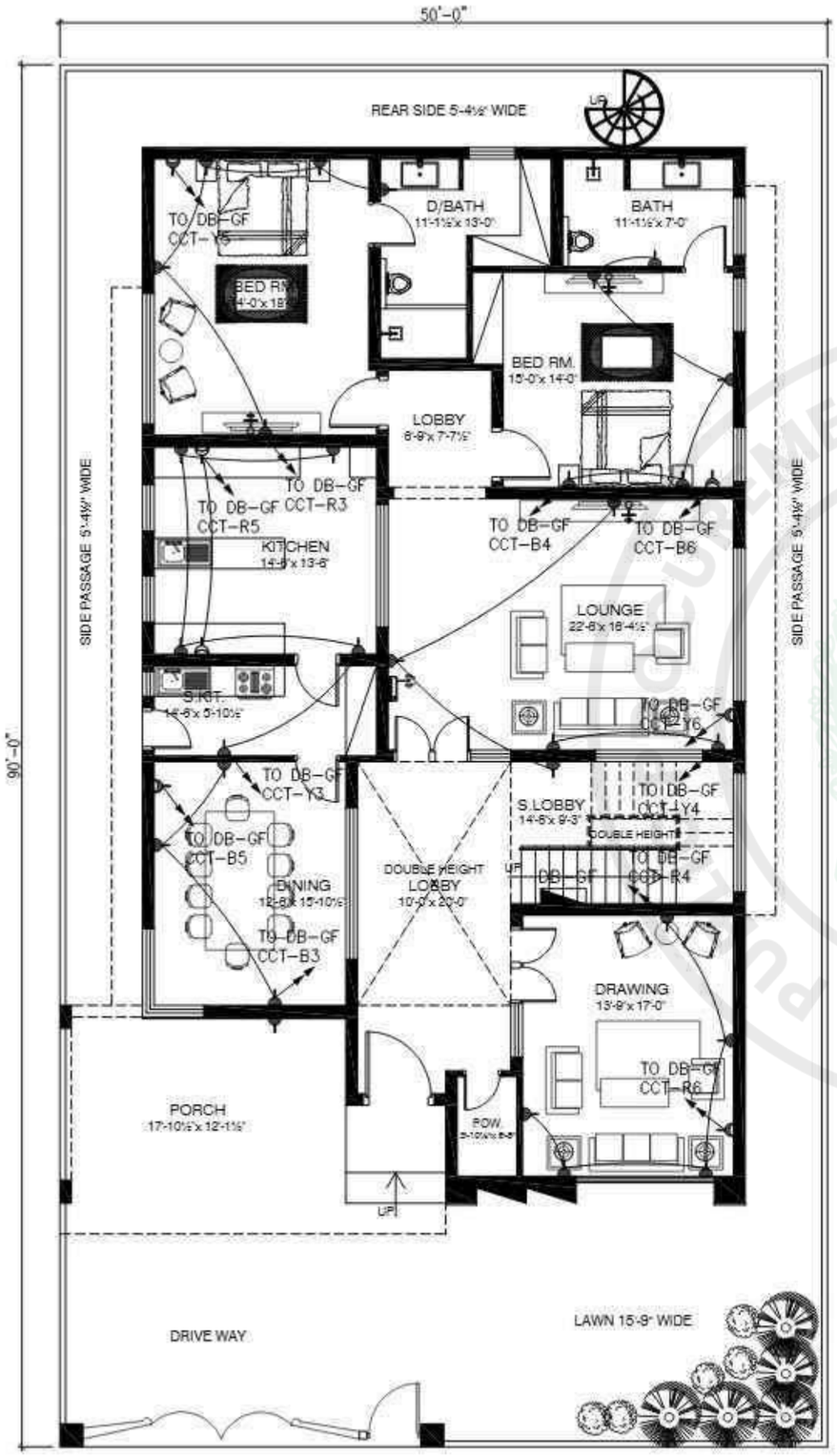
GROUND & FIRST FLOOR PLAN LIGHTING LAYOUT

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN.			
FILE			
CKD.			
SUBM.			

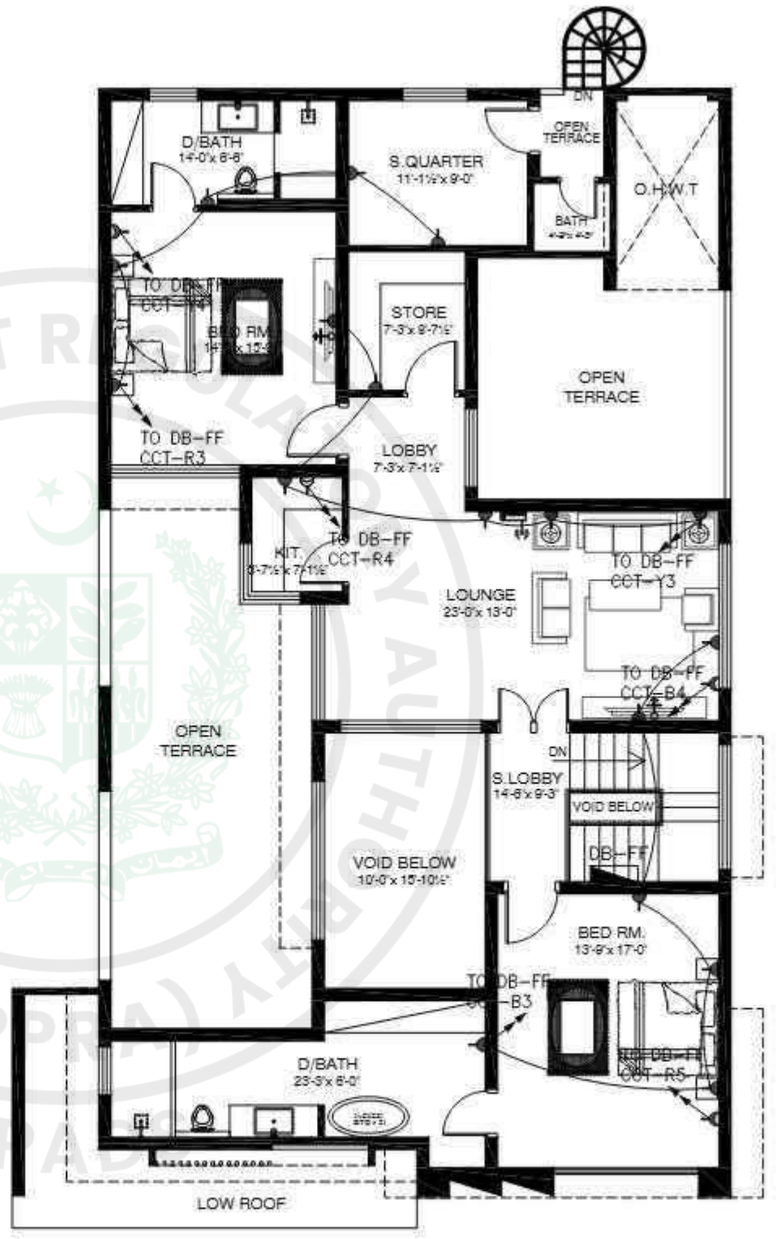
DATE	DRAWING NO.	REV.
JULY' 2026	156/325/BD/01E02	0

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GROUND FLOOR PLAN

2496.35 S.FT



FIRST FLOOR PLAN

1748.95 S.FT

NOTES: –

1. FOR GENERAL NOTES REFER DWG. NO.
2. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT PROJECT DRAWINGS.

SCALE = 1/8" = 1'-0"

REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

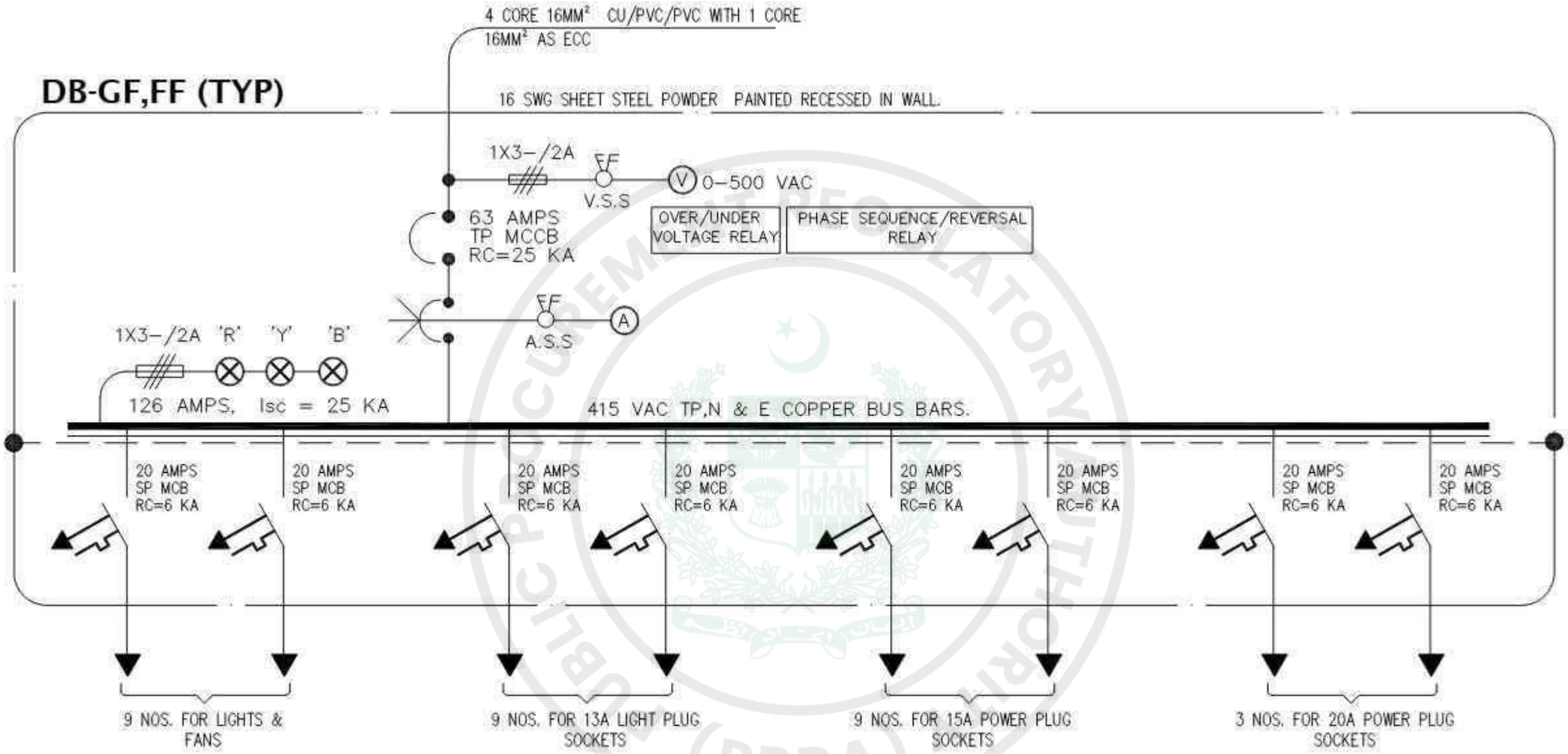
CONSTRUCTION OF HOUSES FOR ICT POLICE

GROUND & FIRST FLOOR PLAN POWER LAYOUT

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DSBN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN.			
FILE			
CKD.	DATE	DRAWING NO.	REV.
SUBM.	JULY' 2026	156/325/BD/01E03	0

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SCALE = 1/8" = 1'-0"

REV. NO.	DATE	DESCRIPTION	BY	CKD.	APPR.

CONSTRUCTION OF HOUSES FOR ICT POLICE

SINGLE LINE DIAGRAM

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. ISLAMABAD

DESN. NESPAK	RECOMMENDED	VER./CKD.	APPROVED
DWN.			
FILE			
CKD.	DATE	DRAWING NO.	REV.
SUBM.	JULY' 2026	156/325/BD/01E04	0

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NATIONAL POLICE FOUNDATION

GOVERNMENT PAKISTAN

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD

CONSTRUCTION OF INFRASTRUCTURE WORKS & 1-KANAL HOUSES

FINANCIAL BID

BIDDING DOCUMENT VOLUME – IV

OCTOBER, 2026

National Engineering Services Pakistan (Pvt) Limited
NESPAK House Sector G-5/2, Islamabad, Pakistan
Phone: +92-51-9221910 - 13 Fax: +92-51-9221914
Email: Islamabad@nespak.com.pk
http://www.nespak.com.pk

Clearance Code	SA578/321/BD/60(26)	Doc No.	2	Rev No.	2

NATIONAL POLICE FOUNDATION (NPF), ISLAMBAD

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD

CONSTRUCTION OF INFRASTRUCTURE WORKS & 1-KANAL HOUSES

FINANCIAL BID

TABLE OF CONTENTS

S.NO.	DESCRIPTION	PAGE NO.
1	Letter of Financial Bid	LFB-1 of
2	Preamble to Bill of Quantities	Preamble 1 to 2
3	Bill of Quantities	As per contents

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Letter of Financial Bid

Name of Contract: **"ICT Police Accommodation Project Islamabad – Construction of Infrastructure Works & 1-Kanal Houses"**

To:

Director In Chief
National Police Foundation (NPF)
Mauve Area, G-10/4, Islamabad.
Ph: 051 2350158 2350100
Fax: 051 9106188

We, the undersigned, declare that:

1. Our Bid shall be valid for the period specified in **BDS 18.1** (as amended, if applicable) from the date fixed for the bid submission deadline specified in **BDS 24.1** (as amended, if applicable), and it shall remain binding upon us and may be accepted at any time before the expiation of the period.

2. The total price of our Bid is:

   In case of only one lot, the total price of the Bid is …….

   In case of multiple lots, Not Applicable;

   In case of multiple lots, Not Applicable;

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

Name of Recipient	Address	Reason	Amount

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

4. We understand that this Bid, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contact is prepared and executed.

Name .....

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

Title .....

.....

Signed .....

Date……..

BILL OF QUANTITIES

(to be signed by the bidder)

PREAMBLE

1. FOR SCHEDULED & NON-SCHEDULED ITEMS, THE BIDDER SHALL QUOTE PERCENTAGE ABOVE OR BELOW ON THE AMOUNT PUT TO BID AND GIVEN IN THE SUMMARY OF COST OF ESTIMATE.

2. The Bill of Quantities shall be read in conjunction with the Conditions of Contract, Specifications and Drawings.

3. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work executed and measured by the Contractor and verified by the Engineer and valued at the rates and prices as given in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix as per the Contract.

4. The rates and prices as given in the priced Bill of Quantities shall, except insofar as it is otherwise provided under the Contract include all costs of Contractor's plant, labour, supervision, materials, execution, insurance, profit, taxes and duties, together with all general risks, liabilities and obligations set out or implied in the Contract. Furthermore, all duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause, as on the date 28 days prior to deadline for submission of Bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder.

5. The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities, and where no items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related items of the Works, or the same shall be determined by the Engineer in accordance with Clause 13, General Conditions.

6. In case of any discrepancy in description or unit of any scheduled item provided in the BOQ with the description or unit of any scheduled item provided in Punjab MRS 2026 (2nd Bi-Annual, Rawalpindi), the description and unit of item as provided Punjab MRS 2026 (2nd Bi-Annual, Rawalpindi) shall prevail.

7. The Punjab MRS 2026 (2nd Bi-Annual, Rawalpindi) Specifications for Execution of Works shall be applicable for the works to be carried out under Schedule Items of Bill of Quantities (BOQ). The Technical Specifications contained in this Bidding/ Contract Documents shall be applicable for the works to be carried out under Non-Schedule Items of Bill of Quantities (BOQ).

8. The "Ref Spec." mentioned in the Bill of Quantities indicates the Technical Specification section number(s) which are to be followed during execution of item of work in accordance with the applicable drawings.

9. General directions and description of work and materials are not necessarily repeated nor summarised in the Bill of Quantities. References to the relevant sections of the Bidding Documents shall be made before entering prices against each item in the Bill of Quantities.

10. Complete description of items of works in the BOQ, general directions, conditions and limitations of works, location and place of works, applicable methods, means to be adopted, type and quality of materials, use of tools, plant, and machinery are not necessarily mentioned in the BOQ. Theses shall be referred to in accordance with the Drawings and Technical Specifications.

11. The Bidder may ensure himself of the correctness of quantities and application of the individual items of works as per the Drawings, Technical Specifications and Contract Documents.

12. Notwithstanding provision of Clause 13 of the General Conditions of Contract Part-I, no claim for extra payment will be admissible on account of anticipated profit or variation in overheads expenditure for the works not actually performed nor will any adjustment in the unit rate set forth in the Estimate be made because of any increase or decrease in the quantities indicated therein.

13. Unless otherwise stated in the text of the BOQ, the quantities have to be measured and paid in accordance with the Measurement and Payment Clauses given in the relevant Technical Specifications or in accordance with implied meaning of the specifications. Any special method of measurement stated in the text of estimate is limited to the concerned items only.

14. Provisional sums included and so designated in the Bill of Quantities shall be expended in whole or in part at the direction and discretion of the Engineer in accordance with Sub-Clause 13.4 of General Conditions of Contract.

15. The following abbreviations for units have been used in Bill of Quantities:

Units	Abbreviations
Running feet	Rft.
Square feet	Sft.
Cubic feet	Cft.
Kilogram	Kg.
Per Number	Each, Number, No.
Lump Sum Job	Job, Lot

Authorized Signature and official Seal: _____

Name: _____

Date: _____

NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD

CONSTRUCTION OF INFRASTRUCTURE WORKS & 1-KANAL HOUSES

BILL OF QUANTITIES

TABLE OF CONTENTS

BILL No.	BILL DESCRIPTION
I)	**INFRASTRUCTURE WORKS**
1.	ROADS, DRIVEWAYS & PAVED AREAS
2.	SANITARY SEWERAGE WORKS
3.	STORM WATER DRAINAGE WORKS
4.	WATER DISTRIBUTION SYSTEM
5.	ELECTRICAL FOR STREET LIGHTING
6.	HT & LT ELECTRIC WORKS
7.	LANDSCAPING & HORTICULTURE WORKS
II)	**1-KANAL HOUSES (04 NOS.)**
1.	CIVIL WORKS
2.	PLUMBING WORKS
3.	ELECTRICAL WORKS

NATIONAL POLICE FOUNDATION (NPF), ISLAMABAD

ICT POLICE ACCOMMODATION PROJECT ISLAMABAD

CONSTRUCTION OF INFRASTRUCTURE WORKS & 1-KANAL HOUSES

SUMMARY OF COST

(A) COST OF WORKS:

BILL NO.	BILL DESCRIPTION	SCHEDULED ITEMS	NON-SCHEDULED ITEMS
I)	**INFRASTRUCTURE WORKS**		
1.	ROADS, DRIVEWAYS & PAVED AREAS	82,585,816	-
2.	SANITARY SEWERAGE WORKS	19,269,014	-
3.	STORM WATER DRAINAGE WORKS	36,663,108	-
4.	WATER DISTRIBUTION SYSTEM	7,284,045	437,750
5.	ELECTRICAL FOR STREET LIGHTING	6,114,091	17,730,600
6.	HT & LT ELECTRIC WORKS	12,111,795	51,893,025
7.	LANDSCAPING & HORTICULTURE WORKS	-	20,000,000
II)	**1-KANAL HOUSES (04 NOS.)**		
1.	CIVIL WORKS	103,738,714	3,957,320
2.	PLUMBING WORKS	5,437,439	3,377,580
3.	ELECTRICAL WORKS	11,894,505	3,270,000
	TOTAL PRICE PUT TO BID	**285,098,527**	**100,666,275**
	PREMIUM IN THE FORM OF %AGE ABOVE / BELOW THE ESTIMATED PRICE PUT TO BID		
	AMOUNT OF PREMIUM QUOTED (Rs.)		
	TOTAL QUOTED BID PRICE AFTER ADDING PREMIUM AMOUNT		
	TOTAL QUOTED BID PRICE (SCHEDULED + NON-SCHEDULED) (Rs.)		

(B) SALES TAX @ 15%= Rs _____

(C) GRAND TOTAL A+B (BID PRICE + SALES TAX) = _____

In Words: (_____)

Note-1: (The Bidder shall carry over the quoted Bid Price to Letter of Price Bid LFB-1)

(D) PROVISIONAL SUM:

i. DAB } **Rs. 1,000,000/-**

Note-2: The Bidder shall not consider the amount stated against the Provisional Sum while quoting his Bid. All Provisional Sums amount are to be expended in whole or, in part at the direction and discretion of the Engineer in accordance with Sub- Clause 13.4 of the General Conditions except with respect to DAB fees and the expenses in accordance with GC Clause 21.

Authorized Signature and official Seal: _____

Name: _____

Date: _____

CONSTRUCTION EXPERIENCE

Form EXP - 4.1
General Construction Experience

Bidder's Name: _____
Date: _____
JV Member's Name_____
Bid Reference No. (if any) and title: _____
Page _____of _____pages

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

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Form EXP - 4.2(a)

Specific Construction and Contract Management Experience

Bidder's Name: _____
Date: _____
JV Member's Name_____
Bid Reference No. (if any) and title: _____
Page _____of _____pages

Similar Contract No.	**Information**			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Sub-contractor ☐
Total Contract Amount			PKR equivalent	
If member in a JV or sub-contractor, specify participation in total Contract amount				
EMPLOYER's Name:				
Address: Telephone/fax number E-mail:				

Form EXP - 4.2(a) (cont.)
Specific Construction and Contract Management Experience (cont.)

Similar Contract No.	Information
Description of the similarity in accordance with Sub-Factor 4.2(a) of Section III:	
1. Amount	
2. Physical size of required works items	
3. Complexity	
4. Methods/Technology	
5. Construction rate for key activities	
6. Other Characteristics	

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Form EXP - 4.2(b)
Construction Experience in Key Activities

Bidder's Name: _____
Date: _____
Bidder's JV Member Name: _____
Sub-contractor's Name (if any): _____
Bid Reference No. (if any) and title: _____

Page _____of _____pages

All Sub-contractors for key activities must complete the information and Qualification Criteria and Requirements, Sub-Factor 4.2.

1. Key Activity No One: _____

	Information			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Sub-contractor ☐
Total Contract Amount			PKR equivalent	
Quantity (Volume, number or rate of production, as applicable) performed under the contract per year or part of the year	Total quantity in the contract (i)	Percentage participation (ii)		Actual Quantity Performed (i) x (ii)
Year 1				
Year 2				
Year 3				
Year 4				
EMPLOYER's Name:				
Address: Telephone/fax number				

	Information
E-mail:	

2. Activity No. Two

3. ……

	Information
Description of the key activities in accordance with Section III:	

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Form EXP - 4.2 (c)
Specific Experience in Managing ES aspects

[The following table shall be filled in for contracts performed by the Bidder, and each member of a Joint Venture]

Bidder's Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Member Name: *[insertfull name]*
Bid Reference No. (if any) and title: *[insert ICB/NCB number and title]*
Page *[insert page number]* of *[insert total number]* pages

1. Key Requirement no 1 in accordance with 4.2 (c): _____

Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Subcontractor ☐
Total Contract Amount			PKR	
Details of relevant experience				

2. Key Requirement no 2 in accordance with 4.2 (c): _____

3. Key Requirement no 3 in accordance with 4.2 (c): _____

4. [PA define key requirements]

Contractor's Representative and Key Personnel Schedule

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

Contractor' Representative and Key Personnel

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

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

Form PER-2:
Resume and Declaration
Contractor's Representative and Key Personnel

Name of Bidder

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

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

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

Declaration

I, the undersigned *[insert either "Contractor's Representative" or "Key Personnel" as applicable]* , certify that to the best of my knowledge and belief, the information contained in this Form PER-2 correctly describes myself, my qualifications and my experience.

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

Commitment	**Details**
Commitment to duration of contract:	*[insert period (start and end dates) for which this Contractor's Representative orKey Personnel is available to work on this contract]*
Time commitment:	*[insert period (start and end dates) for which this Contractor's Representative orKey Personnel is available to work on this contract]*

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

(a) be taken into consideration during Bid evaluation;

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

(c) result in my dismissal from the contract.

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

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Bidder:

Signature: _____

Date: (day/month/year): _____

Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as specified in Eligibility and Qualification Criteria.

No.	**Source of financing**	**Amount (Eq. PKR)**
1		
2		
3		

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Past Experience / Contracts

Contracts over *[insert amount]* during the last three years:				
Procuring Agency	Value	Year	Goods/Services Supplied	Country of Destination

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Historical Contract Non-Performance, and Pending Litigation and Litigation History

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Member Name: *[insert full name]*
IFP No. and title: *[insert IFP number and title]*
Page *[insert page number]* of *[insert total number]* pages

☐ Not debarred due to deviation from commitment of Bid Securing Declaration-☐ Not debarred due to non-performance			
Year	**Non-performed portion of contract**	**Contract Identification**	**Total Contract Amount (current value, currency, exchange rate and PKR equivalent)**
[insert year]	*[insert amount and percentage]*	Contract Identification: *[indicate complete contract name/ number, and any other identification]* Name of Procuring Agency: *[insert full name]* Address of Procuring Agency: *[insert street/city/country]* Reason(s) for nonperformance: *[indicate main reason(s)]*	*[insert amount]*
Pending Litigation, in accordance with Section III, Qualification Criteria and Requirements			
☐ Pending litigation in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.3 as indicated below.			

Year of dispute	**Amount in dispute (currency)**	**Contract Identification**	**Total Contract Amount (currency), ~~US$~~ PKR Equivalent (exchange rate)**

[insert year]	*[insert amount]*	Contract Identification: [indicate complete contract name, number, and any other identification] Name of Procuring Agency: *[insert full name]* Address of Procuring Agency: *[insert street/city/country]* Matter in dispute: *[indicate main issues in dispute]* Party who initiated the dispute: *[indicate "Procuring Agency" or "Supplier"]* Status of dispute: *[Indicate if it is being treated by the Adjudicator, under Arbitration or being dealt with by the Judiciary]*	*[insert amount]*

☐ No consistent history of court/arbitral award decisions in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.4.

☐ Consistent history of court/arbitral award decisions in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.4 as indicated below.

Year of award	**Outcome as percentage of Net Worth**	**Contract Identification**	**Total Contract Amount (currency), PKR Equivalent (exchange rate)**
[insert year]	*[insert percentage]*	Contract Identification: [indicate complete contract name, number, and any other identification] Name of Procuring Agency: *[insert full name]* Address of Procuring Agency: *[insert street/city/country]* Matter in dispute: *[indicate main issues in dispute]* Party who initiated the dispute: *[indicate "Procuring Agency" or "Supplier"]* Court/ arbitral award decision: *[Indicate if the award decision was against the Applicant or any member of a joint venture.]y]*	*[insert amount]*

Current Contract Commitments / Works in Progress

Bidders and each member to a JV 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.

Current Contract Commitments					
No.	Name of Contract	**Employer's Contact Address, Tel, Fax**	**Value of Outstanding Work [Current Eq. PKR]**	**Estimated Completion Date**	**Average Monthly Invoicing Over Last Six Months [Eq. PKR/month)]**
1					
2					
3					
4					
5					

Financial Situation and Performance

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Member Name: *[insert full name]*
IFP No. and title: *[insert IFP number and title]*
Page *[insert page number]* of *[insert total number]* pages

1. Financial data

Type of Financial information in (currency)	**Historic information for previous _[insert number] years, [insert in words] (amount in currency, currency, exchange rate*, PKR equivalent)**				
	Year 1	Year 2	Year 3		
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Total Equity/Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Working Capital (WC)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					
Cash Flow Information					
Cash Flow from Operating Activities					

* Refer ITA 14 for the exchange rate

3. Financial documents

The Applicant and in case of JV, members of JV shall provide copies of financial statements for *[number]* years pursuant Section III, Qualifications Criteria and Requirements. The financial statements shall:

(a) reflect the financial situation of the Applicant or in case of JV member, and not an affiliated entity (such as parent company or group member).

(b) be independently audited or certified in accordance with local legislation.

(c) be complete, including all notes to the financial statements.

(d) correspond to accounting periods already completed and audited.

☐ Attached are copies of financial statements[1] for the *[number]* years required above; and complying with the requirements.

[1] If the most recent set of financial statements is for a period earlier than 12 months from the date of Application, the reason for this should be justified.

Average Annual Turnover (Annual Sales Value)

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Member Name: *[insert full name]*
IFP No. and title: *[insert IFP number and title]*
Page *[insert page number]* of *[insert total number]* pages

Annual Turnover Data			
Year	**Amount** **Currency**	**Exchange rate*** **(If applicable)**	**PKR equivalent**
[indicate calendar year]	*[insert amount and indicate currency]*		
		Average Annual Turnover **	

* Refer ITA for date and source of exchange rate.

** Total PKR equivalent for all years divided by the total number of years. See Section III, Qualification Criteria and Requirements, ITA.

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