TRADING CORPORATION OF PAKISTAN

SUPPLY, INSTALLATION, COMMISSIONING, OPERATION, MAINTENANCE OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S KORANGI, PIPRI, LANDHI AND MULTAN GODOWNS

TENDER DOCUMENTS
CONDITIONS OF CONTRACT

March 20, 2025

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INVITATION FOR BIDS

NOTICE INVITING TENDER

SUPPLY, INSTALLATION, COMMISSIONING, OPERATION, MAINTENANCE OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S KORANGI, PIPRI, LANDHI AND MULTAN GODOWNS

Trading Corporation of Pakistan (Pvt.) Ltd. (TCP), Karachi, a state-owned commercial organization working under the administrative control of Ministry of Commerce, Government of Pakistan.

2. TCP invites bids through E-Pak Acquisition & Disposal System (EPADS) (https://eprocure.gov.pk) under **"Single-Stage Two Envelope Procedure"** from the contractors / firms registered with EPADS, Income Tax departments, active on Taxpayers list, non-defaulter of Federal and Provincial Board of Revenues or Authorities, for the work of **SUPPLY, INSTALLATION, COMMISSIONING, OPERATION, MAINTENANCE OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S KORANGI, PIPRI, LANDHI AND MULTAN GODOWNS.** Contractors /Firms not been black listed, having valid / active license of Pakistan Engineering Council (PEC) and valid electric license in the appropriate category may apply as per the given below details of work and PEC requirements:

NAME OF WORK	PEC Category	PEC Codes
Supply, Installation, Commissioning, Operation, Maintenance of CCTV Surveillance Network System and Allied Accessories at TCP's Korangi, Pipri, Landhi And Multan Godowns	C-4 or above.	CE-10, EE-04, EE-11.

3. A complete set of Bidding Documents containing required terms and conditions can be downloaded from http://eprocure.gov.pk, TCP website www.tcp.gov.pk and PPRA website www.ppra.org.pk free of cost. The bids must be prepared in accordance with instructions in the tender / bidding document. Complete Tendering process shall be carried out through EPADS and bid shall only be received from those firms who are registered with PPRA for e-Procurement on EPADS. Interested Contractors / Firms should register themselves on the EPADS before the closing date at https://eprocure.gov.pk/#/supplier/registration. For registration and guidance / training on EPADS, Contractors / Firms may contact EPADS UAN: 051-111-137-237 or PPRA at www.ppra.org.pk.

4. The Bid Security to be attached with the Bid is Rs. **5.0 Million** in the form of CDR (refundable) drawn in favor of "Trading Corporation of Pakistan (Pvt) Limited**;** scanned copy of which is required to be uploaded through EPADS and **Original Instrument** in sealed envelope having proper marking of the Company must be submitted physically before the closing date and time of the tender to Trading Corporation of Pakistan head office on the address given below.

5. Interested and eligible contractors may submit their offers/bids comprising Technical Proposal and Financial Proposal, to be submitted on E-PADS by 8th April **2025**, at 1100 **hrs**. Technical proposal will be opened on the same day by 1130 **hours** in the TCP's Board Room, in presence of bidders or their authorized representatives who may wish to be present. After evaluation and approval of Technical Proposals, TCP shall open the Financial Proposals of technically responsive bidders only.

6. As per PPRA Rule 33, TCP may reject all bids or proposals at any time prior to the acceptance of a bid or proposal in accordance with Public Procurement Rules, 2004.

7. Any instrument/document/information found to be fake or got dishonored at any stage would result in blacklisting and legal action as per law.

Trading Corporation of Pakistan (Pvt.)
Limited (TCP), Karachi

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INSTRUCTIONS TO BIDDERS

[Mandatory Provisions not to be amended/substituted except as instructed by PEC in writing]

A. GENERAL

IB.1 Scope of Bid

1.1 The Employer as defined in the **Bidding Data** hereinafter called "the Employer" wishes to receive bids for the construction and completion of works as described in these Bidding Documents, and summarized in the **Bidding Data** hereinafter referred to as the "Works".

1.2 The successful Bidder will be expected to complete the Works within the time specified in the **Bidding Data**.

IB.2 Source of Funds

2.1 The Employer has applied for/received a funding from the source(s) in various currencies towards the cost of the project specified in the **Bidding Data** and it is intended that part of the proceeds of this funding will be applied to eligible payments under the Contract for which these Bidding Documents are issued.

IB.3 Eligible Bidders

3.1 This Invitation for Bids is open to all Bidders meeting the following requirements at the time of submission of Bids and thereafter:

(a) Duly prequalified for this bidding process;

(b) Duly licensed by the Pakistan Engineering Council (PEC) in the category relevant to the value of the Works in the relevant field of specialization.

However, a Foreign Constructor can submit provisional licence with its Bid but the Foreign Constructor will be required to submit standard licence after award of Contract and before start of work.

(c) Pakistani Constructor must be on Active Taxpayer List of the Federal Board of Revenue and provincial revenue authority/ board where applicable; and

(d) All partners constituting the Bidder including proposed subcontractors do not appear in the list of debarred/ blacklisted firms and individuals on the websites of PEC and Federal & Provincial Procurement Regulatory Authorities and have not been declared debarred/ blacklisted by foreign country, international organizations or other foreign institutions.

IB.4 Eligible Materials, Equipment and Services

4.1 All materials, equipment and services to be supplied under this Contract shall have their origin in eligible countries described under paragraph 4.4 hereunder.

4.2 For purpose of this Clause, "origin" means the place where the Goods are mined, grown or produced or from where the ancillary services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembling of components, a commercially recognized product results that is substantially different in basic characteristics or in purpose or utility from its components.

4.3 The origin of Goods and Services is distinct from the nationality of the Bidder.

4.4 Eligible countries to participate in this bidding process are those which have been notified by Ministry of Interior, Government of Pakistan as Business Friendly Countries (BVL); information can be accessed through following link:

http://www.dgip.gov.pk/Files/Visa%20Categories.aspx#L

IB.5 One Bid per Bidder

5.1 Each Bidder shall submit only one Bid either by himself A Bidder who submits or participates in more than one Bid (other than alternatives pursuant to Clause IB.17) will be disqualified.

IB.6 Site Visit

6.1 The Bidders are advised to visit and examine the Site of Works and its surroundings and obtain for themselves on their own responsibility all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. All cost in this respect shall be at the Bidder's own expense.

6.2 The Bidders and any of their personnel or agents will be granted permission by the Employer to enter upon his premises and lands for the purpose of such inspection, but only upon the express condition that the Bidders, their personnel and agents, will release and indemnify the Employer, his personnel and agents from and against all liability in respect thereof and will be responsible for death or personal injury, loss of or damage to property and any other loss, damage, costs and expenses incurred as a result of such inspection.

B. BIDDING DOCUMENTS

IB.7 Contents of Bidding Documents

7.1 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:

1. Instructions to Bidders;
2. Bidding Data;
3. Evaluation Criteria and Qualification Updating Forms;
4. General Conditions (GC);
5. Particular Conditions (PC):
   Part A - Contract Data;
   Part B - Special Provisions;
6. Specifications (SP):
   Part A - Specific Provisions;
   Part B - Technical Provisions;
7. Letter of Bid;
8. Schedules to Bid;
9. Standard Forms:
   (i) Form of Bid Security; (ii)
   Letter of Acceptance; (iii)Form
   of Contract Agreement;
   (iv) Form of Performance Security;
   (v) DAAB Agreement;
   (vi) Form of Mobilization Advance Guarantee;
10. Drawings.

7.2 The Bidders are expected to examine carefully the contents of all the above documents. Failure to comply with the requirements of Bid submission will be at the Bidder's own risk. Pursuant to Clause IB.26, bids which are not substantially responsive to the requirements of the Bidding Documents will be rejected.

IB.8 Clarification of Bidding Documents, Pre-Bid Meeting

8.1 Any prospective Bidder requiring any clarification(s) in respect of the Bidding Documents may notify the Employer in writing at the Employer's address indicated in the Invitation for Bids. The Employer will respond to any request for clarification which he receives earlier than the period specified in the **Bidding Data**, prior to the deadline for submission of bids.

8.2 Copies of the Employer's response will be forwarded to all purchasers of the Bidding Documents, including a description of the enquiry but without identifying its source.

8.3 The Employer may, on his own or at the request of any prospective Bidder(s), hold a pre-bid meeting to clarify issues and to answer any questions on matters related to the Bidding Documents. The date, time and venue of pre-bid meeting, if convened, are as stipulated in the **Bidding Data**. All prospective Bidders or their authorized representatives shall be invited to attend such a pre-bid meeting.

8.4 The Bidders are requested to submit questions, if any, in writing so as to reach the Employer not later than seven (7) days before the proposed pre-bid meeting.

8.5 Minutes of the pre-bid meeting, including the text of the questions raised and the replies given, will be transmitted without delay to all purchasers of the Bidding Documents. Any modification of the Bidding Documents listed in Sub-Clause IB.7.1 hereof which may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to Clause IB.9 and not through the minutes of the pre-bid meeting.

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

IB.9 Amendment of Bidding Documents

9.1 At any time prior to the deadline for submission of bids, the Employer may, for any reason, whether at his own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by issuing addendum.

9.2 Any addendum thus issued shall be part of the Bidding Documents listed in Sub-Clause IB.7.1 hereof and shall be communicated in writing to all purchasers of the Bidding Documents. Prospective Bidders shall acknowledge receipt of each addendum in writing to the Employer.

9.3 Such addendum shall be issued not later than number of days prior to the deadline for submission of bids, specified in the **Bidding Data**. To afford prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may extend the deadline for submission of bids in accordance with Clause IB.20.

C. PREPARATION OF BIDS

IB.10 Cost of Bidding

10.1 The Bidders shall bear all costs associated with the preparation and submission of their respective bids and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

IB.11 Language of Bid

11.1 The Bid and all correspondence and documents related to the Bid exchanged by a Bidder and the Employer shall be in the Bid language stipulated in the **Bidding Data** and Particular Conditions of Contract. Supporting documents and printed literature furnished by the Bidders may be in any other language provided the same are accompanied by duly certified translation of the relevant parts in the Bid language, in which case, for purposes of evaluation of the bid, the translation in Bid language shall prevail.

IB.12 Documents Comprising the Bid

12.1 Each Bidder shall:

(a) submit duly filled in, signed and stamped Letter of Bid and completed Schedules to Bid as required, including priced Bill of Quantities, in accordance with Clause IB.18 hereof;

(b) submit Bid Security in accordance with Clause IB.16 hereof;

(c) submit alternative proposal, if permissible in accordance with Clause IB.17;

(d) submit a written power of attorney authorizing the signatory of the Bid to act for and on behalf of the Bidder. The name and position held by each person signing the authorization must be typed or printed below the signature;

(e) submit the Qualification Updating Forms duly filled in, signed and stamped along with requisite attachments, to establish that the Bidder continues to meet the Eligibility and Qualification Criteria set out in the Pre-Qualification Documents and as provided in the Section "Evaluation Criteria and Qualification Updating Forms";

(f) furnish a technical proposal taking into account the various Schedules to Bid, specially the following:

Schedule-C to Bid, Proposed Construction Schedule;

Schedule-D to Bid, Method of Performing the Work;

Schedule-E to Bid, List of Major Equipment;

Schedule-F to Bid, Organization Chart for Supervisory Staff;

and other pertinent information, such as mobilization programme, etc.

12.3 Bidders shall also submit proposals of work methods and schedule, in sufficient detail to demonstrate the adequacy of the Bidders' proposals to meet the technical specifications and the completion time referred to in Sub-Clause IB.1.2 hereof.

IB.13 Bid Prices

13.1 The price and discount if any quoted by the Bidders in the Letter of Bid and in the Bill of Quantity shall conform to the requirement specified below:

13.2 The Bidder shall quote any discounts and the methodology for their application.

13.3 If bids are being invited for individual lots (contracts) or for any combination of lots, the Bidders can offer discounts for the individual lots (contracts) as well as for award of more than one Contract and shall specify in their bid.

13.4 Unless stated otherwise in the Bidding Documents, the Contract shall be for the whole of the Works as described in Sub-Clause IB.1.1 hereof, based on the unit rates and/or prices.

13.5 The Bidders shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by a Bidder will not be paid

for by the Employer when executed and shall be deemed covered by rates and prices for other items in the Bill of Quantities.

13.6 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 the deadline for submission of bids shall be included in the rates and prices and the total Bid Price submitted by a Bidder.

Additional/reduced duties, taxes and levies due to subsequent additions or changes in legislation shall be reimbursed/ deducted as per Sub Clause 13.6 [*Adjustment for Changes in Laws*] of the Conditions of Contract.

13.7 The rates and prices quoted by the Bidders are subject to adjustment during the performance of the Contract in accordance with the provisions of Sub-Clause 13.7 [*Adjustments for Changes in Cost*] of the General Conditions of Contract. The Bidders shall furnish the prescribed information for the price adjustment formulae in Schedule-A to Bid, and shall submit with their bids such other requisite supporting information if required under the said Schedule.

IB.14 Currencies of Bid and Payment

14.1 The unit rates and the prices shall be quoted by the Bidder entirely PKR.

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 PKR.

14.2 The rates of exchange to be used by the Bidder for currency conversion shall be the TT Selling Rates published or authorized by the State Bank of Pakistan prevailing on the date twenty eight (28) days prior to the deadline for submission of bids. Such rates shall be notified by the Employer not later than fourteen (14) days prior to the deadline for submission of Bids.

For the purpose of payments, the exchange rates used in Bid preparation shall apply for the duration of the Contract.

IB.15 Bid Validity

15.1 Bids shall remain valid for the period stipulated in the **Bidding Data** after the date of Bid Opening specified in Clause IB.23.

15.2 In exceptional circumstances, prior to expiry of the original bid validity period, the Employer may request that the Bidders extend the period of validity for a specified additional period which normally may not be more than the original bid validity period. The request and the responses thereto shall be made in writing. A Bidder may refuse the request without forfeiting his Bid Security. A Bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his Bid Security for the period of the extension, and in compliance with Clause IB.16 in all respects.

IB.16 Bid Security

16.1 Each Bidder shall furnish, as part of his bid, a Bid Security in original form in the amount stipulated in the **Bidding Data.**.

16.2 The Bid Security shall be in the form of Call Deposit Receipt (CDR)

16.3 Any Bid not accompanied by an acceptable Bid Security shall be rejected by the Employer as non-responsive.

16.4 The Bid Securities of the Bidders except the lowest three will be returned by the Employer within twenty eight (28) days from the opening of Bids, provided a Bidder requests for the return of its Bid Security, or upon the expiry of original validity of Bid Security or as extended, whichever is earlier.

16.5 The Bid Security of the lowest three Bidders including the successful Bidder will be returned when the successful Bidder has furnished the required Performance Security.

16.6 The Bid Security may be forfeited:

(a) if the Bidder withdraws his bid except as provided in Sub Clause IB.22.1;

(b) if the Bidder does not accept the correction of his Bid Price pursuant to Sub Clause IB.28.2 hereof; or

(c) in the case of successful Bidder, fails to furnish the required Performance Security.

16.7 In case of annulment, all Bids submitted and specially, Bid securities, shall be returned to the Bidders within 14 days of annulment.

IB.17 Alternative Proposals by Bidder

17.1 Unless otherwise specified in the **Bidding Data**, alternative proposal(s) shall not be considered.

17.2 Should any Bidder consider that he can offer any advantages to the Employer by a modification to the designs, specifications or other conditions, he may, in addition to his Bid to be submitted in strict compliance with the Bidding Documents, submit any alternative proposal(s) containing (a)

relevant design calculations; (b) technical specifications; (c) proposed construction methodology; and (d) any other relevant details/conditions, provided always that the total sum entered on the Letter of Bid shall be that which represents complete compliance with the Bidding Documents.

17.3 Alternative proposal(s), if any, of the Bidder having submitted most advantageous Bid only may be considered by the Employer as the basis for the award of Contract to such Bidder.

IB.18 Format and Signing of Bid

18.1 Bidders are particularly directed that the amount entered on the Letter of Bid shall be for performing the Contract strictly in accordance with the Bidding Documents.

18.2 All Schedules to Bid are to be properly completed and signed.

18.3 No alteration is to be made in the Letter of Bid nor in the Schedules thereto except in filling up the blanks as directed. If any such alterations be made or if these instructions be not fully complied with, the Bid may be rejected.

18.4 Each Bidder shall prepare by filling in the forms completely and without alterations one (1) original and number of copies, specified in the **Bidding Data**, of the documents comprising the Bid as described in Clause IB.12 and clearly mark them "ORIGINAL" and 'COPY" as appropriate. In the event of discrepancy between them, the original shall prevail.

The Bidder shall also provide complete searchable PDF versions as well as Word, Excel, etc., versions of the Bid if so required in the **Bidding Data**.

18.5 The original of the Bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Bidder pursuant to Sub-Clause IB.12.1(d) hereof. All pages of the Bid shall be initialled and stamped by the person or persons signing the bid.

18.6 The Bid shall contain no alterations, omissions or additions, except to comply with instructions issued by the Employer, or as are necessary to correct errors made by the Bidder, in which case such corrections shall be initialled by the person or persons signing the Bid.

18.7 Bidders shall indicate in the space provided in the Letter of Bid their full and proper addresses at which notices may be legally served on them and to which all correspondence in connection with their bids and the Contract is to be sent.

18.8 Bidders should retain a copy of the Bidding Documents and the Bid as their file copy.

18.9 All documents executed outside Pakistan required to be submitted with the Bid must be certified by Pakistani Embassy in the respective country(ies).

D. SUBMISSION OF BIDS

IB.19 Sealing and Marking of Bids

19.1 Each Bidder shall submit his Bid as under:

(a) ORIGINAL and each copy of the Bid shall be separately sealed and put in separate envelopes and marked as such.

(b) The envelopes containing the ORIGINAL and copies will be put in one sealed envelope and addressed / identified as given in Sub Clause IB.19.2 hereof.

19.2 The inner and outer envelopes shall:

(a) be addressed to the Employer at the address provided in the **Bidding Data**;

(b) bear the specific identification of this bidding process as specified in the **Bidding Data**; and

(c) provide a warning not to open before the time and date for bid opening, as specified in the **Bidding Data**.

19.3 In addition to the identification required in Sub-Clause IB.19.2 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 Clause IB.21.

19.4 If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the Bid.

IB.20 Deadline for Submission of Bids

20.1 (a) Bids must be received by the Employer at the address specified no later than the time and date stipulated in the **Bidding Data**.

(b) Bids with charges payable will not be accepted, nor will arrangements be undertaken to collect the bids from any delivery point other than that specified above. Bidders shall bear all expenses incurred in the preparation and delivery of Bids. No claims will be entertained for refund of such expenses.

(c) Where delivery of a Bid is by mail and the Bidder wishes to receive an acknowledgment of receipt of such Bid, he shall make a request for such acknowledgment in a separate letter attached to but not included in the sealed Bid envelope.

(d) Upon request, acknowledgment of receipt of Bids will be provided to those making delivery in person or by messenger.

20.2 The Employer may, at his discretion, extend the deadline for submission of Bids by issuing an amendment in accordance with Clause IB.9, in which case all rights and obligations of the Employer and the Bidders previously subject to the original deadline will thereafter be subject to the deadline as extended.

IB.21 Late Bids

21.1 (a) Any Bid received by the Employer after the deadline for submission of bids prescribed in Clause IB.20 shall be declared late, rejected and returned unopened to such Bidder.

(b) Delays in the mail, delays of person in transit, or delivery of a Bid to the wrong office shall not be accepted as an excuse for failure to deliver a Bid at the proper place and time. It shall be the Bidder's responsibility to determine the manner in which timely delivery of his Bid will be accomplished either in person, by messenger or by mail.

IB.22 Modification, Substitution and Withdrawal of Bids

22.1 Any Bidder may modify**,** substitute or withdraw his Bid after Bid submission provided that the modification, substitution or written notice of withdrawal is received by the Employer prior to the deadline for submission of bids.

22.2 The modification, substitution, or notice for withdrawal of any Bid shall be prepared, sealed, marked and delivered in accordance with the provisions of Clause IB.19 with the outer and inner envelopes additionally marked "MODIFICATION", "SUBSTITUTION" or "WITHDRAWAL" as appropriate.

22.3 No Bid may be modified by a Bidder after the deadline for submission of Bids except in accordance with Sub Clauses IB.22.1 and 28.2.

22.4 Withdrawal of a Bid during the interval between the deadline for submission of Bids and the expiration of the period of Bid validity specified in the Letter of Bid may result in forfeiture of the Bid security in pursuance to Clause IB.16.

E. BID OPENING AND EVALUATION

IB.23 Bid Opening

23.1 The Employer will open the Bids including withdrawals, substitution and modifications made pursuant to Clause IB.22, in the presence of Bidders' representatives who choose to attend, at the time, date and location stipulated in the **Bidding Data**. The Bidders' representatives who are present shall sign a register evidencing their attendance.

23.2 Envelopes marked "MODIFICATION", "SUBSTITUTION" or "WITHDRAWAL" shall be opened and read out first. Bids for which an acceptable notice of withdrawal has been submitted pursuant to Clause IB.22 shall not be opened. Only bids that are opened and read out at Bid opening shall be considered further.

23.3 The Bidder's name, total Bid Price and price of any alternative proposal(s), any discounts, Bid modifications**,** substitution and withdrawals, the presence or absence of Bid security, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening of Bids. Only discounts and alternative proposals

read out at Bid opening shall be considered for evaluation. The Letter of Bid and the Summary Bill of Quantities are to be initialled by representative(s) of the Employer attending Bid opening. The Employer shall neither discuss the merits of any Bid nor reject any Bid (except for late Bids, in accordance with Sub-Clause IB 21.1).

23.4 The Employer shall prepare minutes of the Bid opening, including the information disclosed to those present in accordance with the Sub-Clause IB.23.3.

IB.24 Process to be Confidential

24.1 Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of Contract shall not be disclosed to Bidders or any other person not officially concerned with such process before the announcement of the result of Bid evaluation in the form of final evaluation report giving justification for acceptance or rejection of Bids which shall be done at least fifteen (15) days prior to award of Contract. The announcement to all Bidders will include table(s) comprising read out prices, discounted prices, price adjustments made, final evaluated prices and recommendations against all the Bids evaluated. Any effort by a Bidder to influence the Employer's processing of Bids or Contract award decisions may result in the rejection of such Bidder's Bid. Whereas any Bidder feeling aggrieved may lodge a written complaint not later than five (5) days after the announcement of the final evaluation report.

IB.25 Clarification of Bids

25.1 To assist in the examination, evaluation and comparison of Bids, the Employer may, at his discretion, ask any Bidder for clarification of his Bid, including breakdowns of unit rates and lump sum prices. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The request for clarification and the response shall be in writing. No change in the price or substance of the Bid shall be sought, offered or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids in accordance with Clause IB.28.

25.2 The Employer may, at his discretion, ask any Bidder for confirmation/submission of missing information to clarify its Bid. However, the Employer does not have an obligation to request any additional information or clarification with respect to missing or deficient information in a Bid. The Employer may reject any Bid as non-responsive if found materially incomplete, obscure, irregular or omitting any material information required to be submitted in accordance with the Bidding Documents.

25.3 If a Bidder does not provide clarifications of its Bid by the date and time set reasonably (not less than seven (7) days) in the Employer's request for clarification, the Employer may proceed with the evaluation based on the information submitted in the Bid without waiting for the Bidder's response.

IB.26 Examination of Bids and Determination of Responsiveness

26.1 Prior to the comparison of Bids, the Employer will determine whether each Bid is substantially responsive to the requirements of the Bidding Documents.

26.2 The Employer's determination of a Bid's responsiveness is to be based on the contents of the Bid itself, as defined in Sub-Clause IB.12.

26.3 A substantially responsive Bid is one which meets the requirements of the Bidding Documents, without material deviation, reservation or omission. A material deviation, reservation or omission is one that,

(a) if accepted, would:

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

(ii) limit in any substantial way, inconsistent with the Bidding Documents, the Employer's rights or the Bidder's obligations under the proposed Contract; or

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

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

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

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

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

26.5 The Employer shall examine the technical aspects of the Bid submitted in accordance with Sub-Clause IB.12.1(f), in particular, to confirm that all requirements stated in Specifications have been met without any material deviation, reservation or omission.

26.6 If a Bid is not substantially responsive to the requirements of the Bidding Documents, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation, reservation or omission.

IB.27 Nonmaterial Nonconformities

27.1 Provided that a Bid is substantially responsive, the Employer may waive any nonconformities in the Bid.

27.2 Provided that a Bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the Bid related to documentation requirements. Requesting information or

documentation on such nonconformities shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.

27.3 Provided that a Bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component, by adding the average price of the item or component quoted by other lowest two evaluated substantially responsive Bidders. If the price of the item or component cannot be derived from the price of other substantially responsive Bids, the Employer shall use a suitable CSR, adjusted to the date 28 days earlier to the Bid submission date or its best assessment.

IB.28 Correction of Arithmetic Errors

28.1 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:

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

(b) where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern, unless in the opinion of the Employer there is an obviously gross misplacement of the decimal point in the unit rate, in which case the line item total as quoted will govern and the unit rate will be corrected.

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

28.2 The amount stated in the Letter of Bid will be adjusted by the 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 Bid Price, his Bid will be rejected, and the Bid security shall be forfeited in accordance with Sub Clause IB.16.6(b) hereof.

IB.29 Evaluation and Comparison of Bids

29.1 The Employer will evaluate and compare only the Bids determined to be substantially responsive in accordance with Clause IB.26. The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.

29.2 In evaluating and comparing the Bids, the Employer will determine for each Bid the evaluated Bid Price by adjusting the Bid Price as follows:

(a) making any correction for arithmetic errors pursuant to Clause IB.28;

(b) price adjustment due to discounts offered in accordance with Sub-Clause IB.23.3;

(c) excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities, but including competitively priced daywork;

(d) making an appropriate price adjustment for any quantifiable nonmaterial nonconformities in accordance with Sub-Clause IB.27.3; and

(e) the additional evaluation factors are specified in Section Evaluation Criteria and Qualification Updating Forms.

29.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in Bids' comparison.

IB.30 Abnormally Low Bids

30.1 If the Bid Price of the successful Bidder is more than 15% below the lower of the Employer's estimate of the cost of work to be performed under the Contract or average of other lowest two evaluated substantially responsive Bids, 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, the Employer may require an additional Performance Security by 10% of the difference of the Bid Price as determined hereinabove upto issuance of Taking Over Certificate at the expense of the successful Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract. The Bids having Bid Price lower than 25% shall be liable to be rejected.

IB.31 Unbalanced or Front Loaded Bids

31.1 If the Bid of the successful Bidder is seriously unbalanced (Front Loaded) in relation to the average of other evaluated substantially responsive Bids, the Employer during execution of contract may pay against measured quantities of significantly higher quoted line item(s) rate(s) with respect to same line item(s) rate(s) determined from the average of other lowest two evaluated substantially responsive Bids as instructed by the Engineer. The balance line item(s) rate(s) may be paid against the same measured quantities at the time of issuance of Taking Over Certificate or as instructed by the Engineer.

F. AWARD OF CONTRACT

IB.32 Award Criteria

32.1 Subject to Clauses IB.33 and IB.39, the Employer will award the Contract to the Bidder whose Bid has been determined as most advantageous Bid (substantially responsive to requirements of the Bidding Documents with the lowest evaluated Bid Price).

IB.33 Employer's Right to Annul the Bidding Process

33.1 Notwithstanding Clause IB.32, the Employer reserves the right to annul the bidding process and reject all Bids, at any time prior to award of Contract, without thereby incurring any liability to the affected Bidders or any obligation.

The Employer shall upon request communicate to any Bidder who submitted a Bid, the grounds for its rejection of all Bids but is not required to justify those grounds. Rejection of all Bids shall be notified to all Bidders promptly.

IB.34 Notification of Award

34.1 Prior to expiration of the period of Bid validity prescribed by the Employer, the Employer will notify the successful Bidder in writing ("Letter of Acceptance") that his Bid has been accepted. This letter shall name the sum which the Employer will pay the Contractor in consideration of the execution and completion of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Conditions of Contract called the "Accepted Contract Amount").

The Letter of Acceptance will also state the remedies with respect to Sub-Clauses IB.30 & IB.31 if applicable.

34.2 No negotiation with the Bidder having submitted most advantageous Bid or any other Bidder shall be permitted, however, Employer may have clarification meetings before issuing Letter of Acceptance to get clarified any item in the Bid evaluation report.

34.3 The Letter of Acceptance/ notification of award and its acknowledgement/acceptance by the Bidder will constitute the formation of the Contract, binding the Employer and the Bidder till signing of the formal Contract Agreement.

34.4 Upon furnishing by the successful Bidder of a Performance Security, the Employer will promptly notify the other Bidders that their Bids have been unsuccessful and return their Bid securities in accordance with Sub-Clause IB.16.5.

IB.35 Performance Security

35.1 The successful Bidder shall furnish to the Employer a Performance Security in the form and the amount stipulated in the Conditions of Contract and additional Performance Security if applicable under IB.30 as stated in the Letter of Acceptance, within a period of 28 days after the receipt of Letter of Acceptance.

35.2 Failure of the successful Bidder to comply with the requirements of Sub Clause IB.35.1 or Clauses IB.36 or IB.37 shall constitute sufficient grounds for the annulment of the award, forfeiture of the Bid security and to award the Contract to the Bidder having submitted next advantageous Bid.

IB.36 Signing of Contract Agreement

36.1 Within 14 days from the date of furnishing of acceptable Performance Security under the Conditions of Contract, the Employer will notify the successful Bidder to depute its representative with appropriate Power of Attorney to sign the Contract Agreement in the form provided in the Bidding Documents, incorporating all agreements between the parties.

36.2 The formal Agreement between the Employer and the successful Bidder shall be executed within 14 days of the receipt of the above stated notification by the successful Bidder from the Employer.

IB.37 Integrity Pact

37.1 The Bidder shall sign and stamp the Integrity Pact provided at Schedule-J to Bid in the Bidding Documents for all Federal Government procurement contracts exceeding PKR ten million. Failure to provide such Integrity Pact shall make the Bidder non-responsive.

IB.38 Instructions not Part of Contract

38.1 Bids shall be prepared and submitted in accordance with the Instructions to Bidders which are provided to assist the Bidders in preparing Bids but do not constitute part of the Contract.

IB.39 Corrupt and Fraudulent Practices

39.1 The Employer will reject a Bid if it determines that the Bidder recommended for award, or any of its personnel, or its agents, or its sub-contractors, service providers, suppliers and/or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract under this bidding.

39.2 The Employer will blacklist and hence forthwith debar a Constructor or individual, at any time, in accordance with the prevailing Public Procurement Rules 2004.

BIDDING DATA (BD)

BIDDING DATA

IB Clause Reference	Bidding Data
1.1	**Name and address of the Employer:** Trading Corporation of Pakistan **Address:** Trading Corporation of Pakistan (Pvt.) Limited 4th and 5th Floor, Block B, Finance & Trade Center, Shahrea Faisal, Karachi.
1.1	**Name of the Project:** Supply, Installation, Commissioning, Operation, Maintenance of CCTV Surveillance Network System and Allied Accessories at TCP's Korangi, Pipri, Landhi And Multan Godowns.
1.2	**Time for Completion for the Works:** 180 Days
2.1	**Name of the Borrower/Source of Funding:** TCP Funded Project.
2.1	**Amount and type of Funding:** TCP Funded
3.1	**Eligible Bidders** *Delete the text of clause 3.1 and replace with the following* This Invitation for Bids is open to all bidders meeting the following requirements: - Contractors / Firms registered with Income Tax (who are Active on Taxpayers List of Federal Board of Revenue, Provincial Boards / Revenue Authorities) Contractors/Firms have No litigation history. - Contractor/Firms Not blacklisted. - Valid/active registration certificate of Pakistan Engineering - Council (PEC) in the category C-4 or above and at least specialization in PEC codes CE-10, EE-04, EE-11, is mandatory. Having Valid/active Electric License.
8.1	**Time limit for clarification:** 7 days before deadline of submission of bids.
8.3	**Venue, time, and date of the pre-Bid meeting:** Pre-Bid Meeting will be held on 1st April 2025 at 1100 **hrs** at the address mentioned in advertisement.
11.1	**Bid language:** English.
12.1	**Documents comprising the Bid:** *Delete the text of clause 12.1 (a) & (f) and replace with the following:* The bid is being invited as per 'Single Stage-Two Envelope'

IB Clause Reference	Bidding Data
	procedure, in Compliance of PPRA Rule No. 36(b). If the bidder fails to fulfill any of following mandatory requirements, his bid will be considered as nonresponsive and will be rejected without opening his 'Financial Proposal' 1. The bid shall comprise a single file containing two separate files. Each file shall contain separately the Financial and the Technical Proposal. 2. The 'Technical Proposal' must contain the following as per the requirements of this document and criteria mentioned in clause 26.1(vi) of bidding data: 3. Bid Security in the form of Payorder / CDR (refundable) from any scheduled bank of Pakistan drawn in favor of "Trading Corporation of Pakistan" a. Name of firm/contractor with year of establishment along with Postal Address and telephone number. b. Partnership deed of the firm (if applicable). c. Name of Technical Supervisory Staff along with their qualification/experience & proof for their stay with the firm, with fresh affidavit as per criteria specified in clause 26.1(vi) of bidding data. d. Detail of equipment complete in all respect giving their model, make, condition & location. Proof / lease affidavit of possession/provision of equipment is mandatory (Details should be given as mentioned in clause 26.1(vi) of bidding data). e. No. of project of similar nature and general works in hand and completed. (Details should be given as mentioned in clause 26.1(vi) of bidding data). f. Registration/Clearance from FBR, SRB and PRA. g. Detail of Court cases if any/arbitration cases etc. h. Enlistment with concerned Government Departments. i. Detail of financial soundness. j. Undertaking on judicial paper that the firm was never blacklisted by any Government, Semi Govt. Organization. k. Copy of Valid Registration with Pakistan Engineering Council. Any additional information with documents in addition to the above that the firm might like to furnish in support of their application. l. Schedule-C to Bid — Proposed Construction Schedule m. Schedule -D to Bid — Method of Performing the Work n. Schedule -I to Bid — Construction camp and housing facilities o. Schedule -G to Bid — List of Subcontractors p. Schedule -F to Bid — Organization Chart of the Supervisory Staff and Labour q. Schedule -J to Bid — Integrity Pact

	3. The "Financial proposal" must contain following documents: *a.* Priced BOQ

IB Clause Reference	Bidding Data
	Corporation of Pakistan (Pvt) Limited.
12.2	**Joint Venture (JV):** *Delete the text of clause 12.2 and replace with the following:* No Joint Venture is applicable for the said Project.
14.1	**Currencies of Bid and Payment:** Bidders to quote entirely in Pak. Rupees.
15.1	**Period of Bid Validity:** 90 days.
16.1 & 16.2	**Amount of Bid Security:** Bid Security of **Rs. 5.0 Million** in the form of Pay Order / CDR (refundable) from any scheduled bank of Pakistan in favour of "Trading Corporation of Pakistan (Pvt) Limited".
16.6	*Delete the text of clause 16.6 and replace with the following:* The Bid Security may be forfeited: (a) if the Bidder does not accept the correction of his Bid Price pursuant to Sub Clause IB.28.2 hereof; or (b) in the case of successful Bidder, fails to furnish the required Performance Security.
17.1	Alternative Proposal(s) by the Bidder shall not be considered.
18.4	**Number of copies of the Bid to be completed and submitted:** One copy to be uploaded on EPAD Portal.
19.1	*Delete the text of clause 19.1 (a) & (b) and replace with the following:* Each bidder shall submit his Bid as under: (a) ORIGINAL and one copy of the Bid on EPAD Portal.
19.2(a)	**Employer's address for the purpose of Bid submission:** *Delete the text of clause 19.2 (a) and replace with the following:* Bids to be submitted through EPADS.
19.2(b)	**Name and Number of the Contract:** Supply, Installation, Commissioning, Operation, Maintenance of CCTV Surveillance Network System and Allied Accessories at TCP's Korangi, Pipri, Landhi And Multan Godowns.
19.3 & 19.4	Not Applicable
20.1(a)	**Deadline for submission of Bids:** Bids will be received till 1100 hrs on **08th April 2025** at EPADS.

<table>
<tr><th>IB Clause Reference</th><th>Bidding Data</th></tr>
<tr><td>20.1(b), (c), (d)</td><td>Not Applicable</td></tr>
<tr><td>21.1 (a), (b)</td><td>Delete the text of clause 21.1 (a), (b) and replace with the following:
No late bids accepted</td></tr>
<tr><td>22.1 - 22.4</td><td>Not Applicable.</td></tr>
<tr><td>23.1</td><td>Venue, time, and date of Bid opening:
Bids will be open on 08th April, 2025, at 1130 hours at EPADS (mentioned in advertisement).</td></tr>
<tr><td>23.2</td><td>Not Applicable</td></tr>
<tr><td>26.1</td><td>Evaluation and Comparison of Bids:

Add following text to clause 26.1
i. Initially, only the envelope marked “TECHNICAL PROPOSAL” shall be opened and and the bids marked as “FINANCIAL PROPOSAL” shall be retained at EPADS without being opened.
ii. The procuring agency shall evaluate the technical proposal in a manner prescribed in tender document, without reference to the price and reject any proposal which does not conform to the specified requirements.
iii. During the technical evaluation no amendments in the technical proposal shall be permitted.
iv. After the evaluation and approval of the technical proposal, the procuring agency shall open in the presence of intending tenderers the financial proposal of the technically accepted bids, at time, date & venue announced and communicated to the bidders in advance, within the bid validity period.
v. The financial proposal of bids found technically non-responsive shall be returned un-opened to the respective bidders; and the lowest evaluated bidder shall be awarded the work.
vi. Technical Evaluation Criteria
Technical proposal of contractors will be evaluated as per following criteria:

<table>
<tr><th>Sr. No.</th><th>Category</th><th>Weightage/Marks</th></tr>
<tr><td>1.</td><td>Experience Record</td><td>35</td></tr>
<tr><td>2.</td><td>Personnel Capabilities</td><td>10</td></tr>
<tr><td>3.</td><td>Equipment Capabilities</td><td>15</td></tr>
<tr><td>4.</td><td>Financial Soundness</td><td>20</td></tr>
<tr><td>5.</td><td>Presentation</td><td>20</td></tr>
<tr><td></td><td>Total:</td><td>100</td></tr>
<tr><td></td><td></td><td></td></tr>
</table>
Note: Technical soundness shall be decided on the basis of Pass/Fail basis. The applicant must secure at least 50% score in each category and overall, 70% score.

Relevant Experience and PEC Requirement</td></tr>
</table>

IB Clause Reference	Bidding Data

Sr. No.	Type of Work	PEC Requirement
1.	CCTV & Allied Works	(PEC) in the category C-4 or above and at least specialization in PEC codes CE-10, EE-04, EE-11.

a. General Experience

Sr. No.	Description	Maximum Points
	Projects of Similar Nature Completed:	
i)	Projects having similar nature and complexity of at least 50 cameras installation along with allied works completed in last 05 years (5 points for each project of Rs. 140 million or above). Project below Rs. 140 million will not be awarded marks/points). (Supporting documents including work order & completion certificate are mandatory).	25
	Projects in Hand:	
ii)	Project in hand of installation of at least 50 Cameras along with allied works of Rs. 140 million will be (10 marks). Project below 140 million will not be awarded marks/points). (Supporting documents including work order is mandatory).	10
	Total Maximum Marks:	**35**

b. Personnel Capabilities

Credit Marks shall be awarded under this category using the following Criteria:

S. No.	Description	No. Required	Marks Assigned	Remarks
1.	**Project Manager** BE/BSC in (Electrical Engg.) /BE (Electrical) Engineers registered with	01	04	03 Marks for experience of 5 years or above. 04 Marks for experience of 07 to 10 years. (Attach Tax payment challans &

IB Clause Reference	Bidding Data

1.	**Project Manager** BE/BSC in (Electrical Engg.) /BE (Electrical) Engineers registered with Pakistan Engineering Council (PEC) with experience of 5 years or above.	01	04	03 Marks for experience of 5 years or above. 04 Marks for experience of 07 to 10 years.
2.	**Site Supervisor:** Diploma in Electrical Engineering with experience of 03 years or above	02	03	03 marks for 05 years or above experience.
3.	**Site Supervisor:** Diploma in Civil Engineering with experience of 03 years or above.	01	03	03 marks for 05 years or above experience.
	Total Maximum Marks:			**10**

a. Equipment Capabilities

Credit Marks shall be granted on the basis of the following criteria for various kinds of equipment, Proof of possession / lease affidavit is mandatory:

Sr. No.	Description	Max. Marks
1	Excavator (1.00 mark for each unit owned/ rented)	1
2	Tractor along-with Trolley and Bowser (1.00 point for unit owned/ rented)	1
3	Plate Compactor (1 nos.)	2
4	Wall saw + Drill + Tile Cutter (2 + 2 + 2 no's)	2
5	Structural wiring installer tool kit (2 no's)	2
6	Chain Pulley Set + Cable pulling roller	1
7	Rendering Float	1
8	Power Float (0.5 marks for each)	1
9	Winch Tower Hoist	1
10	Total Station, Auto Level & other Survey Equipment	1
11	Generator & Power plant (1 marks for each)	2
	Total Maximum Marks:	**15**

a. Financial Soundness /Status:

Credit Marks shall be awarded on the basis of the following criteria:

IB Clause Reference	Bidding Data
	i)Working Capital (10) Marks At least PKR 15 Million shown in form of available credit line of scheduled bank or available cash in company bank account. **Sr. No.** **Description** **Max. Marks** **Remarks** ii) Audited Financial statement with Average Annual Turnover for last (05) Years. (10) marks will be given if the average annual Turnover in last 05 Years equal or above to 200 million. **Total Marks: 20** **e. *Detailed Presentation* 20** Presentation is a mandatory segment of technical evaluation. If any vendor fails to qualify in presentation, TCP will have the right to reject entire Bid. Further presentation must include vendor's procurement and execution plan acceptable and within the specified time line of the project.
32.1	**Award of the Contract:** *Delete the text of clause 32.1 replace with the following:* Subject to Clause IB.33 and IB.39, the Employer will award the Contract to the bidder whose bid has been determined to be substantially responsive to the Bidding Document, has met the technical requirement criteria as mentioned in clause 26.1(vi) and has offered the lowest evaluated Bid Price, provided that such bidder has been determined to be eligible in accordance with the provisions of Clause IB.3.
35.1	**Standard form and amount of Performance Security acceptable to the Employer:** 10% of the contract amount in shape of bank guarantee, Pay Order / Demand Draft.

EVALUATION CRITERIA AND QUALIFICATION UPDATING FORMS

EVALUATION CRITERIA AND QUALIFICATION UPDATING FORMS

1. General

This Section contains Eligibility and Qualification Criteria that the Employer shall use to evaluate Bids and qualify Bidders in accordance with Clauses IB.26 of Instructions to Bidders. The Bidder shall provide all the information requested in the relevant forms contained in Bidder's Qualification Updating Forms provided herein.

The information provided in the forms shall be substantiated with valid documentary evidences otherwise the requirement will not be considered as complied.

Wherever a Bidder is required to state a monetary amount, Bidders shall indicate the PKR equivalent using the rate of exchange determined as follows:

- For financial data - Exchange rate prevailing on the last day of the respective calendar year (in which the amounts for that year is to be converted) was originally established.

Exchange rates shall be taken from the publicly available source identified in the Sub-Clause IB.14.2. Any error in determining the exchange rates in the Bid may be corrected by the Employer.

3.1 Assessment of adequacy of Technical Proposal with Requirements

4. Qualification (Updating of Pre-Qualification)

Eligibility and Qualification information described here below must be met by the legal entity(ies) comprising the Bidder, and not the Bidder's companies, subsidiaries or affiliates.

Eligibility and Qualification Criteria			
No.	**Subject**	**Requirement**	**Single Entity**
1.1	**PEC Licensing**	Licensing by Pakistan Engineering Council (PEC) in accordance with paragraph (b) of Sub-Clause IB.3.1.	must meet requirement
1.2	**Pakistani Constructor's Tax Registration**	Requirement of Pakistani Constructor on Active Taxpayer List (ATL) of FBR in accordance with paragraph (c) of Sub-Clause IB.3.1.	must meet requirement
1.3	**Debarment/Blacklisting**	Not having been debarred/blacklisted in accordance with paragraph (d) of Sub- Clause IB.3.1.	Must meet requirement

Eligibility and Qualification Criteria			
No.	**Subject**	**Requirement**	**Single Entity**
2.1	**Pending Litigation**	Bidder's financial position and prospective long term profitability sound according to criteria established in 3.1 below and assuming that all pending litigation will be resolved against the Bidder	Must meet requirement
3.1	**Financial Capabilities**	(i) The Bidder shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means, sufficient to meet the construction cash flow requirements estimated as shown in the technical evaluation criteria.	Must meet requirement

Eligibility and Qualification Criteria			
No.	**Subject**	**Requirement**	**Single Entity**
		the subject contract(s) net of the Bidders other commitments (ii) The Bidders shall also demonstrate, to the satisfaction of the Employer, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments. (iii) The audited balance sheets or, if not required by the laws of the Bidder's country, other financial statements acceptable to the Employer, for the last year shall be submitted and must demonstrate the current soundness of the Bidder's financial position and indicate its prospective long-term profitability.	Must meet requirement Must meet requirement

Bidders Qualification Updating Forms

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

Form ELI -1.1

Bidder Information Form

Date: _____
Bid Reference No. (if any) and title: _____
Page _____of _____pages

Bidder's name
Bidder's country of registration: *[indicate country of Constitution]*
Bidder's year of incorporation:
Bidder's legal address [in country of registration]:
Bidder's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents.

Form CON – 1

Pending Litigation

Bidder's Name: _____
Date: _____
Bid Reference No. (if any) and title: _____
Page _____of _____pages

Pending Litigation, in accordance with Eligibility and Qualification Criteria			
No pending litigation in accordance with Eligibility and Qualification Criteria, Sub-Factor 2.1. ☐ Pending litigation in accordance with Eligibility and Qualification Criteria, Sub-Factor 2.1 as ☐ indicated below.			
Year of dispute	**Amount in dispute (currency)**	**Contract Identification**	**Total Contract Amount (currency), Eq. PKR (exchange rate)**
		Contract Identification: _____ Name of Employer: _____ Address of Employer: _____ Matter in dispute: _____ Party who initiated the dispute: _ Status of dispute: _____	
		Contract Identification: Name of Employer: Address of Employer: Matter in dispute: Party who initiated the dispute: Status of dispute:	

Form FIN – 3.1:

Financial Situation and Performance

Bidder's Name: _____
Date: _____
Bid Reference No. (if any) and title: _____
Page _____of _____pages

1. Financial data

Type of Financial information in (currency)	**Historic information for last year, (amount in currency, currency, exchange rate*, Eq. PKR)**
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 to IB 14.2 for the exchange rate

2. Financial documents

The Bidder and its parties shall provide copies of financial statements for last year pursuant to Eligibility and Qualification Criteria, Sub-factor 3.1. The financial statements shall:

(a) reflect the financial situation of the Bidder 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 last year 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 bid, the reason for this should be justified.

Form FIN – 3.2:

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		

Form FIN – 3.3:

Current Contract Commitments / Works in Progress

Bidders 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					

LETTER OF BID
AND
SCHEDULES TO BID

LETTER OF BID

Bid Reference No. _____
[Name of Contract/ Works]

To: _____

_____

Gentleman,

1. Having examined the Bidding Documents including Instructions to Bidders, Bidding Data, Conditions of Contract, Specifications, Schedules to Bid including Bill of Quantities, Drawings and Addenda Nos. _____ for the execution of the above-named Works, we, the undersigned, offer to execute and complete such Works and remedy any defects therein in conformity with the said Bidding Documents and Addenda for the sum of Equivalent PKR _____ (Eq. Pak Rupees _____ _____) or such other sum as may be ascertained in accordance with the said conditions.

2. We meet the eligibility requirements in accordance with IB.3.

3. We, including any Subcontractors for any part of the Contract, are not debarred/ blacklisted by the Employer, any Government/Semi Government/Public Department in Pakistan or foreign country, international organizations or other foreign institutions.

4. Our subcontractors or suppliers for any part of the Contract, if any, shall have nationalities from eligible countries, in accordance with IB.4.4.

5. We understand that all the Schedules attached hereto form part of this Bid.

6. As security for due performance of the undertakings and obligations of this Bid, we submit herewith a Bid Security in the amount of PKR _____ (Pak. Rupees. _____) drawn in your favour or made payable to you and valid for a period of _____ days beginning from the date Bids are opened.

7. We undertake, if our Bid is accepted, to commence the Works and to complete the whole of the Works comprised in the Contract within the time stated in Contract Data.

8. We agree to abide by this Bid for the period of _____ days, inclusive of 14 days beyond Bid validity period (as mentioned at Sr. No. 6 above) and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

9. Unless and until a formal Agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.

10. We do hereby declare that the Bid is made without any collusion, comparison of figures or arrangement with any other Bidder for the Works.

11. We understand that you are not bound to accept the lowest or any Bid you may receive.

12. We undertake that all the information and documents submitted with the Bid are genuine, and in case of incorrect information of fake documents we shall be liable for punitive action under the Applicable Law.

Dated this _____day of_____20_____

Signature: _____

in the capacity of _____duly authorized to sign Bids for and on behalf of

_____

(Name of Bidder in Block Capitals)
(Seal)

Address:_____

_____

_____

Witness:

Signature: _____

Name: _____

Address. _____

_____

Occupation_____

SCHEDULE OF ADJUSTMENT DATA

Schedule of Cost Indexation

[The Employer is to engage a professional with experience in construction costs and the inflationary effect on construction costs when preparing the contents of the Schedule of Cost Indexation. In the case of very large and/or complex works contracts, it may be necessary to specify several families of price adjustment formulae corresponding to the different works involved.]

[The formulae for price adjustment shall be of the following general type:]

$$P_n = a + b\,L_n / L_o + c\,E_n / E_o + d\,M_n / M_o + \ldots\ldots$$

where:

"P_n" 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;

"L_n", "E_n", "M_n", ... are the current cost indices or reference prices for period "n", expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date 49 days prior to the last day of the period (to which the particular Payment Certificate relates); and

"L_o", "E_o", "M_o", ... are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.

The 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).

If the currency in which the Contract price is expressed is different from the currency of the country of origin of the indices, a correction factor will be applied to avoid incorrect adjustments of the Contract price. The correction factor shall be: Z_0 / Z_1, where,

Z_0 = the number of units of currency of the origin of the indices which equal to one unit of the currency of the Contract Price on the Base date, and

Z_1 = the number of units of currency of the origin of the indices which equal to one unit of the currency of the Contract Price on the Date of Adjustment.

A-2
Schedule-A to Bid

SCHEDULE OF ADJUSTMENT DATA

Table I. Local Currency (LC) For Bill Nos._____

Index code	Index description	Source of index		Bidder's related currency amount	Weighting
(i)	Non-adjustable	—		—	**A:**
(ii)					**B:** _____
(iii)					**C:** _____
(iv)					**D:** _____
(v)					**E:** _____
(vi)					**F:** _____
(vii)					**G:** _____
			Total		**1.00**

A-3
Schedule-A to Bid

SCHEDULE OF ADJUSTMENT DATA

Table II. Foreign Currency (FC) For Bill Nos. _____

[In the Table below, the Bidder shall (a) indicate amount of foreign currency payment, (b) indicate the source and base values of indices for the different foreign currency elements of cost, (c) derive its proposed weightings of foreign currency payment, except the non-adjustable portion which will be filled in by the Employer.

If the Bidder wishes to incur in more than one foreign currency (up to two currencies permitted) then this table should be repeated for each foreign currency.]

Index code	Index description	Source of index	Base value and date	Bidder's related source currency in type/amount	Equivalent in FC1	Bidder's proposed weighting
(i)	Non-adjustable	—	—	—		A: _____
(ii)						B: _____
(iii)						C: _____
(iv)						D: _____
(v)						E: _____
				Total		**1.00**

A-4
Schedule-A to Bid

SCHEDULE OF ADJUSTMENT DATA

Table III. Foreign Currency Requirements

[With reference to Sub Clause IB.14.1, the Bidder shall provide information below on the proportion of various currencies in which he requires payment to be made. The Bidders shall also indicate Factors (inputs) related to the requirement of respective currencies.]

Sr. No	Currency (name)	Percentage payable in currency	Factors (inputs) to which the Requirements Refer
1.	**LC** (Pak. Rs.)		* *General Expenses Manpower, Local Staff, Expatriate Staff, Spare Parts, Fuel & Lubricants, Hydraulic Binder, Timber & Plywood, Additives & Protectives, Joints & Waterstops, Explosives-Fuses-Detonators, Re-Steel & Wire mesh, Metal Pipes & Fittings, Structural Steel, Miscellaneous Metals, Concrete Pipes, PVC Pipes, Build Materials, Sub-Contractor, Drilling & Grouting Sub-Contractor Third Party Supplies, Import Charges, General Expenses, Plants.*
2.	**FC1** *(US $ Dollar)*		* *Expatriate Staff, Spare Parts, Hydraulic Binder, Timber & Plywood, Additives & Protectives, Drilling Materials, Miscellaneous, Sub-Contractor, Import Charges, General Expenses, Plants.*
3.	**FC2** *(EUR € EURO)*		* *Expatriate Staff, Spare Parts, Additives & Protectives, Welding Materials, Miscellaneous, Electrical Sub-Contractor, Import Charges, General Expenses, Equipment, Plants.*
	TOTAL	**100.00**	

*[*The above Factors (Inputs) related to the requirement of respective currencies, are for guidance only, and shall be indicated specific to the Contract.]*

A-5
Schedule-A to Bid

SCHEDULE OF ADJUSTMENT DATA

Table IV. Summary of Payment Currencies

Name of payment currency	a Amount of currency	b Rate of exchange (local currency per unit of foreign)	c Local currency equivalent c =a x b	d Percentage of Total Bid Price (TBP) $\frac{100xc}{TBP}$
Local currency (Pak. Rs)		1.00		
FC1				
FC2				
Total Bid Price				100.00
Provisional sums expressed in local currency	*[To be entered by the Employer]*		*[To be entered by the Employer]*	
TOTAL BID PRICE (including provisional sum)				

B-1
Schedule-B to Bid

BILL OF QUANTITIES

A. Preamble:

1. The Bill of Quantities shall be read in conjunction with the Conditions of Contract, Specifications and Drawings.

2. 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.

3. 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.

4. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of items against which the Contractor will have failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.

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. 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.

7. 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.

B-2
Schedule-B to Bid

BILL OF QUANTITIES

B. Work Items:

1. The Bill of Quantities are attached at the end of this document.

2. Bidders shall price the Bill of Quantities in Pak. Rupees (PKR) only.

C-1
Schedule-C to Bid

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)
a) Whole Works	
b) Section A	
c) Section B	
d) _____	
e) _____	

[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 (Attach sheets as required for the specified form of Construction Schedule)]

D-1
Schedule-D to Bid

METHOD OF PERFORMING THE WORK

[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:

   Shall indicate 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. Method of executing the Works:

   The procedures for installation of equipment and machinery and transportation of equipment and materials to the site.]

E-1
Schedule-E to Bid

LIST OF MAJOR EQUIPMENT

[The Bidder will provide on Sheet E-2 of this Schedule *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 in Sheet E-3.]

E-2
Schedule-E to Bid

LIST OF MAJOR EQUIPMENT

Owned, Purchased or Leased

Owned Purchased or Leased	Description of Unit (Make, Model, Year)	Capacity HP Rating	Condition	Present Location or Source	Date of Delivery at Site	Period of Work on Project
1	2	3	4	5	6	7
a. Owned						
b. To be Purchased						
c. To be arranged on Lease						

E-3
Schedule-E to Bid

LIST OF MAJOR EQUIPMENT

Equipment details

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	
The following information shall not be applicable 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	

[This Table shall be used for each item of Equipment separately]

F-1
Schedule-F to Bid

ORGANIZATION CHART
FOR THE
SUPERVISORY STAFF AND LABOUR

G-1
Schedule-G to Bid

LIST OF SUBCONTRACTORS

I/ We intend to subcontract the following parts of the Work to subcontractors. In my/ our opinion, the subcontractors named hereunder are reliable and competent to perform that part of the work for which each is listed.

Enclosed are documentation outlining experience of subcontractors, the curriculum vitae and experience of their key personnel who will be assigned to the Contract, equipment to be supplied by them, size, location and type of contracts carried out in the past.

Part of Works (Give Details)	**Subcontractor (With Complete Address)**
1	**2**

H-1
Schedule-H to Bid

ESTIMATED PROGRESS PAYMENTS

Bidder's estimate of the value of work which would be executed by him during each of the periods stated below, based on his Programmed of the Works and the Rates in the Bill of Quantities, expressed in thousands of PKR:

Quarter	Amounts (1,000 PKR)
1	2
1st	
2nd	
3rd	
4th	
5th	
6th	
7th	
8th	
9th	
Bid Price	

I-1
Schedule-I to Bid

CONSTRUCTION CAMP AND HOUSING FACILITIES

The Bidder shall list or explain his plans for providing these facilities for the service of the Contract as follows:

1. *Site Preparation (clearing, land preparation, etc.).*

2. *Provision of Services.*

a) Electrical power (expected power load, etc.).

b) Water (required amount and system proposed).

c) Sanitation (sewage disposal system, etc.)

3. *Construction of Facilities*

a) Contractor's Office. Workshop and Work Areas (areas required and proposed layout, type of construction of buildings, etc.).

b) Warehouses and Storage Areas (area required, type of construction and layout).

c) Housing and Staff Facilities (Plans for housing for proposed staff, layout, type of construction, etc.).

4. *Construction Equipment Assembly and Preparation (detailed plans for carrying out this activity).*

5. *Other Items Proposed (Security services, etc.)]*

Note:

The Contractor shall be responsible for pumps, electrical power, water and electrical distribution systems, and sewerage system including all fittings, pipes and other items necessary for servicing the Contractor's construction camp.

J-1
Schedule-J to Bid

INTEGRITY PACT

DECLARATION OF FEES, COMMISSION AND BROKERAGE, ETC. PAYABLE BY THE BIDDERS/CONTRACTORS OF GOODS, SERVICES & WORKS IN CONTRACTS WORTH PAK. RS. 10.00 MILLION OR MORE

Contract No._____ Dated _____
Contract Value: _____
Contract Title: _____

…… [Name of Bidder/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 (GoP) or any administrative subdivision or agency thereof or any other entity owned or controlled by GoP through any corrupt business practice.

Without limiting the generality of the foregoing, [Name of Bidder/ Contractor] represents and warrants that it has fully declared the brokerage, commission, fees 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 consultation 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 Bidder/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, representation or warranty.

[Name of Bidder/Contractor] accepts full responsibility and strict liability for making any false declaration, not making full disclosure, misrepresenting facts 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 rights 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 Bidder/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 Bidder/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.

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

STANDARD FORMS

BS-1

FORM OF BID SECURITY

Security Executed on _____
(Date)

Expiry on _____
(Date)

Name of Surety with Address: _____

_____

Name of Principal (Bidder) with Address _____

_____

Penal Sum of Security PKR _____(Pak Rupees _____
_____)

Bid Reference No. _____

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bid and at the request of the said Principal (Bidder) we, the Surety above named, are held and firmly bound unto _____
(hereinafter called the 'Employer') in the sum stated above for the payment of which sum well and truly to be made, 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 Bidder has submitted the accompanying Bid dated _____for _____
_____(*Particulars of Bid*) to the said Employer; and

(1) WHEREAS, the Employer has required as a condition for considering said Bid that the Bidder furnishes a Bid Security in the above said sum to the Employer, conditioned as under: that the Bid Security shall remain in force for a period fourteen (14) days beyond the Bid Validity date i.e., upto _____.

(2) that the Bid Securities of the Bidders except the lowest three will be returned by the Employer within twenty eight (28) days from the opening of Bids, provided a Bidder request for the return of its Bid Security, or on the expiry of original validity of Bid Security or as extended, whichever is earlier;

(3) that the Bid Security of the lowest three Bidders comprising the successful Bidder will be returned when the successful Bidder has furnished the required Performance Security; and

(4) that in the event of failure of the successful Bidder to furnish the required Performance Security, the entire said sum be paid immediately to the said Employer pursuant to IB.16 and IB.35 of the Instructions to Bidders for the successful Bidder's failure to perform.

NOW THEREFORE, if the successful Bidder shall, within the period specified therefor, on the prescribed form presented to him for signature enter into a formal Contract with the said Employer in accordance with his Bid as accepted and furnish within twenty eight (28) days of his being requested to do so, a Performance Security with good and sufficient surety, as may be required, upon the form prescribed by the said Employer for the faithful performance and proper fulfillment of the said Contract or in the event of non-withdrawal of the said Bid within the time specified for its validity then this obligation shall be void and of no effect, but otherwise to remain in full force and effect.

BS-2

PROVIDED THAT the Surety shall forthwith pay the Employer the said sum upon first written demand of the Employer (without cavil or argument) and without requiring the Employer to prove or to show grounds or reasons for such demand, notice of which shall be sent by the Employer by registered post duly addressed to the Surety at its address given above.

PROVIDED ALSO THAT the Employer shall decide, whether the Principal (Bidder) has duly performed his obligations to sign the Contract Agreement and to furnish the requisite Performance Security within the time stated above, or has defaulted in fulfilling said requirements and the Surety shall pay without objection the said sum upon demand from the Employer forthwith and without any reference to the Principal (Bidder) or any other person.

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

SURETY
(Schedule Bank/Insurance Company)

WITNESS: Signature _____

1. _____ Name _____

_____ Title _____

Corporate Secretary (Seal) Corporate Guarantor (Seal)

2. _____

_____

Name, Title & Address

PS-1

FORM OF PERFORMANCE SECURITY

Guarantee No._____

Executed on _____

Expiry date _____

[Letter by the Guarantor to the Employer]

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 _____ (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 _____

_____(*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

PS-2

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)

WITNESS:

Signature _____

1. _____

Name _____

_____
Corporate Secretary (Seal)

Title _____
Corporate Guarantor (Seal)

2. _____

_____
Name, Title & Address

LOA-1

Letter of Acceptance

[letterhead paper of the Employer]

NAME OF CONTRACT:_____

CONTRACT NUMBER:_____

TO :_____

Date:_____

Your Reference:_____

Our Reference:_____

We thank you for your Bid dated _____ for the execution and completion of the Works comprising the above-named Contract and remedying of defects therein, all in conformity with the terms and conditions contained in the Contract.

We have pleasure in accepting your Bid for the Accepted Contract Amount of:

_____
[currency and amount in figures]

_____
[currency and amount in words]

In consideration of you properly and truly performing the Contract, we agree to pay you the Accepted Contract Amount or such other sums to which you may become entitled under the terms of the Contract, at such times and as prescribed by the Contract.

We acknowledge that this Letter of Acceptance creates a binding Contract between us, and we undertake to fulfil all our obligations and duties in accordance with the terms of this Contract.

Signature: _____

Signed by: _____

For and on behalf of:_____

Date:_____

CA-1

FORM OF CONTRACT AGREEMENT

THIS CONTRACT AGREEMENT (hereinafter called the "Agreement") made on the _____ day of _____ (month) 20_____ between _____ _____(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., _____ _____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 - Special Provisions;
   f) The General Conditions;
   g) The Specifications Part A - Specific Provisions;
   h) The Specifications Part B - Technical Provisions;
   i) The Drawings;
   j) The Completed Schedules to Bid including Schedule of Prices;
   k) *[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 Contactor	Signature of Employer
(Seal)	(Seal)

Signed, Sealed and Delivered in the presence of:

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

DAAB-1

DAAB Agreement

Name and details of the Contract _____

_____

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

Name and contact details of the Employer _____(name)

_____(*address*)

_____(*telephone*)

_____(*email / other contact details*);

Name and contact details of the Contractor _____(name)

_____(*address*)

_____(*telephone*)

_____(*email / other contactdetails*);

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:

DAAB-2

_____ *(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).

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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:_____

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FORM OF MOBILIZATION ADVANCE GUARANTEE/ BOND

Guarantee No._____Date _____

e e

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 the Employer 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 _____ (Pak Rupees _____ _____).

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 payments from Interim Payment Certificates of the Contractor provided that the Guarantor

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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*)

WITNESS:

Signature _____

1. _____

Name _____

_____
Corporate Secretary (Seal)

Title _____
Corporate Guarantor (Seal)

2. _____

_____
Namem , Title & Address

CONDITIONS OF CONTRACT

CONDITIONS OF CONTRACT

The Conditions of Contract comprise two parts:

(a) General Conditions
(b) Particular Conditions

General Conditions

These Conditions are the "General Conditions" which form part of the "FIDIC Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer Second Edition (2017 Red book, Reprinted 2022 with amendments)" published by:

International Federation of Consulting Engineers
(Fédération Internationale des Ingénieurs – Conseils) – (FIDIC)
World Trade Center II - Geneva Airport
P. O. Box 311
CH-1215 Geneva 15
Switzerland
Email: fidic@fidic.org, fidic.pub@fidic.org
Website: https://fidic.org/bookshop

The successful Bidder after award of Works shall have to provide two (02) copies of above said "General Conditions" for incorporation in the Contract.

Particular Conditions

(Mandatory Provisions not to be amended/substituted except as instructed/permitted by PEC in writing)

The Particular Conditions (PC) complement the General Conditions (GC) to specify dates, contractual requirements, and special circumstances related to the Works. The PC 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	Data to be Given	Data
1.1.27	Defects Notification Period (DNP):	365 days
1.1.27 (a)		Add clause 1.1.27 (a) for **"Two years' Service Level Agreement (SLA) for Operation & Maintenance (O&M) after expiry of warranty period, the cost of the same shall be quoted separately by the contractor."** after completion of Defects Notification Period (DNP).
1.1.31	Employer's name and address:	Trading Corporation of Pakistan **Address:** Trading Corporation of Pakistan (Pvt.) Limited 4th and 5t Floor, Block B, Finance & Trade Center, Shahrea Faisal, Karachi
1.1.35	Engineer's name and address:	**Trading Corporation of Pakistan (Pvt.) Limited** 4th and 5t Floor, Block B, Finance & Trade Center, Shahrea Faisal, Karachi
1.1.73	Sections:	*"None"*
1.1.84	Time for Completion:	Days
1.3(a)(ii)	agreed methods of electronic transmission:	*Email/ Fax*
1.3(d)	address of Employer for communications:	Trading Corporation of Pakistan (Pvt.) Limited 4th and 5th Floor, Block B, Finance & Trade Center, Shahra-e-Faisal, Karachi
	address of Engineer for communications:	Trading Corporation of Pakistan (Pvt.) Limited 4th and 5th Floor, Block B, Finance & Trade Center, Shahra-e-Faisal, Karachi

Sub-Clause	Data to be Given	Data
	address of Contractor for communications:	_____ _____
1.4	Contract shall be governed by the law of:	Islamic Republic of Pakistan
	ruling language:	English
	language for communications:	English
1.8	number of additional paper copies of Contractor's Documents:	No paper copies. __ copy/ies on EPAD Portal.
2.1	after receiving the Letter of Acceptance, the Contractor shall be given right of access to all or part of the Site within:	No later than the Commencement Date, except for the following parts: Within 7 days after Commencement Date or any mutually agreed date.
2.4	Employer's financial arrangements	TCP Funded
3.2 (e)(ii)	Engineer's Duties and Authority	Variation resulting in an increase of the Accepted Contract Amount in excess of one percent (1%) subject to accumulative Variations not exceeding five percent (5%) of the Accepted Contract Amount
4.2	Performance Security (as percentage of the Accepted Contract Amount in Currencies) Currency: Pakistani Rupee	Ten percent (10%) in shape of bank guarantee from any schedule bank of Pakistan. denominated in the currency(ies) of the Contract or in a freely convertible currency acceptable to the Employer
4.7.2	period for notification of errors in the items of reference	Ten (10) days
4.20	number of additional paper copies of progress reports	No paper copies. copy/ies on EPAD Portal
5.1(a)	parts of the Works for which subcontracting is not permitted	No work is allowed to be subcontracted.
6.5	Normal working hours on the Site	_____ hours _____

Sub-Clause	Data to be Given	Data
8.3	number of additional paper copies of programmes	No paper copies. ____ copy/ies on EPAD Portal
8.8 & 14.15(b)	Delay Damages payable for each day of delay	8 % of the Accepted Contract Amount for delay in completion of whole of the Works
8.8	maximum amount of Delay Damages	Eight percent (8%) of the Accepted Contract Amount
8.14	Applicability of Incentives for Early Completion	No
12.3	Percentage profit	N/A
13.4.(b)(ii)	percentage rate to be applied to Provisional Sums for overhead charges and profit	N/A
14.2	Total Advance Payment	**(NOT APPLICIABLE**)
14.2.3	Percentage deductions for the repayment of the Advance Payment	15% from every Interim Payment Certificate (IPC)
14.3	Period of payment	28 days
14.3(b)	number of additional paper copies of Statements	No paper copies. ____ copy/ies on EPAD Portal
14.3 (iii)	percentage of retention	Five percent (5%)
14.3 (iii)	limit of Retention Money (as a percentage of the Contract Price)	Five percent (5%)
14.5(b)(i)	Plant and Materials for payment when shipped	Plant and Materials under Bill of "Imported Plant and Materials" or [*Employer shall list accordingly*].

Sub-Clause	Data to be Given	Data
14.5(c)(i)	Plant and Materials for payment when delivered to the Site	Plant and Non Perishable Materials _____ [*Employer shall list accordingly*].
14.6.2	minimum amount of Interim Payment Certificate (IPC)	Rs. 20 million
14.7(a)	period of payment of Advance Payment to the Contractor	(**NOT APPLICIABLE**)
14.7b(i)	period for the Employer to make interim payments to the Contractor under Sub-Clause 14.6 [Interim Payment]	28 days
14.7b(ii)	period for the Employer to make interim payments to the Contractor under Sub-Clause 14.13 (Final Payment)	28 days
14.7(c)	period for the Employer to make final payment to the Contractor	56 days
14.8	financing charges for delayed payment	N/A
14.11.1(b)	number of additional paper copies of draft Final Statements	No paper copies. __ copy/ies on EPAD Portal
14.15	currencies of payment of Contract Price	as stated in the Table III of Schedule A [*Schedule of Adjustment Data*]
14.15(a)(i)	Proportions or amounts of Local and Foreign currencies	as stated in the Table IV of Schedule A [*Schedule of Adjustment Data*]
14.15(c)	currencies and proportions for payment of Delay Damages	as stated in the Table IV of Schedule A [*Schedule of Adjustment Data*]
14.15(f)	rates of exchange	as stated in the Table IV of Schedule A [*Schedule of Adjustment Data*]
17.2(d)	forces of nature, the risks of which are allocated to the Contractor	Nil

Sub-Clause	Data to be Given	Data
19.1	permitted deductible limits: i) insurance required for the Works ii) insurance required for Goods iii) insurance required for liability for breach of professional duty iv) insurance required against liability for fitness for purpose (if any is required) v) insurance required for injury to persons and damage to property vi) insurance required for injury to employees vii) other insurances required by Laws and by local practice	 i) Ten percent (10%) of loss amount on each & every loss ii) Nil iii) Nil iv) Nil v) Nil vi) Nil vii) Nil
19.1	Periods for submission of insurance: a) evidence of insurance b) relevant policies	Not later than the Commencement Date Within twenty eight (28) day from the Commencement Date
19.2.1(b)	additional amount to be insured (as a percentage of the replacement value)	15% of the replacement value (Accepted Contract Amount)
19.2.2	extent of insurance required for Goods amount of insurance required for Goods	from Ex-Works (i.e., works, factory, warehouse, etc) to delivery at the Site Full replacement value
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
19.2.3(b)	insurance required against liability for fitness for purpose	Yes
19.2.3	period of insurance required for liability for breach of professional duty	Until the date of issuance of Performance Certificate
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: [*Employer to insert amount(s) as per his assessment of the adjoining property(ies) other than the Works*]

Sub-Clause	Data to be Given	Data
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
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.
21.1	the DAAB shall comprise	A sole Member
21.1	List of proposed members of DAAB - proposed by Employer - proposed by Contractor	*[to be inserted at the time of signing of the Contract]* 1._____ 1._____
21.2	Appointing entity (official) for DAAB members	Chairman Pakistan Engineering Council (PEC) from the list of PEC approved arbitrators published at its website
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: **Karachi, Sindh**

Summary of Sections of the Works

Section Name/Description of parts of the Works that shall be designated a Section for the purposes of the Contract (Sub-Clause 1.1.73)	Value: Percentage* of Accepted Contract Amount (Sub-Clause 14.9)	Time for Completion (Sub-Clause 1.1.84)	Delay Damages (Sub-Clause 8.8)
A			
B			
C			

* These percentages shall also be applied to each half of the Retention Money under Sub-Clause 14.9.

Section Name/Description (Sub-Clause 1.1.73)	Time for Completion (Sub-Clause 1.1.84)	Incentives for Early Completion (Sub-Clause 8.14)
A		
B		
C		

Particular Conditions

Part B - 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 Tender 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 - Special Provisions;
(f) the General Conditions;
(g) the Specification Part A - Specific Provisions;
(h) the Specification Part B - Technical Provisions;
(i) the Drawings;
(j) the completed Schedules to Bid including Bill of Quantities;
(k) 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) Sub-Clause _____*

(j) Sub-Clause _____*

**[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"

4.1 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 in the prescribed form included in the Bidding Documents in shape of bank guarantee or pay order 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."

4.2 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"

4.3 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.

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):

"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 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 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).

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:

"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 applicable Time for Completion stated in the Contract Data is fixed and no adjustments of this time by reason of granting an

EOT will be allowed.

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

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 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*]."

14.1 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 **(NOT APPLICIABLE)**

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.

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'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 made available 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/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".

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 by PACRA/VIS of rating 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.

SPECIFICATIONS
PART A - SPECIFIC PROVISIONS

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SP-1	The Site
SP-2	Work Under the Contract
SP-3	Work by Others
SP-4	Project Features
SP-5	Care and Handling of Water
SP-6	Drawings
SP-7	Physical and Other Data Available to Contractor
SP-8	Layout of Work and Surveys
SP-9	Approval of Materials and Equipment
SP-10	Contractor's Quality Assurance Plan
SP-11	Construction Schedule
SP-12	Facilities Provided by the Employer
SP-13	Construction Camps and Colonies
SP-14	Other Facilities for Engineers and Employers Personnel
SP-15	Equipment Furnished by the Employer
SP-16	Cooperation with other Contractors
SP-17	Safety and Health
SP-18	Construction Utilities
SP-19	Traffic, Roads, Bridges
SP-20	Rock Quarries
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SP-22	Environmental Protection
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SP-24	Progress Reports and Photographs

Sp. No.	Description
SP-25	Unit Price Breakdown
SP-26	Transport and Handling of Cargo
SP-27	Directed and Required
SP-28	Communications to the Engineer
SP-29	Any Other Provision
SP-30	Measurement and Payment – General
SP-31	Measurement and Payment

*[**Note:***

The above Sections of Specifications, are for guidance only, and shall be indicated appropriate to the work/project.

The Employer may adopt the above format. However, if any section is not applicable, it may be mentioned as "Not Used".]

SPECIFICATIONS
PART B - TECHNICAL PROVISIONS

TRADING CORPORATION OF PAKISTAN

DESIGNING, SUPERVISION, SUPPLY, INSTALLATION, COMMISSIONING, OPERATION, MAINTENANCE OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S KORANGI, PIPRI, LANDHI AND MULTAN GODOWNS

BOQ

JAN 2025

HEAD OFFICE: 287-A Street # 6 Cavalry Ground, Lahore Cantt, Tel: 042 3725 0130
ISLAMABAD OFFICE: House No. 4, Street No. 588, Sector G-13/2, Islamabad
Tel: 051 2768 693 Fax: 051 2768 693, Email: newvisionec@yahoo.com

DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S KORANGI, PIPRI, LANDHI, MULTAN GODOWNS AND HEAD OFFICE

BILL OF QUANTITIES

SUMMARY OF COST

Sr. No.	DESCRIPTION	AMOUNT
1.	DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S KORANGI GODOWNS	
a	Cost of Schedule Items	672,713
b	Add/ Deduct Premium Above/ Below +/- ____% on Total of SOR ITEMS	
c	Cost of Non-Schedule Items	
2.	DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S LANDHI GODOWNS	
a	Cost of Schedule Items	992,313
b	Add/ Deduct Premium Above/ Below +/- ____% on Total of SOR ITEMS	
c	Cost of Non-Schedule Items	
3.	DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S PIPRI GODOWNS	
a	Cost of Schedule Items	1,429,486
b	Add/ Deduct Premium Above/ Below +/- ____% on Total of SOR ITEMS	
c	Cost of Non-Schedule Items	
4.	DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S HEAD OFFICE	
a	Cost of Non-Schedule Items	
5.	DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S MULTAN GODOWNS	
a	Cost of Schedule Items	1,558,144
b	Add/ Deduct Premium Above/ Below +/- ____% on Total of SOR ITEMS	
c	Cost of Non-Schedule Items	
GRAND TOTAL WITHOUT SST		
ADD SST / SBR / PST		
GRAND TOTAL WITH SST		
GRAND TOTAL WITH SST (In Millions)		

Amount in Words

Note: The contractor shall provide training to TCP staff for the operation of the entire system. Additionally, it will be the contractor's responsibility to provide maintenance services free of cost for at least two years

DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S KORANGI GODOWNS

BILL OF QUANTITIES

ELECTRICAL WORKS

Rates Based on Composite Schedule of Rate 2024 Sindh

Sr. No.	Description	Unit	Amount
1	Total of Schedule Items	RS	672,713
2	Total of non Schedule Items	RS	

DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S KORANGI GODOWNS						
BILL OF QUANTITIES						
ELECTRICAL WORKS						
Rates Based on Composite Schedule of Rate 2024 Sindh						
Sr. No.	**Item No.**	**Description**	**Unit**	**Qty (A)**	**Unit Rate (Rs.) (B)**	**Total Amount (Rs.) (C=A*B)**
1		**DISTRIBUTION BOARDS**				
		(General Description) Supply at site, fabrication, installation, testing and commissioning of Distribution Board (DB) , made of sheet steel 16 SWG, degreased and derusted, with 2 coats of antirust paint, 2 coats of powder coated paint of approved colour, protection classification IP-44, totally enclosed indoor floor mounting cubicle type in free standing design, with hinged door, handle including cost of all auxiliaries, internal wiring, designation lables on MCCBS, grounding bar suitable for system Voltage 440 V, 50 Hz, 3 Phase and neutral bus bars of 99.9% electrolytic copper, including cost of cable terminal blocks wiring from breakers, brass cable glands, all accessories complete in all respects metion in BOQ or not required for performing completely. All incoming and outgoing breakers shall be accessible only by opening the front door having further M.S. sheet cover gaskets shall also be provided where necessary. Panel should be compeltely made in certified factory. ie PEL, Green T & D, Mazcorp engineering or equivalent as per instructions by engineer incharge.				
		(General Description) All MCCBs shall be suitable to operate without any derating at 40°C ambient temperature and shall be of one make only. The sides of MDB shall also have louvers at bottom and top on sides of panel for hot air exhaust, wire mesh etc. The back of the panel shall be lockable door instead of bolted and shall conform to single line diagram. item should be of ABB, Schneider or equivalent as per instructions by engineer incharge				
i)		**Main Distribution Board**				
		INCOMMING				
a	ELECT SH-X(183)	Providing & fixing circuit breaker 15,20,30 , 40, 50, 60,75 &100amp TP (XS-100NS) on prepared board as reuqired	Per No.	1	28736.16	28,736
b	ELECT SH-C(224)	Providing & fixing Current Transformer rating 60/5amp (round) RLC-30 as required & as per instruction of EI	Per No.	3	6295.56	18,887
c	ELECT SH-B(240)	Providing & fixing voltmeter size 96/96mm 500volt as required	Per No.	3	4186.5	12,560
d	ELECT SH-M(178)	Providing & fixing circuit breaker 6, 10 , 15, 20,30,40,50&63 SP (TB-5S)on prepared board as reuqired	Per No.	3	2504.12	7,512
		OUTGOING				
a	ELECT SH-X(183)	Providing & fixing circuit breaker 15,20,30 , 40, 50, 60,75 &100amp TP (XS-100NS) on prepared board as reuqired	Per No.	1	28736.16	28,736
b	ELECT SH-M(178)	Providing & fixing circuit breaker 6, 10 , 15, 20,30,40,50&63 SP (TB-5S)on prepared board as reuqired	Per No.	6	2504.12	15,025
ii)		**SUB-DB**				
		INCOMMING				
a	ELECT SH-X(183)	Providing & fixing circuit breaker 15,20,30 , 40, 50, 60,75 &100amp TP (XS-100NS) on prepared board as reuqired	Per No.	1	28736.16	28,736
b	ELECT SH-C(224)	Providing & fixing Current Transformer rating 60/5amp (round) RLC-30 as required & as per instruction of EI	Per No.	3	6295.56	18,887
c	ELECT SH-B(240)	Providing & fixing voltmeter size 96/96mm 500volt as required	Per No.	3	4186.5	12,560

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
d	ELECT SH-M(178)	Providing & fixing circuit breaker 6, 10 , 15, 20,30,40,50&63 SP (TB-5S)on prepared board as reuqired	Per No.	3	2504.12	7,512
		OUTGOING				
b	ELECT SH-M(178)	Providing & fixing circuit breaker 6, 10 , 15, 20,30,40,50&63 SP (TB-5S)on prepared board as reuqired	Per No.	3	2504.12	7,512
2		**Cables**				
		Supply at site, installation, testing and commissioning of PVC insulated armoured copper conductor cable 600 / 1000 Volt grade (or otherwise mentioned in cable description) in prelaid conduits / trenches to be installed as per routes shown on drawings including cost of all necessary materials, connections, identification tags, cables lugs properly crimped at both ends for the following sizes complete in all respects. Actual length of cables to be installed shall be practically measured at site by the Contractor, duly authenticated by the Engineer before placing the order with the manufacturer, however, approximate length of cables are shown herewith. Payments shall be made as per actual length installed. Cable should be of Paksitan Cable,Newage or fast cable and conduit should be of Solo,popular or equivalent as approved by site engineer				
i)	ELECT SH-P(90)	Providing & laying (MAIN or SUB MAIN) PVC insulated & PVC sheeted with 4 core Armoured copper conductor 600/1000 volts size 16mm2	Per Rft	328	1,482	486,050
Total of Schedule Items						**672,713**

DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S KORANGI GODOWNS

BILL OF QUANTITIES

ELECTRICAL WORKS

Non-Schedule Items

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
1		**DISTRIBUTION BOARDS**				
		(General Description) Supply at site, fabrication, installation, testing and commissioning of Distribution Board (DB) , made of sheet steel 16 SWG, degreased and derusted, with 2 coats of antirust paint, 2 coats of powder coated paint of approved colour, protection classification IP-44, totally enclosed indoor floor mounting cubicle type in free standing design, with hinged door, handle including cost of all auxiliaries, internal wiring, designation lables on MCCBS, grounding bar suitable for system Voltage 440 V, 50 Hz, 3 Phase and neutral bus bars of 99.9% electrolytic copper, including cost of cable terminal blocks wiring from breakers, brass cable glands, all accessories complete in all respects metion in BOQ or not required for performing completely. All incoming and outgoing breakers shall be accessible only by opening the front door having further M.S. sheet cover gaskets shall also be provided where necessary. Panel should be compeltely made in certified factory. ie PEL, Green T & D, Mazcorp engineering or equivalent as per instructions by engineer incharge				
		(General Description) All MCCBs shall be suitable to operate without any derating at 40°C ambient temperature and shall be of one make only. The sides of MDB shall also have louvers at bottom and top on sides of panel for hot air exhaust, wire mesh etc. The back of the panel shall be lockable door instead of bolted and shall conform to single line diagram. item should be of ABB, Schneider or equivalent as per instructions by engineer incharge				
i)		**Main DB**				
	NSI	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 Ammeter,Volt Selector Switch,Ammeter selector switch and Controles Complete in all respect as approved and directed by the Engineer Incharge (Breakers will be Paid Separately) 6" deep 63~80A	Each	1		
ii)		**SUB-DB**				

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
	NSI	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 Ammeter,Volt Selector selector switch and Controles Complete in all respect as approved and directed by the Engineer Incharge (Breakers will be Paid Separately).	Each	1		
2		**Camera System**				
i)		**Camera Cable**				
	NSI	Supply, installation, Testing and commissioning of CAT 6 UTP CABLE IN prelaid PVC PIPE Ø 1"; MEASUREMENT IN METERS complete in all respects. Made of Hikvision,D-Link or equivalent approved by engineer incharge	R.Mtr	577		
ii)		**Conduit**				
	NSI	Supply and erection of PVC pipe for wiring on surface including inspection boxes, pull boxes, bends, tees, repairing surface, etc., complete with all specials: 25 mmi/d made of easyfit, popular or equivalent as approved or directed by engineer incharge.	R.Mtr	2,337		
iii)		**Optical Fibre**				
	NSI	Supply, Installation and commissioning of wiring with Multimode OM3 Fiber Optic Cable Central Loose Tube for 10 Giga Fiber Optic Connection UL/EN listed cableor equivalent, in prelaid conduit, including all accessories, Manufacturer/OEM Authorization, Make: Schneider / i-Connect UK/3M Corning USA/ D-Link/ Pollo Australia or equivalent complete in all respect as approved and directed by the Engineer Incharge.	R.Mtr	1,760		
iv)		**Cameras**				
	NSI	Supply, installation & connecting DS-2DE7A232IW-AEB (T5) Hikvision DS-2DE7A232IW-AEB (T5) 7-inch 2MP 32X Powered byDarkFighter IR Network Speed Dome, 1/2.8" progressive scan CMOS, 4.8 mm to 153 mm, Powered-by-DarkFighter technology, Audio visual alarm, 32× Optical Zoom and 16× Digital Zoom, Up to 200 m IR distance, Focuses on human and vehicle targets classification based on deep learning, Up to 5 faces captured at the same time, BLC, HLC, 3D DNR, 120dB WDR, Digital defog, EIS, Built-in memory card slot, Perimeter Protection, IP66 (IEC 60529-2013), IK10 (excluding glass window).,made of AXIS Europe/NOVAS Europe/Avigilon by Motorla, Hikvision model number DS-2DE7A232IW-AEB, USA/Bosch Germany, Pollo Australia or equivalent, as approved as directed by the Engineer Incharge.	Each	13		

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
	NSI	Supply, installation & connecting DS-2C1A43G0-IZU Hikvision High quality imaging with 4 MP resolution Pan, tilt and zoom ability that enables the camera to capture larger and interested areas, Water and dust resistant (IP66) EXIR 2.0, advanced infrared technology with long IR distance Efficient H.265+ compression technology., made of AXIS Europe/NOVAS Europe/Avigilon by Motorla, Hikvision model number DS-2C1A43G0-IZU, USA/Bosch Germany, Pollo Australia or equivalent, as approved as directed by the Engineer Incharge.	Each	7		
iv)		**CCTV Cabinet Main**				
	NSI	Supply , installation of wall mounted CCTV Cabinet comprising of Powder Coated M.S frame, front glass & two side openings, 04 way fans for cooling, top & bottom entry, handle lock with 6 way PDU (Power Distribution Unit) with all necessary accessories/ materials, complete in all respects. Made of Bosch/ HP / Dell , Pollo Australia, or equivalent or as approved and directed by Engineer Incharge(i) 27U	Each	1		
v)		**Cable Manager**				
	NSI	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 as approved and directed by the Engineer Incharge	Each	1		
vi)		**Patch Panel**				
	NSI	Supply and installation of CAT-6 (24 Port Patch Panel with Toolless Support 10-Gigabit). UTP Patch Panel with specified toolless support & Rear Cable Management, UL listed, Loaded with UTP of specified Keystone Jack Toolless Support , Made of Schneider / Norden /3M Corning/D-Link, Pollo Australia or equivalent or as Approved and Directed by Engineer Incharge.	Each	1		
vii)		**CCTV Cabinet**				
	NSI	Supply , installation of wall mounted CCTV Cabinet comprising of Powder Coated M.S frame, front glass & two side openings, top & bottom entry, handle lock with all necessary accessories/ materials, complete in all respects. Made of Bosch/ HP / Dell , Pollo Australia, or equivalent or as approved and directed by Engineer Incharge (i) 4U size	Each	11		
viii)		**PDU**				
	NSI	Supply & Installation of PDU as approved or directed by engineer incharge.	Each	11		
ix)		**NVR**				

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
	NSI	Supply & Installation of model number 7732nxi-i4/s 32 channel Hikvision 1.5U AcuSense 4K NVR, up to 1-ch facial recognition, HDMI and VGA output, Incoming bandwidth 160 Mbps, Outgoing bandwidth 256 Mbps, Up to 4 SATA interfaces for HDD connection (up to 10 TB capacity per HDD)r complete in all respect. made of Hikvision, AXIS Europe/NOVAS Europe/Avigilon by Motrola USA /Huawei, Pollo Australia or equivalent as approved and directed by the Engineer Incharge	Each	1		
x)	`	**Hard Drive**				
	NSI	Supply, Installation and Connection of WD 4TB WD42PURU-64C4CY0 Western Digital 4TB WD Purple Surveillance Internal Hard Drive HDD - SATA 6 Gb/s, 256 MB Cache, 3.5",5640 rpm, 128 MB buffer.. made of WD, Pollo Australia or equivalent, as approved and directed by Engineer Incharge.	Each	2		
xi)		**LED**				
	NSI	Supply and Installation of 32'' LED FHD Monitor, HDMI × 1, VGA × 1, Audio × 1,2 × 2W, 6.91kg net weight,0°C to 50°C operating temperature,<32w power consumption, AC 100 to 240V, 50/60Hz power supply make Uniview model number MW3232-V-K, TCL, Ecostar or equivalent as approved or directed by engineer incharge.	Each	2		
xii)		**24 Port PoE Layer 2 Networking Switch**				
	NSI	Supply, Installation and Connection of RG-NBS3100-24GT4SFP-P@108500 24-Port Gigabit L2 Managed POE Switch, 24 Gigabit RJ45 POE/POE+ Ports, 4 SFP Slots, 370W PoE power budget, 19-inch Rack-mountable Stell Case 5 year warranty made of Ruijie, Hikvision, or equivalent as approved or directed by engineer incharge.	Each	1		
xiii)		**24 Port PoE Layer 3 Networking Switch**				
	NSI	Supply, Installation and Connection of RG-S2910-24GT4XS-E NeverDie High Reliability Technology: NFPP, XCor, VSU, XSurge Up to 67+ Year MTBF (Mean Time Between Failure) Lifetime Free Cloud Management, Built-in Layer 3 Routing Support, Power Redundancy Support made of Ruijie, Hikvision, or equivalent as approved or directed by engineer incharge.	Each	1		
xiv)		**24 Port PoE Data Switch**				
	NSI	Supply, Installation and Connection of Hikvision 24 Port Gigabit Unmanaged POE Switch, 24 × Gigabit PoE ports, 2 × Gigabit SFP fiber optical ports, IEEE 802.3at/af standard, 6 KV surge protection for PoE ports, PoE power management, Gigabit network access, MAC Address Table : 8 K, Switching Capacity : 52 Gbps, Packet Forwarding Rate : 38.688 Mpps, Internal Cache : 4.1 Mbits, Wire-speed forwarding, Store-and-forward switching, Solid high-strength metal shell made of Hikvision Model no DS-3E0526P-E/M , Huawei, Cisco USA or equivalent as approved or directed by engineer incharge.	Each	1		

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
xv)		**Data Switches PoE**				
	NSI	Supply, Installation and Connection of Smart Managed 8-Port Gigabit PoE Switch, 8 Gigabit PoE Ports,2 Gigabit fiber optical ports, full duplex, MDI/MDI-X adaptive, Store-and-Forward switching, 8K MAC Address Table, 20Gbps Switching Capacity, 14.88 Mpps Packet Forwarding Rate, 4.1 Mbits Internal Cache, 300m Transmission, PoE watchdog to Auto detect-and-Restart the cameras, 6 KV surge protection, Network topology management, alarm push, network health monitor, Port rate configuration, flow control, and ports enabling, IEEE 802.3at/af standard PoE ports, 100-240 VAC Power Supply. made of Hikvision Model no DS-3E1510P-SI, Huawei, Cisco USA or equivalent as approved or directed by engineer incharge.	Each	11		
xvi)		**HDMI**				
	NSI	Supply, Installation of HDMI hikvision fibre 4K length 10 meters as approved or directed by engineer incharge.	Each	2		
4		**Earthing**				
	NSI	Supply, installation, testing and commissioning of earthing system for protecting Earthing of Rod 19 mm 10 ft long with bare solid Earth conductor 1 x 35sq.mm upto earth connecting point, inspection chamber, marconite concrete, drilling etc, to achieve less than 3 ohms specified Earthing results. complete in all respect as per drawing and specification or as per directed by Engineer.	Each	3		
5		**Cables**				
		Supply at site, installation, testing and commissioning of PVC insulated armoured copper conductor cable 600 / 1000 Volt grade (or otherwise mentioned in cable description) in prelaid conduits / trenches to be installed as per routes shown on drawings including cost of all necessary materials, connections, identification tags, cables lugs properly crimped at both ends for the following sizes complete in all respects. Actual length of cables to be installed shall be practically measured at site by the Contractor, duly authenticated by the Engineer before placing the order with the manufacturer, however, approximate length of cables are shown herewith. Payments shall be made as per actual length installed. Cable should be of Paksitan Cable,Newage or fast cable and conduit should be of Solo,popular or equivalent as approved by site engineer				
i)	NSI	Providing and laying(MAIN or SUB MAIN) PVC insulated & PVC sheeted with 4 core Armoured copper conductor 600\1000 volts size 10 mm2	R.Mtr	200		
ii)	NSI	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 armoured 3 core, 300/500 volt cable7/0.91 mm (7/0.036") 4 mm	R.Mtr	2,337		

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
iii)	NSI	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")	R.Mtr	300		
6		**Poles**				
i)	NSI	Supply and erection of Pole 16 ft Gi 3ft arm 4 3 2 dia 3mm thick,1ft by 1ft base plate 14 mm,Cemant base 1.5 by 3ft, Bolts 3ft 4 pcs set as approved or directed by engineer incharge.	Each	4		
ii)	NSI	Supply and erection of Pole arm 6 ft 3 inch 2 inch dia as approved or directed by engineer incharge.	Each	16		
7		**Generator**				
	NSI	Supply, Installation, testing and commissioning of 60 KVA 380/415V 3 phase 4 wire PERKINS UK Diesel generating set complete with breaker panel, exhaust silencer and deep sea control panel, canopy to combat noise to a level of 10db and required ATS to attached and make workable with electrical panel including all required accessories complete in all respect as approved or directed by engineer incharge.	Each	1		
8		**Trench**				
	NSI	Labour for excavation and refilling of trench 12" wide, 36" deep 4" sand, bricks and warning tape. Compaction below and above preinstalled PVC pipes if any, ramming watering all necessary material, labour etc, complete in all respect. Actual length of the trench shall be as per site condition and paid accordingly however approximate length of trench is given. as approved and directed by engineer incharge.	R.Mtr	2,337		
Total of Non-Schedule Items						

DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S LANDHI GODOWNS

BILL OF QUANTITIES

ELECTRICAL WORKS

Rates Based on Composite Schedule of Rate 2024 Sindh

Sr. No.	Description	Unit	Amount
1	Total of Schedule Items	RS	992,313
2	Total of non Schedule Items	RS	

DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S LANDHI GODOWNS

BILL OF QUANTITIES

ELECTRICAL WORKS

Rates Based on Composite Schedule of Rate 2024 Sindh

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
1		**DISTRIBUTION BOARDS**				
		(General Description) Supply at site, fabrication, installation, testing and commissioning of Distribution Board (DB) , made of sheet steel 16 SWG, degreased and derusted, with 2 coats of antirust paint, 2 coats of powder coated paint of approved colour, protection classification IP-44, totally enclosed indoor floor mounting cubicle type in free standing design, with hinged door, handle including cost of all auxiliaries, internal wiring, designation lables on MCCBS, grounding bar suitable for system Voltage 440 V, 50 Hz, 3 Phase and neutral bus bars of 99.9% electrolytic copper, including cost of cable terminal blocks wiring from breakers, brass cable glands, all accessories complete in all respects metion in BOQ or not required for performing completely. All incoming and outgoing breakers shall be accessible only by opening the front door having further M.S. sheet cover gaskets shall also be provided where necessary. Panel should be compeltely made in certified factory. ie PEL, Green T & D, Mazcorp engineering or equivalent as per instructions by engineer incharge				
		(General Description) All MCCBs shall be suitable to operate without any derating at 40°C ambient temperature and shall be of one make only. The sides of MDB shall also have louvers at bottom and top on sides of panel for hot air exhaust, wire mesh etc. The back of the panel shall be lockable door instead of bolted and shall conform to single line diagram. item should be of ABB, Schneider or equivalent as per instructions by engineer incharge				
i)		**Main Distribution Board**				
		INCOMMING				
a	ELECT SH-X(183)	Providing & fixing circuit breaker 15,20,30 , 40, 50, 60,75 &100amp TP (XS-100NS) on prepared board as reuqired	Per No.	1	28736.16	28,736
b	ELECT SH-C(224)	Providing & fixing Current Transformer rating 60/5amp (round) RLC-30 as required & as per instruction of EI	Per No.	3	6295.56	18,887
c	ELECT SH-B(240)	Providing & fixing voltmeter size 96/96mm 500volt as required &as per instruction of EI	Per No.	3	4186.5	12,560
d	ELECT SH-M(178)	Providing & fixing circuit breaker 6, 10 , 15, 20,30,40,50&63 SP (TB-5S)on prepared board as reuqired	Per No.	3	2504.12	7,512
		OUTGOING				
a	ELECT SH-X(183)	Providing & fixing circuit breaker 15,20,30 , 40, 50, 60,75 &100amp TP (XS-100NS) on prepared board as reuqired	Per No.	3	28736.16	86,208
b	ELECT SH-M(178)	Providing & fixing circuit breaker 6, 10 , 15, 20,30,40,50&63 SP (TB-5S)on prepared board as reuqired	Per No.	6	2504.12	15,025
ii)		**SUB-DB1,2**				
		INCOMMING				
a	ELECT SH-X(183)	Providing & fixing circuit breaker 15,20,30 , 40, 50, 60,75 &100amp TP (XS-100NS) on prepared board as reuqired	Per No.	2	28736.16	57,472
b	ELECT SH-C(224)	Providing & fixing Current Transformer rating 60/5amp (round) RLC-30 as required & as per instruction of EI	Per No.	6	6295.56	37,773
c	ELECT SH-B(240)	Providing & fixing voltmeter size 96/96mm 500volt as required &as per instruction of EI	Per No.	6	4186.5	25,119

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
d	ELECT SH-M(178)	Providing & fixing circuit breaker 6, 10 , 15, 20,30,40,50&63 SP (TB-5S)on prepared board as reuqired	Per No.	6	2504.12	15,025
		OUTGOING				
b	ELECT SH-M(178)	Providing & fixing circuit breaker 6, 10 , 15, 20,30,40,50&63 SP (TB-5S)on prepared board as reuqired	Per No.	6	2504.12	15,025
2		**Cables**				
		Supply at site, installation, testing and commissioning of PVC insulated armoured copper conductor cable 600 / 1000 Volt grade (or otherwise mentioned in cable description) in prelaid conduits / trenches to be installed as per routes shown on drawings including cost of all necessary materials, connections, identification tags, cables lugs properly crimped at both ends for the following sizes complete in all respects. Actual length of cables to be installed shall be practically measured at site by the Contractor, duly authenticated by the Engineer before placing the order with the manufacturer, however, approximate length of cables are shown herewith. Payments shall be made as per actual length installed. Cable should be of Paksitan Cable,Newage or fast cable and conduit should be of Solo,popular or equivalent as approved by site engineer				
ii)	ELECT SH-P(91)	Providing & laying (MAIN or SUB MAIN) PVC insulated & PVC sheeted with 4 core Armoured copper conductor 600/1000 volts size 25mm2	Per Rft	328	2051.74	672,971
Total of Schedule Items						**992,313**

DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S LANDHI GODOWNS						
BILL OF QUANTITIES						
ELECTRICAL WORKS						
NON-Schedule Items						
Sr. No.	**Item No.**	**Description**	**Unit**	**Qty (A)**	**Unit Rate (Rs.) (B)**	**Total Amount (Rs.) (C=A*B)**
1		**DISTRIBUTION BOARDS**				
		(General Description) Supply at site, fabrication, installation, testing and commissioning of Distribution Board (DB) , made of sheet steel 16 SWG, degreased and derusted, with 2 coats of antirust paint, 2 coats of powder coated paint of approved colour, protection classification IP-44, totally enclosed indoor floor mounting cubicle type in free standing design, with hinged door, handle including cost of all auxiliaries, internal wiring, designation lables on MCCBS, grounding bar suitable for system Voltage 440 V, 50 Hz, 3 Phase and neutral bus bars of 99.9% electrolytic copper, including cost of cable terminal blocks wiring from breakers, brass cable glands, all accessories complete in all respects metion in BOQ or not required for performing completely. All incoming and outgoing breakers shall be accessible only by opening the front door having further M.S. sheet cover gaskets shall also be provided where necessary. Panel should be compeltely made in certified factory. ie PEL, Green T & D, Mazcorp engineering or equivalent as per instructions by engineer incharge				
		(General Description) All MCCBs shall be suitable to operate without any derating at 40°C ambient temperature and shall be of one make only. The sides of MDB shall also have louvers at bottom and top on sides of panel for hot air exhaust, wire mesh etc. The back of the panel shall be lockable door instead of bolted and shall conform to single line diagram. item should be of ABB, Schneider or equivalent as per instructions by engineer incharge				
1		**Main DB**				
	NSI	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 Ammeter,Volt Selector Switch,Ammeter selector switch and Controles Complete in all respect as approved and directed by the Engineer Incharge (Breakers will be Paid Separately) 6" deep100-150A	Each	1		
2		**SUB-DB**				
	NSI	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 Ammeter,Volt Selector selector switch and Controles Complete in all respect as approved and directed by the Engineer Incharge (Breakers will be Paid Separately).	Each	2		
3		**Camera System**				
i)		**Camera Cable**				
	NSI	Supply, installation, Testing and commissioning of CAT 6 UTP CABLE IN PVC PIPE Ø 1"; MEASUREMENT IN METERS complete in all respects. Made of Hikvision,D-Link or equivalent approved by engineer incharge	R.Mtr	900		
ii)		**Conduit**				
	NSI	Supply and erection of PVC pipe for wiring on surface including inspection boxes, pull boxes, bends, tees, repairing surface, etc., complete with all specials:25 mmi/d made of easyfit, popular or equivalent as approved or directed by engineer incharge.	R.Mtr	3,215		
iii)		**Optical Fibre**				

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
	NSI	Supply, Installation and commissioning of wiring with Multimode OM3 Fiber Optic Cable Central Loose Tube for 10 Giga Fiber Optic Connection UL/EN listed cableor equivalent, in prelaid cabletray from Main Cabinet to Floor Level Cabinets, including all accessories, Manufacturer/OEM Authorization, Make: Schneider / i-Connect UK/3M Corning USA/ D-Link/ Pollo Australia or equivalent complete in all respect as approved and directed by the Engineer Incharge.	R.Mtr	2,315		
iv)		**Cameras**				
	NSI	Supply, installation & connecting DS-2DE7A232IW-AEB (T5) Hikvision DS-2DE7A232IW-AEB (T5) 7-inch 2MP 32X Powered byDarkFighter IR Network Speed Dome, 1/2.8" progressive scan CMOS, 4.8 mm to 153 mm, Powered-by-DarkFighter technology, Audio visual alarm, 32× Optical Zoom and 16× Digital Zoom, Up to 200 m IR distance, Focuses on human and vehicle targets classification based on deep learning, Up to 5 faces captured at the same time, BLC, HLC, 3D DNR, 120dB WDR, Digital defog, EIS, Built-in memory card slot, Perimeter Protection, IP66 (IEC 60529-2013), IK10 (excluding glass window).,made of AXIS Europe/NOVAS Europe/Avigilon by Motorla, Hikvision model number DS-2DE7A232IW-AEB, USA/Bosch Germany, Pollo Australia or equivalent, as approved as directed by the Engineer Incharge.	Each	21		
	NSI	Supply, installation & connecting DS-2C1A43G0-IZU Hikvision High quality imaging with 4 MP resolution Pan, tilt and zoom ability that enables the camera to capture larger and interested areas, Water and dust resistant (IP66) EXIR 2.0, advanced infrared technology with long IR distance Efficient H.265+ compression technology., made of AXIS Europe/NOVAS Europe/Avigilon by Motorla, Hikvision model number DS-2C1A43G0-IZU, USA/Bosch Germany, Pollo Australia or equivalent, as approved as directed by the Engineer Incharge.	Each	10		
iv)		**CCTV Cabinet Main**				
	NSI	Supply , installation of wall mounted CCTV Cabinet comprising of Powder Coated M.S frame, front glass & two side openings, 04 way fans for cooling, top & bottom entry, handle lock with 6 way PDU (Power Distribution Unit) with all necessary accessories/ materials, complete in all respects. Made of Bosch/ HP / Dell , Pollo Australia, or equivalent or as approved and directed by Engineer Incharge(i) 42U	Each	1		
v)		**Cable Manager**				
	NSI	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 as approved and directed by the Engineer Incharge	Each	1		
vi)		**Patch Panel**				
	NSI	Supply and installation of CAT-6 (24 Port Patch Panel with Toolless Support 10-Gigabit). UTP Patch Panel with specified toolless support & Rear Cable Management, UL listed, Loaded with UTP of specified Keystone Jack Toolless Support , Made of Schneider / Norden /3M Corning/D-Link, Pollo Australia or equivalent or as Approved and Directed by Engineer Incharge.	Each	1		
vii)		**CCTV Cabinet**				
	NSI	Supply , installation of wall mounted CCTV Cabinet comprising of Powder Coated M.S frame, front glass & two side openings, top & bottom entry, handle lock with all necessary accessories/ materials, complete in all respects. Made of Bosch/ HP / Dell , Pollo Australia, or equivalent or as approved and directed by Engineer Incharge(i) 4U size	Each	12		
viii)		**PDU**				

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
		Supply & Installation of PDU as approved or directed by engineer incharge.	Each	13		
ix)		**NVR**				
	NSI	Supply & Installation of model number DS-7716NXI-I4/S Hikvision 16-ch 1.5U AcuSense 4K NVR, up to 1-ch facial recognition, HDMI and VGA output, Incoming bandwidth 160 Mbps, Outgoing bandwidth 256 Mbps, Up to 4 SATA interfaces for HDD connection (up to 10 TB capacity per HDD) made of Hikvision/Huawei or equivalent as approved or directed by engineer incharge.	Each	3		
x)	`	**Hard Drive**				
	NSI	Supply, Installation and Connection of WD 4TB WD42PURU-64C4CY0 Western Digital 4TB WD Purple Surveillance Internal Hard Drive HDD - SATA 6 Gb/s, 256 MB Cache, 3.5",5640 rpm, 128 MB buffer.. made of WD, Pollo Australia or equivalent, as approved and directed by Engineer Incharge.	Each	2		
xi)		**LED**				
	NSI	Supply and Installation of 32'' LED FHD Monitor, HDMI × 1, VGA × 1, Audio × 1,2 × 2W, 6.91kg net weight,0°C to 50°C operating temperature,<32w power consumption, AC 100 to 240V, 50/60Hz power supply make Uniview model number MW3232-V-K, TCL, Ecostar or equivalent as approved or directed by engineer incharge.	Each	2		
xii)		**24 Port PoE Layer 2 Networking Switch**				
	NSI	Supply, Installation and Connection of RG-NBS3100-24GT4SFP-P@108500 24-Port Gigabit L2 Managed POE Switch, 24 Gigabit RJ45 POE/POE+ Ports, 4 SFP Slots, 370W PoE power budget, 19-inch Rack-mountable Stell Case 5 year warranty made of Ruijie, Hikvision, or equivalent as approved or directed by engineer incharge.	Each	1		
xiii)		**24 Port PoE Layer 3 Networking Switch**				
	NSI	Supply, Installation and Connection of RG-S2910-24GT4XS-E NeverDie High Reliability Technology: NFPP, XCor, VSU, XSurge Up to 67+ Year MTBF (Mean Time Between Failure) Lifetime Free Cloud Management, Built-in Layer 3 Routing Support, Power Redundancy Support made of Ruijie, Hikvision, or equivalent as approved or directed by engineer incharge.	Each	1		
xiv)		**24 Port PoE Data Switch**				
	NSI	Supply, Installation and Connection of Hikvision 24 Port Gigabit Unmanaged POE Switch, 24 × Gigabit PoE ports, 2 × Gigabit SFP fiber optical ports, IEEE 802.3at/af standard, 6 KV surge protection for PoE ports, PoE power management, Gigabit network access, MAC Address Table : 8 K, Switching Capacity : 52 Gbps, Packet Forwarding Rate : 38.688 Mpps, Internal Cache : 4.1 Mbits, Wire-speed forwarding, Store-and-forward switching, Solid high-strength metal shell made of Hikvision Model no DS-3E0526P-E/M , Huawei, Cisco USA or equivalent as approved or directed by engineer incharge.	Each	2		
xv)		**Data Switches PoE**				
	NSI	Supply, Installation and Connection of Smart Managed 8-Port Gigabit PoE Switch, 8 Gigabit PoE Ports,2 Gigabit fiber optical ports, full duplex, MDI/MDI-X adaptive, Store-and-Forward switching, 8K MAC Address Table, 20Gbps Switching Capacity, 14.88 Mpps Packet Forwarding Rate, 4.1 Mbits Internal Cache, 300m Transmission, PoE watchdog to Auto detect-and-Restart the cameras, 6 KV surge protection, Network topology management, alarm push, network health monitor, Port rate configuration, flow control, and ports enabling, IEEE 802.3at/af standard PoE ports, 100-240 VAC Power Supply. made of Hikvision Model no DS-3E1510P-SI, Huawei, Cisco USA or equivalent as approved or directed by engineer incharge.	Each	12		
xvi)		**HDMI**				
	NSI	Supply, Installation of HDMI hikvision fibre 4K length 10 meters as approved or directed by engineer incharge.	Each	3		
4		**Earthing**				

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
	NSI	Supply, installation, testing and commissioning of earthing system for protecting Earthing of Rod 19 mm 10 ft long with bare solid Earth conductor 1 x 35sq.mm upto earth connecting point, inspection chamber, marconite concrete, drilling etc, to achieve less than 3 ohms specified Earthing results. complete in all respect as per drawing and specification or as per directed by Engineer.	Each	4		
5		**Cables**				
		Supply at site, installation, testing and commissioning of PVC insulated armoured copper conductor cable 600 / 1000 Volt grade (or otherwise mentioned in cable description) in prelaid conduits / trenches to be installed as per routes shown on drawings including cost of all necessary materials, connections, identification tags, cables lugs properly crimped at both ends for the following sizes complete in all respects. Actual length of cables to be installed shall be practically measured at site by the Contractor, duly authenticated by the Engineer before placing the order with the manufacturer, however, approximate length of cables are shown herewith. Payments shall be made as per actual length installed. Cable should be of Paksitan Cable,Newage or fast cable and conduit should be of Solo,popular or equivalent as approved by site engineer				
i)	NSI	Providing and laying(MAIN or SUB MAIN) PVC insulated & PVC sheeted with 4 core Armoured copper conductor 600\1000 volts size 10 mm2	R.Mtr	874		
i)	NSI	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 armoured 3 core, 300/500 volt cable7/0.91 mm (7/0.036") 4 mm	R.Mtr	3,215		
iil)	NSI	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")	R.Mtr	953		
6		**Poles**				
i)	NSI	Supply and erection of Pole 14 ft Gi 3ft arm 4 3 2 dia 3mm thick,1ft by 1ft base plate 14 mm,Cemant base 1.5 by 3ft, Bolts 3ft 4 pcs set as approved or directed by engineer incharge.	Each	1		
ii)	NSI	Supply and erection of Pole 16 ft Gi 3ft arm 4 3 2 dia 3mm thick,1ft by 1ft base plate 14 mm,Cemant base 1.5 by 3ft, Bolts 3ft 4 pcs set as approved or directed by engineer incharge.	Each	11		
iii)	NSI	Supply and erection of Pole arm 6 ft 3 inch 2 inch dia as approved or directed by engineer incharge.	Each	19		
7		**Generator**				
	NSI	Supply, Installation, testing and commissioning of 60 KVA 380/415V 3 phase 4 wire PERKINS UK Diesel generating set complete with breaker panel, exhaust silencer and deep sea control panel, canopy to combat noise to a level of 10db and required ATS to attached and make workable with electrical panel including all required accessories complete in all respect as approved or directed by engineer incharge.	Each	1		
8		**Trench**				
	NSI	Labour for excavation and refilling of trench 12" wide, 36" deep 4" sand, bricks and warning tape. Compaction below and above preinstalled PVC pipes if any, ramming watering all necessary material, labour etc, complete in all respect. Actual length of the trench shall be as per site condition and paid accordingly however approximate length of trench is given. as approved and directed by engineer incharge.	R.Mtr	3,265		
Total of Non-Schedule Items						

DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S PIPRI GODOWNS

BILL OF QUANTITIES

ELECTRICAL WORKS

Rates Based on Composite Schedule of Rate 2024 Sindh

Sr. No.	Description	Unit	Amount
1	Total of Schedule Items	RS	1,429,486
2	Total of non Schedule Items	RS	

DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S PIPRI GODOWNS

BILL OF QUANTITIES

ELECTRICAL WORKS

Rates Based on Composite Schedule of Rate 2024 Sindh

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
1		**DISTRIBUTION BOARDS**				
		(General Description) Supply at site, fabrication, installation, testing and commissioning of Distribution Board (DB) , made of sheet steel 16 SWG, degreased and derusted, with 2 coats of antirust paint, 2 coats of powder coated paint of approved colour, protection classification IP-44, totally enclosed indoor floor mounting cubicle type in free standing design, with hinged door, handle including cost of all auxiliaries, internal wiring, designation lables on MCCBS, grounding bar suitable for system Voltage 440 V, 50 Hz, 3 Phase and neutral bus bars of 99.9% electrolytic copper, including cost of cable terminal blocks wiring from breakers, brass cable glands, all accessories complete in all respects metion in BOQ or not required for performing completely. All incoming and outgoing breakers shall be accessible only by opening the front door having further M.S. sheet cover gaskets shall also be provided where necessary. Panel should be compeltely made in certified factory. ie PEL, Green T & D, Mazcorp engineering or equivalent as per instructions by engineer incharge				
		(General Description) All MCCBs shall be suitable to operate without any derating at 40°C ambient temperature and shall be of one make only. The sides of MDB shall also have louvers at bottom and top on sides of panel for hot air exhaust, wire mesh etc. The back of the panel shall be lockable door instead of bolted and shall conform to single line diagram. item should be of ABB, Schneider or equivalent as per instructions by engineer incharge				
i)		**Main Distribution Board**				
		INCOMMING				
a	ELECT SH-X(183)	Providing & fixing circuit breaker 15,20,30 , 40, 50, 60,75 &100amp TP (XS-100NS) on prepared board as reuqired	Per No.	1	28736.16	28,736
b	ELECT SH-C(224)	Providing & fixing Current Transformer rating 60/5amp (round) RLC-30 as required & as per instruction of EI	Per No.	3	6295.56	18,887
c	ELECT SH-B(240)	Providing & fixing voltmeter size 96/96mm 500volt as required & as per instruction of EI	Per No.	3	4186.5	12,560
d	ELECT SH-M(178)	Providing & fixing circuit breaker 6, 10 , 15, 20,30,40,50&63 SP (TB-5S)on prepared board as reuqired	Per No.	3	2504.12	7,512
		OUTGOING				
a	ELECT SH-X(183)	Providing & fixing circuit breaker 15,20,30 , 40, 50, 60,75 &100amp TP (XS-100NS) on prepared board as reuqired	Per No.	4	28736.16	114,945
b	ELECT SH-M(178)	Providing & fixing circuit breaker 6, 10 , 15, 20,30,40,50&63 SP (TB-5S)on prepared board as reuqired	Per No.	10	2504.12	25,041

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
ii)		**SUB-DB1,2,3,4**				
		INCOMMING				
a	ELECT SH-X(183)	Providing & fixing circuit breaker 15,20,30 , 40, 50, 60,75 &100amp TP (XS-100NS) on prepared board as reuqired	Per No.	4	28736.16	114,945
b	ELECT SH-C(224)	Providing & fixing Current Transformer rating 60/5amp (round) RLC-30 as required & as per instruction of EI	Per No.	12	6295.56	75,547
c	ELECT SH-B(240)	Providing & fixing voltmeter size 96/96mm 500volt as required & as per instruction of EI	Per No.	12	4186.5	50,238
d	ELECT SH-M(178)	Providing & fixing circuit breaker 6, 10 , 15, 20,30,40,50&63 SP (TB-5S)on prepared board as reuqired	Per No.	12	2504.12	30,049
		OUTGOING				
a	ELECT SH-M(178)	Providing & fixing circuit breaker 6, 10 , 15, 20,30,40,50&63 SP (TB-5S)on prepared board as reuqired	Per No.	40	2504.12	100,165
2		**Cables**				
		Supply at site, installation, testing and commissioning of PVC insulated armoured copper conductor cable 600 / 1000 Volt grade (or otherwise mentioned in cable description) in prelaid conduits / trenches to be installed as per routes shown on drawings including cost of all necessary materials, connections, identification tags, cables lugs properly crimped at both ends for the following sizes complete in all respects. Actual length of cables to be installed shall be practically measured at site by the Contractor, duly authenticated by the Engineer before placing the order with the manufacturer, however, approximate length of cables are shown herewith. Payments shall be made as per actual length installed. Cable should be of Paksitan Cable,Newage or fast cable and conduit should be of Solo,popular or equivalent as approved by site engineer				
ii)	ELECT SH-P(92)	Providing & laying (MAIN or SUB MAIN) PVC insulated & PVC sheeted with 4 core Armoured copper conductor 600/1000 volts size 35mm2	R.ft	328	2,594	850,862
Total of Schedule Items						**1,429,486**

DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S PIPRI GODOWNS						
BILL OF QUANTITIES						
ELECTRICAL WORKS						
Non-Schedule Items						
Sr. No.	**Item No.**	**Description**	**Unit**	**Qty (A)**	**Unit Rate (Rs.) (B)**	**Total Amount (Rs.) (C=A*B)**
		(General Description) Supply at site, fabrication, installation, testing and commissioning of Distribution Board (DB) , made of sheet steel 16 SWG, degreased and derusted, with 2 coats of antirust paint, 2 coats of powder coated paint of approved colour, protection classification IP-44, totally enclosed indoor floor mounting cubicle type in free standing design, with hinged door, handle including cost of all auxiliaries, internal wiring, designation lables on MCCBS, grounding bar suitable for system Voltage 440 V, 50 Hz, 3 Phase and neutral bus bars of 99.9% electrolytic copper, including cost of cable terminal blocks wiring from breakers, brass cable glands, all accessories complete in all respects metion in BOQ or not required for performing completely. All incoming and outgoing breakers shall be accessible only by opening the front door having further M.S. sheet cover gaskets shall also be provided where necessary. Panel should be compeltely made in certified factory. ie PEL, Green T & D, Mazcorp engineering or equivalent as per instructions by engineer incharge.				
		(General Description) All MCCBs shall be suitable to operate without any derating at 40°C ambient temperature and shall be of one make only. The sides of MDB shall also have louvers at bottom and top on sides of panel for hot air exhaust, wire mesh etc. The back of the panel shall be lockable door instead of bolted and shall conform to single line diagram. item should be of ABB, Schneider or equivalent as per instructions by engineer incharge				
1		**Main DB**				
	NSI	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 Ammeter,Volt Selector Switch,Ammeter selector switch and Controles Complete in all respect as approved and directed by the Engineer Incharge (Breakers will be Paid Separately) 6" deep100-150A	Each	1		
2		**SUB-DB**				
	NSI	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 Ammeter,Volt Selector selector switch and Controles Complete in all respect as approved and directed by the Engineer Incharge (Breakers will be Paid Separately).	Each	4		
3		**Camera System**				
i)		**Camera Cable**				
	NSI	Supply, installation, Testing and commissioning of CAT 6 UTP CABLE IN PVC PIPE Ø 1"; MEASUREMENT IN METERS complete in all respects. Made of Hikvision,D-Link or equivalent approved by engineer incharge	R.Mtr	1,036		
ii)		**Conduit**				
	NSI	Supply and erection of PVC pipe for wiring on surface including inspection boxes, pull boxes, bends, tees, repairing surface, etc., complete with all specials: 25 mmi/d made of easyfit, popular or equivalent as approved or directed by engineer incharge.	R.Mtr	14,442		

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
iii)		**Optical Fibre**				
	NSI	Supply, Installation and commissioning of wiring with Multimode OM3 Fiber Optic Cable Central Loose Tube for 10 Giga Fiber Optic Connection UL/EN listed cableor equivalent, in prelaid cabletray from Main Cabinet to Floor Level Cabinets, including all accessories, Manufacturer/OEM Authorization, Make: Schneider / i-Connect UK/3M Corning USA/ D-Link/ Pollo Australia or equivalent complete in all respect as approved and directed by the Engineer Incharge.	R.Mtr	13,406		
iv)		**Cameras**				
	NSI	Supply, installation & connecting DS-2DE7A232IW-AEB (T5) Hikvision DS-2DE7A232IW-AEB (T5) 7-inch 2MP 32X Powered byDarkFighter IR Network Speed Dome, 1/2.8" progressive scan CMOS, 4.8 mm to 153 mm, Powered-by-DarkFighter technology, Audio visual alarm, 32× Optical Zoom and 16× Digital Zoom, Up to 200 m IR distance, Focuses on human and vehicle targets classification based on deep learning, Up to 5 faces captured at the same time, BLC, HLC, 3D DNR, 120dB WDR, Digital defog, EIS, Built-in memory card slot, Perimeter Protection, IP66 (IEC 60529-2013), IK10 (excluding glass window).,made of AXIS Europe/NOVAS Europe/Avigilon by Motorla, Hikvision model number DS-2DE7A232IW-AEB, USA/Bosch Germany, Pollo Australia or equivalent, as approved as directed by the Engineer Incharge.	Each	60		
	NSI	Supply, installation & connecting DS-2C1A43G0-IZU Hikvision High quality imaging with 4 MP resolution Pan, tilt and zoom ability that enables the camera to capture larger and interested areas, Water and dust resistant (IP66) EXIR 2.0, advanced infrared technology with long IR distance Efficient H.265+ compression technology., made of AXIS Europe/NOVAS Europe/Avigilon by Motorla, Hikvision model number DS-2C1A43G0-IZU, USA/Bosch Germany, Pollo Australia or equivalent, as approved as directed by the Engineer Incharge.	Each	8		
iv)		**CCTV Cabinet Main**				
	NSI	Supply , installation of wall mounted CCTV Cabinet comprising of Powder Coated M.S frame, front glass & two side openings, 04 way fans for cooling, top & bottom entry, handle lock with 6 way PDU (Power Distribution Unit) with all necessary accessories/ materials, complete in all respects. Made of Bosch/ HP / Dell , Pollo Australia, or equivalent or as approved and directed by Engineer Incharge(i) 42U	Each	1		
v)		**Cable Manager**				
		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 as approved and directed by the Engineer Incharge	Each	1		
vi)		**Patch Panel**				
		Supply and installation of CAT-6 (24 Port Patch Panel with Toolless Support 10-Gigabit). UTP Patch Panel with specified toolless support & Rear Cable Management, UL listed, Loaded with UTP of specified Keystone Jack Toolless Support , Made of Schneider / Norden /3M Corning/D-Link, Pollo Australia or equivalent or as Approved and Directed by Engineer Incharge.	Each	1		
vii)		**CCTV Cabinet**				
	NSI	Supply , installation of wall mounted CCTV Cabinet comprising of Powder Coated M.S frame, front glass & two side openings, top & bottom entry, handle lock with all necessary accessories/ materials, complete in all respects. Made of Bosch/ HP / Dell , Pollo Australia, or equivalent or as approved and directed by Engineer Incharge(i) 4U size	Each	54		

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
viii)		**PDU**				
		Supply & Installation of PDU as approved or directed by engineer incharge.	Each	54		
ix)		**NVR**				
	NSI	Supply & Installation of model number DS-7716NXI-I4/S Hikvision 16-ch 1.5U AcuSense 4K NVR, up to 1-ch facial recognition, HDMI and VGA output, Incoming bandwidth 160 Mbps, Outgoing bandwidth 256 Mbps, Up to 4 SATA interfaces for HDD connection (up to 10 TB capacity per HDD) made of Hikvision/Huawei or equivalent as approved or directed by engineer incharge.	Each	5		
x)	`	**Hard Drive**				
	NSI	Supply, Installation and Connection of WD 4TB WD42PURU-64C4CY0 Western Digital 4TB WD Purple Surveillance Internal Hard Drive HDD - SATA 6 Gb/s, 256 MB Cache, 3.5",5640 rpm, 128 MB buffer.. made of WD, Pollo Australia or equivalent, as approved and directed by Engineer Incharge.	Each	5		
xi)		**LED**				
	NSI	Supply and Installation of 32'' LED FHD Monitor, HDMI × 1, VGA × 1, Audio × 1,2 × 2W, 6.91kg net weight,0°C to 50°C operating temperature,<32w power consumption, AC 100 to 240V, 50/60Hz power supply make Uniview model number MW3232-V-K, TCL, Ecostar or equivalent as approved or directed by engineer incharge.	Each	5		
xii)		**24 Port PoE Layer 2 Networking Switch**				
	NSI	Supply, Installation and Connection of RG-NBS3100-24GT4SFP-P@108500 24-Port Gigabit L2 Managed POE Switch, 24 Gigabit RJ45 POE/POE+ Ports, 4 SFP Slots, 370W PoE power budget, 19-inch Rack-mountable Stell Case 5 year warranty made of Ruijie, Hikvision, or equivalent as approved or directed by engineer incharge.	Each	1		
xiii)		**24 Port PoE Layer 3 Networking Switch**				
	NSI	Supply, Installation and Connection of RG-S2910-24GT4XS-E NeverDie High Reliability Technology: NFPP, XCor, VSU, XSurge Up to 67+ Year MTBF (Mean Time Between Failure) Lifetime Free Cloud Management, Built-in Layer 3 Routing Support, Power Redundancy Support made of Ruijie, Hikvision, or equivalent as approved or directed by engineer incharge.	Each	1		
xiv)		**24 Port PoE Data Switch**				
	NSI	Supply, Installation and Connection of Hikvision 24 Port Gigabit Unmanaged POE Switch, 24 × Gigabit PoE ports, 2 × Gigabit SFP fiber optical ports, IEEE 802.3at/af standard, 6 KV surge protection for PoE ports, PoE power management, Gigabit network access, MAC Address Table : 8 K, Switching Capacity : 52 Gbps, Packet Forwarding Rate : 38.688 Mpps, Internal Cache : 4.1 Mbits, Wire-speed forwarding, Store-and-forward switching, Solid high-strength metal shell made of Hikvision Model no DS-3E0526P-E/M , Huawei, Cisco USA or equivalent as approved or directed by engineer incharge.	Each	4		
xv)		**Data Switches PoE**				
	NSI	Supply, Installation and Connection of Smart Managed 8-Port Gigabit PoE Switch, 8 Gigabit PoE Ports,2 Gigabit fiber optical ports, full duplex, MDI/MDI-X adaptive, Store-and-Forward switching, 8K MAC Address Table, 20Gbps Switching Capacity, 14.88 Mpps Packet Forwarding Rate, 4.1 Mbits Internal Cache, 300m Transmission, PoE watchdog to Auto detect-and-Restart the cameras, 6 KV surge protection, Network topology management, alarm push, network health monitor, Port rate configuration, flow control, and ports enabling, IEEE 802.3at/af standard PoE ports, 100-240 VAC Power Supply. made of Hikvision Model no DS-3E1510P-SI, Huawei, Cisco USA or equivalent as approved or directed by engineer incharge.	Each	54		
xvi)		**HDMI**				
	NSI	Supply, Installation of HDMI hikvision fibre 4K length 10 meters as approved or directed by engineer incharge.	Each	5		

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
4		**Earthing**				
	NSI	Supply, installation, testing and commissioning of earthing system for protecting Earthing of Rod 19 mm 10 ft long with bare solid Earth conductor 1 x 35sq.mm upto earth connecting point, inspection chamber, marconite concrete, drilling etc, to achieve less than 3 ohms specified Earthing results. complete in all respect as per drawing and specification or as per directed by Engineer.	Each	6		
5		**Cables**				
		Supply at site, installation, testing and commissioning of PVC insulated armoured copper conductor cable 600 / 1000 Volt grade (or otherwise mentioned in cable description) in prelaid conduits / trenches to be installed as per routes shown on drawings including cost of all necessary materials, connections, identification tags, cables lugs properly crimped at both ends for the following sizes complete in all respects. Actual length of cables to be installed shall be practically measured at site by the Contractor, duly authenticated by the Engineer before placing the order with the manufacturer, however, approximate length of cables are shown herewith. Payments shall be made as per actual length installed. Cable should be of Paksitan Cable,Newage or fast cable and conduit should be of Solo,popular or equivalent as approved by site engineer				
i)	NSI	Providing and laying(MAIN or SUB MAIN) PVC insulated & PVC sheeted with 4 core Armoured copper conductor 600\1000 volts size10 mm2	R.Mtr	3,292		
ii)	NSI	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 3 core, 300/500 volt cable7/0.91 mm (7/0.036") 4 mm	R.Mtr	12,000		
iii)	NSI	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")	R.Mtr	3,392		
6		**Poles**				
i)	NSI	Supply and erection of Pole 14 ft Gi 3ft arm 4 3 2 dia 3mm thick,1ft by 1ft base plate 14 mm,Cemant base 1.5 by 3ft, Bolts 3ft 4 pcs set as approved or directed by engineer incharge.	Each	13		
ii)	NSI	Supply and erection of Pole 16 ft Gi 3ft arm 4 3 2 dia 3mm thick,1ft by 1ft base plate 14 mm,Cemant base 1.5 by 3ft, Bolts 3ft 4 pcs set as approved or directed by engineer incharge.	Each	29		
iii)	NSI	Supply and erection of Pole arm 6 ft 3 inch 2 inch dia as approved or directed by engineer incharge.	Each	26		
7		**Generator**				
	NSI	Supply, Installation, testing and commissioning of 100 KVA 380/415V 3 phase 4 wire PERKINS UK Diesel generating set complete with breaker panel, exhaust silencer and deep sea control panel, canop[y to combat noise to a level of 10db and required ATS to attached and make workable with electrical panel including all required accessories complete in all respect as approved or directed by engineer incharge.	Each	1		
8		**Trench**				
	NSI	Labour for excavation and refilling of trench 12" wide, 36" deep 4" sand, bricks and warning tape. Compaction below and above preinstalled PVC pipes if any, ramming watering all necessary material, labour etc, complete in all respect. Actual length of the trench shall be as per site condition and paid accordingly however approximate length of trench is given. as approved and directed by engineer incharge.	R.Mtr	13,506		
Total of Non-Schedule Items						

DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S HEAD OFFICE						
BILL OF QUANTITIES						
ELECTRICAL WORKS						
1		**Video Survillance System**				
	NSI	Supply, of HikCentral-P-VSS-Base/HW/300Ch HikCentral video surveillance base package -hardware mode- which includes preinstalled all fundamental features of video surveillance system, 300 cameras manageable and Dell server. Made of Hikvision, or equivalent as approved or directed by engineer incharge.	Each	1		
2		**Decoder**				
	NSI	Supply, of DS-6916UDI Hikvision DS-6900 Series, 16-Ch. Decoder, 128 Decoding Channel: 1080p@30fps/3 Mbps, 1/4/6/8/9/12/16/25/36 Split Screens, 16 Ch 4K HDMI Outputs, 8 Ch BNC Outputs, 2 Management Gigabit Network Interfaces, 2 Gigabit Network Interfaces, RS-232, RS-485, 100 to 240 VAC. Make: Hikvision, or equivalent complete in all respect as approved and directed by the Engineer Incharge.	Each	4		
3		**LCD**				
	NSI	Supply, of DS-D2055LU-Y Hikvision 55-inch 3.5mm LCD Display Unit,1080P,500cd/㎡, bezel width: 3.5mm, Input: VGA/DVI/DP/HDMI, output: DP/HDMI, support 4K input and loop up to 30 screens with HDMI/DP interface, support VESA. ,made of Hikvision, or equivalent, as approved as directed by the Engineer Incharge.	Each	5		
4		**Wall Mounted Bracket Support for LCD**				
	NSI	Supply , of DS-DN5501W Front-maintenance Wall-mounted Bracket, Suitable for all 55" LCD models. with all necessary accessories/ materials, complete in all respects. Made of Hikvision, or equivalent or as approved and directed by Engineer Incharge.	Each	1		
5		**Installation,Testing and Commissioning**				
	NSI	Installation, testing and commissioning of the whole survellance sytem complete in all respect as approved or directed by engineer incharge.	Lumsum	1		
Total						

DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S MULTAN GODOWNS

BILL OF QUANTITIES

ELECTRICAL WORKS

MRS, 2ND BI-ANNUAL-2024 (01-07-2024 to 31-12-2024) DISTRICT MULTAN

Sr. No.	Description	Unit	Amount
1	Total of Schedule Items	RS	1,558,144
2	Total of Non Schedule Items	RS	

DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S MULTAN GODOWNS

BILL OF QUANTITIES

ELECTRICAL WORKS

MRS, 2ND BI-ANNUAL-2024 (01-07-2024 to 31-12-2024) DISTRICT MULTAN

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
1		**DISTRIBUTION BOARDS**				
		(General Description) Supply at site, fabrication, installation, testing and commissioning of Distribution Board (DB) , made of sheet steel 16 SWG, degreased and derusted, with 2 coats of antirust paint, 2 coats of powder coated paint of approved colour, protection classification IP-44, totally enclosed indoor floor mounting cubicle type in free standing design, with hinged door, handle including cost of all auxiliaries, internal wiring, designation lables on MCCBS, grounding bar suitable for system Voltage 440 V, 50 Hz, 3 Phase and neutral bus bars of 99.9% electrolytic copper, including cost of cable terminal blocks wiring from breakers, brass cable glands, all accessories complete in all respects metion in BOQ or not required for performing completely. All incoming and outgoing breakers shall be accessible only by opening the front door having further M.S. sheet cover gaskets shall also be provided where necessary. Panel should be compeltely made in certified factory. ie PEL, Green T & D, Mazcorp engineering or equivalent as per instructions by engineer incharge				
		(General Description) All MCCBs shall be suitable to operate without any derating at 40°C ambient temperature and shall be of one make only. The sides of MDB shall also have louvers at bottom and top on sides of panel for hot air exhaust, wire mesh etc. The back of the panel shall be lockable door instead of bolted and shall conform to single line diagram. item should be of ABB, Schneider or equivalent as per instructions by engineer incharge				
i)		**Main Distribution Board**				
		MAIN DB				
	ch 24/93/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 Incharge (Breakers will be Paid Separately). (a) 6" deep (i) 20~60A	Per C.ft	9	24,686	222,173
		INCOMING				
	ch 24/90/a(ii)	Supplying ,Installation and commissioning of MCCB (Moulded Case Circuit Breaker) of specified rating made of LEGRAND FRANCE/ GE U.S.A / SCHNEIDER GERMANY / TERASAKI JAPAN/SIEMEN/ABB SWITZERLAND (with fixed Thermal-Magnetic Trip) in prelaid DBs and Panels i/c the cost of screws, necessary wire complete in all respect as approved and directed by the Engineer Incharge (a) Triple Pole (ii) 15-100 Amp (10 KA,15KA)	Per No.	1	13798	13,798
	ch 24/89/a(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/ ABB SWITZERLAND 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.a) Single Pole(ii) 6-40 Amp (6 KA)	Each	3	1129	3,387
		OUTGOING				

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
	ch 24/89/a(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/ ABB SWITZERLAND 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.a) Single Pole(ii) 6-40 Amp (6 KA)	Each	6	1129	6,773
2		**LT Cables**				
		Supply at site, installation, testing and commissioning of PVC insulated armoured copper conductor cable 600 / 1000 Volt grade (or otherwise mentioned in cable description) in prelaid conduits / trenches to be installed as per routes shown on drawings including cost of all necessary materials, connections, identification tags, cables lugs properly crimped at both ends for the following sizes complete in all respects. Actual length of cables to be installed shall be practically measured at site by the Contractor, duly authenticated by the Engineer before placing the order with the manufacturer, however, approximate length of cables are shown herewith. Payments shall be made as per actual length installed. Cable should be of Paksitan Cable,Newage or fast cable and conduit should be of Solo,popular or equivalent as approved by site engineer				
i)	ch 24/13/d(iv)	Supply and erection of copper conductor cables for service connection, in prelaid pipe/G.I. wire/trenches, etc. (rate for cable only):- d) PVC insulated, PVC sheathed 4 Core, 600/1000 volt armoured cable:- iv) 16 mm sq (7/0.064)	R.Mtr	100	3,608	360,750
		Grounding Cables				
		Supply at site, installation, testing and commissioning of PVC insulated non armoured copper conductor cable 450/ 750 Volt grade (or otherwise mentioned in cable description) in prelaid conduits / trenches to be installed as per routes shown on drawings including cost of all necessary materials, connections, identification tags, cables lugs properly crimped at both ends for the following sizes complete in all respects. Actual length of cables to be installed shall be practically measured at site by the Contractor, duly authenticated by the Engineer before placing the order with the manufacturer, however, approximate length of cables are shown herewith. Payments shall be made as per actual length installed. Cable should be of FAST, Newage or universal cables and conduit should be of Solo,popular,easyfit or equivalent as approved by engineer incharge				
i)	ch 24/12/(ii)	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")	R.Mtr	100	325	32,515
3		**CONDUITS, PIPES, DUCT , CABLE TRAYS, FIXING CLAMPS AND FIXING ARRANGEMENTS**				
		Supply, installation, testing and commisiioning of following conduits laid under floor for telephone/ data cables , optical fiber cables, Sub main power cables & earth cables including all conduit accessories. The PVC conduits shall be laid under floor including chiseling and cutting of floor for required dimensions, laying of conduit, backfilling of remaining cavity with CC as specified for floor in that area, making good, complete in all respect. conduit made of solo, popular, easyfit or equivalent as approved by engineer incharge.				
i)		**PVC Conduit**				

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
	ch 24/4/(iii)	Supply and erection of PVC pipe for wiring on surface including clamps inspection boxes, pull boxes, bends, tees, repairing surface, etc., complete with all specials:- iii) 25 mm i/d	R.Mtr	803	285	229,056
2		**Camera System**				
i)		**Camera Cable**				
	ch 24/111/a(i)	Supply, Installation and commissioning of wiring with 4-pair data Cable, 23 AWG UL/EN listed cable * Conforming to following standards: TIA/EIA 568 / ISO/IEC 11801, 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.a) UTP (Unshielded Twisted pair) (i)CAT-6 (Min.1G @ 250MHz or higher)	P.meter	215	160	34,443
ii)		**Optical Fibre**				
	ch 24/112	Supply, Installation and commissioning of wiring with Multimode OM3 Armored Fiber Optic Cable Central Loose Tube for 10 Giga Fiber Optic Connection UL/EN listed cableor equivalent, in prelaid cabletray from Main Cabinet to Floor Level Cabinets, including all accessories, Manufacturer/OEM Authorization, Make: Schneider / i Connect UK/3M Corning USA/ D-Link/ Pollo Australia or equivalent complete in all respect as approved and directed by the Engineer Incharge	P.meter	550	225	123,943
iii)		**Main CCTV Cabinet**				
	ch 24/135	Supply , installation of floor mounted Main CCTV Cabinet of specified size, installed in Main IT / Server room/Security Room, made of Powder Coated M.S frame, perforated front & rear doors, removablesidepanels, 04 way fans for cooling, top/bottom entry, handle lock with 4 lockable wheels, cable manager, with 6 way PDU (Power Distribution Unit) & 2 x 6 way PDU (Power Distribution Unit) for 42U size with all necessary accessories/ materials, complete in all respects. made of Bosch/ HP / Dell , Pollo Australia or equivalent or as approved and directed by Engineer Incharge.(ii) 27U (600x600x1300mm)	Each	1	105,718	105,718
iv)		**Cable Manager**				
	ch 24/119	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 as approved and directed by the Engineer Incharge.	Each	1	4,030	4,030
v)		**Patch Panel**				
	ch 24/120/(i)	Supply, Installation and commissioning of 19" Rack Mounted of specified, UTP Patch Panel with specified toolless support & Rear Cable Management, UL listed, Loaded with UTP of specified Keystone Jack Toolless Support , Made of Schneider / Norden /3M Corning/D-Link, Pollo Australia or equivalent or as Approved and Directed by Engineer Incharge(i) CAT-6 (24 Port Patch Panel with Toolless Support 1-Gigabit)	Each	1	32,285	32,285
vi)		**NVR**				

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
	ch 24/121	Supply & Installation of NVR (Network Video Recorder) for Real Time View of specified Channels, video and Audio channels,Supported protocoles: ONVIF,RTSP etc, Internal HDDs mount support:2/4/8 or higher as per site requirement,Monitor outputs,(HDMI,4K Ultra HD),VGA (Video Graphic array), Support Raid 5/6, Embeded OS, Data Encryption, Min. 1 x RJ-45 1000Mbps Ports, with PC Video Monitoring Software, Web Server, Embedded Server complete in all respect. made of AXIS Europe/NOVAS Europe/Avigilon by Motrola USA /Huawei, Pollo Australia or equivalent as approved and directed by the Engineer Incharge. ii) 16-Channel	Each	1	124,055	124,055
vii)	`	**Hard Drive**				
	ch 24/122	Supply, Installation and Connection of Surveillance Grade Hard Drives (HDD) of Specified Capacity for CCTV System Backup. made of Seagate / WD, Pollo Australia or equivalent, as approved and directed by Engineer Incharge.(i) 4 TB	Each	1	29,858	29,858
viii)		**24 Port PoE Layer 2 Networking Switch**				
	ch 24/116/(iv)	Supply, Installation and Connection of Specified Ports Layer-2 PoE (Power Over Ethernet) data Network Switch specified ports x100 Mbps PoE, Min.2x1Gbps SFP UPLINK ports, made of Cisco USA/NOVAS Europe/Juniper USA / Huawei / H3C, Pollo Australia or equivalent as approved and directed by the Engineer Incharge.(iv) 24 port, Min. 365 Watt PoE power	Each	1	121,809	121,809
ix)		**24 Port PoE Layer 3 Networking Switch**				
	ch 24/138	Supply, Installation and commissioning of Access Switches Layer 3, with specified 1000 Base-T (RJ-45) Ports (PoE/PoE+) with 4 x 10 G SFP+ with license , Switching capacity 128 Gbps or higher,Packet forwarding capacity :90 Mpps,RAM (DDR3):512 MB, DHCP snooping, ACL, power supply Min.350 Watt AC, made of RUCKS USA/Cisco USA/Juniper USA / Huawei / H3C, Pollo Australia or equivalent as approved and directed by Engineer's Incharge(i) 24 Ports	Each	1	98,022	98,022
x)		**Data Switches PoE**				
		Supply, Installation and Connection of Data switch ,10/100/1000 Mbps with SFP UPLINK made of Cisco USA/NOVAS Europe/Juniper USA / Huawei /H3C Pollo Australian or equivalent as approved and directed by the Engineer Incharge.				
i)	ch 24/117/(i)	(i) 8 Ports,(PoE)	Each	5	2,392	11,962
ii)	ch 24/117/(iv)	(iv) 24 Ports(PoE)	Each	1	3,568	3,568
Total of Schedule Items						**1,558,144**

DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP'S MULTAN GODOWNS

BILL OF QUANTITIES

ELECTRICAL WORKS

Non-Schedule Items

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
1		**Camera System**				
i)		**Cameras**				
	NSI	Supply, installation & connecting DS-2DE7A232IW-AEB (T5) Hikvision DS-2DE7A232IW-AEB (T5) 7-inch 2MP 32X Powered byDarkFighter IR Network Speed Dome, 1/2.8" progressive scan CMOS, 4.8 mm to 153 mm, Powered-by-DarkFighter technology, Audio visual alarm, 32× Optical Zoom and 16× Digital Zoom, Up to 200 m IR distance, Focuses on human and vehicle targets classification based on deep learning, Up to 5 faces captured at the same time, BLC, HLC, 3D DNR, 120dB WDR, Digital defog, EIS, Built-in memory card slot, Perimeter Protection, IP66 (IEC 60529-2013), IK10 (excluding glass window).,made of AXIS Europe/NOVAS Europe/Avigilon by Motorla, Hikvision model number DS-2DE7A232IW-AEB, USA/Bosch Germany, Pollo Australia or equivalent, as approved as directed by the Engineer Incharge.	Each	5		
	NSI	Supply, installation & connecting DS-2C1A43G0-IZU Hikvision High quality imaging with 4 MP resolution Pan, tilt and zoom ability that enables the camera to capture larger and interested areas, Water and dust resistant (IP66) EXIR 2.0, advanced infrared technology with long IR distance Efficient H.265+ compression technology., made of AXIS Europe/NOVAS Europe/Avigilon by Motorla, Hikvision model number DS-2C1A43G0-IZU, USA/Bosch Germany, Pollo Australia or equivalent, as approved as directed by the Engineer Incharge.	Each	8		
ii)		**CCTV Cabinet**				
	NSI	Supply , installation of wall mounted CCTV Cabinet comprising of Powder Coated M.S frame, front glass & two side openings, top & bottom entry, handle lock with all necessary accessories/ materials, complete in all respects. Made of Bosch/ HP / Dell , Pollo Australia, or equivalent or as approved and directed by Engineer Incharge (i) 4U size	Each	5		
iii)		**PDU**				
	NSI	Supply & Installation of PDU as approved or directed by engineer incharge.	Each	5		
iv)		**LED**				
	NSI	Supply and Installation of 32'' LED FHD Monitor, HDMI × 1, VGA × 1, Audio × 1,2 × 2W, 6.91kg net weight,0°C to 50°C operating temperature,<32w power consumption, AC 100 to 240V, 50/60Hz power supply make Uniview model number MW3232-V-K, TCL, Ecostar or equivalent as approved or directed by engineer incharge.	Each	1		
2		**Earthing**				
	NSI	Supply, installation, testing and commissioning of earthing system for protecting Earthing of Rod 19 mm 10 ft long with bare solid Earth conductor 1 x 35sq.mm upto earth connecting point, inspection chamber, marconite concrete, drilling etc, to achieve less than 3 ohms specified Earthing results. complete in all respect as per drawing and specification or as per directed by Engineer.	Each	1		

Sr. No.	Item No.	Description	Unit	Qty (A)	Unit Rate (Rs.) (B)	Total Amount (Rs.) (C=A*B)
3		**Cables**				
		Supply at site, installation, testing and commissioning of PVC insulated armoured copper conductor cable 600 / 1000 Volt grade (or otherwise mentioned in cable description) in prelaid conduits / trenches to be installed as per routes shown on drawings including cost of all necessary materials, connections, identification tags, cables lugs properly crimped at both ends for the following sizes complete in all respects. Actual length of cables to be installed shall be practically measured at site by the Contractor, duly authenticated by the Engineer before placing the order with the manufacturer, however, approximate length of cables are shown herewith. Payments shall be made as per actual length installed. Cable should be of Paksitan Cable,Newage or fast cable and conduit should be of Solo,popular or equivalent as approved by site engineer				
i)	NSI	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 armoured 3 core, 300/500 volt cable7/0.91 mm (7/0.036") 4 mm	R.Mtr	775		
4		**Poles**				
i)	NSI	Supply and erection of tubular Pole 14 ft Gi with 3ft arm dia 3mm thick including 1ft by 1ft base plate 14 mm,Cemant base 1.5 by 3ft, Bolts 3ft 4 pcs set as approved or directed by engineer incharge.	Each	5		
ii)	NSI	Supply and erection of Pole 16 ft Gi 3ft arm 4 3 2 dia 3mm thick,1ft by 1ft base plate 14 mm,Cemant base 1.5 by 3ft, Bolts 3ft 4 pcs set as approved or directed by engineer incharge.	Each	2		
iii)	NSI	Supply and erection of Pole arm 6 ft 3 inch 2 inch dia as approved or directed by engineer incharge.	Each	6		
5		**Generator**				
	NSI	Supply, Installation, testing and commissioning of 45 KVA 380/415V 3 phase 4 wire PERKINS UK Diesel generating set complete with breaker panel, exhaust silencer and deep sea control panel, canopy to combat noise to a level of 10db and required ATS to attached and make workable with electrical panel including all required accessories complete in all respect as approved or directed by engineer incharge.	Each	1		
6		**Trench**				
	NSI	Labour for excavation and refilling of trench 12" wide, 36" deep 4" sand, bricks and warning tape. Compaction below and above preinstalled PVC pipes if any, ramming watering all necessary material, labour etc, complete in all respect. Actual length of the trench shall be as per site condition and paid accordingly however approximate length of trench is given. as approved and directed by engineer incharge.	R.Mtr	600		
Total of Non-Schedule Items						

DRAWINGS FOR KORANGI

CCTV & ELECTRICAL

LIST OF DRAWINGS

S.NO.	DRAWING TITLE	DRG. NO
	ELECTRICAL DRAWINGS	
1	LIST OF DRAWING	EL-00
2	GENERAL NOTES	EL-01
3	LEGEND AND SYMBOLS	EL-02
4	EARTHING DETAIL	EL-03
5	POLE & TRENCH DETAIL	EL-04
6	MAIN DB	EL-05
7	SUB DB	EL-06
8	CAMERA VIEW DESIGN	EL-07
9	CCTV & DATA DESIGN	EL-08
10	ELECTRICAL DESIGN	EL-09

ADDITION & REVISION

ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY.

DESIGNER:

NEW VISION ENGINEERING CONSULTANT

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PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's KORANGI GODOWN

TITLE:
LIST OF DRAWINGS

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO.
EL-OO

G E N E R A L N O T E S

ELEC TRIC AL 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, AUXILIARY CONSTRUCTIONS 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 10 sq.mm. 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 SYSTSMS, 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. AND AS PER SITE REQUIREMENTS.
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 & PHASE CONDUCTOR OF SAME SIZE FOR UPTO AND INCLUDING 16 SQMM CABLES
    - 16 SQMM ECC FOR PHASE CONDUCTOR OF 16 SQMM, 25SQMM & 35 SQMM CABLES
    - FOR CABLES OF 50 SQMM AND ABOVE SIZES, ECC IS HALF SIZE OF PHASE CONDUCTOR.
    - MAXIMUM SIZE OF ECC IS 70 SQMM.

ELEC TRIC AL SYSTEMS

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 CONDUCTOR SIZE(SQMM)	NO. & DIA OF WIRES	NOMINAL OVERALL DIA	20 MM DIA (3/4" DIA)	25 MM DIA (1" DIA)	32 MM DIA (1¼ " DIA)
1	1.5	1/1.38	3.1	10	18	30
2	2.5	1/1.78	3.5	8	14	23
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	10.3	-	-	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 SWITCH BOARD	48 INCHES
DISTRIBUTION BOARD	48 INCHES
CONTROL PANEL	48 INCHES
ON/OFF PUSH BUTTON STATION	48 INCHES

ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

DESIGNER:

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PROJECT: DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's KORANGI GODOWN

TITLE: GENERAL NOTES

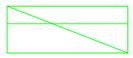
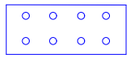
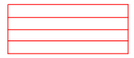
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CLIENT: TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO. EL-01

L E G E N D

S.NO	SYMBOLS	D I S C R I P T I O N
01		CCTV CAMERA
02		CAT-6 CABLE
03		OPTICAL FIBRE
04		4 MM2 3 CORE CABLE
05		MAIN DB
06		SUB DB
07		08 PORT POE SWITCH
08		MAIN DATA CABINET
09		4U DATA CABINET

ADDITION & REVISION

ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

DESIGNER:

NEW VISION ENGINEERING CONSULTANT

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PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's KORANGI GODOWN

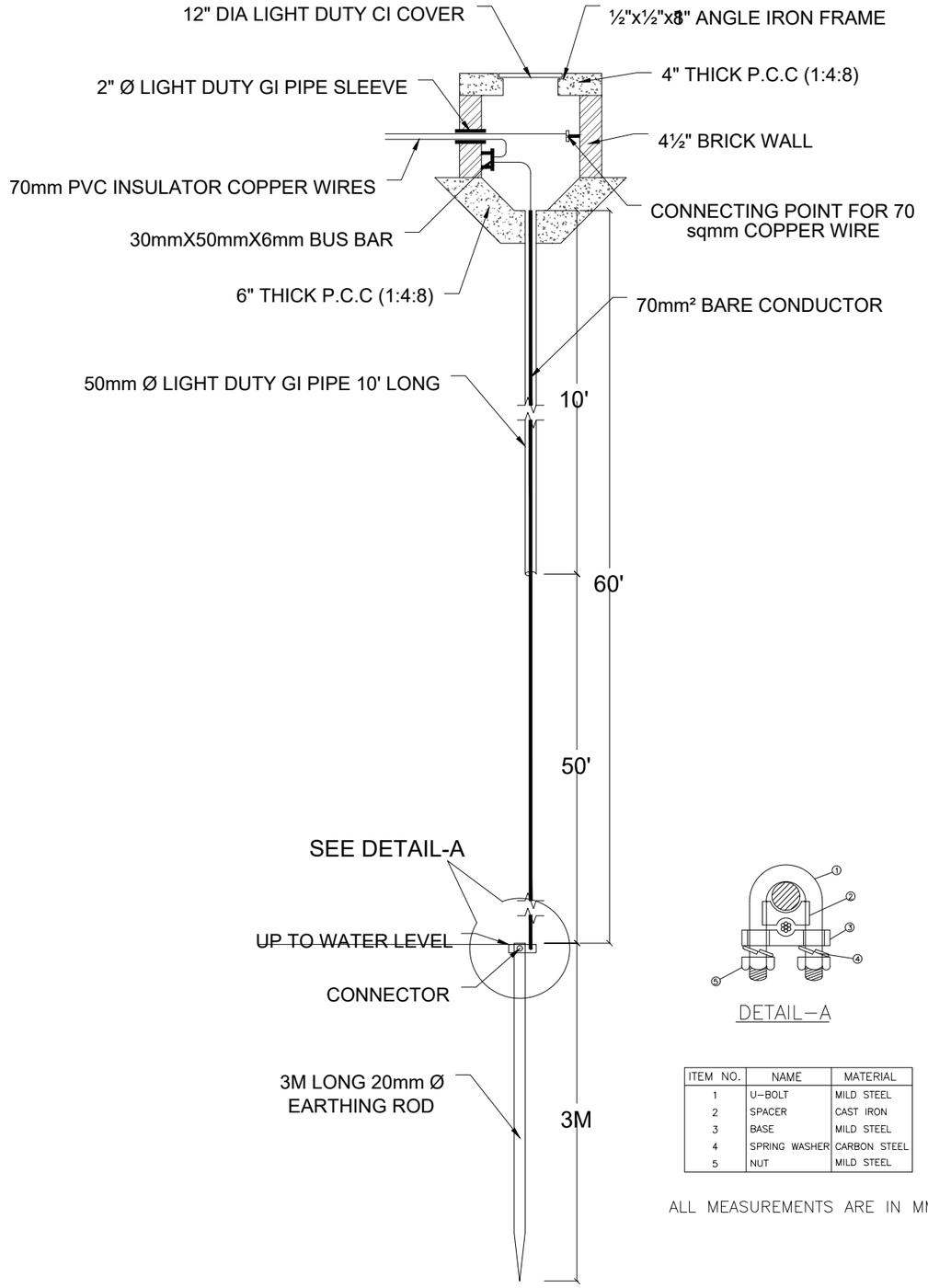
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CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO.
EL-02



DETAIL–A

ITEM NO.	NAME	MATERIAL
1	U–BOLT	MILD STEEL
2	SPACER	CAST IRON
3	BASE	MILD STEEL
4	SPRING WASHER	CARBON STEEL
5	NUT	MILD STEEL

ALL MEASUREMENTS ARE IN MM

ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

DESIGNER:

NEW VISION ENGINEERING CONSULTANT
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PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's KORANGI GODOWN

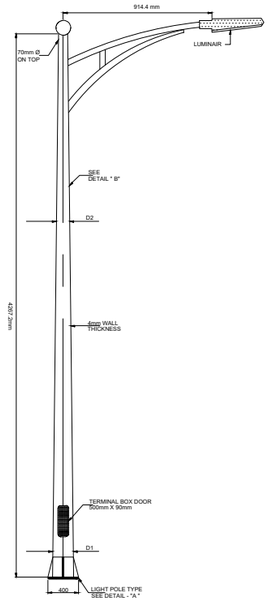
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EARTHING DETAIL

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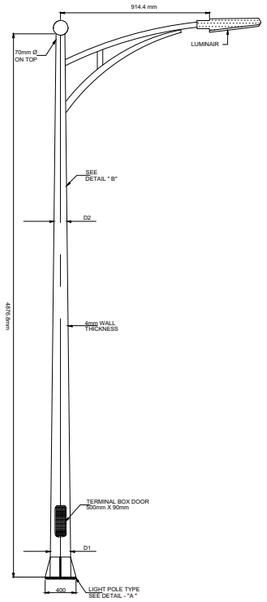
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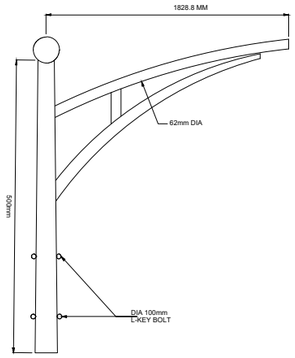
DRG. NO.
EL-O3



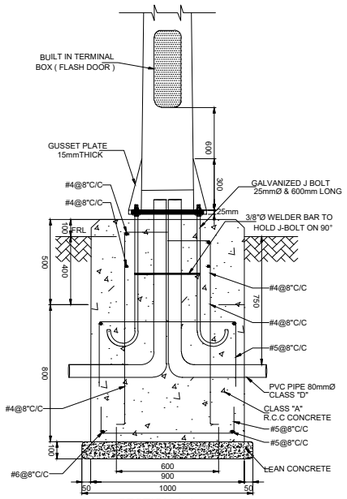
OCTAGONAL POLE 14 FT



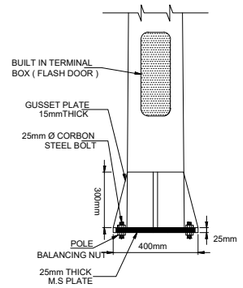
OCTAGONAL POLE 16 FT



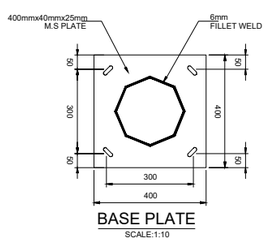
SINGLE ARM DETAIL
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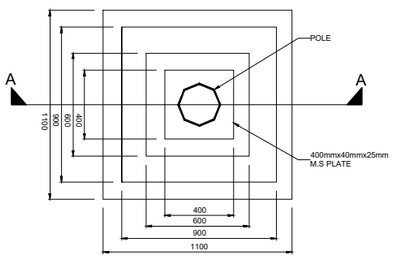
SECTION A-A
TYPICAL FOUNDATION
DETAIL FOR POLE



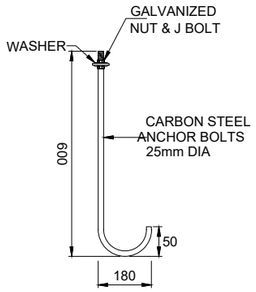
STREET LIGHT POLE
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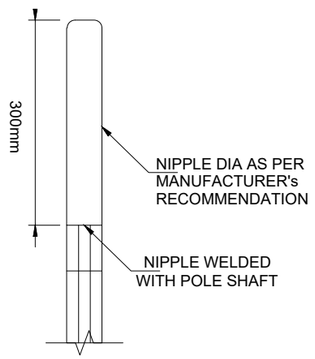
BASE PLATE
SCALE:1:10



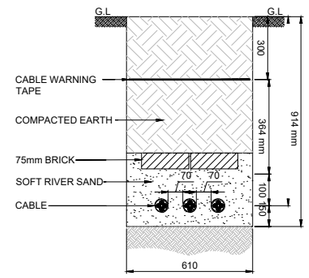
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POLE FOUNDATION PLAN
SCALE:1:16



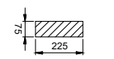
" J " BOLT DETAIL
SCALE:1:16



DETAIL " B "
SCAL=1:8



MULTI CIRCUIT LV
CABLES TRENCH



BRICK DETAIL

ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

DESIGNER:

NEW VISION ENGINEERING CONSULTANT
Head Office: Office No.B-6 Second Floor Masood Arcade
IJP Road Islamabad.
Ph: +92-51-4848375, Fax: +92-51-4848375
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Regional Office: 287-A Street # 6, Cavalry Ground ,Lahore
Ph: +92-42-37250130

PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's KORANGI GODOWN

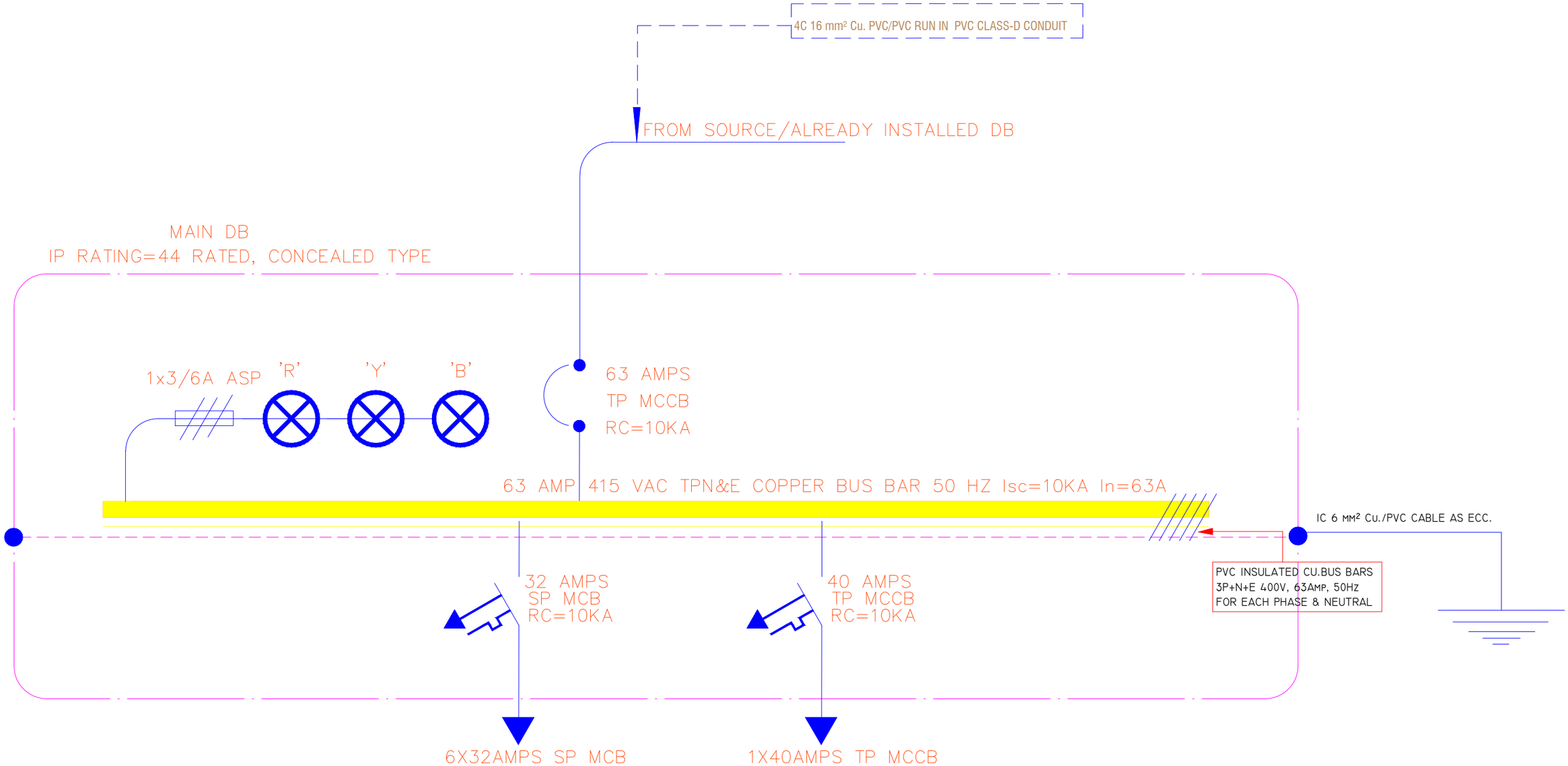
TITLE:
POLE & TRENCH DETAIL

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO.
EL-O4



ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

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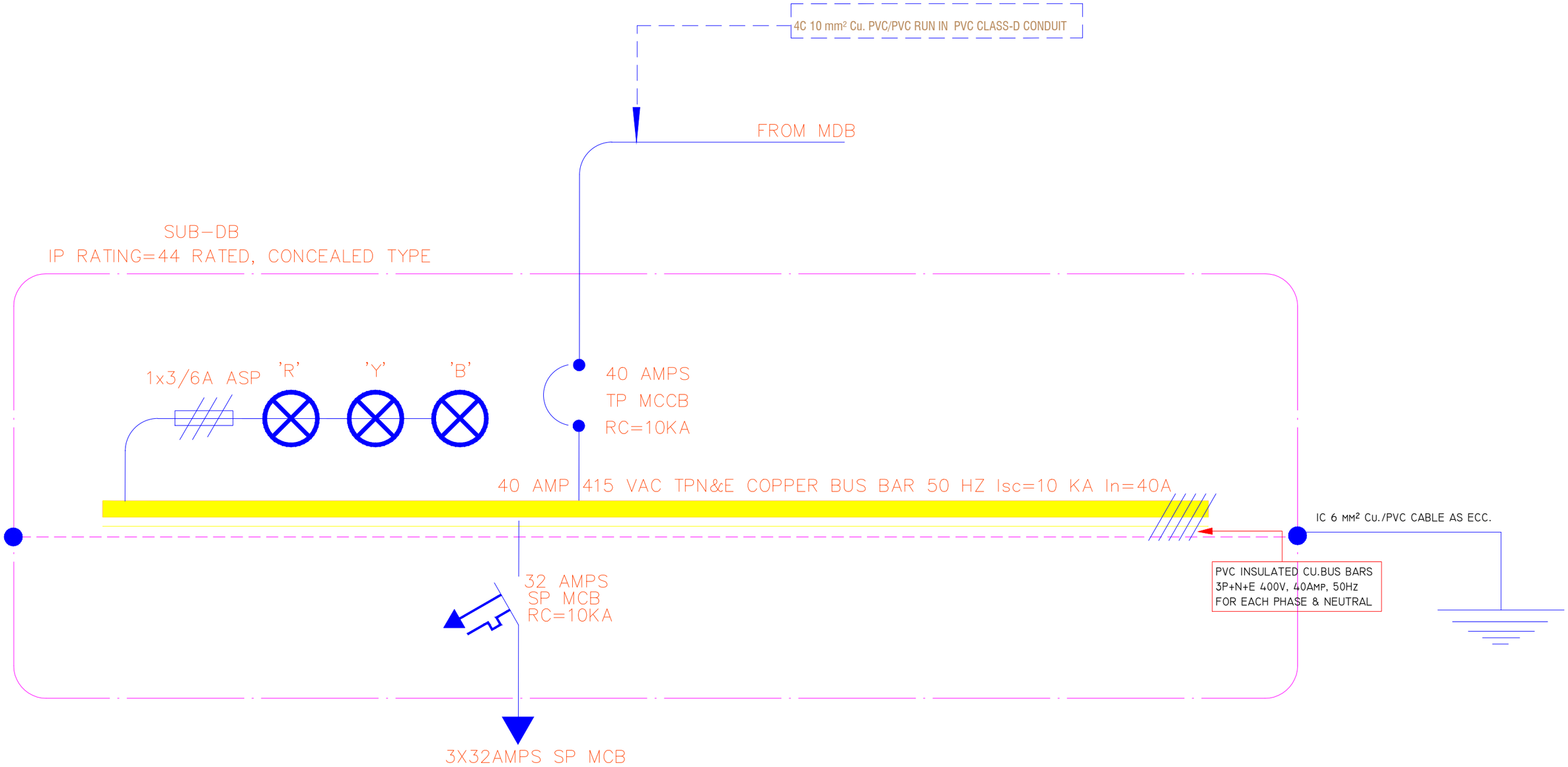
TITLE:
MAIN-DB

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO.
EL-05



ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

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PROJECT:
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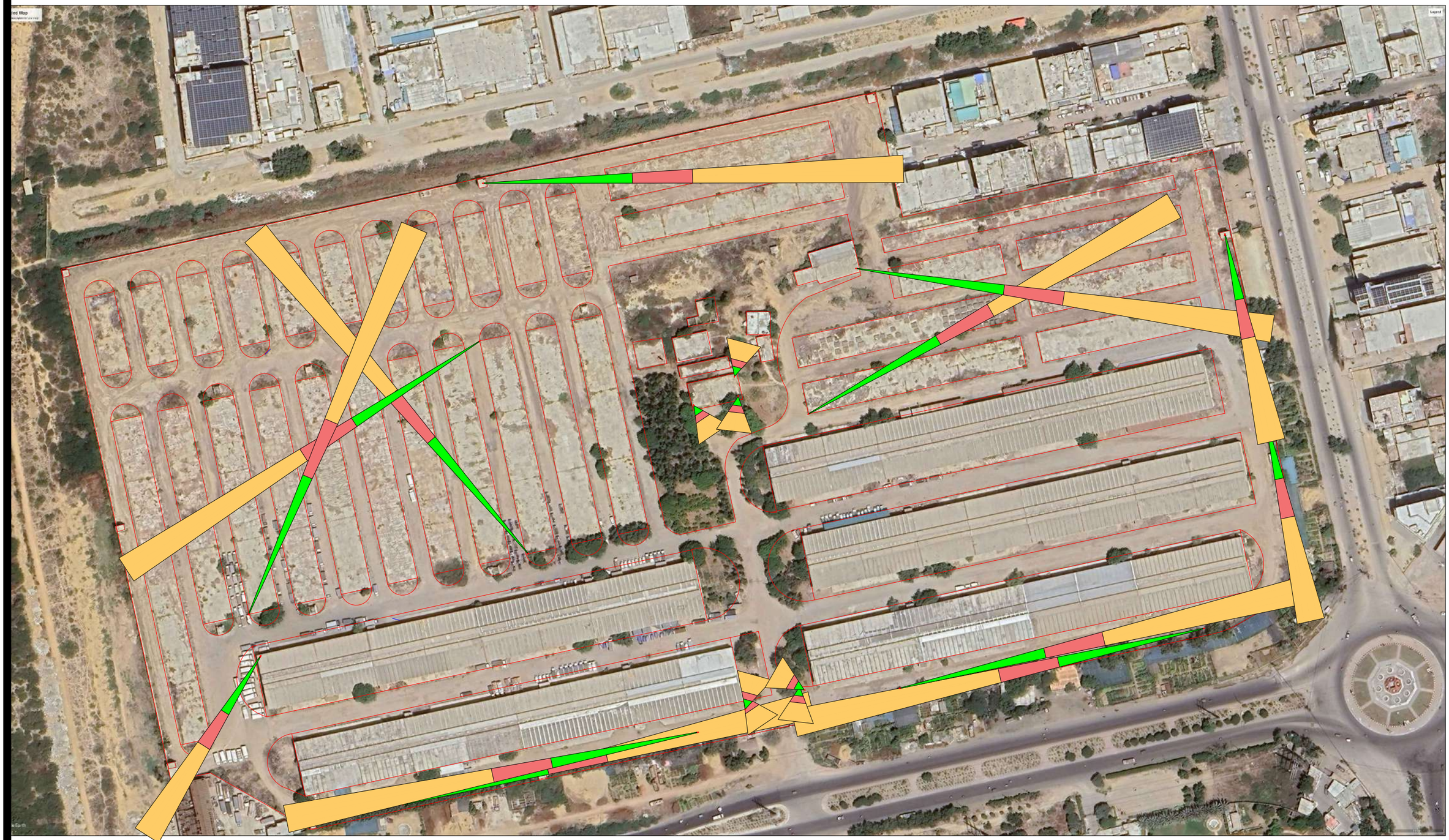
TITLE:
SUB-DB

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY:	JOB NO.	**SCALE:**
ENGR. M. AHMAD		N.T.S

DRG. NO.
EL-06



ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

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PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's KORANGI GODOWN

TITLE:
CAMERA VIEW DESIGN

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO. EL-07



ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

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PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's KORANGI GODOWN

TITLE:
CCTV & DATA DESIGN

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY: ENGR. SHADAB	APPROVED BY:	DATE : DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	SCALE: N.T.S

DRG. NO. EL-08



ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

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PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's KORANGI GODOWN

TITLE:
ELECTRICAL DESIGN

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO. EL-09

DRAWINGS FOR LANDHI

CCTV & ELECTRICAL

LIST OF DRAWINGS

S.NO.	DRAWING TITLE	DRG. NO
	ELECTRICAL DRAWINGS	
1	LIST OF DRAWING	EL-00
2	GENERAL NOTES	EL-01
3	LEGEND AND SYMBOLS	EL-02
4	EARTHING DETAIL	EL-03
5	POLE & TRENCH DETAIL	EL-04
6	MAIN DB	EL-05
7	SUB DB	EL-06
8	CAMERA VIEW DESIGN	EL-07
9	CCTV & DATA DESIGN	EL-08
10	ELECTRICAL DESIGN	EL-09

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PROJECT:
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TITLE:
LIST OF DRAWINGS

CAD filename:

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DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO. EL-OO

G E N E R A L N O T E S

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, AUXILIARY CONSTRUCTIONS 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 10 sq.mm. 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 SYSTSMS, 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. AND AS PER SITE REQUIREMENTS.
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 & PHASE CONDUCTOR OF SAME SIZE FOR UPTO AND INCLUDING 16 SQMM CABLES
    - 16 SQMM ECC FOR PHASE CONDUCTOR OF 16 SQMM, 25SQMM & 35 SQMM CABLES
    - FOR CABLES OF 50 SQMM AND ABOVE SIZES, ECC IS HALF SIZE OF PHASE CONDUCTOR.
    - MAXIMUM SIZE OF ECC IS 70 SQMM.

ELECTRICAL SYSTEMS

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 CONDUCTOR SIZE(SQMM)	NO. & DIA OF WIRES	NOMINAL OVERALL DIA	20 MM DIA (3/4" DIA)	25 MM DIA (1" DIA)	32 MM DIA (1¼" DIA)
1	1.5	1/1.38	3.1	10	18	30
2	2.5	1/1.78	3.5	8	14	23
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	10.3	-	-	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 SWITCH BOARD	48 INCHES
DISTRIBUTION BOARD	48 INCHES
CONTROL PANEL	48 INCHES
ON/OFF PUSH BUTTON STATION	48 INCHES

ADDITION & REVISION

ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

DESIGNER:

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PROJECT: DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's LANDHI GODOWN

TITLE: GENERAL NOTES

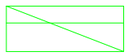
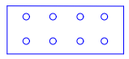
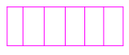
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CLIENT: TRADING CORPORATION OF PAKISTAN

DESIGNED BY: ENGR. SHADAB	APPROVED BY:	DATE : DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	SCALE: N.T.S

DRG. NO. EL-O1

L E G E N D

S.NO	SYMBOLS	D I S C R I P T I O N
01		CCTV CAMERA
02		CAT-6 CABLE
03		OPTICAL FIBRE
04		4 MM2 3 CORE CABLE
05		MAIN DB
06		SUB DB
07		08 PORT POE SWITCH
08		MAIN DATA CABINET
09		4U DATA CABINET

ADDITION & REVISION

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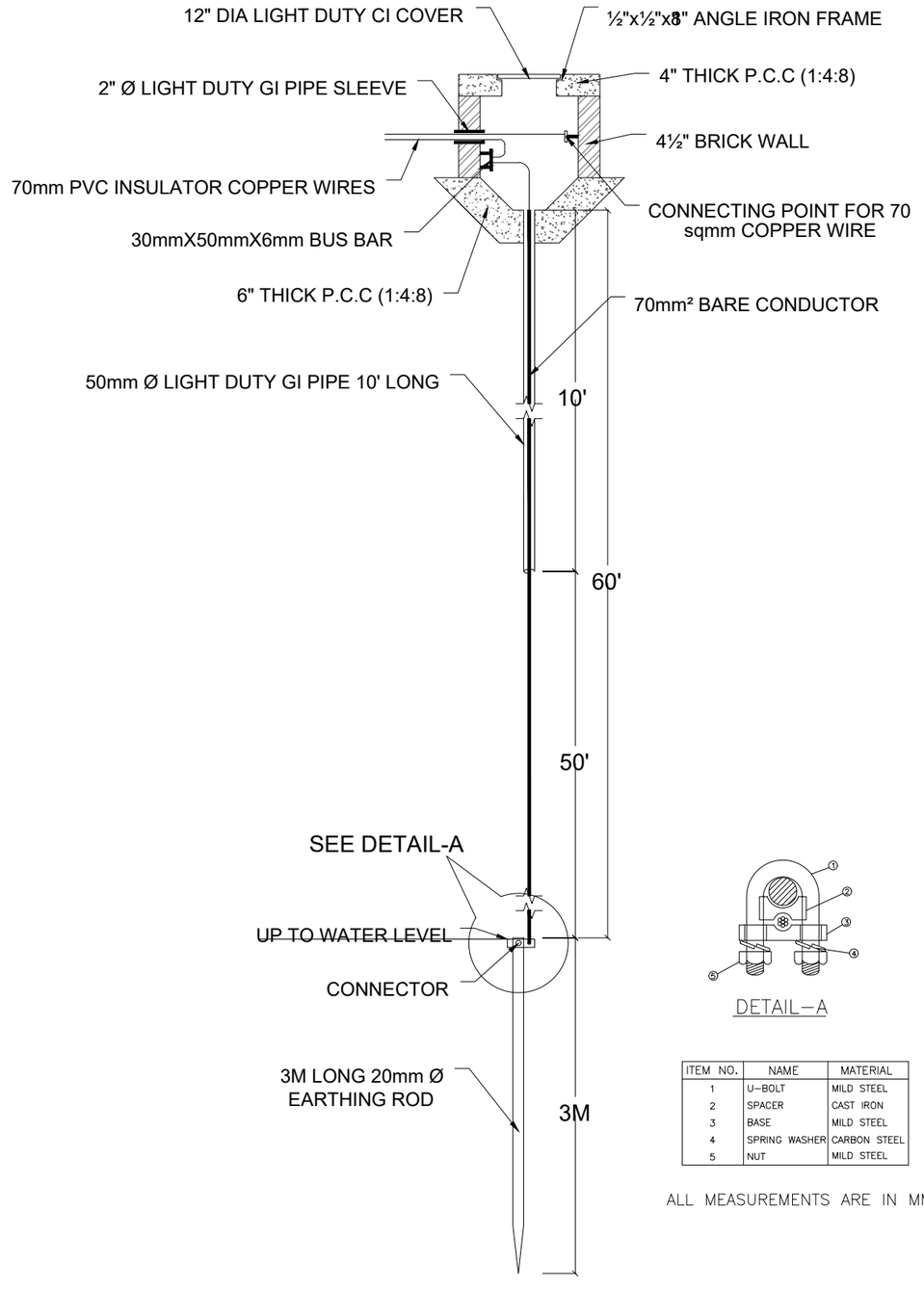
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LEGENDS

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CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO.
EL-O2



DETAIL–A

ITEM NO.	NAME	MATERIAL
1	U–BOLT	MILD STEEL
2	SPACER	CAST IRON
3	BASE	MILD STEEL
4	SPRING WASHER	CARBON STEEL
5	NUT	MILD STEEL

ALL MEASUREMENTS ARE IN MM

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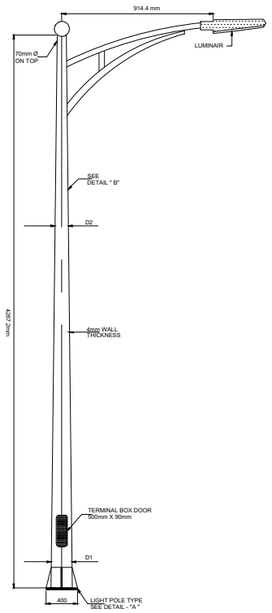
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EARTHING DETAILS

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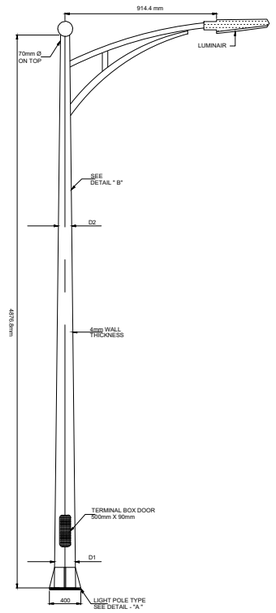
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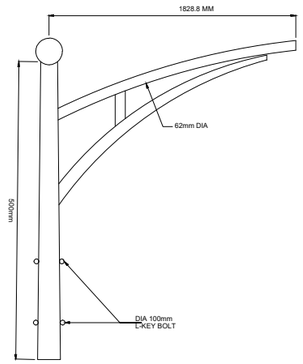
DRG. NO. EL-O3



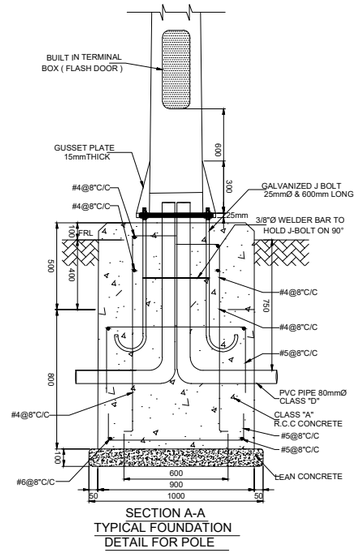
OCTAGONAL POLE 14 FT



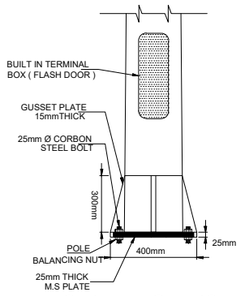
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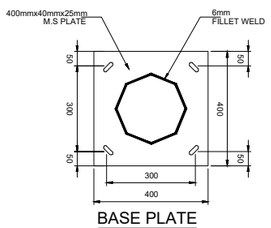
SINGLE ARM DETAIL
SCALE=1:20



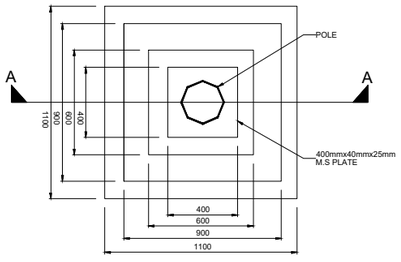
SECTION A-A
TYPICAL FOUNDATION
DETAIL FOR POLE



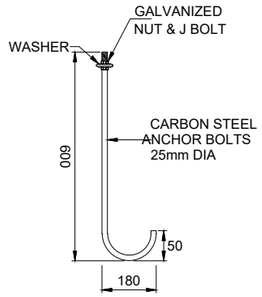
STREET LIGHT POLE
TYPE, DETAIL- A
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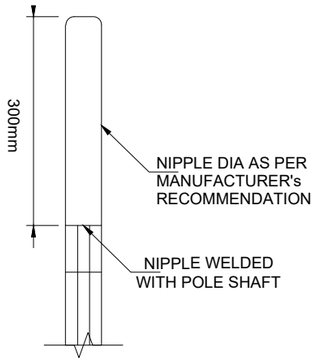
BASE PLATE
SCALE:1:10



TOP VIEW
POLE FOUNDATION PLAN
SCALE1:16

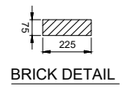


" J " BOLT DETAIL
SCALE:1:16



DETAIL " B "
SCAL=1:8

MULTI CIRCUIT LV
CABLES TRENCH



BRICK DETAIL

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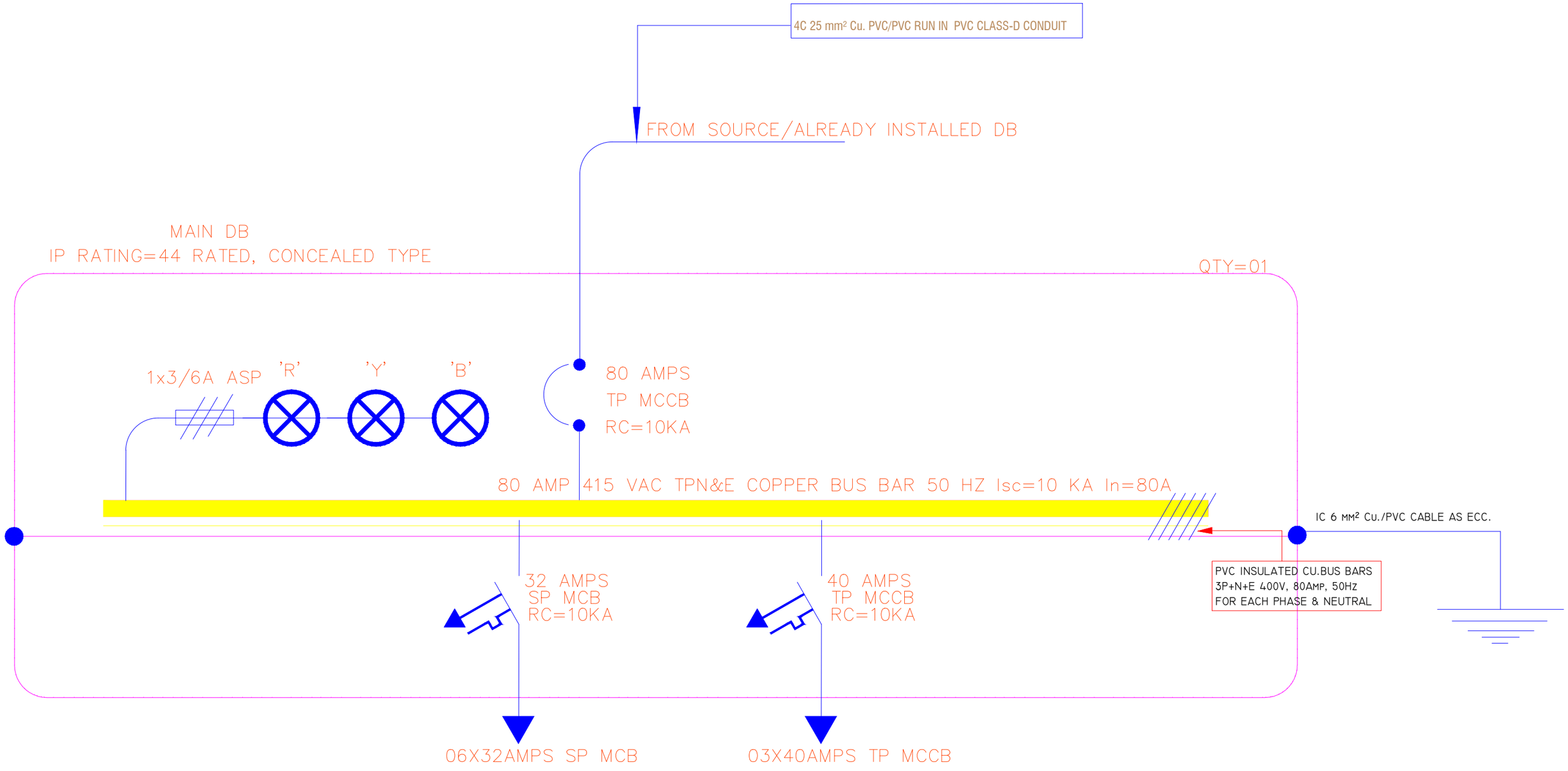
TITLE:
POLE & TRENCH DETAILS

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY: ENGR. SHADAB	APPROVED BY:	DATE : DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	SCALE: N.T.S

DRG. NO.
EL-O4



ADDITION & REVISION					
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Ph: +92-42-37250130

PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's LANDHI GODOWN

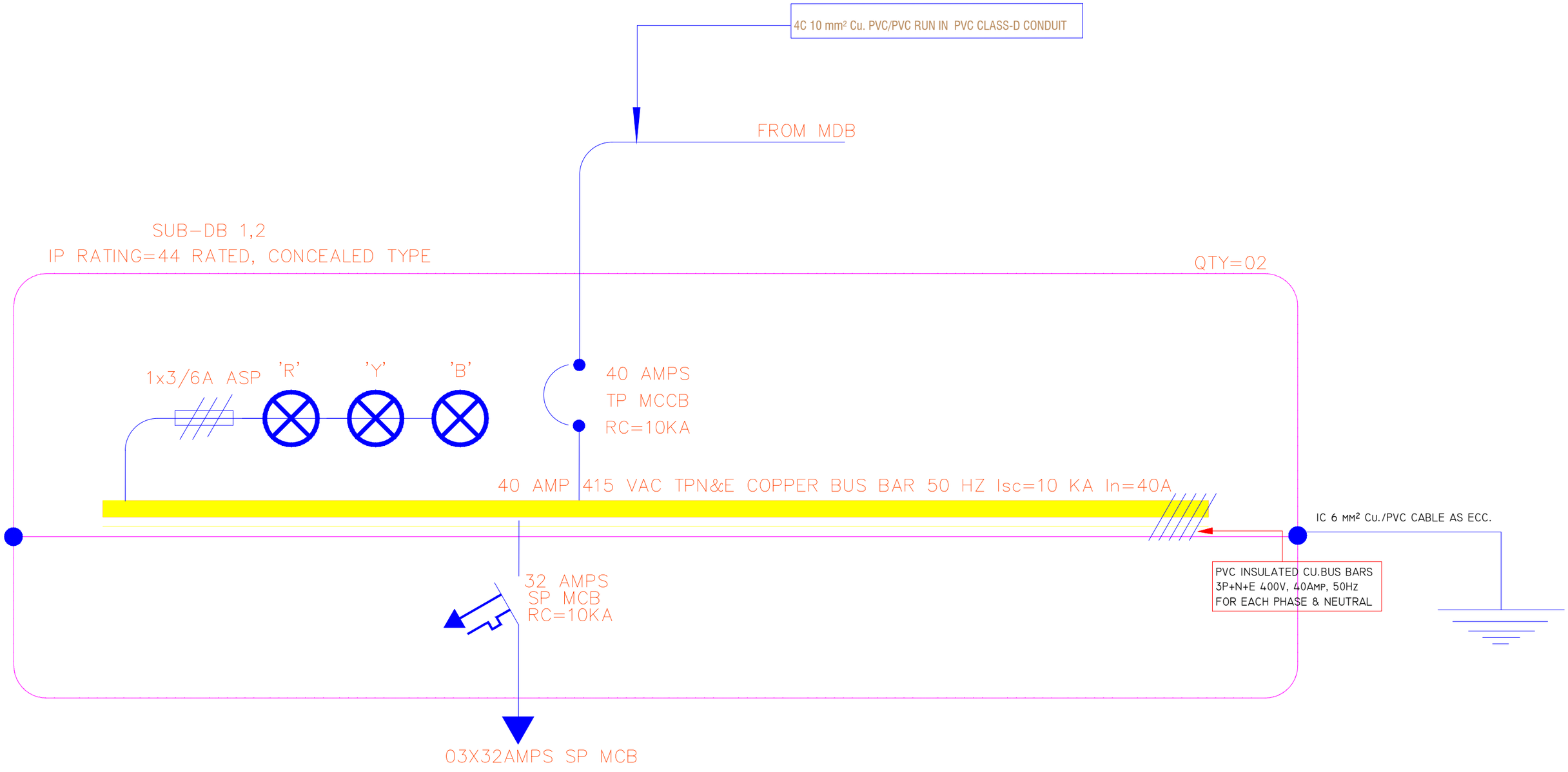
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MAIN-DB

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO.
EL-O5



ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

DESIGNER:

NEW VISION ENGINEERING CONSULTANT

Head Office: Office No.B-6 Second Floor Masood Arcade
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PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's LANDHI GODOWN

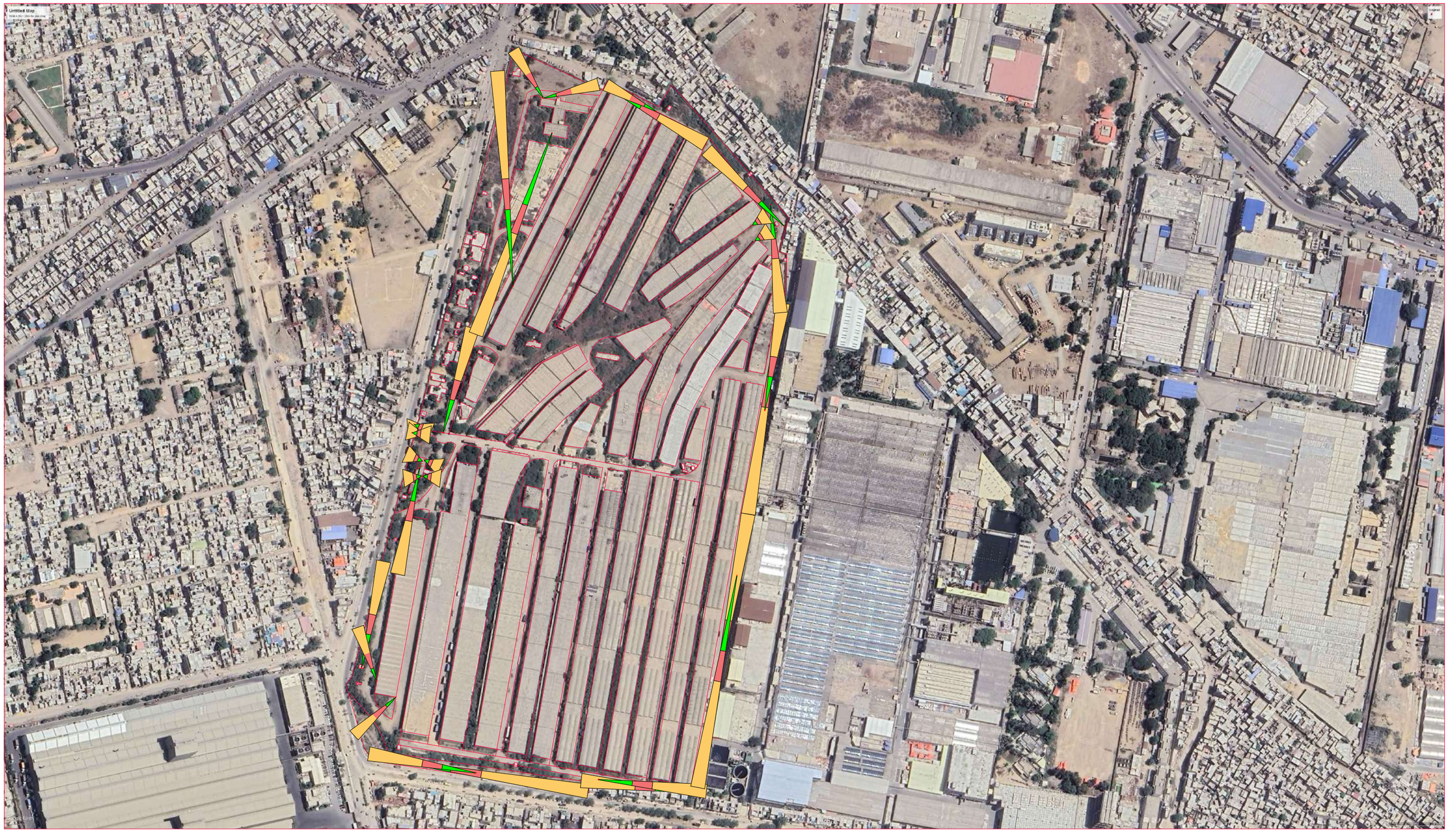
TITLE:
SUB DB 1,2

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO.
EL-O6



ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

DESIGNER:

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PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's LANDHI GODOWN

TITLE:
CAMERA VIEW DESIGN

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY:	JOB NO.	**SCALE:**
ENGR. M. AHMAD		N.T.S

DRG. NO.
EL-O7



ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

DESIGNER:

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PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's LANDHI GODOWN

TITLE:
CCTV & DATA DESIGN

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY: ENGR. SHADAB	APPROVED BY:	DATE : JAN, 2024
DRAWN BY: ENGR. M. AHMAD	JOB NO.	SCALE: N.T.S

DRG. NO. EL-08



ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

DESIGNER:

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PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's LANDHI GODOWN

TITLE:
ELECTRICAL DESIGN

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY:	JOB NO.	**SCALE:**
ENGR. M. AHMAD		N.T.S

DRG. NO.
EL-O9

DRAWINGS FOR PIPRI

CCTV & ELECTRICAL

LIST OF DRAWINGS

S.NO.	DRAWING TITLE	DRG. NO
	ELECTRICAL DRAWINGS	
1	LIST OF DRAWING	EL-00
2	GENERAL NOTES	EL-01
3	LEGEND AND SYMBOLS	EL-02
4	EARTHING DETAIL	EL-03
5	POLE & TRENCH DETAIL	EL-04
6	MAIN DB	EL-05
7	SUB DB 1,2,3,4	EL-06
8	CAMERA VIEW DESIGN	EL-07
9	CCTV & DATA DESIGN	EL-08
10	ELECTRICAL DESIGN	EL-09

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TITLE:
LIST OF DRAWINGS

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

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ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO. EL-00

G E N E R A L N O T E S

ELEC TRIC AL 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, AUXILIARY CONSTRUCTIONS 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 10 sq.mm. 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 SYSTSMS, 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. AND AS PER SITE REQUIREMENTS.
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 & PHASE CONDUCTOR OF SAME SIZE FOR UPTO AND INCLUDING 16 SQMM CABLES
    - 16 SQMM ECC FOR PHASE CONDUCTOR OF 16 SQMM, 25SQMM & 35 SQMM CABLES
    - FOR CABLES OF 50 SQMM AND ABOVE SIZES, ECC IS HALF SIZE OF PHASE CONDUCTOR.
    - MAXIMUM SIZE OF ECC IS 70 SQMM.

ELEC TRIC AL SYSTEMS

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 CONDUCTOR SIZE(SQMM)	NO. & DIA OF WIRES	NOMINAL OVERALL DIA	20 MM DIA (3/4" DIA)	25 MM DIA (1" DIA)	32 MM DIA (1¼ " DIA)
1	1.5	1/1.38	3.1	10	18	30
2	2.5	1/1.78	3.5	8	14	23
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	10.3	-	-	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 SWITCH BOARD	48 INCHES
DISTRIBUTION BOARD	48 INCHES
CONTROL PANEL	48 INCHES
ON/OFF PUSH BUTTON STATION	48 INCHES

ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

DESIGNER:

NEW VISION ENGINEERING CONSULTANT

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Ph: +92-42-37250130

PROJECT: DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's PIPRI GODOWN

TITLE: GENERAL NOTES

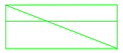
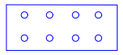
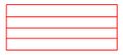
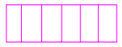
CAD filename:

CLIENT: TRADING CORPORATION OF PAKISTAN

DESIGNED BY: ENGR. SHADAB	APPROVED BY:	DATE : DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	SCALE: N.T.S

DRG. NO. EL-01

L E G E N D

S.NO	SYMBOLS	D I S C R I P T I O N
01		CCTV CAMERA
02		CAT-6 CABLE
03		OPTICAL FIBRE
04		4 MM2 3 CORE CABLE
05		MAIN DB
06		SUB DB
07		08 PORT POE SWITCH
08		MAIN DATA CABINET
09		4U DATA CABINET

ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

DESIGNER:

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PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's PIPRI GODOWN

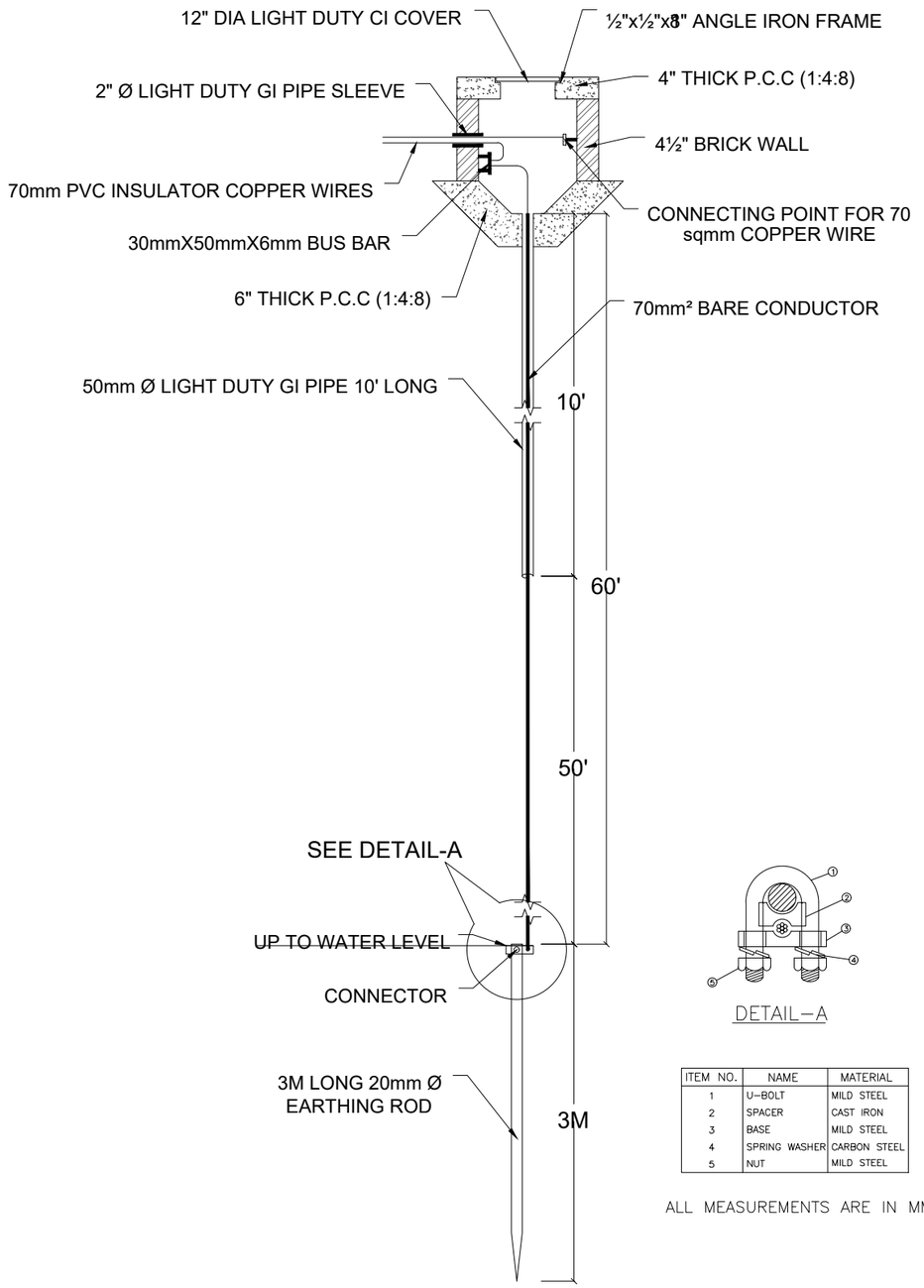
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LEGENDS

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO.
EL-02



DETAIL–A

ITEM NO.	NAME	MATERIAL
1	U–BOLT	MILD STEEL
2	SPACER	CAST IRON
3	BASE	MILD STEEL
4	SPRING WASHER	CARBON STEEL
5	NUT	MILD STEEL

ALL MEASUREMENTS ARE IN MM

ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

ADDITION & REVISION

DESIGNER:

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PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's PIPRI GODOWN

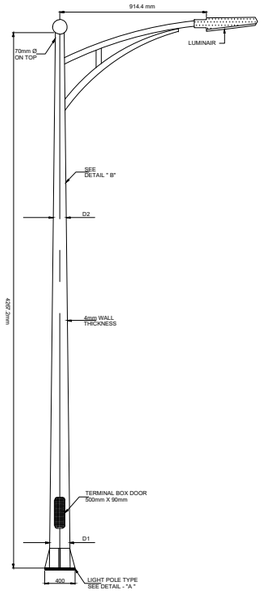
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EARTHING DETAIL

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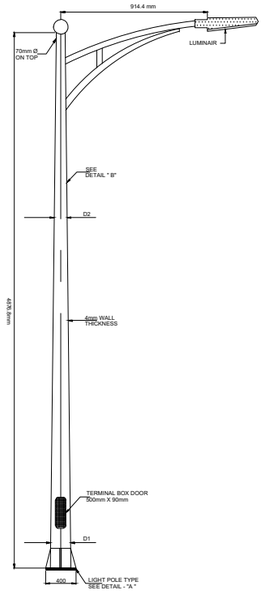
CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

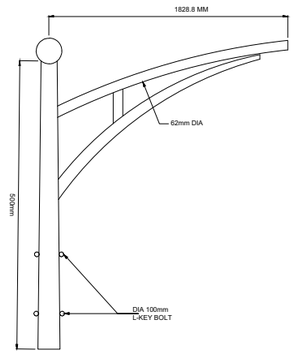
DRG. NO.
EL-03



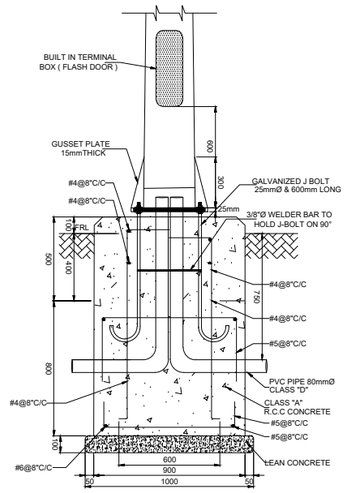
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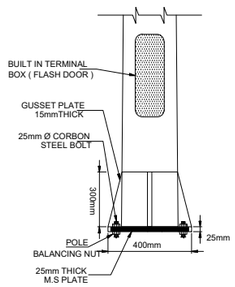
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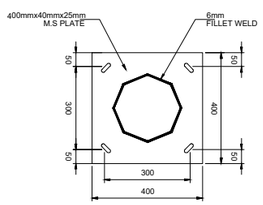
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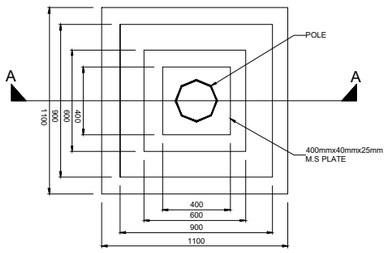
SECTION A-A
TYPICAL FOUNDATION
DETAIL FOR POLE



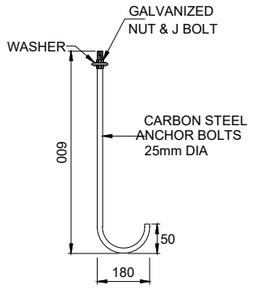
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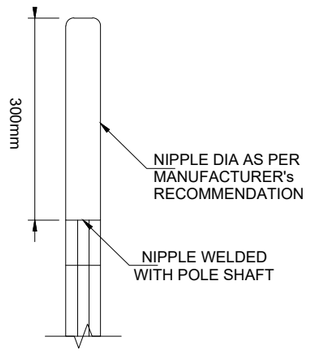
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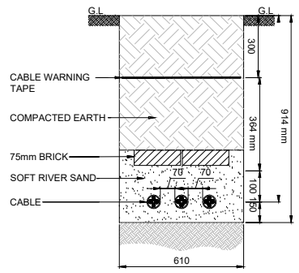
TOP VIEW
POLE FOUNDATION PLAN
SCALE:1:16



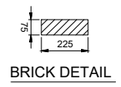
" J " BOLT DETAIL
SCALE:1:16



DETAIL " B "
SCAL=1:8



MULTI CIRCUIT LV
CABLES TRENCH



BRICK DETAIL

ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

DESIGNER:

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Ph: +92-42-37250130

PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's PIPRI GODOWN

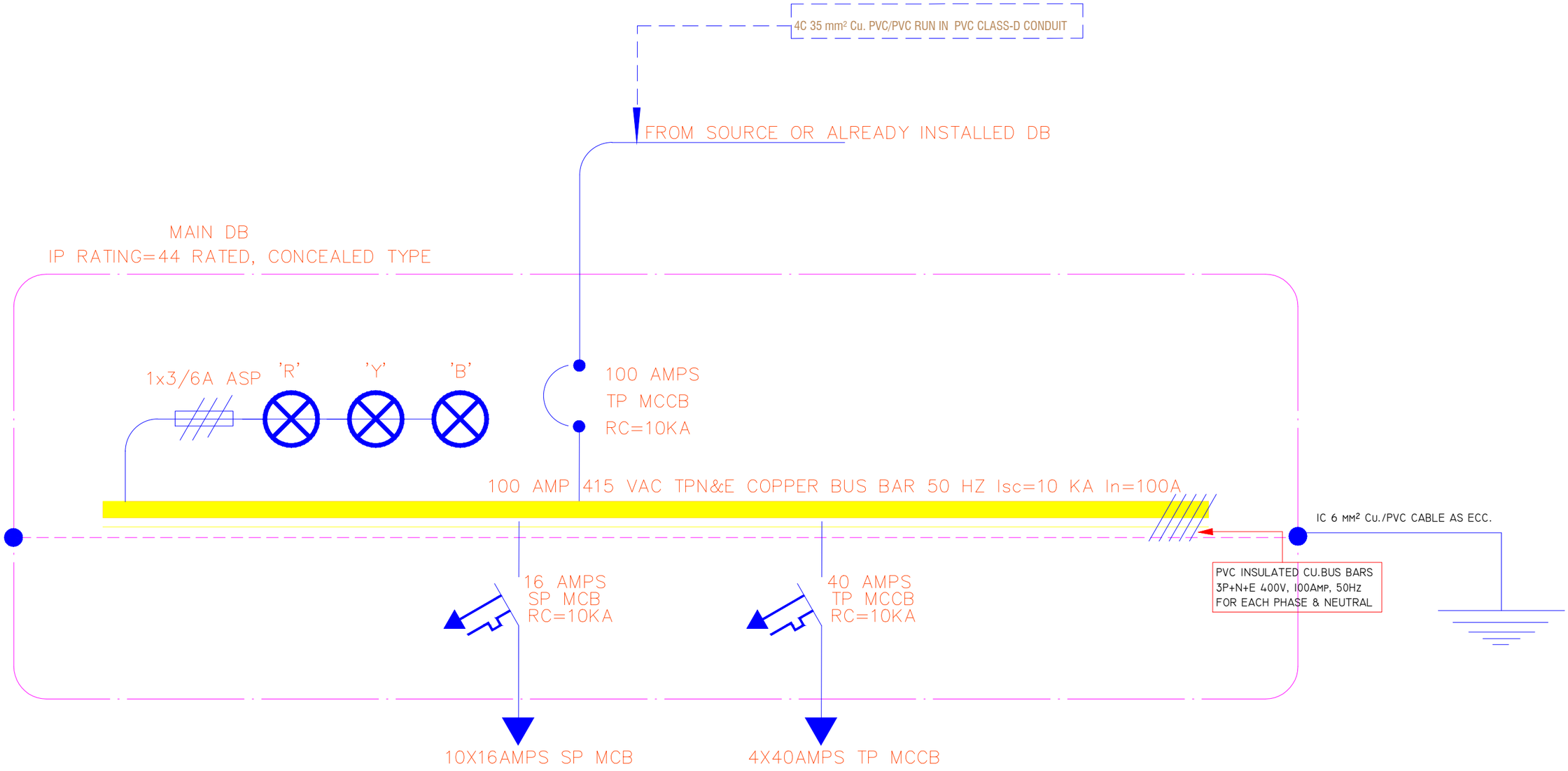
TITLE:
POLE & TRENCH DETAIL

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY: ENGR. SHADAB	APPROVED BY:	DATE : DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	SCALE: N.T.S

DRG. NO. EL-04



ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

DESIGNER:

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PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's PIPRI GODOWN

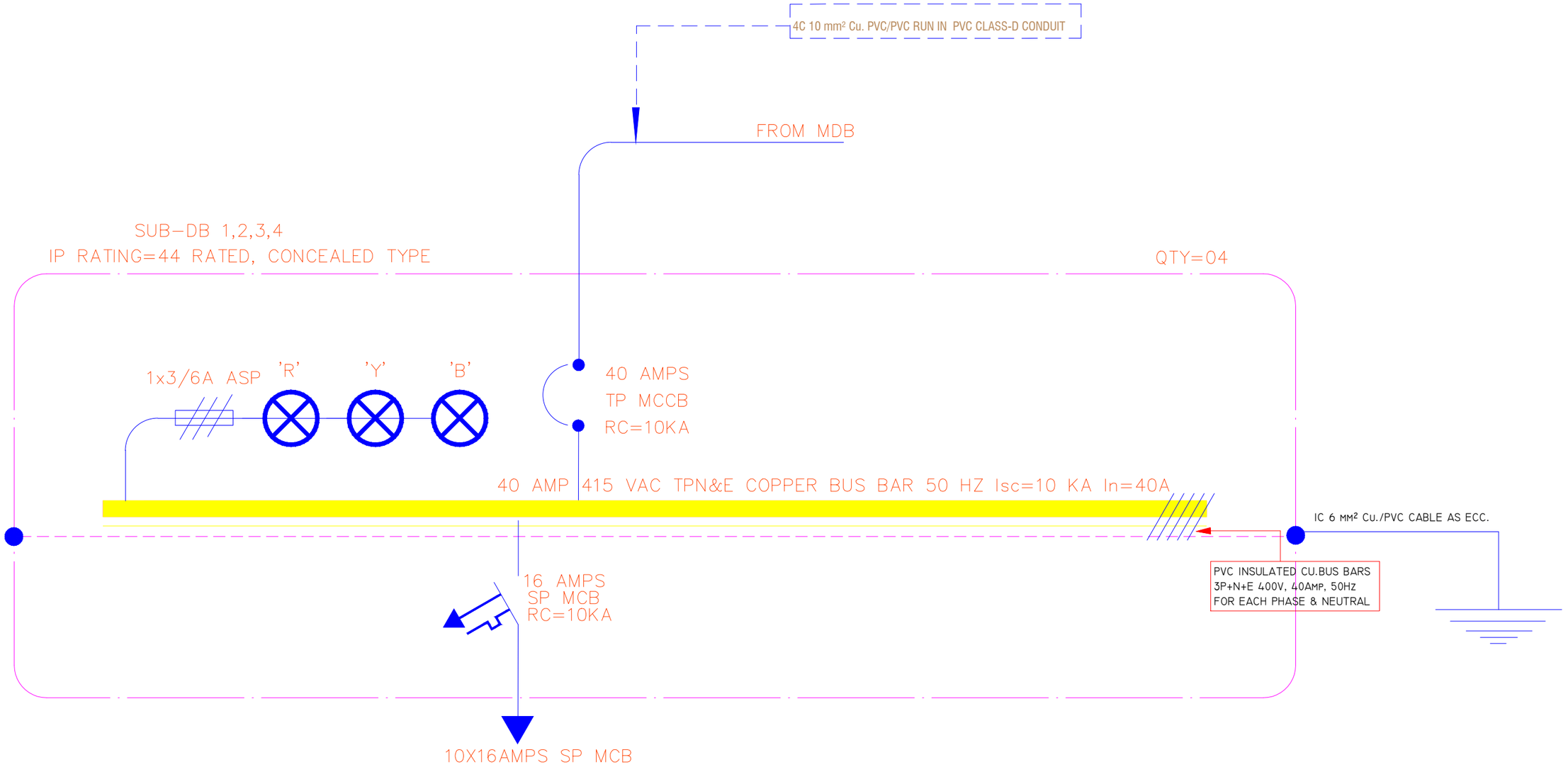
TITLE:
MAIN DB

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO. EL-05



ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

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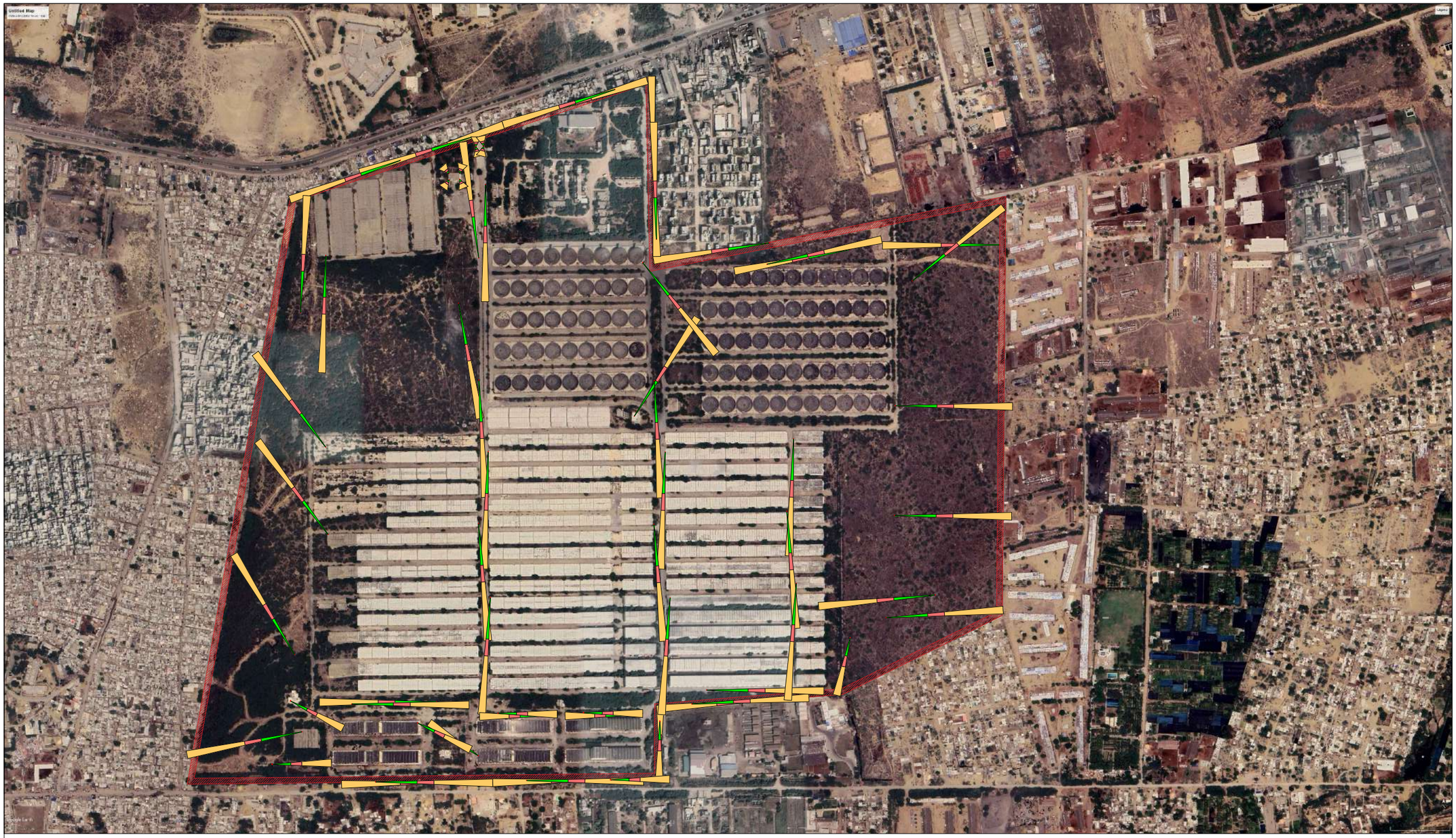
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SUB DB 1,2,3,4

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TRADING CORPORATION OF PAKISTAN

DESIGNED BY:	APPROVED BY:	DATE :
ENGR. SHADAB		DEC, 2023
DRAWN BY: ENGR. M. AHMAD	JOB NO.	**SCALE:** N.T.S

DRG. NO.
EL-06



Proposed new road 38' wide (32' Carriageway with 2x 12 ft Lanes and 2x 4 ft Asphaltic Shoulder)

ADDITION & REVISION					
ADD./REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY

DESIGNER:

NEW VISION ENGINEERING CONSULTANT

Head Office: Office No.B-6 Second Floor Masood Arcade
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Ph: +92-51-4848375, Fax: +92-51-4848375
Email: newvisionec@yahoo.com

Regional Office: 287-A Street # 6, Cavalry Ground ,Lahore
Ph: +92-42-37250130

PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's PIPRI GODOWN

TITLE:
CAMERA VIEW DESIGN

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

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DRG. NO.
EL-07



Proposed new road 38' wide (32' Carriageway with 2x 12 ft Lanes and 2x 4 ft Asphaltic Shoulder)

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PROJECT:
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TITLE:
CCTV & DATA DESIGN

CAD filename:

CLIENT:
TRADING CORPORATION OF PAKISTAN

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DRG. NO. EL-08



Proposed new road 38' wide (32' Carriageway with 2x 12 ft Lanes and 2x 4 ft Asphaltic Shoulder)

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PROJECT:
DESIGNING OF CCTV SURVEILLANCE NETWORK SYSTEM AND ALLIED ACCESSORIES AT TCP's PIPRI GODOWN

TITLE:
ELECTRICAL DESIGN

CAD filename:

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TRADING CORPORATION OF PAKISTAN

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DRG. NO.
EL-09

DRAWINGS FOR MULTAN

CCTV & ELECTRICAL

LIST OF DRAWINGS

S.NO.	DRAWING TITLE	DRG. NO
	ELECTRICAL DRAWINGS	
1	LIST OF DRAWING	EL-00
2	GENERAL NOTES	EL-01
3	LEGEND AND SYMBOLS	EL-02
4	EARTHING DETAIL	EL-03
5	POLE & TRENCH DETAIL	EL-04
6	MAIN DB	EL-05
7	CAMERA VIEW DESIGN	EL-06
8	CCTV & DATA DESIGN	EL-07
9	ELECTRICAL DESIGN	EL-08

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TITLE:
LIST OF DRAWINGS

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EL-OO

G E N E R A L N O T E S

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, AUXILIARY CONSTRUCTIONS 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 10 sq.mm. 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 SYSTSMS, 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. AND AS PER SITE REQUIREMENTS.
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 & PHASE CONDUCTOR OF SAME SIZE FOR UPTO AND INCLUDING 16 SQMM CABLES
    - 16 SQMM ECC FOR PHASE CONDUCTOR OF 16 SQMM, 25SQMM & 35 SQMM CABLES
    - FOR CABLES OF 50 SQMM AND ABOVE SIZES, ECC IS HALF SIZE OF PHASE CONDUCTOR.
    - MAXIMUM SIZE OF ECC IS 70 SQMM.

ELECTRICAL SYSTEMS

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 CONDUCTOR SIZE(SQMM)	NO. & DIA OF WIRES	NOMINAL OVERALL DIA	20 MM DIA (3/4" DIA)	25 MM DIA (1" DIA)	32 MM DIA (1¼ " DIA)
1	1.5	1/1.38	3.1	10	18	30
2	2.5	1/1.78	3.5	8	14	23
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	10.3	-	-	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 SWITCH BOARD	48 INCHES
DISTRIBUTION BOARD	48 INCHES
CONTROL PANEL	48 INCHES
ON/OFF PUSH BUTTON STATION	48 INCHES

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TITLE:
GENERAL NOTES

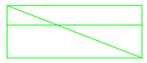
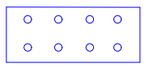
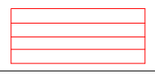
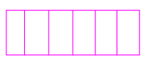
CAD filename:

CLIENT:
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DRG. NO. EL-01

L E G E N D

S.NO	SYMBOLS	D I S C R I P T I O N
01		CCTV CAMERA
02		CAT-6 CABLE
03		OPTICAL FIBRE
04		4 MM2 3 CORE CABLE
05		MAIN DB
06		08 PORT POE SWITCH
07		MAIN DATA CABINET
08		4U DATA CABINET

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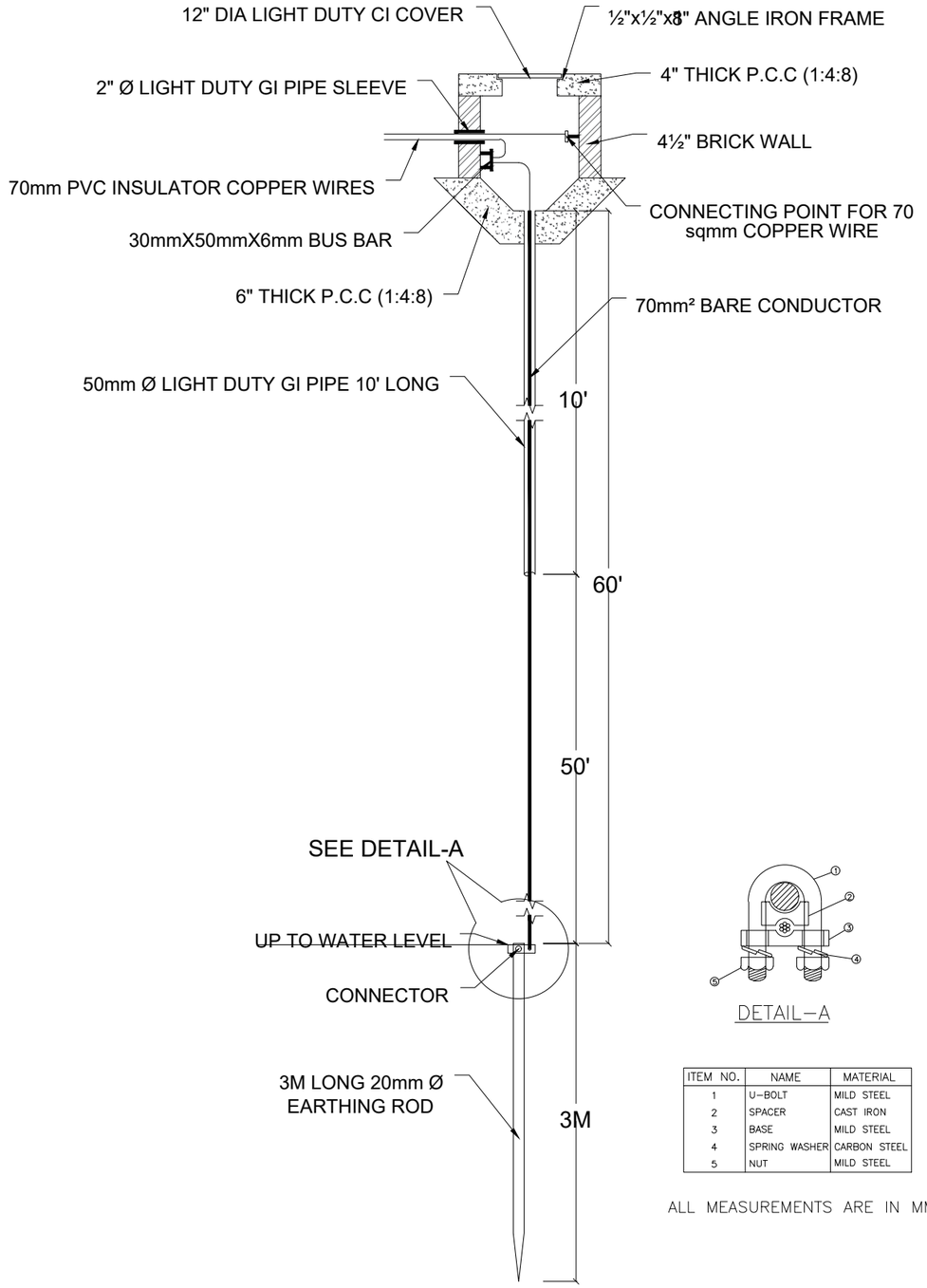
TITLE:
LEGENDS

CAD filename:

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DRG. NO.
EL-02



DETAIL–A

ITEM NO.	NAME	MATERIAL
1	U–BOLT	MILD STEEL
2	SPACER	CAST IRON
3	BASE	MILD STEEL
4	SPRING WASHER	CARBON STEEL
5	NUT	MILD STEEL

ALL MEASUREMENTS ARE IN MM

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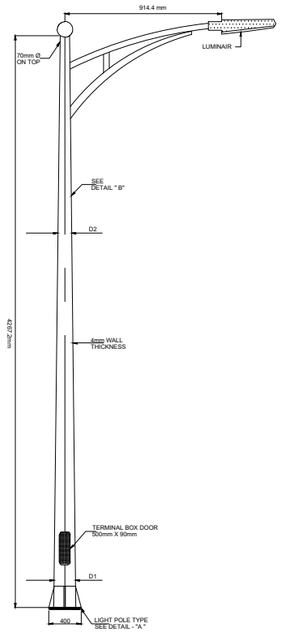
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EARTHING DETAIL

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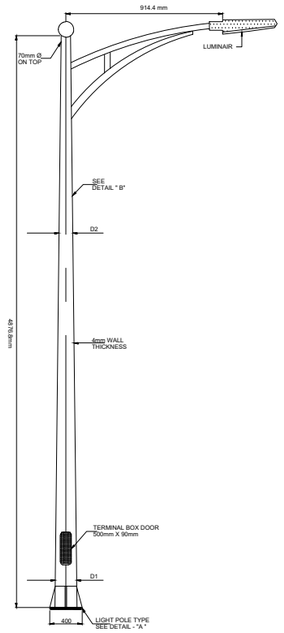
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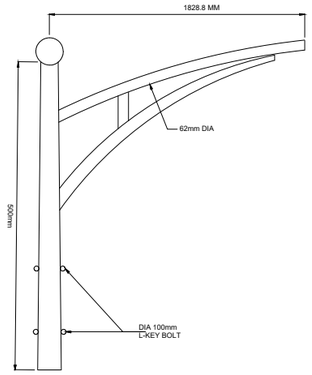
DRG. NO.
EL-O3



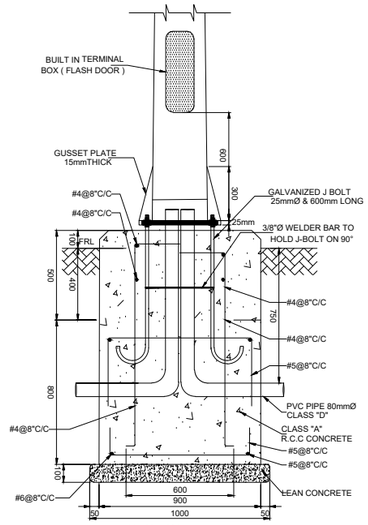
OCTAGONAL POLE 14 FT



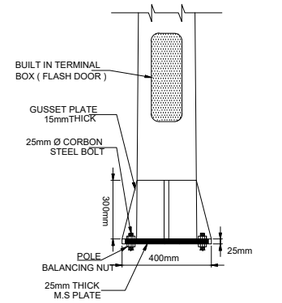
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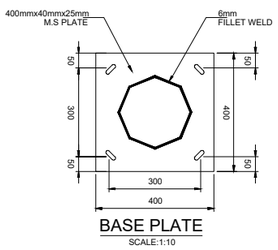
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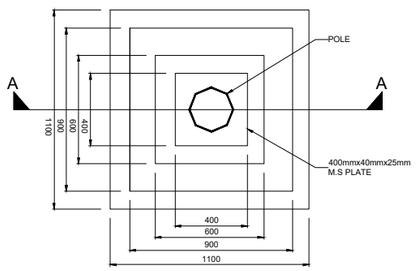
SECTION A-A
TYPICAL FOUNDATION
DETAIL FOR POLE



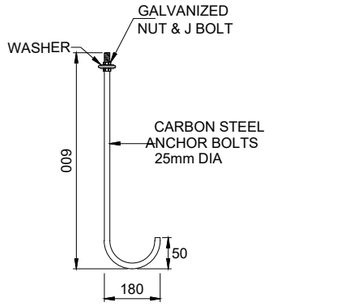
STREET LIGHT POLE
TYPE DETAIL- A
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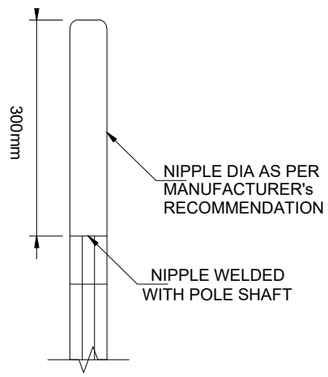
BASE PLATE
SCALE:1:10



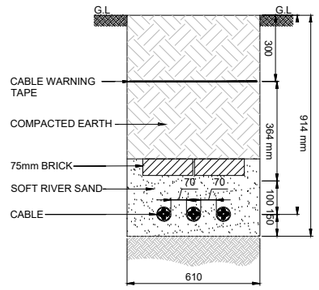
TOP VIEW
POLE FOUNDATION PLAN
SCALE:1:16



" J " BOLT DETAIL
SCALE:1:16



DETAIL " B "
SCAL=1:8



MULTI CIRCUIT LV
CABLES TRENCH



BRICK DETAIL

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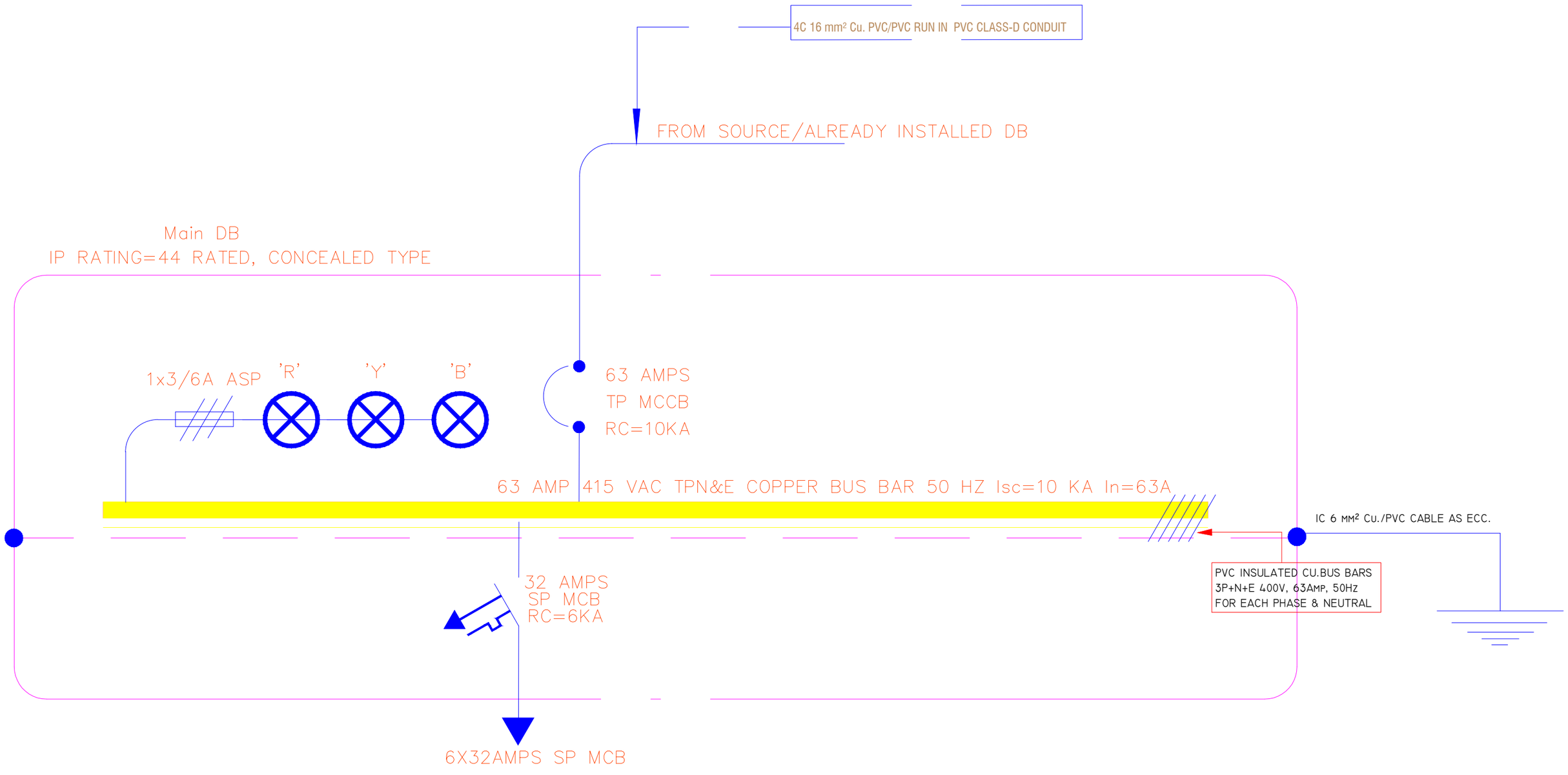
TITLE:
POLE & TRENCH DETAIL

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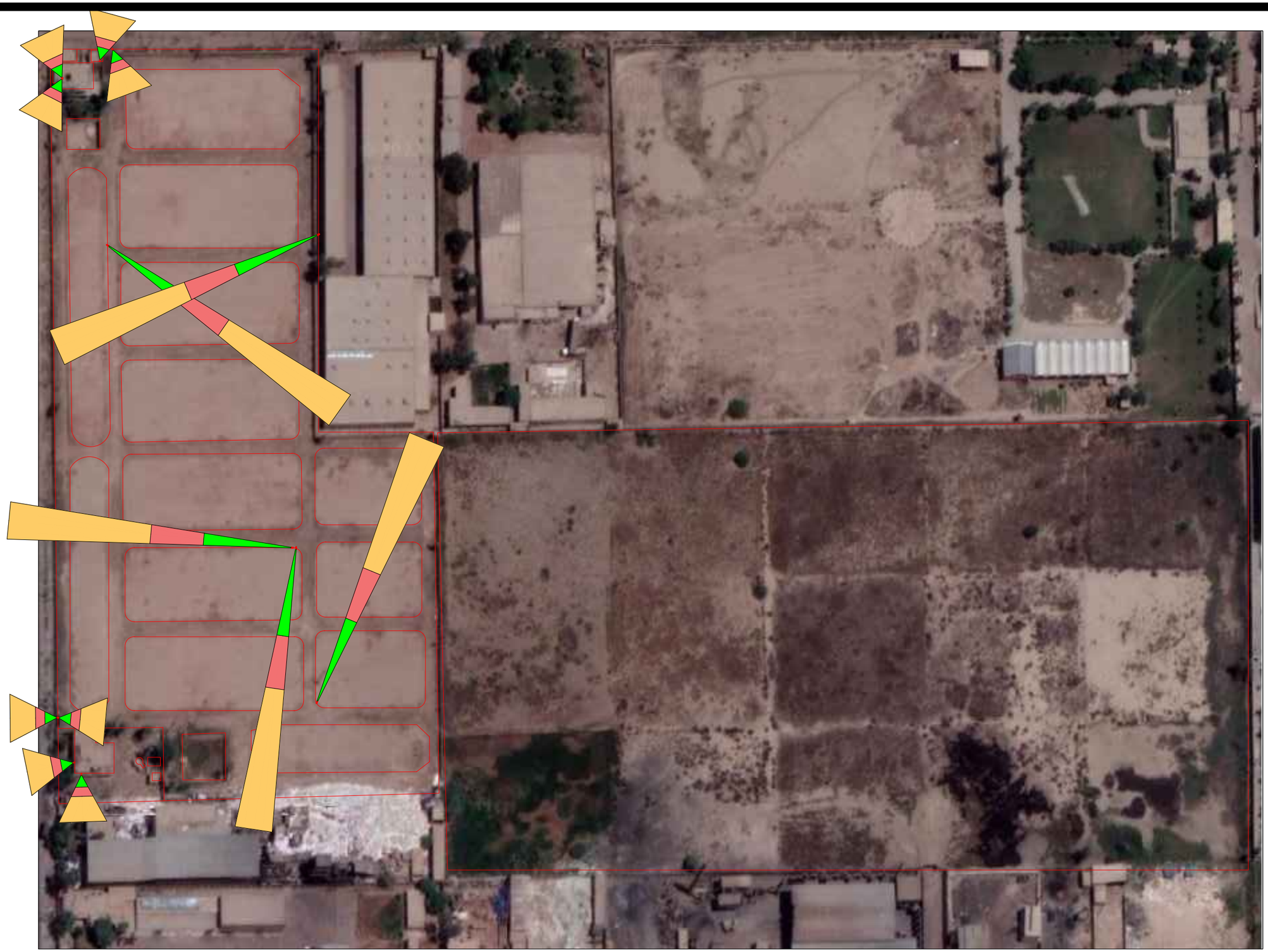
TITLE:
MAIN-DB

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EL-08