



STATE BANK OF PAKISTAN
SBP BANKING SERVICES CORPORATION
ENGINEERING DEPARTMENT
HEAD OFFICE KARACHI

VOLUME-I

VOLUME I: TECHNICAL PROPOSAL

Bidding documents

For

**CONSTRUCTION OF PARKING SHED WITH SOLAR PANELS AT SBP
MAIN BUILDING PREMISES, KARACHI**

BIDDING AND CONTRACT DOCUMENT

INVITATION TO BID
INSTRUCTIONS TO BIDDERS
BIDDING DATA
FORM OF BID
QUALIFICATION CRITERIA
CONDITIONS OF CONTRACT
STANDARD FORMS
DRAWINGS
SPECIFICATIONS

Feb-26



SBP BANKING SERVICES CORPORATION
Engineering Department
Head Office Karachi

ITB No. ED/PROC-HOK/1083186/2026/313

INVITATION TO e-BID

1. SBP Banking Services Corporation, invites electronic bids from the suppliers/ contractors' / service providers, who are registered with PPRA for E-Procurement on "e-Pak Acquisition and Disposal system (EPADS)", having Income & Sales Tax registration and are on Active Taxpayers List (ATL) of FBR.

Sr. No.	Tender No	Title of Procurement	Date & Time of		Bid Security (Rs.)
			Bid Submission	Bid Opening	
1.	313	Construction of Parking Shed with Solar Panels at SBP Main Building Premises, Karachi	02-Apr-26 till 12:00 PM	02-Apr-26 at 12:30 PM	1,500,000/-

2. E-bidding documents as per regulations, containing detailed terms and conditions, specifications and requirements etc. are available for the registered bidders on EPADS at (www.eprocure.gov.pk).
3. The bidding shall be conducted in line with the Single Stage - Two Envelope Procedure - Rule 36 (b), prescribed under Public Procurement Rules 2004, e-Pak Procurement Regulations 2023 and any Regulations, Regulatory Guides, Procurement Guidelines or Instructions issued by the Authority (from time to time), and is open to all potential bidders registered in the EPADS.
4. All Bids must be accompanied by a Bid Security in the shape Payment Order/Bank Draft or an unconditional Bank Guarantee enforceable in Pakistan as mentioned in the table. The scanned copy of the Bid Security shall be uploaded in the EPADS while submitting bid, whereas the original Bid Security shall be submitted to the procuring agency at the Address mentioned before the bid submission deadline. The bidder who failed to submit the original bid security before the deadline shall be disqualified straightaway.
5. The e-bids, prepared in accordance with the instructions in the e-Bidding documents, must be submitted through EPADS on or before date/time specified in the table. E-bids will be opened on the same day at schedule mentioned in the table. Manual submission of Bids shall not be entertained. In case the bid opening date falls on a public holiday, the bids will be opened on the next working day at the same time.
6. In terms of Rules 48 of Public Procurement Rules, 2004 Grievance Redressal Committee (GRC) is notified for the subject procurement and notification copy is available on the procuring agency's website (www.sbp.org.pk) and on Authority's website at (www.ppra.org.pk).

Sd/-

Director Engineering
SBP Banking Services Corporation
Proc. Unit, Engg. Dept., 1st Floor Bolton Market
Building, MA Jinnah Road, Karachi
Phone: (92-21)-32454105, 32464122, Facsimile: 92-21-99221176
Website: www.sbp.org.pk

Table of Contents

VOLUME I: TECHNICAL PROPOSAL	1
SECTION II: INSTRUCTIONS TO BIDDERS	5
A. Introduction	5
B. Bidding Documents	7
C. Preparation of Bids	8
D. Submission of Bids.....	12
E. Opening and Evaluation of Bids	13
F. Award of Contract.....	19
G. Grievance Redressal & Complaint Review Mechanism	21
H. Mechanism of Blacklisting.....	22
SECTION III: BID DATA SHEET.....	24
SECTION IV: ELIGIBLE COUNTRIES, AND QUALIFICATION CRITERIA	26
SECTION V: WORKS REQUIREMENT, SCHEDULE	28
SECTION VI: STANDARD BIDDING FORMS.....	30
SECTION VII: GENERAL CONDITIONS (GC)	35
SECTION VIII: SPECIAL CONDITIONS OF THE CONTRACT	36
PART A – CONTRACT DATA	36
PART B – SPECIAL PROVISIONS.....	39
SECTION IX: CONTRACT FORMS	50
SECTION X - TECHNICAL SPECIFICATIONS & DRAWINGS	55
DRAWINGS.....	85
VOLUME-II: FINANCIAL PROPOSAL.....	1
Preamble.....	2
Bill of Quantities (BOQ).....	3

SECTION II: INSTRUCTIONS TO BIDDERS

A. Introduction		
1. Scope of Bid	1.1	The Procuring agency/Employer (PA), as indicated in the Bid Data Sheet (BDS) invites Bids for the execution of Works as specified in the BDS and Section V- Works Requirements . The name, identification, and number of lots (contracts) of this National/ International Competitive Bidding process are specified in BDS.
2. Source of Funds	2.1	Source of funds as referred in Bid Data Sheet.
3. Eligible Bidders	3.1	A bidder may be natural person, company or firm or public or semi-public agency of Pakistan or any foreign country, or any combination of them with a formal existing agreement (on Judicial Papers) in the form of a joint venture or consortium. In the case of a joint venture or consortium, all members shall be jointly and severally liable for the execution of the Contract in accordance with the terms and conditions of the Contract. The joint venture or consortium shall nominate a Lead Member as nominated in the BDS, who shall have the authority to conduct all business for and on behalf of any and all the members of the joint venture or consortium during the Bidding process, and in case of award of contract, during the execution of contract. <i>(The limit on the number of members of JV or Consortium may be prescribed in BDS, in accordance with the guidelines issued by the PPRA).</i>
	3.2	The appointment of Lead Member in the joint venture or consortium shall be confirmed by submission of a valid Power of Attorney to the Procuring agency/Employer
	3.3	Verifiable copy of the agreement that forms a joint venture or consortium shall be required to be submitted as part of the Bid.
	3.4	Any bid submitted by the joint venture or consortium shall indicate the part of proposed contract to be performed by each party and each party shall be evaluated (or post qualified if required) with respect to its contribution only, and the responsibilities of each party shall not be substantially altered without prior written approval of the Procuring agency/Employer and in line with any instructions issued by the Authority.
	3.5	The invitation for bids is open to all prospective bidder's subject to any provisions of incorporation or licensing by the respective national/ international incorporating agency or statutory body established for that particular trade or business.
	3.6	Foreign Bidders must be locally registered with the appropriate national incorporating body or the statutory body, before participating in the national/international competitive bidding with the exception of such procurements made by the foreign missions of Pakistan. For such purpose the bidder must have to initiate the registration process before the bid submission and the necessary evidence shall be submitted to the Procuring agency/Employer along with their bid, however, the final award will be subject to the complete registration process.
	3.7	A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidders may be considered to have a conflict of interest with one or more parties in this Bidding process, if they: <ul style="list-style-type: none"> a) are associated or have been associated in the past, directly or indirectly with a firm or any of its affiliates which have been engaged by the Procuring agency/Employer to provide consulting services for the preparation of design or technical specifications of the works that are the subject of the bid; or b) any of its affiliates has been hired (or is proposed to be hired) by the Procuring agency/Employer as Engineer for the Contract implementation; or c) The works to be executed are resulting from or directly related to consulting services for the preparation or implementation of the project that the bidder provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm; d) have controlling shareholders in common; or e) receive or have received any direct or indirect subsidy from any of them; or f) have the same legal representative for purposes of this Bid; or g) have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another

		bidder, or influence the decisions of the Procuring agency/Employer regarding this Bidding process; or h) Submit more than one bid in this bidding process.
	3.8	A Bidder may be ineligible if – (a) he is declared bankrupt or, in the case of company or firm, insolvent; (b) payments in favor of the bidder is suspended in accordance with the judgment of a court of law other than a judgment declaring bankruptcy and resulting (in accordance with the national laws) in the total or partial loss of the right to administer and dispose of its property; (c) legal proceedings are instituted against such bidder involving an order suspending payments and which may result, in accordance with the national laws, in a declaration of bankruptcy or in any other situation entailing the total or partial loss of the right to administer and dispose of the property; (d) the bidder is convicted, by a final judgment of a Court of Law or relevant Professional Statuary Body, of any offence involving professional conduct; (e) The bidder is debarred/ blacklisted by a national level Procuring agency/Employer and hence debarred due to involvement in corrupt and fraudulent practices, or performance failure or due to breach of bid securing declaration. (f) The bidder is blacklisted or debarred by a foreign country, international organization, or other foreign institutions for the period defined by them.
	3.9	Bidders shall provide to the Procuring agency/Employer evidence of their eligibility, proof of compliance with the necessary legal requirements to carry out the contract effectively.
	3.10	Bidders shall provide such evidence of their continued eligibility to the satisfaction of the Procuring agency/Employer, as the Procuring agency/Employer shall reasonably request.
	3.11	Bidders shall submit proposal relating to the nature, conditions and modalities of sub-contracting wherever the sub-contracting of any elements of the contract is envisaged.
4. Eligible Material and Equipment	4.1	All the material and equipment to be mobilized under the contract shall have their origin in eligible source countries, and all expenditures made under the contract will be limited to such materials and equipment. For this purpose, ineligible countries are stated in the section-IV titled as “Eligible Countries”.
	4.2	For purposes of this Clause, “origin” means the place where the material, equipment is produced, manufactured, or processed, or through manufacture, procession, or assembly, another commercially recognized article results that differs substantially in its basic characteristics from its imported components or the place from where the services are/to be supplied.
	4.3	The nationality of the bidder shall not determine the origin of the material and equipment.
	4.4	To establish the eligibility of the material and equipment, Bidders shall fill the country-of-origin declarations included in the Form of Bid.
5. One Bid per Bidder	5.1	A bidder shall submit only one bid, in the same bidding process, either individually as a bidder or as a member in a joint venture or any similar arrangement.
	5.2	No bidder can be a sub-contractor while submitting a bid individually or as a member of a joint venture in the same bidding process.
6. Cost of Bidding	6.1	The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Procuring agency/Employer shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

B. Bidding Documents		
7. Contents of Bidding Documents	7.1	The scope of Works, bidding procedures, and terms and conditions of the contract are prescribed in the bidding documents. In addition to the Invitation for Bids, the bidding documents which should be read in conjunction with any addenda issued in accordance with ITB 9.2 include: Section I - Invitation for Bids Section II Instructions to Bidders (ITBs) Section III Bid Data Sheet (BDS) Section IV Eligible Countries Section V Works Requirements Technical Specifications & Schedule of Requirements Section VI Standard Bidding Forms Section VII General Conditions of Contract (GCC) Section VIII Special Conditions of Contract (SCC) Section IX Contract Forms
	7.2	The number of copies to be completed and submitted with the Bid is specified in the BDS .
	7.3	The Procuring agency/Employer is not responsible for the completeness of the bidding documents and their addenda, if they were not obtained directly from the Procuring agency/Employer or the signed pdf version downloaded from the website of the Procuring agency/Employer or the Authority's website or e-Procurement System as the case may be. However, procuring agency/Employer shall place both the pdf and editable version of the same on its website and Authority's website or e-Procurement System to facilitate the bidder for filling the standard bidding forms.
	7.4	The bidder is expected to examine all instructions, forms, specifications, terms and conditions prescribed in the bidding documents. Failure to furnish all the information required in the bidding documents will be at the bidder's risk and may result in the rejection of his bid.
8. Clarification of Bidding Document, Pre-bid Meeting	8.1	A prospective bidder requiring any clarification of the bidding document may notify the Procuring agency/Employer in writing or in electronic form that provides record of the contents of communication at the Procuring agency/Employer's address indicated in the BDS .
	8.2	The Procuring agency/Employer will within three (3) working days after receiving the request for clarification, respond in writing or in electronic form to any request for clarification provided that such request is received not later than three (03) days prior to the deadline for the submission of Bids as prescribed in ITB 24.1 . However, this clause shall not apply in case of alternate methods of procurement.
	8.3	Copies of the Procuring agency/Employer's response will be forwarded to all identified prospective bidders through an identified source of communication, including a description of the inquiry, but without specifying its source. In case of downloading of the bidding documents from the website of Procuring agency/Employer or e-Procurement System, the response of all such queries will also be available on the same platform available at the website.
	8.4	Should the Procuring agency/Employer deem it necessary to amend the bidding documents as a result of a clarification, it shall do so following the procedure as prescribed under ITB 09 .
	8.5	If indicated in the BDS , the bidder's designated representative is invited at the bidder's cost to attend a pre-bid meeting at the place, date and time mentioned in the BDS . During this pre-bid meeting, prospective bidders may request clarification of the schedule of requirement, the evaluation criteria or any other aspects of the bidding documents.
	8.6	Minutes of the pre-bid meeting, if applicable, including the text of the questions asked by bidders, including those during the meeting (without identifying the source) and the responses given, together with any responses prepared after the meeting will be transmitted promptly to all prospective bidders who have obtained the bidding documents. Any modification to the bidding documents that may become necessary as a result of the pre-bid meeting shall be made by the Procuring agency/Employer exclusively through the use of an

		Addendum pursuant to ITB 9 . Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.
	8.7	The bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the bidder's own expense.
	8.8	The bidder and any of its authorized personnel will be granted permission by the Procuring agency/Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the bidder and its personnel will release and indemnify the Procuring agency/Employer from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.
9. Amendment of Bidding Documents	9.1	Before the deadline for submission of bids, the Procuring agency/Employer for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder or pre-bid meeting may modify the bidding documents by issuing addenda.
	9.2	Any addendum issued including the notice of any extension of the deadline shall be part of the bidding documents pursuant to ITB 7.1 and shall be communicated in a timely manner and on equal opportunity basis. Where notification of such change, addition, modification or deletion becomes essential, such notification shall be made in a manner similar to the original advertisement. <i>Provided that the bidder who had either already submitted their bid or handed over the bid to the courier prior to the issuance of any such addendum shall have the right to withdraw his already filed bid and submit the revised bid prior to the original or extended bid submission deadline.</i>
	9.3	To give prospective bidders reasonable time in which to take an addendum/corrigendum into account in preparing their bids, the Procuring agency/Employer may, at its discretion, extend the deadline for the submission of bids: <i>Provided that the Procuring agency/Employer shall extend the deadline for submission of bid, if such an addendum is issued within last three (03) days of the bid submission deadline.</i>
C. Preparation of Bids		
10. Language of Bid	10.1	The bid prepared by the bidder, as well as all correspondence and documents relating to the bid exchanged by the bidder and the Procuring agency/Employer shall be written in the English language unless specified in the BDS . Supporting documents and printed literature furnished by the bidder may be in another language provided they are accompanied by an accurate translation of the relevant pages in the English language unless specified in the BDS , in which case, for purposes of interpretation of the bidder, the translation shall govern.
11. Documents Establishing Eligibility of Material, Equipment and Works, their Conformity to Bidding Documents	11.1	The bid prepared by the bidder shall constitute the following components: - a) Documentary evidence established in accordance with ITB 11 that the material, equipment and services to be provided by the Bidder are eligible material, equipment and services, and conform to the Bidding Documents; b) Documentary evidence established in accordance with ITB 12 that the bidder has been authorized to carry out the Construction works; c) Documentary evidence established in accordance with ITB 12 that the bidder is eligible and/or qualified for the subject bidding process; d) Form of Bid and Bid Prices completed in accordance with ITB 14 and 15 ; e) Completed schedules as required, including priced Bill of Quantities in accordance with ITB 13 & 15 . f) Technical Proposal completed in all aspects in accordance with ITB-17 . g) Bid security or Bid Securing Declaration furnished in accordance with ITB 19 ; h) Alternative bids, if permissible, in accordance with ITB 20 ; i) Duly Notarized Power of Attorney authorizing the signatory of the Bidder to submit the bid; and j) Any other document required in the BDS .
	11.2	In addition to the requirements, bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute

		a Joint Venture Agreement in the event of a successful bid shall be signed by all members and submitted with the bid, together with a copy of the proposed Agreement.
	11.3	The bidder shall furnish, as part of its bid, all those documents establishing the eligibility in conformity to the terms and conditions specified in the bidding documents for all material, equipment and works which the bidder proposes to execute.
	11.4	The documentary evidence of conformity of the material, equipment and works to the Bidding Documents may be in the form of literature, drawings, and data, and shall consist of: <ul style="list-style-type: none"> a) a detailed description of the work methodology, approach, schedule and resources to be mobilized at site; b) an item-by-item commentary on the Procuring agency/Employer's Technical Specifications demonstrating substantial responsiveness of the material, equipment and works to those specifications, or a statement of deviations and exceptions to the provisions of the Technical Specifications; c) any other procurement specific documentation requirement as stated in the BDS.
	11.5	The required documents and other accompanying documents must be in English. In case any other language than English is used the pertinent translation into English shall be attached to the original version.
12. Documents Establishing Eligibility and Qualification of the Bidder	12.1	The bidder shall furnish, as part of its bid, all those documents establishing the bidder's eligibility to participate in the bidding process and/or its qualification to perform the contract if its bid is accepted.
	12.2	The documentary evidence of the bidder's eligibility to bid shall establish to the satisfaction of the Procuring agency/Employer that the bidder, at the time of submission of its bid, is from an eligible country as defined in Section-IV titled as "Eligible Countries".
	12.3	The documentary evidence of the bidder's qualification to perform the contract if its bid is accepted shall establish to the satisfaction of Procuring agency/Employer that: <ul style="list-style-type: none"> a) The bidder has the financial and technical capability necessary to perform the Contract, meets the qualification criteria specified in Section-V, Evaluation and Qualification Criteria and BDS. b) In the case of a bidder not doing business within Pakistan, the bidder is or will be (if awarded the contract) represented by a local bidder (Joint Venture) in accordance with the PEC works bylaws, and in case of award of works such foreign firm is required to participate in the execution of works to carry out its obligations as prescribed in the Conditions of Contract and /or Technical Specifications. c) That the bidder meets the qualification criteria listed in Section-V, Evaluation and Qualification Criteria and BDS.
13. Letter of Bid and Schedules	13.1	The Letter of Bid (Technical or Financial as the case may be) and Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Standard Bid Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITB 22 . All blank spaces shall be filled in with the information requested.
14. Letter of Bid	14.1	The bidder shall fill the Letter of Bid (Technical or Financial as the case may be) furnished in the bidding documents. The Standard Bid Forms must be completed without any alterations to its format and no substitute shall be accepted.
15. Bid Prices	15.1	The bid prices quoted by the bidder in the Standard bid Forms, Bill of Quantities and in the Price Schedules shall conform to the requirements specified below or exclusively mentioned hereafter in the bidding documents.
	15.2	The bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. If a Price Schedule shows items listed but not priced, their prices shall be construed to be included in the prices of other items in the Bill of Quantities and will not be paid for separately by the Procuring agency/Employer.

	15.3	<p>Items not listed in the Price Schedule shall be assumed not to be included in the bid, and provided that the bid is still substantially responsive in their absence or due to their nominal nature, the corresponding average price of the respective item(s) of the remaining substantially responsive bidder(s) shall be construed to be the price of those missing item(s): Provided that:</p> <p>a) where there is only one (substantially) responsive bidder, or</p> <p>b) where there is provision for alternate proposals and the respective items are not listed in the other bids,</p> <p>The Procuring agency/Employer may fix the price of missing items in accordance with market survey, and the same shall be considered as final price.</p>
	15.4	The Bid price to be quoted in the Form of Bid in accordance with ITB 15.1 shall be the total price of the bid.
	15.5	Unless otherwise specified in the BDS and the Contract, the rates and prices quoted by the bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract.
	15.6	If so specified in ITB 1.1 , bids may be invited for individual lots (contracts) or for any combination of lots (packages).
	15.7	Prices quoted by the Bidder shall be fixed during the bidder's performance of the contract and not subject to variation on any account. A bid submitted with an adjustable price will be treated as non-responsive and shall be rejected, pursuant to ITB 30 , unless otherwise price adjustment is permissible under Conditions of the Contract.
	15.8	All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date twenty-eight (28) days prior to the deadline for submission of bids, shall be included in the rates and prices and the total bid price submitted by the bidder.
16. Currencies of Bid and Payment	16.1	The currency(ies) of the bid and the currency(ies) of payments shall be as specified in the BDS .
	16.2	For the purposes of comparison of bids quoted in different currencies, the price shall be converted into a single currency specified in the bidding documents. The rate of exchange shall be the selling rate, prevailing on the date of opening of (financial part of) bids specified in the bidding documents, as notified by the State Bank of Pakistan on that day.
	16.3	Bidders shall indicate details of their expected foreign currency requirements in the Bid, if prescribed in the BDS .
	16.4	Bidders may be required by the Procuring agency/Employer to clarify their foreign currency requirements, if prescribed in the BDS and to substantiate that the amounts included in Lump Sum and in the SCC are reasonable and responsive to ITB 16.1 .
17. Documents Comprising the Technical Proposal	17.1	The bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section IV – Standard Bid Forms , in sufficient detail to demonstrate the adequacy of the bidder's proposal to meet the work requirements and the completion time.
18. Bid Validity Period	18.1	Bids shall remain valid for the period specified in the BDS after the bid submission deadline prescribed by the Procuring agency/Employer. A bid valid for a shorter period shall be rejected by the Procuring agency/Employer as non-responsive. The period of bid validity will be determined from the complementary bid securing instrument i.e. the expiry period of bid security or bid securing declaration as the case may be.
	18.2	Under exceptional circumstances, prior to the expiration of the initial bid validity period, the Procuring agency/Employer may request the bidders' consent to an extension of the period of validity of their bids only once, for the period not more than the period of initial bid validity. The request and the bidders' responses shall be made in writing or in electronic forms that provide record of the content of communication. The Bid Security provided under ITB 19 shall also be extended 28 days beyond the deadline of extended bid validity period. A bidder may refuse the request for the extension of his bid without forfeiting his bid security or causing to be executed his Bid Securing Declaration. A bidder agreeing to the request will not be required nor permitted to modify its bid, but will be required to extend the validity of its Bid Security or Bid Securing Declaration for the period of the extension, and in compliance with ITB 19 in all respects.

19. Bid Security or Bid Securing Declaration	19.1	Pursuant to ITB 11.1 unless otherwise specified in the BDS , the bidder shall furnish as part of its bid, a Bid Security in form of fixed amount not exceeding five percent of the estimated value of procurement determined by the Procuring agency/Employer and in the amount and currency specified in the BDS or Bid Securing Declaration as specified in the BDS in the format provided in Section VI (Standard Bidding Forms) . In case Procuring agency/Employer is inviting bids in lots / packages, the bidder shall be required to submit his bid security against the respective lot/ package for which he is submitting his bid, which shall not exceed five percent of the estimated value of that particular lot/ package.
	19.2	The Bid Security or Bid Securing Declaration is required to protect the Procuring agency/Employer against the risk of Bidder's conduct before award of the contract to the most advantageous bidder which would warrant the security's forfeiture, pursuant to ITB 19.9 .
	19.3	The Bid Security shall be denominated in the local currency or in another freely convertible currency, and it shall be in the form specified in the BDS which shall be in any of the following: a) A bank guarantee, an irrevocable letter of credit issued by a Scheduled bank in the form provided in the Bidding Documents or another form acceptable to the Procuring agency/Employer and valid for twenty-eight (28) days beyond the end of the validity of the Bid. This shall also apply if the period for Bid Validity is extended. In either case, the form must include the complete name of the bidder; b) A cashier's or certified cheque; or c) Another security as indicated in the BDS .
	19.4	The Bid Security or Bid Securing Declaration shall be in accordance with the Form of the Bid Security or Bid Securing Declaration included in Section VI (Standard Bidding Forms) or another form approved by the Procuring agency/Employer prior to the bid submission.
	19.5	The Bid Security shall be payable promptly upon written demand by the Procuring agency/Employer in case any of the conditions listed in ITB 19.9 are invoked.
	19.6	Any bid not accompanied by a Bid Security or Bid Securing Declaration in accordance with ITB 19.1 or 19.3 shall be rejected by the Procuring agency/Employer and shall be declared as non-responsive bid, pursuant to ITB 30 .
	19.7	Unsuccessful bidders' Bid Security will be discharged or returned as promptly as possible, however in no case later than thirty (30) days after the expiration of the period of Bid Validity prescribed by the Procuring agency/Employer pursuant to ITB 18 . The Procuring agency/Employer shall make no claim to the amount of the Bid Security, and shall promptly return the Bid Security document, after whichever of the following that occurs earliest: (a) The expiry of the Bid Security; (b) The entry into force of a procurement contract and the provision of a performance security (or guarantee), for the performance of the contract if such a security (or guarantee), is required by the Bidding documents; (c) The rejection by the Procuring agency/Employer of all Bids; (d) The withdrawal of the bid prior to the deadline for the submission of bids, unless the bidding documents stipulate that no such withdrawal is permitted.
	19.8	The successful bidder's Bid Security will be discharged upon the bidder signing the contract pursuant to ITB 47 , or furnishing the performance security (or guarantee), pursuant to ITB 48 .
	19.9	The Bid Security may be forfeited or the Bid Securing Declaration executed: a) if a Bidder: i) Withdraws its Bid during the period of Bid Validity as specified by the Procuring agency/Employer, and referred by the bidder on the Form of Bid except as provided for in ITB 18.2 ; or ii) Does not accept the correction of errors pursuant to ITB 32 ; or b) In the case of a successful bidder, if the bidder fails: i) to sign the contract in accordance with ITB 47 ; or

		ii) to furnish performance security (or guarantee) in accordance with ITB 48 .
	19.10	In case of Bid Security issued by the foreign bank is allowed by the Procuring agency/Employer, the same should be counter guaranteed by a corresponding bank in Pakistan. Furthermore, in case of joint venture, it should be in the name of Joint venture to ensure joint responsibility.
20. Alternative Bids by Bidders	20.1	Bidders shall submit offers that comply with the requirements of the bidding documents, including the basic bidder's technical design as indicated in the specifications and Bill of Quantities. Alternatives will not be considered, unless specifically allowed for in the BDS . If so allowed, ITB 20 shall prevail.
	20.2	When alternative schedule for execution of works is explicitly invited, a statement of that effect will be included in the BDS as will the method for evaluating different schedule for execution of works.
	20.3	If so allowed in the BDS , bidders wishing to offer technical alternatives to the requirements of the bidding documents must also submit a bid that complies with the requirements of the bidding documents, including the basic technical design as indicated in the specifications. In addition to submitting the basic bid, the bidder shall provide all information necessary for a complete evaluation of the alternative by the Procuring agency/Employer, including technical specifications, breakdown of prices, and other relevant details. Only the technical alternatives, if any, of the Most Advantageous Bidder conforming to the basic technical requirements (without altering the bid price) shall be considered by the Procuring agency/Employer.
21. Withdrawal of Bids	21.1	Before bid submission deadline, any bidder may withdraw, substitute, or modify its bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and the corresponding must accompany the respective written notice.
	21.2	Bids requested to be withdrawn in accordance with ITB 21.1 shall be returned unopened to the bidders.
22. Format and Signing of Bid	22.1	The Bidder shall prepare an original and the number of copies of the bid as indicated in the BDS , clearly marking each " ORIGINAL " and " COPY " as appropriate. In the event of any discrepancy between them, the original shall prevail: <i>Provided that except in Single Stage One Envelope Procedure, the bid shall include only the copies of technical proposal.</i>
	22.2	The original and the copy (ies) of the bid shall be typed or written in indelible ink and shall be signed by the bidder or a person or persons duly authorized to sign on behalf of the bidder. This authorization shall consist of a written confirmation as specified in the BDS and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid, except for un-amended printed literature, shall be initialed by the person or persons signing the bid.
	22.3	Any interlineations, erasures, or overwriting shall be valid only if they are signed by the person(s) authorized for signing the Bid.
D. Submission of Bids		
23. Sealing and Marking of Bids	23.1	In case of Single Stage One Envelope Procedure, the bidder shall seal the original and each copy of the bid in separate envelopes, duly marking the envelopes as " ORIGINAL " and " COPY ". The envelopes shall then be sealed in an outer envelope securely sealed in such a manner that opening and resealing cannot be achieved undetected. Note: <i>The envelopes shall be sealed and marked in accordance with the bidding procedure adopted as referred in Rule-36 of Public Procurement Rules,2004.</i>
	23.2	The inner and outer envelopes shall: a) be addressed to the Procuring agency/Employer at the address given in the BDS ; and b) bear the title of the subject procurement or project name, as the case may be as indicated in the BDS , the Invitation for Bids (ITB) title and number indicated in the BDS , and a statement: " DO NOT OPEN BEFORE ", to be completed with the time and the date specified in the BDS , pursuant to ITB 24.1 .
	23.3	In case of Single Stage Two Envelope Procedure, The Bid shall comprise two envelopes submitted simultaneously, one called the Technical Proposal and the other Financial

		Proposal. Both envelopes to be enclosed together in an outer single envelope called the Bid. Each Bidder shall submit his bid as under: a) Bidder shall submit his TECHNICAL PROPOSAL and FINANCIAL PROPOSAL in separate inner envelopes and enclosed in a single outer envelope. b) ORIGINAL and each copy of the Bid shall be separately sealed and put in separate envelopes and marked as such. c) The envelopes containing the ORIGINAL and copies will be put in one sealed envelope and addressed / identified as given in ITB 23.2 .
	23.4	The inner and outer envelopes shall: a) be addressed to the Procuring agency/Employer at the address provided in the BDS ; b) bear the name and identification number of the contract as defined in the BDS ; and provide a warning not to open before the time and date for bid opening, as specified in the BDS pursuant to ITB 24.1 . c) In addition to the identification required in ITB 23 hereof, the inner envelope shall indicate the name and address of the bidder to enable the bid to be returned unopened in case it is declared "late" pursuant to ITB 25 .
	23.5	If all envelopes are not sealed and marked as required by ITB 23.2 , ITB 23.3 and ITB 23.4 or incorrectly marked, the Procuring agency/Employer will assume no responsibility for the misplacement or premature opening of bid.
24. Deadline for Submission of Bids	24.1	Bids shall be received to the Procuring agency/Employer no later than the date and time specified in the BDS .
	24.2	The Procuring agency/Employer may, under exceptional circumstances and at its discretion, extend the deadline for the submission of bids by amending the Bidding Documents in accordance with ITB 9 , in which case all rights and obligations of the Procuring agency/Employer and bidders previously subject to the deadline will thereafter be subject to the new deadline.
25. Late Bids	25.1	The Procuring agency/Employer shall not consider for evaluation of any bid that arrives after the deadline for submission of bids, in accordance with ITB 24 .
	25.2	Any bid received by the Procuring agency/Employer after the deadline for submission of bids shall be declared late, recorded, rejected and returned unopened to the bidder.
26. Substitution and Modification of bids	26.1	A bidder may substitute or modify his bid after it has been submitted, provided that written notice of the substitution or modification of the bid, is received by the Procuring agency/Employer prior to the deadline for submission of bids.
	26.2	Revised bid may be submitted after the substitution or modification made in the original bid in accordance with the provisions referred in ITB 22 .
E. Opening and Evaluation of Bids		
27. Opening of Bids	27.1	The Procuring agency/Employer will open all bids, in public, in the presence of bidders' or their representatives who choose to attend, and other parties with a legitimate interest in the bid proceedings at the place, on the date and at the time, specified in the BDS . The bidders' representatives present shall sign an attendance sheet as a proof of their attendance.
	27.2	First, envelopes marked " WITHDRAWAL " shall be opened and read out and the envelope with the corresponding bid shall not be opened, but returned to the bidder. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening.
	27.3	Second, outer envelopes marked " SUBSTITUTION " shall be opened. The inner envelopes containing the Substitution Bid shall be exchanged for the corresponding Original Bid being substituted, which is to be returned to the bidder unopened. No envelope shall be substituted unless the corresponding Substitution Notice contains a valid authorization to request the substitution and is read out and recorded at bid opening.
	27.4	Next, outer envelopes marked " MODIFICATION " shall be opened. No Technical Proposal and/or Financial Proposal shall be modified unless the corresponding Modification Notice contains a valid authorization to request the modification and is read out and recorded at the opening of the bids. Any modification shall be read out along with the Original Bid except in case of Single Stage Two Envelope Procedure where only the

		Technical Proposal, both Original as well as Modification, are to be opened, read out, and recorded at the opening. Financial Proposal, both Original and Modification, will remain unopened till the prescribed financial bid opening date.
	27.5	Other envelopes holding the bids shall be opened one at a time, in case of Single Stage One Envelope Procedure, the bidders' names, the bid prices, the total amount of each bid and of any alternative bid (if alternatives have been requested or permitted), the presence or absence of Bid Security, Bid Securing Declaration and such other details as the Procuring agency/Employer may consider appropriate, will be announced by the Procurement Evaluation Committee.
	27.6	In case of Single Stage Two Envelope Procedure, the Procuring agency/Employer will open the Technical Proposals in public at the address, date and time specified in the BDS in the presence of bidders' designated representatives who choose to attend and other parties with a legitimate interest in the bid proceedings. The Financial Proposals will remain unopened and will be held in custody of the Procuring agency/Employer until the specified time of their opening.
	27.7	The envelopes holding the Technical Proposals shall be opened one at a time, and the following read out and recorded: (a) the name of the bidder; (b) whether there is a modification or substitution; (c) the presence of a Bid Security or Bid Securing Declaration, if required; and (d) Any other details as the Procuring agency/Employer may consider appropriate.
	27.8	Bids not opened and not read out at the bid opening shall not be considered further for evaluation, irrespective of the circumstances.
	27.9	Bidders are advised to send in a representative with the knowledge of the content of the bid who shall verify the information read out from the submitted documents. Failure to send a representative or to point out any un-read information by the sent bidder's representative shall indemnify the Procuring agency/Employer against any claim or failure to read out the correct information contained in the bidder's bid.
	27.10	No bid will be rejected at the time of bid opening except for late bids which will be returned unopened to the bidder, pursuant to ITB 25 .
	27.11	The Procuring agency/Employer shall prepare minutes of the bid opening. The record of the bid opening shall include, as a minimum: the name of the bidder and whether or not there is a withdrawal, substitution or modification, the bid price if applicable and the presence or absence of a Bid Security or Bid Securing Declaration.
	27.12	The bidders' representatives who are present shall be requested to sign on the attendance sheet. The omission of a bidder's signature on the record shall not invalidate the contents and affect the record. A copy of the record shall be distributed to all the bidders.
	27.13	A copy of the minutes of the bid opening shall be furnished to individual bidders upon request.
	27.14	In case of Single Stage -Two Envelop Bidding Procedure, after the announcement of technical evaluation report, the Procuring agency/Employer, shall at a time within the bid validity period, publicly open the financial proposals of the technically responsive bidder only. The financial proposal of bidders found technically non-responsive shall be returned un-opened to the respective bidders after seven days of the announcement of technical evaluation report, except those aggrieved bidder(s) whose complaints are pending before the Grievance Redressal Committee.
28. Confidentiality	28.1	Information relating to the examination, clarification, evaluation and comparison of bids and recommendation of contract award shall not be disclosed to bidders or any other persons not officially concerned with such process until the time of the announcement of the respective evaluation report.
	28.2	Any effort by a bidder to influence the Procuring agency/Employer processing of bids or award decisions may result in the rejection of its bid.
	28.3	Notwithstanding ITB 28.2 from the time of bid opening to the time of contract award, if any bidder wishes to contact the Procuring agency/Employer on any matter related to the

		bidding process, it should do so in writing or in electronic forms that provides record of the content of communication.
29. Clarification of Bids	29.1	To assist in the examination, evaluation and comparison of bids, the Procuring agency/Employer may, ask any bidder for a clarification of its bid including breakdown of prices invariably in writing. Any clarification submitted by a bidder that is not in response to a request by the Procuring agency/Employer shall not be considered.
	29.2	The request for clarification and the response shall be in writing or in electronic forms that provide record of the content of communication. No change in the prices or substance of the bid shall be sought, offered, or permitted, except clarification for the correction of arithmetic errors discovered by the Procuring agency/Employer during the evaluation of bids which shall be sought in accordance with ITB 32 .
	29.3	The alteration or modification in the bid which in any case affect the following parameters will be considered as a change in the substance of a bid: a) evaluation & qualification criteria; b) required scope of work; c) contract price; d) all securities requirements; e) tax requirements; f) terms and conditions of bidding documents. g) change in the ranking of the bidder
	29.4	From the time of bid opening to the time of Contract award if any bidder wishes to contact the Procuring agency/Employer on any matter related to the bid it should do so in writing or in electronic forms that provide record of the content of communication.
30. Preliminary Examination of Bids	30.1	Prior to the detailed evaluation of bids, the Procuring agency/Employer will determine whether each bid: a) meets the eligibility criteria defined in ITB 3 and ITB 4 ; b) has been prepared as per the format and contents defined by the Procuring agency/Employer in the bidding documents; c) has been properly signed; d) is accompanied by the required securities; and e) is substantially responsive to the requirements of the bidding documents. The Procuring agency/Employer's determination of a bid's substantial responsiveness will be based on the contents of the bid itself.
	30.2	A substantially responsive Bid is one which conforms to all the terms, conditions, and specifications of the Bidding Documents, without material deviation or reservation. A material deviation or reservation is one that: - a) affects in any substantial way the scope, quality, or performance of the Works; b) limits in any substantial way, inconsistent with the bidding documents, the Procuring agency/Employer's rights or the bidders' obligations under the Contract; or c) if rectified, would affect unfairly the competitive position of other bidders presenting substantially responsive bids.
	30.3	The Procuring agency/Employer will confirm that the documents and information specified under ITB 11, 12 and 13 have been provided in the bid. If any of these documents or information is missing, or is not provided in accordance with the Instructions to Bidders, the bid shall be rejected.
	30.4	The Procuring agency/Employer may waive-off any minor informality, nonconformity, or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Bidder. Explanation: A minor informality, non-conformity or irregularity is one that is merely a matter of form and not of substance. It also pertains to some immaterial defect in a Bid or variation of a bid from the exact requirements of the invitation that can be corrected or waived without being prejudicial to other bidders. The defect or variation is immaterial when the effect on quantity, quality, or delivery is negligible when contrasted with the total cost or scope of the works. The Procuring agency/Employer either shall give the bidder an opportunity to cure any deficiency resulting from a minor informality or irregularity in a

		<p><i>bid or waive the deficiency, whichever is advantageous to the Procuring agency/Employer. Examples of minor informalities or irregularities include failure of a bidder to –</i></p> <p>(a) <i>Submit the number of copies of signed bids required by the invitation;</i></p> <p>(b) <i>Furnish required information concerning the number of its employees;</i></p> <p>(c) <i>the firm submitting a bid has formally adopted or authorized, before the date set for opening of bids, the execution of documents by typewritten, printed, or stamped signature and submits evidence of such authorization and the bid carries such a signature.</i></p>
	30.5	<p>Provided that a Technical Bid is substantially responsive, the Procuring agency/Employer may request the bidder to submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the Technical Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any such aspect of the technical Proposal linked with the ranking of the bidders. Failure of the bidder to comply with the request may result in the rejection of its bid.</p>
	30.6	<p>Provided that a Technical Bid is substantially responsive, the Procuring agency/Employer shall rectify quantifiable nonmaterial nonconformities or omissions related to the Financial Proposal. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of the missing or nonconforming item or component.</p>
	30.7	<p>If a bid is not substantially responsive, it will be rejected by the Procuring agency/Employer and may not subsequently be evaluated for complete technical responsiveness.</p>
31. Examination of Terms and Conditions; Technical Evaluation	31.1	<p>The Procuring agency/Employer shall examine the bid to confirm that all terms and conditions specified in the GCC and the SCC have been accepted by the bidder without any material deviation or reservation.</p> <p>For this purpose:</p> <p>“Deviation” means departure from the requirements specified in the Bidding Document.</p> <p>“Reservation” means setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document.</p>
	31.2	<p>The Procuring agency/Employer shall evaluate the technical aspects of the bid submitted in accordance with ITB 31, to confirm that all requirements specified in Section V – Works Requirement, Technical Specifications of the Bidding Documents have been met without material deviation or reservation.</p>
	31.3	<p>If after the examination of the terms and conditions and the technical evaluation, the Procuring agency/Employer determines that the bid is not substantially responsive in accordance with ITB 30, it shall reject the bid.</p>
32. Correction of Arithmetic Errors	32.1	<p>Bids determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows: -</p> <p>a) if there is a discrepancy between unit prices and the sub-total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the sub-total price shall be corrected, unless in the opinion of the Procuring agency/Employer there is an obvious misplacement of the decimal point in the unit price, in which the total price as quoted shall govern and the unit price shall be corrected;</p> <p>b) if there is an error in a total corresponding to the addition or subtraction of sub-totals, the sub-totals shall prevail, and the total shall be corrected; and</p> <p>c) where there is a discrepancy between the amounts in figures and in words, the amount in words will govern.</p> <p>d) Where there is discrepancy between grand total of price schedule and amount mentioned on the Form of Bid, the amount referred in Price Schedule shall be treated as correct subject to elimination of other errors.</p>
	32.2	<p>The amount stated in the Bid will, be rectified by the Procuring agency/Employer in accordance with the above procedure for the correction of errors and, with, the concurrence of the bidder, shall be considered as binding upon the bidder. If the bidder does not accept the corrected amount, its bid shall be rejected after forfeiture of Bid Security or execution of the Bid Securing Declaration, as the case may be, in accordance with ITB 19.9.</p>

33. Conversion to Single Currency	33.1	The unit rates and the prices shall be quoted by the bidder entirely in Pak rupees. A bidder expecting to incur expenditures in other currencies for inputs to the Works from outside the Procuring agency/Employer's country (referred to as the "Foreign Currency Requirements") shall indicate the same in the letter of bid-financial proposal. The proportion of the Bid Price (excluding Provisional Sums) needed by him for the payment of such Foreign Currency Requirements either (i) entirely in the currency of the Bidder's home country or, (ii) at the bidder's option, entirely in Pak rupees provided always that a bidder expecting to incur expenditures in a currency or currencies other than those stated in (i) and (ii) above for a portion of the foreign currency requirements, and wishing to be paid accordingly, shall indicate the respective portions in his bid.
	33.2	To facilitate evaluation and comparison, the Procuring agency/Employer will convert all bid prices expressed in the amounts in various currencies in which the bid prices are payable. For the purposes of comparison of bids quoted in different currencies, the price shall be converted into a single currency specified in the bidding documents. The rate of exchange shall be the selling rate, prevailing on the date of opening of (financial part of) bids specified in the bidding documents, as notified by the State Bank of Pakistan on that day.
	33.3	The currency selected for converting bid prices to a common base for the purpose of evaluation, along with the source and date of the exchange rate, are specified in the BDS .
34. Evaluation of Bids	34.1	The Procuring agency/Employer shall evaluate and compare only the bids determined to be substantially responsive, pursuant to ITB 30 .
	34.2	In evaluating the Technical Proposal of each Bid, the Procuring agency/Employer shall use the criteria and methodologies listed in the BDS and in terms of works requirement. No other evaluation criteria or methodologies shall be permitted.
	34.3	The Procuring agency/Employer's evaluation of a bid will take into account: a) the bid price, excluding provisional sums and the provision, if any, for contingencies in the summary bill of quantities, but including day work items, where priced competitively; b) price adjustment for correction of arithmetic errors in accordance with ITB 32.1 ; c) converting the amount resulting from applying (a) and (b) above, if relevant, to a single currency in accordance with ITB 33 ;
	34.4	The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.
	34.5	If these bidding documents allow bidders to quote separate prices for different lots, and the award to a single bidder of multiple lots, the methodology of evaluation to determine the lowest evaluated lot combinations in the Form of Bid, is specified in the BDS .
	34.6	If the bid, which results in the Evaluated Bid Price (Most Advantageous Bid), is seriously unbalanced or front loaded in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract. Explanation: <i>"Unbalanced" or "front-loaded" bids consist of deliberately submitting bids with artificially high prices or unit rates for the early stages of a construction project, offset by artificially low prices or unit rates for the later stages of the project, to improve the contractor's cash flow.</i>
35. Domestic Preference	35.1	If the BDS so specifies, the Procuring agency/Employer will grant a margin of preference to the domestic contractor in line with the rules, regulations, regulatory guides or instructions issued by the Authority from time to time.

36. Determination of Most Advantageous Bid	36.1	The Procuring agency/Employer shall compare the evaluated bids in accordance with the predefined bidding procedure, of all substantially responsive bids to determine the Most Advantageous bidder.
37. Qualification of Bidder	37.1	The Procuring agency/Employer shall determine to its satisfaction whether the bidder is substantially responsive and whose bid is declared as most advantageous bid either continues to meet (if prequalification applies) or meets (if post-qualification applies) the qualifying criteria specified in Evaluation and Qualification Criteria. <i>Note: In case of International bidding, the parameters for incorporation or licensing within Pakistan may be fulfilled as part of post qualification.</i>
	37.2	The determination shall be based upon an examination of the documentary evidence of the bidder's qualifications submitted by the bidder, pursuant to ITB 12 .
	37.3	Prior to contract award, the Procuring agency/Employer will verify that the successful bidder (including each member of a JV) is not blacklisted/debarred. The Procuring agency/Employer will conduct the same verification for each sub-contractor proposed by the successful bidder.
38. Sub-Contractors	38.1	The bidder shall provide details regarding any specialized sub-contractor to the Procuring agency/Employer. In case change of sub-contractors, the bidder shall promptly notify the Procuring agency/Employer and obtain approval for replacement of sub-contractors.
	38.2	Bidders may propose sub-contracting up to the percentage of total value of contracts or the volume of works as specified in the BDS .
39. Abnormally Low Financial Bid	39.1	Where the bid price is considered to be abnormally low, the Procuring agency/Employer shall perform price analysis either during determination of Most Advantageous Bid or as a part of the post-qualification process. The following process shall apply: a) The Procuring agency/Employer may reject a bid if the Procuring agency/Employer has determined that the price in combination with other constituent elements of the bid is abnormally low in relation to the subject matter of the procurement (i.e. scope of the procurement or ancillary services) and raises concerns as to the capability and capacity of the respective Bidder to perform that contract; b) Before rejecting an abnormally low bid the Procuring agency/Employer shall request the bidder an explanation of the bid or of those sections which it considers contribute to the bid being abnormally low; take account of the evidence provided in response to a request in writing; and subsequently verify the bid or parts of the bid being abnormally low; c) The decision of the Procuring agency/Employer to reject a bid and reasons for the decision shall be recorded in the procurement proceedings and promptly communicated to the bidder concerned; d) The Procuring agency/Employer shall not incur any liability solely by rejecting abnormally bid; and e) An abnormally low bid means, in the light of the Procuring agency/Employer's estimate and of all the bids submitted, the bid appears to be abnormally low by not providing a margin for normal levels of profit. Guidance for Procuring agency/Employer: In order to identify the Abnormally Low Bid (ALB) following approaches can be considered to minimize the scope of subjectivity: (i) Comparing the bid price with the cost estimate; (ii) Comparing the bid price with the bids offered by other bidders submitting substantially responsive bids; and (iii) Comparing the bid price with prices paid in similar contracts in the recent past either government- or development partner-funded.
	39.2	The Procuring agency/Employer will determine to its satisfaction whether the bidder that is selected as having submitted the most advantageous bid is qualified to perform the contract satisfactorily, in accordance with the criteria listed in ITB 12
	39.3	The determination will take into account the bidder's financial and technical capabilities. It will be based upon an examination of the documentary evidence of the bidder's

		qualifications submitted by the bidder, pursuant to ITB 12 , as well as such other information as the Procuring agency/Employer deems necessary and appropriate. Factors not included in these bidding documents shall not be used in the evaluation of the bidders' qualifications.
	39.4	Procuring agency/Employer may seek "Certificate for Independent Price Determination" from the bidder and the results of reference checks may be used in determining award of contract. <i>Explanation: The Certificate shall be furnished by the bidder. The bidder shall certify that the price is determined keeping in view of all the essential aspects such as raw material, its processing, value addition, optimization of resources due to economy of scale, transportation, insurance and margin of profit etc.</i>
	39.5	An affirmative determination will be a prerequisite for award of the contract to the bidder. A negative determination will result in rejection of the bidder's bid, in which event the Procuring agency/Employer will proceed to the next ranked bidder to make a similar determination of that bidder's capabilities to perform satisfactorily.
F. Award of Contract		
40. Criteria of Award	40.1	Subject to ITB 36 and 37 , the Procuring agency/Employer will award the Contract to the bidder whose bid has been determined to be substantially responsive to the bidding documents and who has been declared as Most Advantageous Bidder, provided that such bidder has been determined to be: <ul style="list-style-type: none"> a) eligible in accordance with the provisions of ITB 3; b) is determined to be qualified to perform the Contract satisfactorily; and c) Successful negotiations have been concluded, if any.
41. Negotiations	41.1	The Committee of the Procuring agency/Employer may negotiate with the Most Advantageous Bidder relating to the following areas: <ul style="list-style-type: none"> (a) a minor alteration to the technical (drawings, design technical specifications) details of the statement of works; (b) Methodology, work plan, staffing in view to streamline the work; (c) a minor amendment to the special conditions of Contract; (d) finalizing payment arrangements; (e) clarifying details that were not apparent or could not be finalized at the time of Bidding;
	41.2	Where negotiation fails to result into an agreement, the Procuring agency/Employer may invite the next ranked bidder for negotiations. Where negotiations are commenced with the next ranked bidder, the Procuring agency/Employer shall not reopen earlier negotiations.
42. Procuring agency/Employer's Right to reject All Bids	42.1	Notwithstanding ITB 37 , the Procuring agency/Employer reserves the right to reject all the bids, and to annul the bidding process at any time prior to acceptance of bid, without thereby incurring any liability to the affected bidder(s). However, the Authority (i.e. PPR) may call from the Procuring agency/Employer the justification of those grounds.
	42.2	Notice of the rejection of all bids shall be given promptly to all bidders that have submitted bids.
	42.3	The Procuring agency/Employer shall upon request communicate to any bidder the grounds for its rejection of its bids, but is not required to justify those grounds.
43. Variations	43.1	The Engineer shall make any variation in the quantity of the Works or any part thereof that may, in his opinion, be necessary and for that purpose, or if for any other reason it shall, in his opinion, be appropriate, he shall have the authority to instruct the Contractor to do and the Contractor shall do any of the following: <ul style="list-style-type: none"> a) increase or decrease the quantity of any work included in the Contract, b) omit any such work (but not if the omitted work is to be carried out by the Employer or by another contractor), c) change the character or quality or kind of any such work, d) change the levels, lines, position and dimensions of any part of the Works, e) execute additional work of any kind necessary for the completion of the Works, or f) change any specified sequence or timing of construction of any part of the Works.

		No such variation shall in any way vitiate or invalidate the Contract, but the effect, if any, of all such variations shall be valued in accordance with ITB 15 . Provided that where the issue of an instruction to vary the Works is necessitated by some default of or breach of contract by the Contractor or for which he is responsible, any additional cost attributable to such default shall be borne by the Contractor.
44. Instructions for variations	44.1	The Contractor shall not make any such variation without an instruction of the Engineer. Provided that no instruction shall be required for increase or decrease in the quantity of any work where such increase or decrease is not the result of an instruction given under this Clause, but is the result of the quantities exceeding or being less than those stated in the Bill of Quantities.
45. Valuation of Variations	45.1	All variations and any additions to the Contract Price which are required to be determined in accordance with ITB 15 (for the purposes of this Clause referred to as "varied work"), shall be valued at the rates and prices set out in the Contract if, in the opinion of the Engineer, the same shall be applicable. If the Contract does not contain any rates or prices applicable to the varied work, the rates and prices in the Contract shall be used as the basis for valuation so far as may be reasonable, failing which, after due consultation by the Engineer with the Procuring agency/Employer and the Contractor, suitable rates or prices shall be agreed upon between the Engineer and the Contractor. In the event of disagreement, the Engineer shall fix such rates or prices as are, in his opinion, appropriate and shall notify the Contractor accordingly, with a copy to the Employer. Until such time as rates or prices are agreed or fixed, the Engineer shall determine provisional rates or prices to enable on-account payments to be included in certificates issued in accordance with ITB 15 .
46. Notification of Award	46.1	Prior to the award of contract, the Procuring agency/Employer shall issue a Final Evaluation Report giving justification for acceptance or rejection of the bids.
	46.2	Where no complaints have been lodged, the bidder whose bid has been accepted will be notified of the award by the Procuring agency/Employer prior to expiration of the bid validity period in writing or through electronic means that provide record of the content of communication. However, the Procuring agency/Employer shall not award any procurement contract atleast for fifteen (15) days after the acceptance of bid. The notification letter (herein after and in the condition of the contract and contract form called "Letter of Acceptance" will specify the sum that the Procuring agency/Employer will pay the successful bidder in consideration for the execution and completion of the works as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price).
	46.3	The notification of award will constitute the formation of the Contract, subject to the bidder furnishing the Performance Security (or guarantee) in accordance with ITB 48 and signing of the contract in accordance with ITB 47 .
	46.4	Upon the successful bidder's furnishing of the performance security (or guarantee) pursuant to ITB 48 , the Procuring agency/Employer will promptly notify each unsuccessful bidder, the name of the successful bidder and the Contract amount and will discharge the Bid Security or Bid Securing Declaration of the bidder(s) pursuant to ITB 19 .
47. Signing of Contract	47.1	Promptly after notification of award, Procuring agency/Employer shall send the successful bidder the draft agreement, incorporating all terms and conditions as agreed by the parties to the contract.
	47.2	Immediately after the Redressal of grievance by the GRC, and after fulfillment of all conditions precedent of the Contract Form, the successful bidder and the Procuring agency/Employer shall sign the contract.
	47.3	Where no formal signing of a contract is required, work order issued to the bidder shall be construed to be the contract.
48. Performance Security (or Guarantee)	48.1	After the receipt of the Letter of Acceptance, the successful bidder, within the specified time, shall deliver to the Procuring agency/Employer a Performance Guarantee in the amount and in the form stipulated in the BDS and SCC , denominated in the type and

		proportions of currencies in the Letter of Acceptance and in accordance with the Conditions of Contract.
	48.2	If the Performance Guarantee is provided by the successful bidder and it shall be in the form specified in the BDS which shall be in any of the following: <ul style="list-style-type: none"> (a) certified cheque, cashier's or manager's cheque, or bank draft; (b) irrevocable letter of credit issued by a scheduled bank of Pakistan or in the case of an irrevocable letter of credit issued by a foreign bank, the letter shall be confirmed or authenticated by a scheduled bank of Pakistan; (c) bank guarantee confirmed by a reputable local bank or, in the case of a successful foreign bidder, bonded by a foreign bank; or (d) surety bond callable upon demand issued by any reputable surety or insurance company. Any Performance Guarantee submitted shall be enforceable in Pakistan.
	48.3	Failure of the Most Advantageous Bidder to comply with the requirement of ITB 47 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security or declare blacklisted (in case bid securing declaration is submitted) in which event the Procuring agency/Employer may make the award to the next most advantageous bidder or reinstate the procurement process afresh (as a case may be).
49. Advance Payment	49.1	Advance payment will be provided to the bidder in percentage and in the manner as agreed by the both parties in terms of Conditions of the Contract.
	49.2	The Procuring agency/Employer will provide an advance payment as stipulated in the Conditions of Contract, subject to a maximum amount, as stated and/or Conditions of the Contract. The advance payment request shall be accompanied by an advance payment security (guarantee) in the form provided in Section X. For the purpose of receiving the advance payment, the bidder shall make and estimate of, and include in its bid, the expenses that will relate to the purchase of equipment, machinery, materials, and on the engagement of labor during the first month beginning with the date of the Procuring agency/Employer's "Notice to Commence" as specified in the SCC .
50. General Performance of the Bidders 51.	50.1	The Procuring agency/Employer reserves the right to obtain information regarding performance of the bidders on their previously awarded contracts / works. The Procuring agency/Employer may seek information / report from the previous employer for consideration. However, the Procuring agency/Employer shall incorporate such parameters in the evaluation criteria and accordingly decide the fate of the bid submitted.
52. Corrupt & Fraudulent Practices	51.1	Procuring agencies (including beneficiaries of Government funded projects and procurement) as well as Bidders/Suppliers/Contractors under Government financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts, and will avoid to engage in any corrupt and fraudulent practices.
G. Grievance Redressal & Complaint Review Mechanism		
53. Constitution of Grievance Redressal	52.1	Procuring agency/Employer shall constitute a Grievance Redressal Committee (GRC) comprising of odd number of persons with proper power and authorization to address the complaint. The GRC shall not have any of the members of Procurement Evaluation Committee. The committee must have one subject specialist depending the nature of the procurement.
54. GRC Procedure	53.1	Any party can file its written complaint against the eligibility parameters or any other terms and conditions prescribed in the prequalification or bidding documents found contrary to provision of Procurement Regulatory Framework, and the same shall be addressed by the GRC well before the bid submission deadline.
	53.2	Any bidder feeling aggrieved by any act of the Procuring agency/Employer after the submission of his bid may lodge a written complaint concerning his grievances not later than seven days of the announcement of technical evaluation report and five days after issuance of final evaluation report.

	53.3	In case, the complaint is filed against the technical evaluation report, the GRC shall suspend the procurement proceedings.
	53.4	In case, the complaint is filed after the issuance of the final evaluation report, the complainant cannot raise any objection on technical evaluation of the report: Provided that the complainant may raise the objection on any part of the final evaluation report in case where single stage one envelope bidding procedure is adopted.
	53.5	The GRC, in both the cases shall investigate and decide upon the complaint within ten days of its receipt.
	53.6	Any bidder or the Procuring agency/Employer not satisfied with the decision of the GRC may file Appeal before the Appellate Committee of the Authority on prescribed format after depositing the Prescribed fee.
	53.7	The Committee, upon receipt of the Appeal against the decision of the GRC complete in all respect shall serve notices in writing upon all the parties to Appeal.
	53.8	The committee shall call the record from the concerned Procuring agency/Employer or the GRC as the case may be, and the same shall be provided within prescribed time.
	53.9	The committee may after examination of the relevant record and hearing all the concerned parties, shall decide the complaint within fifteen (15) days of receipt of the Appeal.
	53.10	The decision of the Committee shall be in writing and shall be signed by the Head and each Member of the Committee. The decision of the committee shall be final.
H. Mechanism of Blacklisting		
55. Mechanism of Blacklisting	54.1	The Procuring agency/Employer shall bar for not more than the time prescribed in Rule-19 of the Public Procurement Rules, 2004, from participating in their respective procurement proceedings, bidder or contractor who either: Involved in corrupt and fraudulent practices as defined in Rule-2 of Public Procurement Rules; i) Fails to perform his contractual obligations; and ii) Fails to abide by the id securing declaration;
	54.2	The show cause notice shall contain: (a) precise allegation, against the bidder or contractor; (b) the maximum period for which the Procuring agency/Employer proposes to debar the bidder or contractor from participating in any public procurement of the Procuring agency/Employer; and (c) the statement, if needed, about the intention of the Procuring agency/Employer to make a request to the Authority for debarring the bidder or contractor from participating in public procurements of all the procuring agencies.
	54.3	The Procuring agency/Employer shall give minimum of seven days to the bidder or contractor for submission of written reply of the show cause notice.
	54.4	In case, the bidder or contractor fails to submit written reply within the requisite time, the Procuring agency/Employer may issue notice for personal hearing to the bidder or contractor/ authorize representative of the bidder or contractor and the Procuring agency/Employer shall decide the matter on the basis of available record and personal hearing, if availed.
	54.5	In case the bidder or contractor submits written reply of the show cause notice, the Procuring agency/Employer may decide to file the matter or direct issuance of a notice to the bidder or contractor for personal hearing.
	54.6	The Procuring agency/Employer shall give minimum of seven days to the bidder or contractor for appearance before the designated officer of the Procuring agency/Employer for personal hearing. The designated officer shall decide the matter on the basis of the available record and personal hearing of the bidder or contractor, if availed.

	54.7	The Procuring agency/Employer shall decide the matter within fifteen (15) days from the date of personal hearing unless the personal hearing is adjourned to a next date and in such an eventuality, the period of personal hearing shall be reckoned from the last date of personal hearing.
	54.8	The Procuring agency/Employer shall communicate to the bidder or contractor the order of debarring the bidder or contractor from participating in any public procurement with a statement that the bidder or contractor may, within thirty (30) days, prefer a representation against the order before the Authority.
	54.9	Such blacklisting or barring action shall be communicated by the Procuring agency/Employer to the Authority and respective bidder or bidders in the form of decision containing the grounds for such action. The same shall be publicized by the Authority after examining the record whether the procedure defined in blacklisting and debarment mechanism has been adhered to by the Procuring agency/Employer.
	54.10	The bidder may file the review petition before the Review Petition Committee Authority within thirty (30) days of communication of such blacklisting or barring action after depositing the prescribed fee and in accordance with "Procedure of filing and disposal of review petition under Rule-19(3) Regulations, 2021". The Committee shall evaluate the case and decide within ninety (90) days of filing of review petition.
	54.11	The committee shall serve a notice in writing upon all respondent of the review petition. The notices shall be accompanied by the copies of review petition and all attached documents of the review petition including the decision of the Procuring agency/Employer. The parties may file written statements along with essential documents in support of their contentions. The Committee may pass such order on the representation may deem fit.
	54.12	The Authority on the basis of decision made by the committee either may debar a bidder or contractor from participating in any public procurement process of all or some of the procuring agencies for such period as the deemed appropriate or acquit the bidder from the allegations. The decision of the Authority shall be final.

SECTION III: BID DATA SHEET

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

BDS Clause Number	ITB Number	Amendments of, and Supplements to, Clauses in the Instruction to Bidders
A. Introduction		
1.	1.1	Name of Procuring Agency: SBP Banking Services Corporation The Description (as specified in ITB) of the Goods is: Construction of Parking Shed with Solar Panels at SBP Main Building Premises, Karachi Period for Contract: 365 days. Method/Procedure: Single Stage - Two Envelope Procedure - Rule 36 (b) of the open competitive bidding. Name and identification number of the Contract: ED/PROC-HOK/1083186/2026/313 Commencement date for delivery: To be notified in work order.
2.	2.1	Financial year for the operations of the Procuring Agency: [2025-26] Source of Funding: Own Funding
3.	3.1	Joint Venture is NOT Applicable
B. Bidding Documents		
4.	7.2	Copy (in hard form) of bid is not required. Bid shall be submitted through EPADS.
5.	8.1	The Bidders may seek clarifications through EPADS. Clarifications of the bidding documents may be requested in writing through EPADS by any bidder up to seven days prior to the deadline for the submission of bids. Responses to requests for clarification shall be communicated to all bidders participating in the procurement proceedings through EPADS within three days prior to closing date of Bids.
6.	8.5	No pre-bid meeting shall be conducted.
7.	9.2	Any addendum, in case issued, including the notice of any extension of the deadline shall be published on EPADS and on SBP Banking Services Corporation website [Website: www.sbp.org.pk] and shall be part of the Bidding Document pursuant to ITB 7.1
C. Preparation of Bids		
8.	10.1	The Language of all correspondences and documents related to the Bid is English / Urdu.
9.	12.3 (c)	The documents required under ' Eligibility Criteria / Qualification Criteria '.
10.	15.5	The price shall be fixed.
11.	16.1	The currency of the Bid shall be (<i>Pak Rupees</i>);
12.	18.1	The Bid Validity period shall be 180 days.
13.	19.1	The amount of Bid Security shall be Rs.1,500,000/-. The currency of the Bid Security shall be: Pakistani Rupees The scanned copy of the Bids Security shall be uploaded in the EPADS while submitting bid, whereas the original forms of Bid Security shall be submitted to the procuring agency before the bid opening deadline. The bidder who failed to submit the original bid security shall be disqualified straightaway.
14.	19.3	The Bid Security shall be in favor of 'SBP Banking Services Corporation' in the form of: <i>either Payment Order/Bank Draft or an unconditional Bank Guarantee</i> enforceable in Pakistan and valid for twenty-eight (28) days beyond the end of the validity of the Bid. This shall also apply if the period for Bid Validity is extended.
15.	19.3 (c)	Other forms of Security: Not Applicable.
16.	20.1	Alternative and conditional Bids to the requirements of the Bidding Documents are not permitted and bid will be held non-responsive.
17.	20.2	If alternative scheduled for execution of work is explicitly invited Not Applicable.
18.	22.1	The bidder shall prepare and submit his bid with due diligence after carefully reading all the terms and conditions before submission through EPADS. Copy (in hard form) of bid is not required.
D. Submission of Bids		

19.	23.1	Bid shall be submitted online on EPADS as per the method / procedure Single Stage - Two Envelope Procedure - Rule 36 (b) of the open competitive bidding. Manual submission of Bids shall not be entertained.
20.	24.1	The Technical and Financial Bids as the case may be, shall be submitted in the due portion of the EPADS, before bid submission deadline i.e., 02-Apr-26 till 12:00 PM . The bid submission option shall be automatically disabled once the deadline is over.
E. Opening and Evaluation of Bids		
21.	27.1	The Procuring Agency will open all bids on 02-Apr-26 at 12:30 PM through EPADS, in the presence of bidders or their representatives who choose to attend.
22.	27.14	Following the evaluation and approval of the technical proposals, the Procuring Agency shall, at a time within the bid validity period, open the financial proposals of only those bids that have been determined to be technically responsive, through the EPADS. Bids found to be technically non-responsive shall be rejected, and their financial proposals shall remain unopened.
23.	29.1	No bidder shall be allowed to alter or modify his bid after the bids have been opened however, the procuring agency may seek and accept clarification to the bid that do not change the substance of the bid, through EPADS.
24.	33.2	Bid is required to be quoted in Pak Rupees.
25.	33.3	The bids shall be quoted in Pak Rupees.
26.	34.5	Bid is required for complete scope of Works
27.	35	Domestic preference is not applicable.
28.	36	Evaluation Techniques Least Cost Based Selection (LCBS) After meeting the requirements of eligibility, qualification and substantial responsiveness, the bid in compliance with all the mandatory (drawings/ design/ technical specifications /requirements and/or requisite quality threshold (if any) and having lowest evaluated cost (or financial proposal) shall be considered highest ranked bid.
29.	38.2	Sub-contracting of the total value of the contract is not allowed. Sub-contracting for HVAC works is allowed.
F. Award of Contract		
30.	48.1	The amount of performance security (or guarantee), as a percentage of the Contract Price, shall be 10% of the Contract Price state in the Letter of Acceptance / Award in favour of SBP-Banking Services Corporation. OR In case, the cost of the Contract is less than four million, the Bid Security of the successful bidder shall be retained as Performance Security.
31.	48.2	a. The Performance Security (Guarantee) shall be in in the form of Pay Order / Demand Draft / unconditional Bank Guarantee 28 days beyond the defect liability period enforceable in Pakistan as per Performance Security (Guarantee) form specified in the Bidding Documents. b. The Performance Security shall be valid till successful completion of Defect Liability Period / Warranty Period and will be released after successful expiry of Defect Liability Period / Warranty Period.
G. Review of Procurement Decisions		
32.	53.6	Any bidder feeling aggrieved may lodge complain through EPADS before Grievance Redressal Committee and deal in accordance with Public Procurement Rules 2004, E-Pak Procurement Regulations, 2023 etc.

SECTION IV: ELIGIBLE COUNTRIES, AND QUALIFICATION CRITERIA

Eligible Countries

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

Following countries are ineligible to participate in the procurement process:

1. India
2. Israel

Evaluation and Qualification Criteria

1. Qualification Criteria

1.1. General

Qualification will be based on all the criteria given in succeeding para. Employer reserves the right to waive minor deviations, if these don't materially affect the capability of an applicant to perform the contract. Joint Venture or consortium is not allowed. The Employer reserves the right to seek further information and / or verify the information furnished by the applicants. In this regard, Employer reserve the right to have site visit to verify the previous installation /work experience etc. The Employer may reject any application for any misrepresentation knowingly made by any applicant in, or pursuant to, their application or for any statement furnished in connection therewith, and intended to be relied upon by the Employer, which is incorrect in any respect.

1.2. Parameters of Bid Evaluation & Qualification

SNO.	Description	Annexure / Page No. of attached Document
1.	Bid Security Bid Security in original is required to be submitted through sealed envelope before opening of Bid.	
2.	ATL FBR Bidder must be registered with FBR in Income Tax and sales tax and must be active taxpayer as per Federal Board of Revenue (FBR's) Data base i-e Active Taxpayer List. (NTN). Online verification from FBR.	
3.	Revenue Authority Registration The Bidder should be registered with relevant / concerned Provincial Revenue Authority. If not registered, the 100% tax shall be deducted at source as per applicable law and credited to relevant account.	
4.	PEC Valid Registration The bidder should have valid registration with Pakistan Engineering Council at least in Category of C-4 or above with specialization in EE-04.	
5.	Bidding Documents Volume-I of the Bidding document including all required Forms.	
6.	Undertaking/Letter of Bid (As per Format attached) The bidder is required to submit an undertaking/letter of bid as per format attached.	
7.	Experience The bidder has completed/ awarded/ in-hand at least 02 projects pertaining to supply / installation of solar power system works each of min. cost Rs.40.0 M, during last five (05) years. (Copies of work orders/ completion certificates/ contract agreements or equivalent documents / list of projects executed with SBP to be attached).	
8.	Financial Capability/Liquid Assets Annual Sales volume or Gross Turnover available of at least Rs.80 M in any of the last five years. Attach Copy(s) of Audited Financial Statements or Income Tax return filed in FBR. OR Bank Credit Line facility available of Rs.40 M or above during last one year or Liquid Assets etc.) OR Financial Capability Available of Rs.10 M or above. (Submit Bank statement as evidence showing required balance at any one instant in the statement of last three months before date of publication of tender notice.)	
9.	The bidder shall be an active approved AEDB Vendor in the relevant category, as listed on the PPIB website.	

SECTION V: WORKS REQUIREMENT, SCHEDULE**Scope of Works****1. Location of Site:**

“State Bank of Pakistan, I.I. Chundrigar road, Karachi”

2. Major Items of Contract:

Construction of Parking Shed with Solar Panels at SBP Main Building Premises, Karachi but not limited to.

- Supply and installation of Solar PV Panels over the designated roof top with complete accessories
- Supply, Installation, testing and commissioning of inverters to designated location within the premises.
- Providing and fixing of mounting structure and Civil works for of Solar power system
- Supply, Installation, testing and commissioning of LV cables/DC Cables in existing/proposed Cable trays/underground PVC pipes/underground cable trench as per site requirements.
- Submission of drawings and schematics in hardcopy and softcopy form detailing operating procedure and showing system failure scenarios.
- The samples shall be submitted to the Engineer at his office in Karachi as specified in Preamble to Conditions of Contract. The rejected sample(s) shall be recollected by the Contractor and fresh sample(s) shall be submitted. The Engineer shall formally intimate the Employer and the Contractor of the reasons of rejection of sample(s).
- The Contractor shall submit one set in form of softcopy and two sets in hard form of shop drawings to the Engineer, under intimation to the Procuring Agency. The Engineer shall retain one set of the commented/approved shop drawing for his record and return the other set to the Contractor.
- Dismantling of existing planters & pavers
- Dismantling of existing concrete flooring
- Excavation works
- New concrete/ RCC and masonry works
- Structural Steel Works
- The scope is not limited to the above stated major items, and the supplier is responsible to provide a completely functional, operational, fit to use PV Solar power generation system compatible with the existing power distribution network. The installation of this system shall not result in any disturbance in the existing power network.

SECTION VI: STANDARD BIDDING FORMS**Letter of Bid – Technical Proposal**

Date of this Bid submission: [_____]

RFB No.: [_____]

To: [*SBP Banking Services Corporation*]

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

In submitting our Bid, we make the following declarations:

- (a) **No reservations:** We have examined and have no reservations for the bidding document, including addenda issued in accordance with Instructions to Bidders (ITB 9);
- (b) **Eligibility:** We meet the eligibility requirements and have no conflict of interest in accordance with ITB 3.
- (c) **Bid/Proposal-Securing Declaration:** We have not been suspended nor declared ineligible by the Procuring Agency based on execution of a Bid Securing Declaration or Proposal Securing Declaration in the Procuring Agency’s country in accordance with ITB 4.
- (d) **Conformity:** We offer to supply in conformity with the bidding document and in accordance with the Delivery Schedules specified in the Schedule of Requirements.
- (e) **Bid Validity Period:** Our Bid shall be valid for the period specified in **BDS 17.1** (as amended, if applicable) from the date fixed for the Bid submission deadline specified in **BDS 23.1** (as amended, if applicable), and it shall remain binding upon us, and may be accepted at any time before the expiration of that period.
- (f) **Performance Security:** If our Bid is accepted, we commit to obtain performance security in accordance with the bidding document.
- (g) **One Bid per Bidder:** We are not submitting any other Bid(s) as an individual Bidder, and we are not participating in any other bid(s) as a Joint Venture member or as a subcontractor, and meet the requirements, other than Alternative Bids submitted in accordance with **ITB 19**.
- (h) **Suspension and Debarment:** We, along with any of our subcontractors, suppliers, consultants, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by, any entity or individual that is subject to, a temporary suspension or a debarment imposed by the Procuring Agency. Further, we are not ineligible under Pakistan laws.
 - 1) We have not been declared in-eligible or debarred, blacklisted/sanctioned by any Federal or Provincial Government Department, National Counter Terrorism Authority (NACTA), Agency, Organization or Autonomous Body anywhere in Pakistan or fraudulent practices, or no failure to perform with the Procuring Agency.
 - 2) We agree unconditionally that in case we, fail to abide by any of the terms of Contract, the Procuring Agency shall be at liberty to terminate the Contract without prejudice to any other rights / remedy available in the Contract.
- (i) **State-owned enterprise or institution:** [*select the appropriate option*]
 - [*We are not a state-owned enterprise or institution*]
 - [*We are a state-owned enterprise or institution but meet the requirements of*]; _____
- (j) **Binding Contract:** We understand that this Bid, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed.
- (k) **Not Bound to Accept:** We understand that you are not bound to accept the Most Advantageous Bid or any other Bid that you may receive; and
- (l) **Fraud and Corruption:** We hereby certify that we have taken steps to ensure that no person acting for us, or on our behalf, engages in any type of Fraud and Corruption.

IFB No: ED/PROC-HOK/1083186/2026/313

Title: Construction of Parking Shed with Solar Panels at SBP Main Building Premises, Karachi

Bidder: _____

UNDERTAKING

1. I/We hereby confirm and declare that I/We, has/have not been declared in-eligible or debarred, blacklisted/sanctioned by any Federal or Provincial Government Department, National Counter Terrorism Authority (NACTA), Agency, Organization or Autonomous Body anywhere in Pakistan or fraudulent practices, or no failure to perform with SBP.
2. I/We understand and agree unconditionally that in case I/We fail to abide by the above undertaking or any of terms of the Contract, the Client/ SBP BSC shall be at liberty to terminate the Contract without prejudice to any other rights / remedy available in the Contract.

Form T7 – S2 Form

	STATE BANK OF PAKISTAN BANKING SERVICES CORPORATION Supplier Bank Account (IBAN) Details Form	S-2		
1. For Office use:				
*Office/Deptt		*Supplier No.		WHT Rate
Supplier	New <input type="checkbox"/> Update <input type="checkbox"/>	*Liability A/C		
*Supplier Type		*Prepayment A/C		
2. Supplier Information				
*Supplier Name				
*Supplier NTN		CNIC No.		
Supplier Address				
		Supplier City		
Contact No.		Mobile		
E-mail Address		Fax No.		
3. Bank Account Information				
*Bank Name				
*IBAN (24 Characters)				*Supplier Stamp & Signature
*Branch Type	Islamic <input type="checkbox"/>	Commercial <input type="checkbox"/>		
*Title of Account				
(For Office use only)				
Forwarded By	Verified By	Entered By (Supplier Mgt User)		
(Procurement Function)				
		<div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div> Date		
Field marked with * are mandatory. Information without complete Bank Account Details (IBAN) & NTN/ CNIC will not be accepted. Any changes in Supplier’s particulars should be conveyed immediately to SBP BSC. SBP BSC will not be responsible for credit into wrong account of supplier due to change in bank account details not conveyed to SBP BSC or delay in settlement of supplier's claims.				

Appendix-A
Form of Bid Security
(Bank Guarantee)

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

[Guarantor letterhead or SWIFT identifier code]

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

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

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

Date: *[Insert date of issue]*

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

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

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

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

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

- (a) has withdrawn its Bid during the period of Bid validity set forth in the Applicant's Letter of Bid ("the Bid Validity Period"), or any extension thereto provided by the Applicant; or
- (b) having been notified of the acceptance of its Bid by the Beneficiary during the Bid Validity Period or any extension thereto provided by the Applicant, (i) has failed to sign the contract agreement, or (ii) has failed to furnish the performance security, in accordance with the Instructions to Bidders ("ITB") of the Beneficiary's bidding document.

This guarantee will expire: (a) if the Applicant is the successful Bidder, upon our receipt of copies of the Contract agreement signed by the Applicant and the performance security issued to the Beneficiary in relation to such Contract agreement; or (b) if the Applicant is not the successful Bidder, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Bidding process; or (ii) twenty-eight days after the end of the Bid Validity Period.

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

[Signature(s)]

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

Appendix-B

Form of Bid Securing Declaration

[The bidder shall fill in this form in accordance with the instructions indicated]

Not Applicable

Appendix-C

Formula for Price Adjustment

Not applicable

SECTION VII: GENERAL CONDITIONS (GC)**Red Book:**

© FIDIC 2017. All rights reserved.

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

The prospective bidders may obtain copy of the above-mentioned Conditions of Contract directly from Head Office of FIDIC, on the address indicated below against payment of their usual charges. However, a copy of the aforesaid FIDIC Conditions of Contract is available in Engineering Department, which can be seen on any working day during office hours if so desired for ready reference.

International Federation of Consulting Engineers (FIDIC)

FIDIC Bookshop – Box- 311 – CH – 1215 Geneva 15 Switzerland

Fax: +41 22 799 49 054

Telephone: +41 22 799 49 01

E-mail: fidic@fidic.org

www.fidic.org

FIDIC code: ISBN13: 978-2-88432-084-9

SECTION VIII: SPECIAL CONDITIONS OF THE CONTRACT

The Special Conditions of Contract (SCC) complement the General Conditions of Contract (GCC) to specify data and contractual requirements of the Procuring agency/Employer/ Employer, the engineer, the sector, the overall project, and the works. In the event of a conflict, the provisions herein shall prevail over those in the GCC.

PART A – CONTRACT DATA

Contract data of the SCC, includes data to complement the GCC in a manner similar to the way in which the Bid Data Sheet complements the Instructions to Bidders.

PC Clause Number	GCC Clause Number	Amendments of, and Supplements to, Clauses in the GCC
General Provision (GCC 1)		
1.	1.1.27	Defects Notification Period (DNP): 365 days
2.	1.1.85	Time for Completion: 365 days
3.	1.3	For Notices Procuring agency/Employer/ Engineer’s Authorized representatives name and address: Director Engineering, SBP Banking Services Corporation
4.	1.4	Governing Law; The Applicable Law shall be: Laws of the Pakistan
5.	1.4	Communication Language: The Communication Language shall be: Urdu / English
The Employer/ Procuring agency/Employer (GCC Clause 2)		
6.	2.1	Time for access to the Site: Immediately after Commencement Date
7.	2.2	Not Applicable
The Engineer (GCC Clause 3)		
8.	3.2	Engineer’s Duties and Authority: Variations resulting in an increase of the Accepted Contract Amount in excess of 1 % shall require approval of the Procuring agency/Employer.
9.	3.7.5	Dissatisfaction with Engineer’s determination: The contents of last paragraph of this clause are replaced as under; In the event that a Party fails to comply with an agreement of the Parties under this Sub-Clause 3.7 or a final and binding determination of the Engineer, the other Party may, without prejudice to any other rights it may have, refer the failure itself directly to arbitration under Sub-Clause 21.8 [Arbitration].
The Contractor (GCC Clause 4)		
10.	4.2	The amount of performance security (or guarantee), as a percentage of the Contract Price, shall be 10% of the Contract Price state in the Letter of Acceptance / Award in favour of SBP-Banking Services Corporation. OR In case, the cost of the Contract is less than four million, the Bid Security of the successful bidder shall be retained as Performance Security.
11.	4.7.2(a)	Clause 4.7 Setting out Period for notification of errors in the items of reference “[3 days]”
Sub-Contracting (GCC Clause 5)		
12.	5.1(a)	Maximum allowable accumulated value of work subcontracted (as a percentage of the Accepted Contract Amount)
13.	5.1 (b)	Sub-contracting is not permitted.
Staff and Labour (GCC Clause 6)		
14.	6.5	Normal working hours: As per applicable law
Plant, Material and Workmanship (GCC Clause 7)		
15.	7.2	Samples [N/A]
Commencement, Delays and Suspension (GCC Clause 8)		
16.	8.3	Number of additional paper copies of program [N/A]
17.	8.8	@ 0.1% of total work done/ day to a maximum of 10% of the total work done.
Measurement and Valuation (GCC Clause 12)		

18.	12.2	Method of measurement shall be net except otherwise provided in the Contract
19.	12.3	Percentage profit [specify]
Variations and Adjustments (GCC Clause 13)		
20.	13.4 (b)(ii)	Percentage rate to be applied to Provisional Sums for overhead charges and profit is : N/A
21.	13.7	Not applicable.
Contract Price and Payment (GCC Clause 14)		
22.	14.2	If requested by the Contractor, an interest-free Advance up to 15 % of the Contract Price stated in the Letter of Acceptance shall be paid by the Employer to the Contractor in two equal parts upon submission by the Contractor of an Advance Guarantee for the full amount of the Advance in the specified form from a Scheduled Bank in Pakistan subject to approval of Director/Head Engineering Payments shall be made as per the following criteria; a) First part of the Mobilization Advance within twenty (20) days after verification of the approved/ legible Bank Guarantee from the issuing bank. b) Second part of the mobilization advance on arrival of required tools & plants and commencement of Works at site to the entire satisfaction of the Employer.
23.	14.2.3	Advance paid to the Contractor shall be recovered from the interim bills of the Contractor @ 15% of total amount of work done at site for the bill being processed till the time that whole of the amount of Mobilization Advance has been recovered.
24.	14.3(iii)	Percentage of retention: 10% Limit of Retention Money : 10% <u>Retention Money</u> 10% of the net payable amount from each bill (except Mobilization Advance) of the Contractor will be deducted as retention money. The retention money would be released as follows: i. 5% on Completion of the whole work, ii. Balance 5% after successful completion of the Defects Liability Period / Warranty Period.
25.	14.5(b)(i)	Plant and Materials: If Sub-Clause 14.5 applies: N/A
26.	14.5(c)(i)	Plant and Materials: Not Applicable.
27.	14.7(a)	Period of payment of Advance Payment to the Contractor 28days
28.	14.7b(i)	Period for the Procuring agency/Employer to make interim payments to the Contractor under Sub-Clause 14.6 (interim Payment) 30days
29.	14.7b(ii)	Period for the Procuring agency/Employer to make interim payments to the Contractor under Sub-Clause 14.13 (Final Payment) 60days
30.	14.7(c)	Period for the Procuring agency/Employer to make final payment to the Contractor : 56days
31.	14.8	N/A
32.	14.11.1(b)	Number of additional paper copies of draft Final Statement :1
33.	14.15	Currencies of Payment Pak Rupees
34.	14.15 (a)(i)	The proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as stated in the Contract Data, except as otherwise agreed by both parties.
35.	14.15 (c)	Pak Rupees.
36.	14.15 (f)	If no rates of exchange are stated in the Contract Data, they shall be those prevailing on the Base Date and published by the central bank of the Country.
Insurance (GCC Clause 19)		
37.	19.2.	From AA rated Insurance Company of PACRA/ JCR. The Works Amount of Cover: The sum stated in Letter of Acceptance plus fifteen percent 15%. Contractor 's equipment Amount of Cover: Full replacement Cost Injury to Person and Damaged to Property including Third Party Insurance Amount of Cover:

		I) As per workmen compensation act II) Contractor's all Risk including Third party III) damages to the Structure, stores if supplied by the Bank
Dispute Avoidance/ Adjudication Board (GCC Clause 21)		
38.	21.1	Time for appointment of DAAB <u>28</u> days. The DAAB shall comprise <u>Sole</u> member and Location for DAAB is Karachi.

PART B – SPECIAL PROVISIONS

Sr. No.	GCC Clause No.	Clause Description	Amendments of, and Supplements to, Clauses in the GCC
1.	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”.”
2.	1.2	Interpretation	“and” is deleted from the end of sub-paragraph (i) and added at the end of sub-paragraph (j). Sub-paragraph (k) is added: “(k) The word “tender” is synonymous with “bid” the word tenderer with “bidder”, the words “tender documents” with “bidding documents” and “Schedule of Prices” with “Bill of Quantities”, as applicable.”
3.	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 Special Conditions Part A - Contract Data; (e) the Particular Conditions Part B - Special Provisions; (f) the General Conditions; (g) The completed Appendices to Bid at Section-V (A to N), (excluding Appendix-K to Bid); (h) the completed Schedules to Bid including Bill of Quantities; (i) the Drawings; (j) the Specification Part A - Special Provisions; (k) the Specification Part B - Technical Provisions; (l) Operation and Maintenance Services; (m) 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.
4.	1.6	Contract	In the last line of the 1st paragraph the text “shall be borne by the Employer” is substituted by “shall be borne by the Contractor
5.	1.9	Delayed Drawings or Instructions	Contractor shall only be entitled to Extension of Time.
6.	1.13	Compliance with Laws	Contractor shall only be entitled to Extension of Time.
7.	2.1	Right of Access to the Site	Contractor shall only be entitled to Extension of Time.
8.	2.2	Assistance	This clause is not applicable
9.	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”.
10.	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) (a) Consenting to the subcontracting of any part of the Works under Sub-Clause 5.1 [Subcontractors], 5.2 [Nominated Subcontractor] (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].

			<p>(g) Certifying release of second half of the Retention Money under Sub-Clause 14.9 [Release of Retention Money].</p> <p>(h) Issuing Final Payment Certificate under Sub-Clause 14.13 [Issue of FPC].</p> <p>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.</p> <p>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.</p> <p>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”</p>
11.	3.7	Agreement or Determination	<p>3.7.5 Dissatisfaction with Engineer’s determination</p> <p>The contents of last paragraph of this clause are replaced as under;</p> <p>In the event that a Party fails to comply with an agreement of the Parties under this Sub-Clause 3.7 or a final and binding determination of the Engineer, the other Party may, without prejudice to any other rights it may have, refer the failure itself directly to arbitration under Sub-Clause 21.8 [Arbitration].</p>
12.	4.3	Contractor’s Representative	<p>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”.</p> <p>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”</p>
13.	4.4	Contractor’s Documents	<p>4.4.2 As-Built Records</p> <p>First paragraph is deleted and the text in the last paragraph is substituted with the following:</p> <p>“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.</p> <p>The price of such Drawings shall be deemed to be included in the Contract Price</p> <p>Following Sub-Clause is added:</p> <p><u>4.4.4 Shop Drawings</u></p> <p>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.</p> <p>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.</p>
14.	4.7.	Setting Out	4.7.3 (c)ii. Contractor shall only be entitled to Extension of Time.

15.	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.
16.	4.12.	Unforeseeable Physical Conditions	4.12.4. Contractor shall only be entitled to Extension of Time.
17.	4.15	Access Rout	Contractor shall only be entitled to Extension of Time.
18.	4.20	Progress Reports	The words “one paper-original.” In first paragraph is deleted and substituted with the “03 paper-original” 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; (k) salient contractual and project information
19.	4.23	Archaeology and Geological Findings	Contractor shall only be entitled to Extension of Time.
20.	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.”
21.	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].”
22.	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 (100%) and labour (100%) with appropriate qualifications and experience from sources within the Islamic Republic of Pakistan.”
23.	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.”
24.	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.”
25.	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:			
26.	6.13	Supply of Foodstuffs	The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor’s Personnel for the purposes of or in connection with the Contract.
27.	6.14	Supply of Water	The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor’s Personnel.
28.	6.15	Measures against Insect and Pest Nuisance	The Contractor shall at all times take the necessary precautions to protect the Contractor’s Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.
29.	6.16	Alcoholic Liquor or Drugs	The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereto by Contractor’s Personnel.
30.	6.17	Arms and Ammunition	The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor’s Personnel to do so.
31.	6.18	Festivals and Religious Customs	The Contractor shall respect the Country’s recognized festivals, days of rest and religious or other customs
32.	6.19	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.
33.	6.20	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.
34.	6.21	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.
35.	6.22	Employment Records of Workers	The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [<i>Contractor’s Records</i>].
36.	6.23	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.

37.	6.24	Non-Discrimination and Equal Opportunity	<p>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.</p> <p>Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination. The Contractor shall provide protection and assistance as necessary to ensure non-discrimination and equal opportunity, including for specific groups such as women, persons with disabilities, migrant workers and children (of working age in accordance with Sub-Clause 6.22).</p>
38.	6.25	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.
39.	7.4	Testing by the Contractor	Contractor shall only be entitled to Extension of Time.
40.	7.6	Remedial Work	7.6 9(i) Contractor shall only be entitled to Extension of Time.
41.	7.7	Ownership of Plant and Materials	<p>The following is added before the first paragraph: "Except as otherwise provided in the Contract,"</p> <p>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).</p> <p>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.</p> <p>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."</p>
42.	The following Sub-Clause 7.9 is added after Sub Clause 7.8:		
43.	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.
44.	8.1	Commencement of Works	<p>The following is added before the first paragraph: "After signing of the Contract Agreement by both Parties," and</p>

			thereafter the word “The” is replaced with the word “the”.
45.	8.5	Extension of Time for Completion	The Contractor shall only be entitled for Extension of Time. The following is added after paragraph (c): “for last five years”.
46.	8.10	Consequences of Employer’s Suspension	The Contractor shall only be entitled for Extension of Time.
47.	10.2	Taking Over Parts	Contractor shall only be entitled to Extension of time.
48.	10.3	Interference with Tests on Completion	Contractor shall only be entitled to Extension of time.
49.	The following Sub-Clause 11.12 is added after Sub-Clause 11.11:		
50.	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.
51.	11.7	Right of Access after Taking Over	Contractor shall only be entitled to Extension of time.
52.	11.8		Contractor shall only be entitled to Extension of time.
53.	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”. or as required by Engineer”
54.	12.3	Valuation of the Works	The text is deleted and replaced with following: Variations shall be valued as follows: a) at a lump sum price agreed between the Parties, or b) where appropriate, at rates in the Contract, or c) rates notified by the Government Departments/agencies, or d) in the absence of appropriate rates, the rates in the Contract shall be used as the basis for valuation, or failing which e) at appropriate new rates, as may be agreed or which the Engineer/Employer considers appropriate, Contractor’s profit & overheads shall be up to 15% of the cost of labour & materials, cartage, etc. Taxes shall be considered as per actual rate while analyzing rates for any extra items. For valuation of variations and approval of rates for non-BOQ/extra items, the decision of the Director Engineering will be final & binding upon the parties. The approval / finalization of rates of all variations shall not relieve the Contractor of his obligations under the Contract. The Contractor shall neither stop the work nor slow down the progress of the Works in awaiting the approval of rates of all variations.
55.	13.6	Adjustments for Changes in Laws	Contractor shall only be entitled for extension of Time. Further, if the relevant delay has not already been taken into account in the determination of a previous extension of time.
56.	14.2.4	Secure Advance on Material	Add the following sub clause 14.2.4 after clause 14.2.3 The Employer at his sole discretion may provide to Contractor Secured Advance against an indemnity bond acceptable to the Employer of such sum as the Engineer in charge may consider proper in respect of non-perishable materials brought at the Site but not yet incorporated in the permanent Works subject to approval of Director/Head of Engineering, provided that: (a) The materials are in accordance with the Specifications for the permanent works; (b) Such materials have been delivered to the Site and are properly stored and protected against loss or damage or deterioration to the satisfaction of the Engineer in charge but at the risk to cost of the Contractor; (c) The Contractor’s records of the requirements, orders, receipts and use of materials are kept in a form approved by the Engineer in charge, and such records shall be available for inspection by the Engineer in charge;

			<p>(d) The Contractor shall submit with his monthly statement the estimated value of the materials on Site together with such documents as may be required by the Engineer in charge for the purpose of valuation of materials and providing evidence of ownership and payment therefore;</p> <p>(e) Ownership of such materials shall be deemed to vest in the Employer and these materials shall not be removed from the Site or otherwise disposed of without written permission of the Employer.</p> <p>(f) 60% of the purchase price of the item/material or 50% of tender price of the item/material whichever is lesser, after measuring the quantity & verification of the quality of materials at site by the Employer may be paid</p> <p>The amount of Secured Advance against any item(s)/materials shall be recovered from the next three (03) bill of the Contractor in the form of three equal installments. The Employer reserves the right to recover all outstanding amount of the Secured Advance from very 1st bill of the Contractor submitted after release of the Secured Advance.</p>
57.	14.3	Application for Interim Payment	<p><u>Imbalance Bid</u> Add following paragraph at end of sub-clause: In case of imbalanced bid (abnormally high/low rates than market/ Employer's Engineer's estimate) duly justified by the contractor, the payments against such running bills will be made by the employer up to 80% of the running bill after required deductions. The remaining amount will be settled at the time of final settlement upon completion of work to the satisfaction of the Employer.</p>
58.	14.8	Delayed Payment	The clause is deleted in its entirety
59.	15.2	Termination for Contractor's Default	<p><u>15.2.1 Notice</u> 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."</p> <p><u>15.2.4 Completion of Works</u> The first paragraph is replaced with following After termination under this Sub-Clause, the Employer may complete the Works and/or arrange for any other entities to do so at the risk and cost of the Contractor. The Employer and/or these entities may then use any Goods and Contractor's Documents (and other design documents, if any) made by or on behalf of the Contractor to complete the Works. The following text is added at the end of this Sub-Clause</p>
60.	15.2.5	Blacklisting	<p>The Procuring agency/Employer shall bar for not more than the time prescribed in Rule-19 of the Public Procurement Rules, 2004, from participating in their respective procurement proceedings, bidder or contractor who either:</p> <p>(a) Involved in corrupt and fraudulent practices as defined in Rule-2 of Public Procurement Rules;</p> <p>(b) Fails to perform his contractual obligations; and Fails to abide by the id securing declaration</p>
61.	15.4	Payment after Termination	"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
62.	16.1	Suspension by Contractor	<p>c. Not applicable d. Not applicable Contractor shall only be entitled for extension of Time</p>
63.	16.2	Termination by Contractor	<p>e. Not applicable d. Not applicable e. Not applicable h. Not applicable 16.2.2 - Contractor shall only be entitled for extension of Time</p>
64.	16.3	Contractor's Obligations After Termination	<p>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-</p>

			<i>Supplied Materials and Employer's Equipment</i>]; and (d) remove all other Goods from the Site, except as necessary for safety, and leave the Site."
65.	17.7	Use of Employer's Accommodation/ Facilities	The following Sub-Clause 17.7 is added after Sub-Clause 17.6: 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 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.
66.	18.1	Exceptional Events	The words "or disorder" are replaced with "disorder or sabotage" in sub-paragraph (c) of the Clause.
67.	18.4	Consequences of an Exceptional Event	Contractor shall only be entitled for extension of Time
68.	18.5	Optional Termination	The sub clause is deleted in its entirety
69.	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."
70.	20	Claims for Payment and/or EOT	Contractor shall only be entitled for extension of Time
71.	21.1	Constitution of the DAAB	The DAAB will be constituted with mutual consent at the time of any dispute if arises between Employer and Contractor.
72.	21.9	Arbitration	The following Clause 21.9 is added Any dispute in respect of which the decision, if any, of the Engineer has not become final and binding pursuant to Sub-Clause 3.7 shall be finally settled, under the provisions of the Arbitration Act, 1940 as amended from time to time or any statutory modification or re-enactment thereof for the time being in force. The said arbitrator/s shall have full power to open up, review and revise any decision, opinion, instruction, determination, certificate or valuation of the Engineer related to the dispute. Neither party shall be limited in the proceedings before such arbitrator/s to the evidence or arguments put before the Engineer for the purpose of obtaining his said decision pursuant to Sub-Clause 3.7. No such decision shall disqualify the Engineer from being called as a witness and giving evidence before the arbitrator/s on any matter whatsoever relevant to the dispute. Arbitration may be commenced prior to or after completion of the Works, provided that the obligations of the Employer, the Engineer and the Contractor shall not be altered by reason of the arbitration being conducted during the progress of the Works. The place of arbitration shall be Karachi, Pakistan
73.	The following Clauses are added after Clause 21		
74.	22	Electric Power Generating Set	Water for construction purposes will be provided by the Employer. Electricity will be provided by the Employer for all minor equipment & tools. Expense regarding the required cables/wires and sub-meters,

			switches etc. shall have to be borne by the Contractor. The Contractor shall make his own arrangement at his own expenses for the telephone & fax etc. at the Site of Works. If these facilities are to be provided by the Employer at the request of the Contractor, the Contractor shall have to pay the bills/ expenses as per mutually agreed terms & conditions at that time. Hutting/ tenting etc. for the workers or storage of the materials of the contractor shall be the responsibility of the contractor.
75.	23	Fire Protection and loss control	<p>The Contractor shall be aware of necessary precautions & controls concerning cutting, welding, and hot work, fire precautions and ensure compliance.</p> <p>The Contractor shall be responsible for the fire watch as necessary and meet the fire prevention / fighting practices.</p> <p>The Contractor shall, in his work plan, forecast any extra hazardous area or adjacent to the site of the work and provide curtains, shields, or any other specialized equipment to adequately shield flames and sparks from combustibles.</p> <p>Where the Contractor requires the utilization of flammable liquids, approved devices and containers for transfer or storage of the same shall be used.</p> <p>The Contractor is responsible for disposal of deleterious substances such as lubrication oil, solvents, diesel fuel etc. which shall be contained in suitable containers and be disposed of away from the site and in no case disposed in sewers or water course(s) or drains.</p> <p>The Contractor shall provide and maintain adequate fire protection in the form of barrels of water with buckets, fire bucket tanks, fire extinguisher, or other effective means ready for instant use, distributed around the project and in and about temporary inflammable structures during construction of the works.</p> <p>Gasoline and other flammable liquids shall be stored in and dispensed from safety containers approved by the Engineer and storage shall not be within building.</p> <p>Torch-cutting and welding operations performed by the Contractor shall have the approval of the Engineer before such work is started and a chemical extinguisher is to be available at the location where such work is in progress.</p> <p>The Contractor shall follow the instructions and specifications of the Civil Defense Department or any other local department concerned with such activities.</p>
76.	24	Safety Regulation	<p>1) General;</p> <p>It is the Contractors responsibility to assure that the safety regulations, are followed at all times and that all his employees at site have a thorough knowledge and understanding of the safety regulations and are complying with all the safety requirements.</p> <p>The Contractor must comply with all applicable accident prevention regulations and other safety work practices governed under any law of any local or provincial authority of Pakistan.</p> <p>The Contractor shall comply and enforce compliance by all his sub-contractors with the highest standards of safety and accident prevention in accordance with international standards and in compliance with all applicable laws, ordinances and statutory provisions.</p> <p>The Employer requires that all the Contractors' workers wear hard hats, safety shoes, and where necessary gloves, and shirts at all times while on site.</p> <p>All requisite barriers, fences, warning signs, lights and other safety precautions as required for the protection of persons and property on or adjacent to the site shall be provided at the Contractor's cost.</p> <p>All false work, scaffolding and handrails shall be well constructed and secured at all times. Where overhead work is being carried out, warning signs shall be installed at ground level clearly warning of the overhead work.</p> <p>All warning signs shall be in two languages, English and Urdu, and shall at all times be maintained in a clean and legible condition, to the satisfaction of the Engineer.</p> <p>Trash shall be removed at frequent intervals to the satisfaction of the Engineer.</p> <p>Netting shall be provided at all levels where work is in progress, all around the building.</p>

77.			<p>2) Fire Protection Equipment</p> <p>The Contractor is responsible to provide the required number of fire extinguishers as well as the necessary hose line for his area of work. The type and size of fire-fighting equipment have to be approved by the Engineer.</p> <p>i. Welding / burning requires permission from the Engineer</p> <p>Closing, sealed or locked walls of any fire system requires an impairment lock out notification from the Engineer.</p>
78.			<p>3) Hazardous Area</p> <p>Before entering any area, the Contractor must familiarize himself of the existing hazards and inquire from the Engineer necessary precautions to be taken for the protection of himself, other workers and equipment.</p>
79.			<p>4) Waste Material Removal and environmental control</p> <p>If the work requires the removal of any material hazardous to industrial or public / environment, then the Contractor shall remove it in compliance with industrial health and safety regulations.</p>
80.	25	Labour Conditions	<p>The Contractor acknowledges that some or all other Contractors or sub-contractors or suppliers or persons working at or delivering to or for the site or the work being carried out at or near the site may be union or non-union, Labour peace shall be maintained at the site. The Contractor shall carry out the work in a manner which ensures that there are no labour problems, work stoppages, or other labour disputes or disruptions which might affect the Contractors work, any other work at the Site or the Employers operations. The Contractor warrants and confirms that no agreement with its employees or trade unions representing his Employees or between his subcontractors. Suppliers sub-contractors and their employees or labour union representing those Employees will affect the Contractor's performance under the Contract, any other work at the site or the Employers operations. The Contractor acknowledges that the site is considered an open site, not exclusively union or non-union.</p>
81.	26	The Contractor Shall be Liable & Indemnify The Employer	<p>Contractor shall be exclusively liable for and shall indemnify and hold harmless the Employer, its agents and employees from:</p> <p>i. Making good all losses arising out of the Contractor's negligence or breach of the Contract. This may include damage to the paints/ polish works, false ceilings, wooden or metallic works, tiles, marbles, plants, wires, pipes, electrical and mechanical items, fixtures of any kind, antiques, glass items, window blinds, etc. The Employer shall determine the amounts of such losses/ damages and the Contractor hereby expressly waives his all or any right to change or challenge the same. The Contractor shall have to make good all such losses/ damages within time frame specified in the Notice, to the entire satisfaction of the Employer.</p> <p>ii. Any tax, government duties, insurance contributions and other taxes or social security contributions in respect of Contractor's employee(s) or sub-Contractor together in each case with any interest, fines or penalties thereon.</p> <p>iii. Any claims of Contractor / service provider's current employees or ex-employees, or associates, or their heirs whether against the Contractor, other Contractors working within the same premises or any other person, regarding deals made at personal level by the staff or personal matters or deals carried out as an Employer, in whatsoever form, manner or capacity.</p> <p>iv. Any Government Permits, Licenses, etc. that may be required for performing the services contemplated under the Contract.</p> <p>v. All claims of compensation by an employee of Contractor / Service Provider, his family or legal heirs or any other agency, autonomous body, any NGO or government department, arising from injury, disability, ill health or death of any of his employees during the currency or expiry of this Contract while performing any services under this Contract or any claim regarding the medical care or treatment expenses submitted by the employee or ex-employee of the Contractor / Service Provider or their legal heirs.</p> <p>Save for the willful or deliberate breach of its obligations under the</p>

			Contract or, as set out above, neither party shall be liable for any consequential or indirect loss or damage.
82.	27	Contractor's Warranties	<p>The Contractor undertakes and represents that at all times:</p> <ul style="list-style-type: none"> i. It has the requisite power and authority to enter into and perform this Agreement; ii. It holds valid license and authority to carry out the Services; iii. It shall execute the services in professional manner through competent, skilled, qualified human resource. iv. Contractor shall not act in a way which is prejudicial to Employer's interests or business; v. The Services shall be fit for the express or implied purposes for which supplied. vi. The Contractor shall follow the instructions to be issued by the Employer when at Employer's premises, all rules and security policies and the Employer may exclude any person from its premises for any actual or anticipated breach of these policies. <p>Any breach by Contractor of this Clause, constitutes a material breach of the Contract and may lead towards Termination of Contract. In addition to Employer's rights under the Contract, the Employer shall be entitled to require Contractor to (a) remedy the breach at its cost; (b) pay for it to be remedied; or / and (c) repay all amounts already paid for the defective Services.</p>
83.	28	Confidentiality	<p>Except with the consent in writing of the Employer, Contractor shall keep strictly confidential and not make use of any confidential information - supplied by the Employer other than to perform this Contract, and shall impose the same obligations on its employees and other third parties (including sub-service provider). Contractor may disclose confidential information if required to do so by law, court order, rules or regulation provided (to the extent permissible by law) it has notified the Employer in advance and agreed the scope of disclosure with the Employer.</p>

SECTION IX: CONTRACT FORMS

Form of Contract

THIS AGREEMENT made the ____ day of _____ 20____ between *[name and address of Procuring agency/Employer]* of Pakistan (hereinafter called “the Procuring agency/Employer”) of the one part and *[name of Contractor]* of *[city and country of Contractor]* (hereinafter called “the”) of Contractor other part:

WHEREAS the Procuring agency/Employer desired that the works *[brief description of works]* should be executed by the contractor, and has accepted a Bid by the contractor for the execution and completion of these works and remedying of any defects therein, in the sum of *[contract price in words and figures]* (hereinafter called “the Contract Price”).

NOW THIS CONTRACT WITNESSETH AS FOLLOWS:

1. In this Contract words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Contract, In the event of any ambiguity or conflict between the Contract Documents listed below, the order of precedence shall be the order in which the Contract Documents are listed below:-
 - (a) This form of Contract;
 - (b) Letter of Acceptance;
 - (c) the Form of Bid and the Price Schedule submitted by the Bidder;
 - (d) the Works Requirements;
 - (e) the Technical Specifications;
 - (f) the Drawings;
 - (g) the General Conditions of the Contract
 - (h) the Special Conditions of Contract,
 - (i) the completed schedule including Bill of Quantities; and
 - (j) *[add here: any other documents]*
3. In consideration of the payments to be made by the Procuring agency/Employer to the contractor as mentioned in this contract, the contractor hereby covenants with Procuring agency/Employer to execute the works to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Procuring agency/Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Contract to be executed in accordance with their respective laws the day and year first above written.

Signed, sealed, delivered by _____ the _____ (for the Procuring agency/Employer)	Signed, sealed, delivered by _____ the _____ (for the Contractor)
Witness to the signatures of the Procuring agency/Employer	Witness to the signatures of the Contractor

Performance Guarantee Form

Letter of Guarantee Ref. No: _____
Date of Issue: _____
Date of Expiry: _____
Amount of Guarantee: _____

To:
SBP Banking Services Corporation,
Proc. Unit, Engg. Dept., 1st Floor Bolton Market Building, MA Jinnah Road, Karachi

WHEREAS M/s <_____> (hereinafter called “the Supplier”) has undertaken, in pursuance of Contract No. <_____> dated <_____> to delivery Construction of Parking Shed with Solar Panels at SBP Main Building Premises, Karachi (hereinafter called “the Contract”).

AND WHEREAS it has been stipulated by SBP Banking Services Corporation (hereinafter called “the Procuring Agency”) in the said Contract that the Supplier shall furnish to the Procuring Agency with a Bank Guarantee by a reputable bank for the sum specified therein as security for compliance with the Supplier’s performance obligations in accordance with the Contract.

AND WHEREAS we <_____> (the Guarantor) have agreed to give the Supplier a guarantee.

THEREFORE, WE hereby affirm that we are Guarantors and responsible to the Procuring Agency, on behalf of the Supplier, up to a total of sum stated above, and we undertake to pay the Procuring Agency, upon your first written demand declaring the Supplier to be in default under the Contract and without cavil or argument, any sum or sums within the limits of amount of guarantee as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the duration as stated above.

On behalf of Click or tap here to enter text.

Signature and seal of the Guarantors

[name of bank or financial institution]

[address]

[date]

Advance Payment Security**Demand Guarantee**

Beneficiary: _____

Date: _____

ADVANCE PAYMENT GUARANTEE No.: _____

Guarantor: _____

We have been informed that [Inset name of the Contractor] (hereinafter called "the Contractor") has entered into Contract No. _____ dated _____ with the [insert name of the Procuring agency/Employer] (hereinafter called "the Procuring agency/Employer") for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____ (_____) is to be made against an advance payment guarantee.

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

(a) has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or

(b) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Contractor has failed to repay.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Procuring agency/Employer's bank stating that the advance payment referred to above has been credited to the Contractor on its account number _____ at _____.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as specified in copies of interim statements or payment certificates which shall be presented to us.

The Guarantee shall remain valid up to the aforesaid date and shall be null and void after the aforesaid date or earlier if the advance made to the Contractor is fully adjusted against payments from Interim Payment Certificates of the Contractor provided that the Guarantor agrees that the aforesaid period of validity shall be deemed to be extended if on the above mentioned date the advance payment is not fully adjusted.

[signature(s)]

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

**Retention Money Security
Demand Guarantee**

_____ [Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____ [Insert name and Address of Procuring agency/Employer]

Date: _____ [Insert date of issue]

RETENTION MONEY GUARANTEE No.: [Insert guarantee reference number]

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

We have been informed that _____ [insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture] (hereinafter called "the Contractor") has entered into Contract No. _____ [insert reference number of the contract] dated _____ with the Procuring agency/Employer, for the execution of _____ [insert name of contract and brief description of Works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, the Procuring agency/Employer retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, payment of [insert the second half of the Retention Money or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and, if required, the ES Performance Security] is to be made against a Retention Money guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ [insert amount in figures] (_____) [amount in words] upon receipt by us of the Procuring agency/Employer's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without your needing to prove or show grounds for your demand or the sum specified therein.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Procuring agency/Employer's bank stating that the second half of the Retention Money as referred to above has been credited to the contractor on its account number _____ at _____ [insert name and address of Contractor's bank].

This guarantee shall expire no later than the day of, 2...., and any demand for payment under it must be received by us at the office indicated above on or before that date.

[signature(s)]

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

Integrity Pact**DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC. PAYABLE BY THE SUPPLIERS OF GOODS, SERVICES & WORKS IN CONTRACTS WORTH RS.10.00 MILLION OR MORE**

Contract Number: _____
 Contract Value: _____
 Contract Title: _____

Dated: _____

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

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

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

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

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

 [Procuring agency/Employer]

 [Contractor]

SECTION X - TECHNICAL SPECIFICATIONS & DRAWINGS**Technical Specifications****SECTION # 1 – SOLAR PANELS****1.0 SPECIFICATION FOR THE SUPPLY AND INSTALLATION OF SOLAR SYSTEM****a) SOLAR PANELS:**

- The PV module(s) shall contain **mono crystalline + thin film** (Mono PERC) silicon Grade-A solar cells (Refer BOQ requirement in case of further clarification).
- The PV module have an ability to Works well with high-voltage input Inverters/ charge controllers
- The PV Panel must have clear anodized aluminum frame with Anti-reflection cover glass
- The power output of the module(s) under STC should be at optimum level.
- The operating voltage corresponding to the power output must be mentioned.
- The open circuit voltage of the PV modules under STC must be mentioned.
- The terminal box on the module should have a provision for opening for replacing the cable, if required and it should be waterproof
- The Solar Panel shell meet the requirement set in IEC 61215:2005, IEC61730-1:2004 and IEC 61730-2:2004 and should be duly certified by TUV.
- A strip containing Serial number should be laminated inside the module so as to be clearly visible from front side.
- Limited performance guarantee: panel power, in standard conditions, will not be less than 90% of nominal power for first 10 years of operation and at least 80% for the second 20 years of operation with 25-year limited power warranty.
- The PV Module should have over 18 % Module efficiency.
- The solar panel supplied should be in compliance with the product specifications provided in the technical bid. All the technical parameters are to be provided with each solar panel supplied

b) INVERTER/CONTROLLER:

The grid tie solar inverter / controller should have over load protection range of 40 KWP or above. The inverter offered should comply to:

- DC/DC booster
- String inverter (grid tied)
- The nominal voltage should be 3 phase, 230/415 VAC, 50 Hz.
- The total harmonics distortion should be less than 3 %.
- Protection class should be IP-65 or above.
- Operating temperature 60 °C and 100 % humidity.
- Remote monitoring App.
- DC over voltage protection.
- DC under voltage protection.
- DC over current protection.
- DC reverse polarity protection.
- Over temperature protection.
- Surge protection.
- Grid frequency under over protection.
- Ground fault protection.
- Leakage protection.
- Interface RS232/USB and RS485/Ethernet.
- LCD display.
- Local monitoring system should be life time free of cost and integrated.
- CE/RoHS

- Low Voltage Directive 73/23/EEC with Supplements
- EMC Directive 89/336/EEC with Supplements
- 5-year warranty.
- Compliance with K-Electric/WAPDA Requirements

The complete datasheet showing all the electrical parameters like input & output voltage ranges should be provided in the technical bid.

c) **MOUNTING STRUCTURE:**

The panel mounting structure should be made of Aluminum / MS hot dipped galvanized (minimum wall thickness 2.5 mm). The following instruction / guidelines must be followed:

- i. The structures will be Aluminum / MS hot – dipped galvanized all structure material with SS 316 Nut Bolts and also give enough working space for other installations on terrace.
- ii. Location and design of PV module structure should be such as that the existing infrastructure on the terrace is not disturbed.
- iii. To allow for regular cleaning of the solar module, it should be accessible for personnel.
- iv. Structures shall be supplied complete with all members to be compatible for allowing easy installation at the rooftop site.
- v. The structure shall be designed to allow easy replacement of any module.
- vi. Each structure will be capable of withstanding a wind load of 200 Km/hr and cater a gust of 3 second after grouting and installation.
- vii. The front end of PV array must be 1 ft. above the roof surface. Grouting material for PV structure shall be as per standard and **concrete specifications**.
- viii. The structure shall be designed for simple mechanical and electrical installation. There shall be no requirement of welding or complex machinery at the installation site. **Welding Specifications**
- ix. If prior civil work or support platform is absolutely essential to install the structures, Bidder shall clearly and unambiguously communicate such requirements along with their specification in the technical bid.
- x. Detailed engineering drawings and instructions for such prior civil work shall be carried out prior to the supply of goods.
- xi. The supplier shall specify installation details of the PV modules and the support structures with appropriate diagrams and drawings.

Such details shall include, but not limited to the following:

- Determination of true south at the site.
- Array tilt angle to the horizontal with permitted tolerance.
- Details with drawing for fixing the modules.
- Details with drawing for fixing the junction/terminal boxes.
- Interconnection details inside the junction /terminal boxes.
- Structure installation details and drawing.
- Electrical grounding (earthing).
- Inter – panel /inter row distances with allowed tolerance.
- Safety precaution to be take.

- Space should be left for cleaning.
- xii. The array structure shall support PV module at a given orientation and absorb and transfer the mechanical loads to the roof top columns properly.
- xiii. Detailed design and drawing shall have to be submitted for acceptance and approval before execution of work.

d) DC CABLE / WIRING:

99% copper wires to be used in DC wiring. The cable must have double insulation suitable for 1000 VDC transmission, and all the relevant test reports i.e.

- Conductor resistance test.
- Insulation resistance test.
- Pressure test.
- Spark test.

Are to be provided in the technical proposal. The wiring must be protected by PVC conduits for underground installations. DC circuit breakers (not fuse) of at least 800V and suitable ampere rating must be installed between PV modules and PV pump controller in order to avoid short-circuiting. No direct jointing in DC power line is allowed, junction boxes of at least IP-66 rating are to be used for easy debugging where necessary

e). General:

- a) Welding of PV panels should be free from defects; the joint is to be properly cleaned. NDT, welding as per standard.
- b) Since the work is to be done in different areas therefore deployment of men, transportation of man & machinery, consumables, welding equipment, drilling machine to various locations necessary for carrying out the job comes under contractor's purview. Power supply, if already available at site, shall be provided to contractor free of cost however if not available then contractor shall make arrangement of power supply at his own cost. Diesel / Petrol for running the mobile DG set used for welding is in the scope of the contractor
- c) The necessary tools and tackles, material and labor required for connecting new solar supply to existing panel is in the scope of the contractor. No additional payment will be made for the same.
- d) The contractor at his own cost shall visit site, before quoting the tender.
- e) The contractor is responsible for any damage caused while carrying out installation of solar panels.
 - i. Drains, pipes, electrical cables, telephone cables, and similar services encountered in the course of the works shall be guarded from injury by the contractor at his own cost, so that they may continue in full and uninterrupted to the satisfaction of the owners thereof.
 - ii. Should any damage be done by the contractor to any mains, pipes cables or lines (whether above or below ground etc) whether or not shown on the drawings the contractor must make at his cost good the damage without delay to the satisfaction of the Consultant.
- f) Permissions - While doing the work, it is the responsibility of the contractor to take all the necessary permissions required from any government agencies to complete the work.

- g) In some locations, the work may be carried out near Live High voltage bus bars/lines, contractor has to follow all safety rules & regulations etc. and guide his manpower for safe working.
- h) Before procurement of any material, approval shall be taken from **Client / Consultant or its nominees at site.**
- i) Cable trays shall be with complete installation material.
- j) Cable trays shall be used for Power Cables.
- k) SLDs and Layouts shall be part of Contract.
- l) Cranes/Fork lift/machines/tools required at site shall be in contractor's scope.
- m) House Keeping shall be done as per requirement and satisfaction of the **Client.**
- n) All documentation for QA/QC, SHE, Testing, etc shall be done by Contractor under the supervision **Client/Consultant.**
- o) The materials, design and workmanship shall satisfy the applicable standards, specifications contained herein and codes referred to. Where the technical specifications stipulate requirements in addition to contained in the standard codes and specifications, those additional requirements shall also be satisfied.
- p) All the material required to complete the entire job at site. However minimum 07 (Seven) days advance intimation before work startup will be given.
- q) In case of any contradiction the decision of Client Committee will be final and binding on the contractor.
- r) Any materials damaged during execution of the job by the contractor or his personnel, shall be made good, otherwise suitable deduction from the contractor's bill shall be made as decided by **Client.**
- s) The Contractor shall furnish all labor and materials, tools and equipment required to install, connect, test and commission all electrical equipment specified herein, whether or not such equipment is furnished by him or others. For all equipment to be installed by the Contractor, the Contractor shall supply and install all installation materials such as foundation bolts, leveling steel, shims, clamps, cable sockets, lugs, gland, solder, wall plugs, steel rowel bolts, washers nuts, etc. as required and without any additional costs. In general, the manufacture's instruction for installation shall be followed.
- f) **NOTE:**
 - a) For any major departure from the working drawings that are deemed necessary by the Contractor due to site conditions, he shall submit the details and obtain the approval of Client/Consultant before starting such works.
 - b) Upon completion of the installation, the Contractor technical team will be available during startup.
- g) **Mandatory Compliance;**
 - a) All relevant technical requirement will be follows including Requirement of K-Electric / WAPDA Net metering purpose.
- h) **NOTE: following documents shall be the part of Contract**

- i. Layout and section drawings.
 - ii. SLD
 - iii. Block diagram
 - iv. Net metering Requirement
- i) **Submittal:**
- a) All technical material along with specs to be submitted with ample in a proper name with a sample board. All detail to be mention in it.
 - b) **Client / Consultant** reserves the right to change and the specs / revise amendment without any notice.
 - c) Rates will be treated as final and binding. Any deviation in price will be assist through a variation order.

END OF SECTION # 1

SECTION # 2 – WIRING & WIRING ACCESSORIES

2.1 GENERAL

The Contractor shall furnish and install all wires and cables along with the accessories as specified herein, in Bill of Quantities and Drawings. Apart from the material specified, the Contractor shall provide, the necessary material for termination or fixing of wires and cables such as lugs, solder, supports, bushes, brass and PVC glands for a complete wiring installation. Miscellaneous materials, like filing compound, identification tags, markers and earthing strips shall be furnished for completion of works in accordance with the best engineering standards and practices. The wiring installation shall be carried out in strict accordance with the scheme, cable sizes and circuit details shown on the drawings or as specified. The contractor is to produce purchase certificate from recommended manufacturers.

2.2 L.V. CABLES AND WIRING

Cable and conductors shall be PVC insulated, PVC sheathed with copper conductors, single / multi-core, unarmored 450/750 volts grade for light and socket circuits and 600/1000 grade for motor power circuits, to BS 6004 and BS 6346.

The neutral and phase conductors shall be colored black and red/yellow/blue respectively. The circuit protective conductors shall be of green having same cross-sectional area as that of phase and neutral upto 16 sqmm or as specified in BOQ and drawings.

Each circuit shall have its own separate neutral, and the "looping in" system for wiring shall be used. Joints shall be made at main switches, distribution boards and panels, sockets outlets, light fan points and switch boxes only; no joints shall be made in joint boxes, nor will any "through joints" be allowed.

PVC/PVC 3-core flexible cords, shall be used for connection to the luminaries and fixtures from the ceiling rose/outlet box, through 3-terminal PVC connectors. Soldered or crimped tinned copper lugs, shall be used on the termination of cables and conductors 10sq.mm and larger. All multi-core cables shall be provided with compression glands, of the correct size and type, at panel entry positions.

2.3 INSTALLATION

The wiring through exposed or concealed conduit shall be started only after the conduit system is completely installed and all junction boxes, outlet boxes, switch boards, etc. have been fixed in proper position. For outdoor installation, where specified the cables shall be run direct in ground or in pipes as specified. The cables shall be pulled through conduit or pipes with care to prevent any damage to cables. To facilitate pulling, lubrication only as recommended by cable manufacturer may be used for decreasing friction. Under no circumstances shall oil or soap be used for cable pulling. Where several wires are to occupy the conduit or pipes they shall be pulled along together with earth continuity conductor. In general, the wires shall not be bend to radius less than ten times the overall diameter of the wire, or as otherwise recommended by cable manufacturer. The contractor shall furnish all installation material and labor for installation, testing and commissioning of cable system.

The wiring to power circuit and 15 amperes single phase socket outlet shall be run in conduit separate from light wiring conduits. Care shall be taken to ensure that all phase conductors are connected to the proper terminals and correct phase sequence is maintained. Wherever the size of conduit is not stated on drawings, it shall be in accordance with the Table based on I.E.E. Regulations.

The wires or cables shall be terminated at light points, switchboard, etc. such that the insulation is always led into the equipment to which connection is made. The cable entry hole in equipment shall be such as not to damage the cable. Inside the switchboards or control boards, the wires or cables shall be securely fanned out in a neat arrangement and laced with wax cord. The wires of different phases shall preferably be bunched separately. Identification tags or ferrules shall be provided at termination of wires in switchboards with respect to connected equipment for ease of installation and maintenance.

2.4 POWER, LIGHTING AND CONTROL CABLES

PVC Cable for underground installation shall also be PVC insulated and PVC sheathed.

1.4.1 Surface Cables

Cables for distribution system on surface shall be either single-core or multi-core, as specified in drawings or BOQ. The cables shall be PVC insulated and PVC sheathed.

1.4.2 Cables in Conduits

All cables/wires, in conduits shall be of copper, PVC sheathed or PVC insulated as specified in design drawings or BOQ.

2.5 PHASE IDENTIFICATION

All cables shall have phase identification colors on insulation of each phase. The color code for three phase circuits shall be red, yellow and blue for phase conductor and black for neutral conductor.

Single phase circuits shall have red for phase and black for neutral conductor.

2.6 CABLE ACCESSORIES

Best quality cable accessories should be used with the approval of consultant. The cable accessories, include, cable tray, cable trunking, floor trunking, clips, saddles (all galvanized). Cable glands made of brass should be used when cable enters/leaves a panel/Distribution Board. Identification tags made of engraved brass plates to be used for all cables. All the cables should be securely fixed to cable tray or trunking with help of plastic ties. Cable lugs should be compression type. Lugs should be pressed with help of compression machine approved by consultant.

2.7 CONDUIT WIRING-INSTALLATION

The wiring through conduit shall be started only after the conduit system is completely installed and all outlet boxes, junction boxes, etc. are fixed in position.

The wires shall be pulled in conduit with care and, to facilitate pulling, the cable manufacturer's recommended lubricant shall be used. Use of any kind of oil or soap will not be permitted.

Where several wires are to be drawn in the same conduit, they shall be pulled together. The wires shall not be bent to a radius less than ten times the overall diameter of the wire, unless otherwise recommended by the manufacturer.

The wiring shall be continuous between terminations. The looping in system shall be followed throughout. Any joint in wires will not be allowed. The use of connectors will only be allowed at location where looping-in is rendered difficult. The consent of the Consultant in writing, will be required for using connectors.

The connector shall be of suitable rating having porcelains body, sunk-in screw terminals and terminal strips. The connector shall be wrapped with PVC insulation tape after its installation. A minimum of 150 mm extra length of cable/wire shall be provided at each termination to facilitate repairs in future.

2.8 INSULATION RESISTANCE TESTS

Insulation resistance tests shall be made on all electrical equipment by using a megger tester of 500V for circuits upto 250 Volts and 1000V for circuits upto 500 volts.

The insulation resistance values of cables, transformers and switchgear etc., shall be as per B.S.S. and Pakistan Electricity Rules.

Before making connections at the ends of each cable run, the insulation resistance measurement test of each cable shall be made. If insulation resistance test readings are found to be less than the specified minimum, the cable shall be replaced and the new cable installed and tested.

All switchgears shall be given an insulation resistance measurement test after installation, before any wiring is connected. Insulation tests shall be made between open contacts of circuit breakers, switches and between each phase and earth.

If the insulation resistance of the circuit under test is less than the specified value, the cause of the low reading shall be determined and removed. Corrective measures shall include dry-out procedure by means of heaters if equipment is found to contain moisture. After all tests have been made, the equipment shall be reconnected as required.

2.9 CONTINUITY TEST

Continuity test on all the sub and main circuits should be performed for phase, neutral & earth wires.

END OF SECTION # 2

SECTION # 3 – CONDUIT & PIPES

3.1 GENERAL

The work under this section consists of supplying, installing, and commissioning of all material and services of the complete conduit & pipe system as specified herein and/or shown on Tender Drawings and stated in the Bill of Quantities.

The Contractor shall discuss the electrical layout with the Engineer and co-ordinate at site with other services for exact route, location and position of the electrical lines.

3.2 PVC CONDUITS

All wiring for light, power, control and other circuits shall be carried out in PVC pipe otherwise as stated in BOQ, minimum 25mm dia. The conduits and pipes shall be supplied complete with all accessories including bends, sockets, junction boxes of identical material as that of conduit and all cutting, repair, excavation backfilling, etc., required for complete installation. The conduits for internal wiring to lights, sockets and power circuit shall be of approved brand.

Manufactured smooth bends shall be used wherever conduit changes direction. The sharp 90-degree bends or tees shall not be allowed. All conduit accessories shall conform to same material specification as given above for conduit.

The bends shall have enlarged ends to receive conduit without any reduction in the internal diameter at joints.

The round junction box for ceiling light points shall be of PVC having minimum dimensions of 63 mm diameter and 63mm deep. The outlet box at wall light points shall be general purpose type having minimum dimensions of 75mm x 75mm and 38 mm deep. Pull boxes and inspection boxes shall be installed in conduit runs where required to limit the pulling of the cables or for inspection purposes. The pull boxes shall be square having minimum dimension of 100mm and 50 mm deep. In all cases, the minimum length of inspection boxes shall be not less than four times the cable manufacturers recommended bending radius of the cable. These dimensions are minimum only and the Contractor shall determine the exact size keeping in view ease of maintenance and installation. In general the use of pull boxes and inspection boxes shall be avoided. The pull boxes and inspection boxes shall be of 16SWG. sheet steel provided with anti-rust paint and finished in gray enamel paint or orange powder coated paint. The face plate shall be secured to the box by means of flat head galvanized screw.

3.3 INSTALLATION

1. Conduits

The conduit shall be installed concealed in wall, column ceiling or under floor, on surface, above the false ceiling or as stated on the drawings. The drawings are diagrammatic and do not indicate the location of junction boxes, pull boxes or inspection boxes which shall be provided to suit site conditions.

The concealed conduits shall have a minimum of 25 mm concrete cover, when concealed in R.C.C works. The conduits in R.C.C works shall be laid before pouring of concrete. Chisels shall not be made in R.C.C structure for conduits and accessories after pouring of concrete. In slab, conduits shall be laid over the bottom reinforcement steel and tied firmly to it. The conduit outlet boxes shall be held firmly to finish with

the surface of the slab or beam. At expansions joints, flexible conduits or alternate arrangement shall be provided.

Where conduits have to be concealed in cement concrete work after concreting or in block masonry, chisels shall be made with appropriate tools and of required depth. The conduit shall then be firmly recessed and covered after plastering. All chisels for concealing conduits shall be carried out by the Contractor. The Contractor will be responsible for bringing back the general finish to the condition that it was before the cutting and chiselling by the Contractor.

The work of conduit installation and cutting in cement concrete work or brick work shall be coordinated with civil construction so as not to cause any undue hindrances and delays in progress. The Contractor shall obtain approval of the Consultant for route, etc. to suit the site conditions before starting chiselling and cutting. All junction boxes, outlet boxes, pull boxes etc., shall be installed concealed so as to finish with the surface.

Conduits installed on surface shall be fixed by means of black enamelled steel saddles and clamps having thickness of 3 mm or as mentioned in BOQ. The clamps shall be installed at a distance of not more than 600 mm.

All conduit bends shall be made with an approved conduit bending machine or hickory.

The radius of curvature of the inner edge of any bend shall not be less than the following table :

Conduit size	Radius
25 mm (1")	Not less than 150 mm.
32 mm (1-1/4")	Not less than 200 mm.
38 mm (1-1/2")	Not less than 255 mm.
50 mm (2")	Not less than 305 mm
70 mm (2-1/2")	Not less than 380 mm
82 mm (3")	Not less than 460 mm.
100 mm (4")	Not less than 610 mm

After completion of conduit installation, the system shall be checked for any charred or twisted portion prior to the pulling of wire. At all joints, PVC jointing solution or cement must be used.

The termination of conduits is shown diagrammatically on the drawings. The exact final location of the termination shall be coordinated with the equipment to be installed. Conduit ends pointing upwards or downwards shall be properly plugged, in order to prevent the entry of foreign materials. All openings through which concrete may leak shall be carefully plugged and boxes shall be suitably protected against filling with concrete. At all termination of conduit, soft bushes shall be fixed to prevent sharp edges of conduit ends from cutting or damaging the wires or cables to be pulled through them. Brass glands of appropriate sizes (as per size of conduit) with proper chuck nuts shall be used for fixing of conduits in junction boxes.

The entire conduit system shall be installed and tested before wiring is carried out. Any obstruction found shall be cleared by use of a cutting or other approved device and the conduit be cleaned out before the installation of cable.

3.4 OTHER ACCESSORIES

Outlet boxes, pull boxes, inspection boxes, switch and socket outlet boxes, fan regulator boxes, shall be of 16 SWG sheet steel, de-rusted, degreased, rust-proof with two coats of zinc chromate primer and painted with enamel, complete with earthing terminal. All boxes shall have ample wiring space, and boxes used outdoors shall be weather-proof.

All the pull boxes are to be properly labeled according to the type of services for which it is installed.

END OF SECTION # 3

SECTION # 4 – CABLE TRAY & LADDERS

4.1 SCOPE OF WORKS

1. Under this section of the specification cable tray shall be installed to support distribution cables, communication cables and all wiring cables not generally installed in conduit and or trunking.
2. The cable tray shall be installed in such a manner to enable easy access for cable installation.
3. The cable tray shall vary in type, i.e: where large cables are installed, ladder rack type cable tray shall be permitted. Where smaller type communication cables are installed, bottom perforated type cable tray shall be permitted in compliance with item # 6.
4. Cable trays / Ladder shall be as follows for different areas or as specified in BoQ.
5. Cable ladders shall be installed in risers for the full length of the risers unless otherwise instructed by the Consultant.
6. The Selected Cable Tray / Cable Ladder Accessories shall be as per List of Approved Manufacturers.
7. The Selected Cable Tray / Cable Ladder supports shall be with tool less seismic bracing cable with all required accessories
7. The selected thread rods and accessories shall be M12 as per DIN 975 or Equivalent.

4.2 QUALITY ASSURANCE

1. Acceptable Manufacturers
2. Subject to compliance with the requirements of the Contract Documents, acceptable manufacturers are to be firms regularly engaged in manufacturer of all materials specified in this section of types and sizes required, whose products have been in satisfactory use under similar service conditions for not less than ten years.

4.3 SUBMITTALS

1. Submit the standards to which the cable tray is manufactured to.
2. Submit shop drawings and data in accordance with the general requirements of the contract.
3. Indicate the various types of cable tray with terminology used in Part 2.
4. Show actual cable tray installation details, size and suspension system.

4.4 PRODUCTS

GENERAL

1. The cable tray system shall be of one manufacturer and shall include factory made trays, tray fittings, connections, complete with accessories and supports to form a complete tray support system.
2. The cable tray system shall include the following factory-made tray elements. Straight trays and ladders, fittings and horizontal and vertical bends of various angles crosses, tees, wyes, reducers, vertical riser elements, connectors, joint plates and all necessary fixing accessories

including supports. No local or site fabrication of any cable tray system including ceiling and wall supports are acceptable. Threaded rods for ceiling supports are not acceptable.

4.5 CABLE TRAY

1. The whole of the tray work, fittings and supports shall be of mild steel after manufacture as per DIN 975, all the accessories other than C-Channel, thread M12 rods shall be cadmium plated/stainless steel made such as nuts, screws, bolts, wire etc.
2. Cable trays shall be constructed from MS of minimum thickness 12 gauge applying all 7 HDG process, The Height shall be 100mm or as specified in BOQ. Flange height shall be 125mm or as indicated in drawings and documents.
3. Insert elements, bolts, screws, pins etc., shall be cadmium plated/stainless steel.
4. Tray work shall have oval perforations. Ladder type trays shall be used as required and/or approved by the Engineer.
5. All trays (straight and fittings) to be heavy duty returned flanged type unless specified otherwise.
6. Tray components are to be accurately rolled or formed to close tolerance and all edges rounded. Flanges are to have full round smooth edges.
7. Unless indicated otherwise on drawings, cable trays shall be used in the range and 150mm to 750mm wide, in five preferred standard sizes: 150, 300, 450, 600 and 750mm.
8. Other sizes shall be used where specified or previously agreed with the Engineer.
9. Return flanges shall be a minimum of 10mm deep, unless otherwise specified.
10. Minimum radii at side rails, horizontal, and vertical tees and crosses shall be in accordance with the Manufacturer's standard.

4.6 EXECUTION

INSTALLATION

1. Install all cable trays and ladder racks strictly in accordance with IEE and local authorities requirements.
2. Drilling, machining or cutting shall not be carried out after application of protective coat, unless previously agreed by the Engineer. If cutting or drilling is necessary, edges shall be cleaned up and painted with zinc based paint before erection.
3. Provision shall be made when installing all cables and cable trays for the expansion and settlement of the building.
4. Cables shall be fixed to the trays/ladders by means of PVC cleats and flame retardant cleats for flame/fireproof cables with galvanized bolts, nuts and washers. Use galvanized metal trefoil cleats with rubber pad for single core cables
5. Control cables run and clipped in groups shall not exceed twelve in number and shall be not more than double banked. Power cables shall be laid in a single layer except with the prior approval of the Engineer. Power cables should be spaced 2D between centres of cables throughout the run of cables. Submit calculations for voltage drop for cables and increase the size if necessary.

6. Vertical distances between trays mounted horizontally shall be minimum of 250mm. Local reduction of distances between trays will be allowed to a minimum of 150mm with approval from the Engineer.
7. Trays shall be adequately supported to prevent sagging by more than 3 Deg. between fixed points. All supporting steelwork shall be fixed at not more than 1 meter centres unless otherwise specified.
8. Where cable tray pass through floor arrange for 100mm concrete curb around opening and fire sealants shall be provided.
9. The Contractor shall submit calculations relating to tray / ladder work and tray / ladder supports demonstrating acceptable mechanical stresses and sag.
10. Where cable tray must pass below a beam a short length of tray shall be installed on the underside of the beam with 25mm spacers between the tray and the beam underside surface. Cables shall be strapped rigidly to the tray to prevent any possible sag in the cables.
11. Where cable tray is intended to cross a series of beams the tray shall be supported from each beam it crosses by metal supports suspended from below the underside of the beam - the space between the tray and the beam underside surface shall not exceed three times the diameter of the largest cable to be carried on the tray.
12. Cable tray covers are only required on roofs or outdoor where cables are installed exposed to weather conditions.

4.7 EARTHING

1. The entire cable tray and ladder system shall be bonded using 12mm x 1.5mm braided tin copper, which shall be bolted across each joint in the system by means of galvanized nuts and bolts, complete with flat and spring washers.
2. Tray systems shall be bonded to the main building earthing system as required or directed by the Engineer.

4.8 FIRE BARRIERS

1. Arrange for opening in fire rated walls, and floor for width and depth of cable tray to run through in addition to the specified clearance of the above cable trays.
2. Arrange and make good fire rating of floors or walls after cables have been installed. For all floor openings of all risers (telephone, power) except vertical telecom cable risers where grating shall be provided.
3. All openings / sleeves within floor slabs and fire rated walls shall be sealed with proper fire rated material.

END OF SECTION # 4

SECTION # 5 – MAIN / SUB-MAIN CABLES**PART 1 - GENERAL****5.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

5.2 SUMMARY

- A. This Section includes requirements for 600/1000-volt cables & associated accessories.

5.3 DEFINITIONS

- A. Not used.

5.4 PERFORMANCE REQUIREMENTS

- A. Not used.

5.5 SUBMITTALS

- A. None required.

5.6 DESCRIPTION

- A. Provide 600 / 1000-volt cable in accordance with the Contract Documents.

5.7 WORK INCLUDED

- A. Supply of 600 / 1000-volt Cable.

5.8 QUALITY ASSURANCE

- A. Except as modified by applicable codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
 - 1. General: British standard (BS) approvals service for Electric Cables (BASEC).
 - 2. Cross-Linked Polyethylene (XLPE) Insulated Wire and Cables:
 - a. BS6633: Cross-Linked Thermosetting-Polyethylene-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.
 - b. BS6633: Rubber-Insulated Wires and Cables.
 - c. BS6633: Service-Entrance Cable.
 - 3. Annealed Copper Wire for Conductors:
 - a. BS6633: Soft or Annealed Copper Wire.

PART 2 - PRODUCTS**5.9 WIRE AND CABLE**

- A. **General:**

1. Provide wire with minimum insulating rating of 600 volts. For control or signal systems use 300 volt minimum or 600 volt where permitted to be incorporated with other wiring systems.

B. Conductors:

1. Electrical grade, annealed copper, tinned if rubber insulated, and fabricated in accordance with British Standards.

C. Stranding and Number of Conductors:

1. Cables larger than 6 mm², stranded in accordance with KSC 3611 Class B stranding designations.
2. Control wires stranded in accordance with ASTM Class B stranding designations.
3. Cables, multi-conductor unless otherwise noted for low voltage systems.

D. Insulated Single Conductors (Single Core):

1. Type XLPE - Thermoplastic insulation suitable for use in wet locations up to 75°C.
2. Type XLPE - Flame Retardant: Heat-resistant thermoplastic insulation, nylon jacket rated for 90°C operation.

E. Multi-Conductor (Multi Core) and Supervisory Control Cables:

1. Suitable for direct burial, open air, duct or conduit installation.
2. Temperature Rating: 75°C Wet or Dry.
3. PVC or cross linked polyethylene conductor insulation; thickness satisfying requirements of British Standards, for cross-linked thermosetting polyethylene insulated conductors.
4. Flame retardant overall polyvinyl jacket satisfying requirements of British Standards.
5. Individual conductors bound together with overall binder tape prior to jacket application.
6. Individual conductors rating of 300 volts (instead of 600 volts) for cables designated Supervisory Control Cable.
7. Factory color coded in accordance with British Standards.

F. IDENTIFICATION

The overall jacket shall be printed at intervals not exceeding 600 mm with the following information:

1. Manufacturer's Name.
2. Plant of Manufacture (Designation Code).
3. Trade name.
4. Insulation Type and thickness.

5. Conductor size and type.
6. Maximum working voltage and insulation level.
7. Identification and designation of Cable CV.
8. Year of Manufacture.

G. Acceptable Manufacturers:

1. Products by any manufacturer meeting the performance requirements specified in the Approved Manufacturer's List may be utilized.

5.10 FIELD TESTING (*IN THE SCOPE OF ELECTRICAL CONTRACTOR*):

- A. Test system wiring for continuity, grounds and short circuits prior to connection of any equipment.
- B. Test final equipment connections for continuity of grounds and short circuits.
- C. Insulation Resistance of Feeders and Sub feeders:
 1. Test with megger for insulation resistance. Insulation resistance to comply with ICEA values.
 2. Correct faults and sections with faulty insulation.

END OF SECTION # 5

SECTION # 6 – DC CABLES**6.1 GENERAL DESCRIPTION**

DC solar cables are designed for photovoltaic (PV) power generation systems. These cables ensure efficient and safe power transmission between solar panels, inverters, and charge controllers. They are UV-resistant, weatherproof, and have high flexibility for easy installation. The cables are specially engineered to withstand extreme environmental conditions, including high temperatures, humidity, and mechanical stress.

6.2 CABLE CONSTRUCTION

S.#	Component	Specification
1.	Conductor	Stranded Tinned Copper (Class 5, IEC 60228)
2.	Insulation	Cross-linked Polyolefin (XLPO)
3.	Sheath	UV-resistant XLPO/Polyolefin
4.	Color	Red (+) and Black (-)
5.	Voltage Rating	1000V / 1500V DC (IEC 62930)
6.	Temperature Range	-40°C to +90°C (Max. 120°C short circuit)
7.	Flame Retardancy	IEC 60332-1 (Flame Retardant)
8.	UV & Weather Resistance	IEC 60811-2-1
9.	Halogen-Free	IEC 60754-1

6.3 ELECTRICAL PROPERTIES

S.#	Parameter	4mm ² Cable	6mm ² Cable
1.	DC Resistance (Ω /km, 20°C)	≤ 5.09	≤ 3.39
2.	Maximum Current Carrying Capacity (A)	55	70
3.	Insulation Resistance ($M\Omega \cdot km$)	≥ 1000	≥ 1000
4.	Dielectric Strength	6.5 kV	6.5 kV
5.	Voltage Drop (V/A/km)	11.09	7.39
6.	Short Circuit Current Rating (1 sec)	200A	280A

6.4 MECHANICAL PROPERTIES

S.#	Parameter	Specification
-----	-----------	---------------

1.	Minimum Bending Radius	5 × Cable Diameter
2.	Tensile Strength	≥ 8 MPa
3.	Elongation at Break	≥ 125%
4.	Impact Resistance	IEC 62930 Compliant
5.	Abrasion Resistance	High
6.	Flexibility	Excellent

6.5 CABLE TESTING

S.#	Test	Standard	Purpose
1.	Conductor Resistance Test	IEC 60228	Ensures low resistance for efficient power transmission
2.	Insulation Resistance Test	IEC 60502-1	Verifies insulation integrity
3.	High Voltage Test	IEC 60060-1	Confirms dielectric strength
4.	Thermal Endurance Test	IEC 60216	Ensures longevity under temperature variations
5.	UV & Weather Resistance Test	IEC 60811-2-1	Validates performance in outdoor conditions
6.	Fire Retardancy Test	IEC 60332-1	Ensures flame resistance
7.	Tensile & Elongation Test	IEC 60811-1-1	Measures mechanical durability

6.6 COMPLIANCE & CERTIFICATIONS

S.#	Standard / Certification
1.	IEC 62930 / EN 50618 (PV Cable Standard)
2.	TÜV Rheinland / UL 4703 Certified
3.	RoHS & REACH Compliant
4.	Fire Performance: IEC 60332-1-2
5.	Halogen-Free: IEC 60754-1
6.	Weather & UV Resistance: IEC 60811-2-1

END OF SECTION # 6

SECTION # 7 – EARTHING / GROUNDING WORKS**7.1 GENERAL.**

An Integrated Grounding System is one that establishes a single point ground (or earthing) system that achieves an acceptably low resistance ground and provides for a low surge impedance path from any point in the system. This concept is often referred to as a Common Point Grounding (CPG) System.

7.2 DESCRIPTION OF WORK

Supply, Installation, testing, and commissioning of complete earthing system as specified hereafter and as indicated in the related electrical system drawings. Scope of work shall include but not limited to the following for each building:

1. Main earthing system of the building consists of ECC conductors, earth bars, earth pits, connections to structural reinforcement and all related accessories including bonding and terminations.
2. Earthed equipotential bonding of all exposed and extraneous conductive parts; including façade systems
3. Earthing system for the telephone and data communication system including ECC conductors, earth bars, earth pits, all related accessories including bonding and terminations.
4. Clean earth arrangement for the power distribution and power outlets feeding computer terminals and related equipment
5. Substation earthing system including transformer neutral earthing
6. Earthing system for Generator sets
7. Earthing system for the external electrical services.
8. Provision of earthing facilities to meet BS 7671 in accordance with equipment specialist / manufacturers requirements for all diagnostic equipment,
9. Provision of earthing requirements.

7.3 DIRECT DRIVEN EARTH INSTALLATION

1. Earth pipes shall be of circular cross-section tin plated copper pipes with diameter of 38mm and the length equal to 6 feet. Sections shall be jointed with purpose made couplings and a suitable driving cap. Couplings shall not exceed the diameter of the pipe. Coupling to be used in pipes shall be subject to the approval from consultant.
2. Earth pipes shall be driven into the Piles using a suitable mechanical hammer. The tops of the rods shall be driven below ground level to suit the inspection pit (if any).
3. In case of any inspection pit, the top of each electrode shall be housed in a purpose made concrete pit to facilitate inspection. The pit shall be provided with a lid and the assembly shall be flush with ground level.
4. Earth pits shall be provided with a waterproof seal when installed inside the building if necessary and to be accessible.
5. All earth copper cables shall be connected to the top of the earth pipe with a purpose made nonferrous clamp or thermo weld.

6. Parallel connected earth pipes shall be spaced at a horizontal distance equal to their buried length. They shall be connected with bare 95 mm² stranded copper cable unless otherwise shown on the drawings, buried not less than 12 inches below finished grade unless otherwise shown on the drawings.
7. The resistance to earth of the electrode system shall not exceed two ohm. Site testes shall be made to ascertain that the electrode system resistance meets this requirement. If the resistance exceeds this figure the contractor shall submit his proposals to reduce the system resistance to the specified level.

7.4 TEST POINTS

These points are for testing of earthing systems. At these points hot work can be separated and can be tested for continuity and resistance. Test points should be made of brass and solidly fixed to wall at a height of 1.5 meter.

7.5 EARTH PITS

These should be made of pre cast concrete with a cover lid and should be placed over the electrode in level with the finished ground level. The cover lid should have marking showing its number and written "Earth Electrode".

7.6 MAIN EARTHING SYSTEM

1. The contractor shall adequately allow in his tender for the provision and the installation of a complete earthing system required to meet the following requirements and shall ensure that the entire electrical installation is effectively bonded to earth as per BS 7430 Standards.
2. The contractor shall ensure that the whole of the electrical installation is both mechanically and electrically continuous throughout and is bonded to a suitable main earth in compliance with the IEE regulations and BS Code of Practice.
3. A test connection link shall be provided for testing purposes.
4. The nominal cross-sectional area of all earth continuity conductors shall be in accordance with the IEE regulations
5. All switchboards shall be provided with copper earth bar continuously run along the switchboard frames.
6. All switchgear, metal conduit and trunking systems, metal frames, enclosures, lighting fittings and cables sheaths shall be bonded together and connected to the earth tapes of the appropriate switchboard. Similarly, all earth pins and metallic plates of socket outlets, switches, accessories and enclosures shall be bonded to earth with earth continuity conductors. Each individual earth path shall be electrically continuous throughout its length from the farthest point of the associated part of the system back to the main earth.
7. All earthing cables shall be installed in accordance with the relevant requirements called for in the cables section of this specification.
8. All bonding leads in the form of cable having a standard conductor shall be terminated in sheathed sockets and shall be rigidly bolted to earthing terminals.
9. All earthing cables shall be insulated with a PVC sheath. Where connection of the earth lead to the main earth is made with a stranded cable, the earth lead shall be double insulated with PVC.

10. Earth cable shall have same construction details as of phase cables.
11. Equipotential bonding conductors (6 mm² minimum) must be provided for metal pipes, water pipes, metal doors and other extraneous conductive parts and brought to the main earthing terminal in ground floor electrical room for final connection to the main earth pits. The cables shall be concealed in slab / wall up to final connection point.
12. The metal doors, curtain wall, building structure, door frames in electrical room, substations shall be provided with equipotential bonding and connected to the main Earthing System. Contractor should prepare and submit separate shop drawings with details for the earthing system.
13. Main equipotential bonding conductors in relation to the neutral of the supply shall be as per table 54H of BS7671 : 2001.
14. The earth rods shall be copper, corrosion resistant.
15. Provide separate earth pits as required and shown in schematic
16. Contractor shall be responsible for Substation earthing as per K-Electric requirements.
17. The extraneous conductors parts in the building shall be bonded together.
18. The metal underside of raised floor and support elements shall be bonded to the common bonding network in addition to the following:
 - Trunking, Tray , Chilled water / Sprinkler / Fire Fighting Pipe Work / Ductwork / HVAC Equipment, etc.

7.7 THERMO WELD

GENERAL

This specification covers the exothermic welding system for use in making electrical connections. The system supplied under this specification shall include weld metal, molds, tools and accessories as required.

STANDARDS

The exothermic welding system furnished under this specification shall meet the applicable requirements of Standard for Qualifying Permanent Connections Used in Substation Grounding. Independent test data showing conformance to IEEE Std. 80 and IEEE Std. 837 shall be readily available.

The exothermic welding system supplied under this specification must be approved by consultant.

SYSTEM

The system provides the ultimate in permanent molecular bonding. The process of exothermic welding in which no outside source of heat or power is required. Exothermic welding system comprise a complete range of joints and molds to suit all electrical connection application including bar to bar, bar to earth rod, bar to steel surface, cable to bar, cable to cable, cable to earth rod, cable to rebar and cable to steel surface and electronic ignitior (control unit)

APPLICATION

The exothermic welding system is used for in making electrical connections of copper to copper, copper to steel or copper to cast iron for grounding and cathodic applications.

Connections shall be suitable for exposure to the elements of direct burial in earth or concrete without degradation over the lifetime of the grounding system.

MATERIAL

Molds shall be made from:

- a. Graphite material capable of withstanding high temperatures that are capable of providing an average life of not less than fifty separate exothermic welds.
- b. Cordierite, refractory ceramic or other material suitable for a single connection.

Starting material (where used) shall consist of aluminum and copper and iron oxides. It shall not contain phosphorous, magnesium or any caustic, toxic or explosive substances.

Low voltage battery starting (where used), shall use an electric ignition system that does not use starting material.

Weld metal used for grounding connections shall contain copper oxide, aluminum and not less than 3% tin as the wetting agent. Weld metal used for cathodic connections shall not contain tin, but shall contain vanadium.

QUALITY CONTROL

Weld metal shall be controlled at the factory and subjected to routing and rigid quality control inspection procedures. The batch control lot number shall be packaged with the product for shipment from the factory.

- c. Manufacturers shall be ISO9001:2000 certified.
- d. Manufacturers shall have been engaged in the design and manufacturing of exothermic connection systems for at least twenty (20) years.

END OF SECTION # 7

SECTION # 8 – LIGHTNING PROTECTION SYSTEM

PART 1 - GENERAL

8.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions apply to this Section.

8.2 GENERAL

- A. Provide a functional and unobtrusive active lightning protection system in accordance with BS-EN 62305-2012-2012
- B. If any departures from the contract drawings are deemed necessary, details of such departures shall be submitted as soon as practicable to the Architect for approval. No such departures shall be made without the prior written approval of the Architect.
- C. The specialist contractor shall be responsible for carrying out the design through lightning protection risk assessments for all building at an early stage, and as required provide an install a lightning protection system in accordance to BS EN 62305-2012.
- D. The following specifications and standard of the latest issue form a part of this specification:
 - 1. BS-EN 62305-2012 Standards and local regulations.
 - 2. Structural reinforcing steel in selected columns /piles to be used as down conductor, ensure that there is adequate electrical continuity of structural steel in these columns/piles.
- E. The Early Streamer Emission Lightning Protection System, comprising of ESE Lightening Arrestor shall be provided at top of each Tower.

The Arrestor shall be mounted on 3” dia GI pipe at least 5 meter from the top of the building.
- F. The down conductors shall be 95 sqmm bare copper conductor which shall be installed as shown in drawings welded at basement with the Earth Connecting Point. Continuity shall be checked and recorded after each floor pouring.
- G. Contractor should also include in his scope inspection by manufacturers authorized representative to ensure correct installation.
- H. All metal work on or around the building must be bonded to the lightning protection network to avoid side flashing.
- I. All materials used throughout the installation shall be either copper or copper based components which are corrosion resistant and compatible with the application.
- J. The Contractor shall submit fully detailed shop drawing for the arresstors, down conductors, earth termination network and bonding and shall be responsible to provide all the necessary accessories to integrate the system with the architectural finish of the building.

8.3 QUALITY ASSURANCE

- A. The lightning protection system shall conform to the requirements of standards for Lightning Protection Systems.

- B. The system to be provided under this specification shall be the standard product of a manufacturer regularly engaged in the production of lightning protection systems and shall be the manufacturer's latest approved design. The equipment manufacturer shall also be approved by UL or equivalent European certification body as fully certified manufacturer.
- C. Equipment should be provided with remote controlled transmitter and receiver permanently fixed to verify entire system connectivity any time post installation.

8.4 SUBMITTALS

- A. Complete shop drawings showing the type, size, and locations of all equipment, grounds, cable routings, etc., shall be submitted to the Architect for approval prior to start of work.
- B. Samples and pertinent catalog data shall be submitted to the Architect for approval.

8.5 COORDINATION

- A. Co-ordinate the installation of air terminations, down conductors, earth electrodes and all miscellaneous components with the Contractor.
- B. Locate earth pits in the raft with test points as shown in the layouts. Ensure adequate access for inspection, maintenance and repair is always available.
- C. Coordinate down conductors and earth electrodes within concrete columns and foundation with the Contractor.

PART 2 - PRODUCTS

8.6 GENERAL

- A. All products should be tested as per international standards and local authority regulations in the accredited laboratory certified by the governing body with authorization.
- B. All products should be subject to the required tests following a standard sample format or procedure as per the operational performance requirements.
- C. All life safety related systems and products should be approved by the Civil Defense
- D. All Products' warranties shall be as per client's requirements.

8.7 MANUFACTURERS

- A. See Manufacturers lists

8.8 DESCRIPTION

- A. All equipment used in this installation shall be factory inspected, approved, and properly labeled in accordance with BS-EN 62305-2012 requirements.
- B. All equipment shall be new and of a design and construction to suit the application where it is used in accordance with accepted industry standards.
- C. All material specified for this work shall be internationally approved Lightning Protection manufacturer.

8.9 EQUIPMENT FOR AIR-TERMINALS

- A. All materials shall be copper as described below and of the size, weight, and construction to suite the application where used in accordance BS-EN 62305-2012 requirements for structures and as per manufacturer recommendations.
- B. Mostly structural reinforcing steel in selected columns to be used as down conductor as shown in the drawing, ensure that there is adequate electrical continuity of structural steel in these columns/piles. Test clamps to be provided for each down conductor. A minimum of two rebars must be used inside a column that is considered as down conductor path, which must connect together in parallel.
- C. Alternatively, if there is any down conductors from roof to ground shall be tinned high conductivity copper to BS – 1432.
- D. Air termination network shall be 25mmx3mm bare copper (or PVC coated as the case may require complying with the same) to form an air termination mesh on the upper most part of the structure and ring conductor around the structure to prevent side flashes.
- E. For earth electrode installation, The terminated head of each earth electrode shall be located in a light weight heavy duty polymer inspection pit.
- F. The earth pit shall be installed in the raft using earth electrode with water tight seals. The earth rod seal shall provide an effective, reliable and watertight seal to both the earth rod electrode and damp proof membrane. The earth rod must be such that waterproof membrane is sealed by mechanical compression between upper and lower flanges, and shall meet the requirements of IEC 62561-5, and be capable of withstanding water pressure up to 5.5 Bar.
- G. The earth seal flange shall be free from dust, debris, grease or paint before pouring of concrete. A specialist shall supervise the installation by the MEP contractor.
- H. Air terminals shall be solid, round copper bar with 15mm minimum diameter and shall project 25cm minimum above the object to be protected. Locate and space according to BS EN 62305:2012. Apply the zone of protection method calculation to protect the roof mounted equipment as per the BSEN/IS 62305 – Part 3 requirements.
- I. Ensure that the distribution board that feeds the roof mounted equipment is protected using a Type 1+2 current SPD (tested to 10/350 μ s & 8/20 μ s waveform in line with the IEC/BSEN 61643).
- J. Air terminal bases shall be of cast aluminum with bolt pressure cable connections and shall be securely mounted with stainless steel screws or bolts. Crimp type connectors are not acceptable.
- K. Cable fasteners shall be substantial in construction, electrolytically compatible with the conductor and mounting surface and shall be spaced according to BS EN 62305 requirements.
- L. Bonding devices, cable splicers, and miscellaneous connectors shall be of with bolt pressure connections to cable. Cast or stamped crimp fittings are not acceptable.
- M. Conductor around the structure (the spacing between the ring conductors shall depend on the size of the rolling sphere) to prevent from side flashes as per the recommendation of the specialist in lightning protection design through reference to the codes and section of the prevailing standard BSEN 62305 part-3 editon-2 2011.
- N. Air termination network should be extended, and it's determined by using rolling sphere method.
- O. This method involves rolling an imaginary sphere of 20m or 30m or 45m or 60m radius (depending on the Lightning Protection Level to be used) over structure to require protection.

- P. Any roof (e.g. staircase) on top of the main roof shall have air termination network and it shall be connected to lower roof network.
- Q. All the fixing clips for the copper tape shall be metallic (complying with Class ‘H’ of the electrical testing based on IEC 62561 and UL96C) and shall be fixed at an interval of 500mm (1000 mm fixing distance for fixing conductors on vertical surface up to 20m from the ground level and on the horizontal surface i.e. roof).
- R. All bases for equipment shall be securely mounted to roof, parapet, etc., as directed by roofing manufacturer, and all sealers, compounds, etc., shall be compatible with roofing materials.
- S. The electrical continuity of the reinforcing bars shall be determined by electrical testing between the uppermost part and the ground level. The overall electrical resistance should not be greater than 0.2Ω , measured using test equipment suitable for this purpose
- T. The Specialist Lightning Protection Installer shall install suitable surge protectors (Type 2+3 combined) at local power distribution boards feeding vulnerable equipment, in order to protect these against transients generated downstream of the protectors in 1, above. (These transients may be the result of inductive coupling or electrical switching.)
- U. Ground rods shall be a minimum 2 cm in diameter and 3 m long. They shall be connected to the system with a two-bolt cast bronze clamp, having a minimum length of 2.5 – 4 cm and employing stainless steel cap screws.
- V. Cable fasteners shall be substantial in construction, electrolytically compatible with the conductor and mounting surface and shall be spaced according to BS EN 62305-2012 requirements.
- W. Bonding devices, cable splicers, and miscellaneous connectors shall be of with bolt pressure connections to cable. Cast or stamped crimp fittings are not acceptable.
- X. Equipment on stacks and chimneys shall be protected from corrosion in accordance with BS 7430.
- Y. All miscellaneous bolts, nuts, and screws shall be stainless steel.
- Z. Concrete inspection pits with cover shall be installed flush with finished floor level and be fully accessible.

8.10 EQUIPMENT FOR SURGE PROTECTION

Electronic system surge protection shall be used for the, Incoming Main Power Supply:

A suitable protection should be installed in the main LV Panels.

The ESP shall be connected in parallel with the supply. ESP should be installed within the LV Panel by the panel assembler.

HRC Fuses shall be provided in the connecting leads as required by the Specialist.

ESP to have neutral earth warning light, to detect if there is excessive voltage present between neutral and earth.

8.10.1 Protection shall be tested in accordance with the requirement of:

BS6651 : 1999 ‘Protection of Structures against lightning’ (Appendix C).

BS2914 :1972 ‘Specification for surge diverters for alternating current power circuits’.

IEEE C62.41 – 1991 ‘Recommended practice on surge voltage in low voltage AC Power circuits.’

- 8.10.2 The protector must not interfere with or restrict the system normal operation. It should not:
- Corrupt the normal mains power supply.
 - Break or shutdown the power supply during operation.
 - Have an excessive earth leakage current.
- 8.10.3 The protector shall be rated for a peak discharge current of no less than 10 KA (8 / 20 microsecond waveform) between any two conductors (phase to neutral, phase to earth, neutral to earth).
- 8.10.4 The protector shall limit the transient voltage to below equipment susceptibility levels. Unless otherwise stated, the peak transient let-through voltage shall not exceed 600 volts. For protectors with a nominal working voltage of 230 or 240 volts, when tested in accordance with BS 6651 :1999 Category B – High (6 kV 1.2 / 50microsecond open circuit voltage, 3kA 8/20 microsecond short circuit current).
- 8.10.5 This peak transient let through voltage shall not exceed for all combinations of conductors:
- Phase to neutral
 - Phase to earth.
 - Neutral to earth.
- 8.10.6 Mains protectors (installed in shunt / parallel) should have continuous indication of its protection status and the presence of power. Status indication should clearly show per phase.
- Full protection present.
 - Reduced protection – replacement required.
 - No protection – failure of protector.
- 8.10.7 The status indication should warn of protection failure between all combinations of conductors, including neutral to earth. (Otherwise a potentially dangerous short circuit between neutral and earth could go undetected for some time). This should include early warning of excessive neutral to earth voltage.
- 8.10.8 The protector shall be supplied with detailed installation instructions. The installer must comply with the installation practice detailed by the protector manufacturer.

8.11 PROTECTION FOR DATA COMMUNICATION AND TELEPHONE LINE

- 8.11.1 Transient overvoltage protectors shall be installed on all data communication / signal / telephone lines entering or leaving the building, in order to protect equipment connected to the line, against transient overvoltages. (Where data lines travel between buildings linking equipment in each building, transient overvoltage protectors should be installed at both ends of the line in order to protect both pieces of equipment).
- 8.11.2 Protectors shall conform to
- BS6651: 1992 Protection of structures against lightning (Appendix C) CCITT LX K17
- 8.11.3 The protector must not impair the systems normal operation. It should not :
- Restrict the system bandwidth or signal frequency.
 - Introduce excessive inline resistance.
 - Cause signal reflections or impedance mismatches (on high frequency systems).
- 8.11.4 The protector will have a low transient ‘let – through’ voltage for tests conducted in accordance with BS6651 : 1992 Category C – High (5kV 10/700 microsecond test).

8.11.5 This 'let – through' performance will be provided for all combinations of conductors:

- Signal line to signal line.
- Signal line to screen / earth.

8.11.6 The protector shall be rated for a peak discharge current of 10kA.

8.11.7 The protector shall be supplied with detailed installation instructions. The installer must comply with the installation practice detailed by the protector manufacturers.

The protector manufacturer should allow for the facility to mount and earth large numbers of protectors through an accessory combined mounting and earthing kit

PART 3 - EXECUTION

8.12 GENERAL

- A. The system shall be installed by a contractor licensed to carry out such installations and be in compliance with BS-EN 62305-2012 latest edition by an experienced installer.
- B. Install at least two dedicated down conductors with direct paths from air terminals to ground connections and for building height above 60m, four dedicated shall be used. Avoid sharp bends and narrow loops.
- C. When different metal to be connected a bimetallic clamp shall be used.
- D. On Copings: A complete network of lightning protection shall be installed utilizing parapet bases with stainless steel tech screws on copings. This screw incorporates a hex washer head of wraparound 8 cm stainless steel and a neoprene washer.
- E. On Gravel Stop Roofs, Center of the Roof Runs, and Bonding Runs: A complete network of lightning protection shall be installed utilizing flat surface bases.
- F. All equipment shall be installed in a neat workmanlike manner, as inconspicuously as possible. All cable runs shall be chalk line straight and plumb. All air terminals shall be plumbed. All adhesive fastening shall be accomplished with EPDM pourable sealer. (Use same sealer as roof manufacturer.) Air terminal bases and adhesive cable pads shall be installed in straight lines apply pourable sealer to the base and fastener and let dry for a minimum of 48 hours before inserting cable. Pouring adhesive over cable, base, and fastener is strictly prohibited. After bases are set, install swivel to insure air terminals are plumb. If, in the Architect's opinion, cable runs are not neat and plumb (within 5 degrees), the installer shall correct cable runs at the installer's expense. It shall be the lightning protection contractor's responsibility to install the pourable sealer and fasten his equipment; the roofer or electrical contractors are prohibited from installing these items. Down conductors shall be installed exposed on inside of brick corners (as per drawings). Furnish PVC conduit guards to 2.5 m above grade. Install ground rods at a minimum of 1 m from building foundation.
- G. Coordinate installation of lightning protection system with installation of other building systems and components, including electrical wiring, supporting, metals bodies requiring bonding to lightning protection system, and building finishes.
- H. Bond each copper down conductor throughout its length to the building reinforcement bar with spacing not more than 1.5 meters (All bonding to reinforcement bar shall be using manufacture's standard materials and tools for the same).
- I. Bond roof vents, flashing and any other metal masses projecting through the roof to the grid.

- J. Thermal weld all connections between cables, aerial terminals and ground rods.
- K. Measure the resistance of the complete installation and submit for review to the engineers.

8.13 COORDINATION

- A. The lightning protection installer will work with other trades to insure a correct, neat, and unobtrusive installation. It shall be the responsibility of the lightning protection installer to assure a sound bond to the main water service, and to insure interconnection with other building ground systems.

8.14 TESTING

- A. Post completion of lightning protection, the terminal connectivity shall be tested on field using RF REMOTE.
- B. Further test the resistance of ground to BS 7430. Test employed shall be the 3 Point Fall of Potential method with a Null Balance megger. Record instrument's serial number. Date of last calibration shall be less than 1 year from date of test. Resistance to ground shall not exceed 10 ohms.
- C. Test clamps shall be provided in each inspection pit to allow for testing and commissioning.
- D. Should the ground resistance exceed 10 ohms, excavate an area approximately 1000 cm² by 2 m deep around the top of all driven ground electrodes then insert enhancement materials from an approved manufacturer. This compound shall be hydrated to a slurry-type consistency and then spread in the excavation. The area should then be left for approximately 24 hours before installation. Then retesting procedures should be performed. Record final readings.

8.15 COMPLETION

- A. The lightning protection installer shall secure and deliver the Lightning Protection system certification to the Architect for the Owner upon completion of the installation.

END OF SECTION # 8

DRAWINGS



STATE BANK OF PAKISTAN
SBP BANKING SERVICES CORPORATION
HEAD OFFICE KARACHI

VOLUME-II: FINANCIAL PROPOSAL

**CONSTRUCTION OF PARKING SHED WITH SOLAR PANELS AT SBP
MAIN BUILDING PREMISES, KARACHI**

Volume-II

Financial Proposal

Feb-26

VOL-II: FINANCIAL PROPOSAL
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 entered 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 entered in the priced Bill of Quantities shall, except insofar as it is otherwise provided under the Contract include all costs of Contractor's labour, supervision, materials, execution, insurance, profit, taxes, GST, Provincial tax 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. Prices quoted by the Supplier will remain fixed during the contract period. Except otherwise mentioned in the Contract, the Supplier shall NOT be entitled for price adjustment on account of any change in wages, material prices, POL prices, tax rates etc. whatsoever on any other account.
6. The Supplier hereby irrevocably and unconditionally waives all claims, direct, indirect or consequential arising out of price escalations, decrease or increase in quantities etc. in connection with the Agreement.
7. 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.
8. General directions and description of work and materials are not necessarily repeated nor summarized 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 priced Bill of Quantities.
9. 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, and the line total will be corrected accordingly.
10. Each cutting should be signed by the authorized person.
11. The brand names have been provided in order to establish a standard of performance and reliability. However, it does not indicate a preference for a particular brand. The bidder may propose other brands which can be accepted subject to necessary tests to establish equivalency.
12. Where packaging size of a sachet/packet/can/pack etc. is included in the description of item of BOQ, this packaging size is only for reference and does not indicate preference for any specific brand. The bidder may offer another packaging size with a margin or tolerance of no more than 15% of the specified size. However, the total quantity to be supplied must be equal to the cumulative quantity required in the BOQ item.
13. The rates of all the items quoted should be calculated considering technical specifications, drawings, nature of work/item used its shape, angle, curve, bends, size etc. to be made at any depth and height with the use of all formwork/scaffolding or lift to the project work location/floor properly supported as required and as directed by the Engineer to the entire satisfaction of the Engineer In-charge
14. The contractor shall submit submittals along with an adequate number of samples for the items to be used in the project, as required by the Engineer In-charge with relevant brochures, technical specifications, and shop drawings for approval by the Engineer In-charge prior to the commencement of work at the site.
15. Works with risk of noise or dust/smoke emissions will be carried out after office hours and on weekends & holidays.

Bill of Quantities (BOQ)**SECTION - G CIVIL WORKS FOR SOLAR SHED FRAMING, CABLE TRENCH AND LANDSCAPING**

SN	Description of Item	QTY	Unit	Unit Rate (Rs.) Incl. all Taxes	Amount (Rs.) Incl. all Taxes
1	Removal and re-fixing of existing kerb stones carefully, including the staking of kerb stones within the premises at any lead and height, as per design/drawing provided by the bank, using cement sand mortar of ratio (1:4) including the cost of PCC 1:2:4 required for benching/haunching of the kerb stones, disposal of all debris away from the premises complete in all respects as per site requirements and as directed by the Engineer In-Charge.	650	Rft		
2	Dismantling & re-fixing of existing concrete pavers including disposal of unwanted/ surplus materials away from the Bank premises, stacking of suitable required materials for re-use at site, cost of stone dust required for re-laying and grouting of the pavers, cost of any new pavers of same style & quality for restoration of the surface as per original style & pattern, complete in all respects as per site requirements and as directed by the Engineer In-Charge.	500	Sft		
3	Dismantling existing concrete flooring and stone soling including disposal of unwanted/ surplus materials away from the Bank premises, stacking of suitable required materials for re-use at site, complete in all respects as per site requirements and as directed by the Engineer In-Charge.	2495	Cft		
4	Excavation for trenches, sewers, appurtenances and foundations of columns, walls, plinth beams etc. in ordinary soil up to 5ft depth from EGL including layout of buildings or utility lines and maintaining suitable control points, dressing/leveling bottoms of excavated trenches/pits, disposal of surplus/unwanted excavated materials away from the Bank premises, complete in all respects as per drawings, specifications and as directed by the Engineer In-Charge. Before starting excavation, the contractor will have to prepare level sheets and get these approved from the Engineer In-Charge.	9690	Cft		
5	Backfilling & compaction of approved quality excavated material available at project site in foundations, trenches, under floors, walkways etc. including breaking clods, dressing, watering, compacting mechanically in layers not exceeding 9" thick depth to 95% Modified Proctor Dry Density (MPD), complete in all respects as per site requirements and as directed by the Engineer In-Charge.	2115	Cft		
6	Providing & fixing of new Kerb Stones of 12" x 18" size of Izhaar, Envicrete or other approved equivalent make, including the cost of PCC 1:2:4 required for benching/ haunching of the kerb stones, cement-sand mortar required for proper grouting &	350	Rft		

SN	Description of Item	QTY	Unit	Unit Rate (Rs.) Incl. all Taxes	Amount (Rs.) Incl. all Taxes
	fixing of the kerb stones, complete in all respects as per site requirements and as directed by the Engineer In-Charge.				
7	Providing, fabricating and fixing in position powder coated structural steel framing for solar sheds comprising of structural steel hollow tubes from 3"x3" to 6"x6" sizes for vertical posts, diagonal bracings and horizontal frames, all jointed with each other with the help of approved quality nut-bolts, including the base plates, stiffeners, cleats, etc. as per the details shown in the drawings and as per the approved shop drawing, including cost of welding where required, providing & fixing steel plates at the ends of all tubes/pipes before powder coating, supports, grinding of welds for smooth & fair surface, making of holes for fixing of solar panels structure, complete in all respects as per drawings, specification and as directed by the Engineer In-Charge.	27,000	Kgs		
8	Providing and fixing in position J-type anchor bolts 1.5 feet long having 3/4" diameter Stainless Steel bolts of Fischer or other approved equivalent make, as per site requirements including all necessary nuts, washers, and embedding in concrete as per drawing and specifications, complete in all respects as per site requirements and as directed by the Engineer In-Charge.	184	Nos.		
9	Providing & laying reinforcement bars using hot rolled deformed billet steel bars "Grade 60" conforming to ASTM A-615 including the cost of straightening, cutting, bending, binding, wastage and such overlaps as are not shown on drawings, placing in position on chairs, tying with binding wire etc, in all kinds of RCC work complete in all respects and/ or as directed by the Engineer In-Charge.	12000	Kgs		
10	Providing, mixing, laying and compacting lean cement concrete in (1:4:8) ratio by volume, approved quality clean sand and crush, laid under footings, floors etc. including the cost of required form work, curing etc. complete in all respects as per drawings, specifications, site conditions and as directed by the Engineer In-Charge.	1140	Cft		
11	Providing, mixing, laying, vibrating and curing, reinforced cement concrete in (1:2:4) ratio by volume using Sulphate Resistant Cement, approved quality clean sand and crush, including the cost of required water tight formwork, screening/washing of aggregates if required, complete in all respects as per drawings, specifications, site conditions and as directed by the Engineer In-Charge.				
a	In foundations of steel columns	950	Cft		
b	In roof slab of cable trench & manholes	1500	Cft		

SN	Description of Item	QTY	Unit	Unit Rate (Rs.) Incl. all Taxes	Amount (Rs.) Incl. all Taxes
c	In bed of cable trench & manholes	1125	Cft		
12	Providing, mixing, laying, vibrating and curing, plain cement concrete in (1:2:4) ratio by volume using OP Cement, approved quality clean sand and crush, under footings & floors etc. laid in alternate panels of about 8ft x 8ft size, complete in all respects as per drawings, specifications, site conditions and as directed by the Engineer In-Charge.	605	Cft		
13	Providing and laying 6" thick pre-cast concrete solid block masonry using machine-made concrete blocks of approved size and make at any depth, height, and lead within the premises. The blocks shall have a minimum compressive strength of 1000 psi after 28 days of curing, laid in cement-sand mortar (1:4) including raking out of joints etc. complete in all respects as per site requirements and as directed by the Engineer In-Charge. (Compressive strength of blocks will be tested from NED University/ PCSIR labs and the cost of testing will be borne by the contractor).	3315	Sft		
14	Supply, prepare, apply, and cure 3/4" thick smooth-finish cement plaster in cement-sand mortar (1:4) on walls/bed, finished smooth with steel trowel and laid in true line and level as shown on the drawings, curing etc. and all incidental works, complete in all respects as per Specifications, drawings, and sample approved by the Engineer In-Charge.	3315	Sft		
15	Providing & fabricating mobile aerial platforms for working at a height of about 20ft, made from MS tubes of different sizes, and approved quality Teflon tyres of about 9 inches diameter, platform must have load carrying capacity of about 250KG and a platform of about 3ft x 6ft size, including the cost of welding, jointing, enamel spray painting over a coat of red oxide primer, complete in all respects as per site requirements and as directed by the Engineer In-Charge.	2	Nos.		
16	Providing and fixing of pre-cast concrete pavers of 80mm thickness with compressive strength of 7000PSI, make Envicrete or other approved equivalent including the cost of about 3" thick layer of approved quality stone dust under the pavers and grouting with the same stone dust, complete in all respects as per site requirements and as directed by the Engineer In-Charge. (Compressive strength of blocks will be tested from NED University/ PCSIR labs and the cost of testing will be borne by the contractor).	21,000	Sft		
17	Providing and fixing in position heavy-duty Cast-Iron manhole covers with frames of 24" x24" size, able to withstand the vehicular load, each manhole cover having minimum 50KG weight, including	5	Each		

SN	Description of Item	QTY	Unit	Unit Rate (Rs.) Incl. all Taxes	Amount (Rs.) Incl. all Taxes
	grouting of frame in RCC slab, complete in all respects as per site requirements and as directed by the Engineer In-Charge.				
	Sub-Total of Civil Works =				

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
SECTION – A PHOTOVOLTAIC (PV) SOLAR POWER SYSTEM								
1	Supply, installation, Testing & Commissioning of High efficiency, Solar PV Module (Solar Panel) 610W Mono-crystalline A-Grade , with corrosion resistant Al frames. Make: Longi/Canadian/Trina or approved equivalent with 25 years warranty. Note: Tier-1 listed panel are required to be quoted.	420	No.					
2	Supply, installation, Testing & Commissioning of 150kW Grid Tie Inverter , three phase(400V), as per approved specification. Make: Huawei/Growatt/Sungrow or approved equivalent with 5 years standard warranty. Note: Monitoring Device with Remote App (Mobile / Web) based Shall be part of contractor (Quote seperately). Tier-1 listed inverters are required to be quoted.	2	No.					

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
3	Supply and Installation of Panel Mounting Structure for fixing of panels at required slope, imported M.S. 14 SWG, Red Oxide/Epoxy Coated for PV Panels with SS 316 Nut Bolts. Capable to withstand the wind speed (Each structure will be capable of withstanding a wind load of 200 Km/hr and cater a gust of 3 second after grouting and installation) or as approved by the client. Complete in all respect up to the entire satisfaction of engineering in charge (Refer drawing No. EL-01-02). Make: Imported type or approved equivalent.	1	Job.					
4	Supply, Installation, Testing and Commissioning of DC Combiner box IP-65/Weatherproof, Wall Mounted Type, 14 SWG RAL-7032 Panel, will be used as housing of DC Breakers of nominal rated current 1000 VDC as per system requirement (Refer drawing No. EL-01-05). Make: Himel/Chint or approved equivalent	4	No.					

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
5	<p>Supply, Installation, Testing and Commissioning of AC Combiner box IP-65/Weatherproof, Wall Mounted Type, 14 SWG RAL-7032 Panel, having Incoming cum outgoing breaker shall be 4-Pole MCCB breaker as per system requirement and the bus bar of minimum 35 x 15 mm (length x width) dimensions (Refer drawing No. EL-01-05), contractor is required to take approval before installation / execution. Make: Schneider/Terasaki/ABB or approved equivalent</p> <p>Digital Multimeter Make: Circutor/ABB/Schneider or approved equivalent.</p> <p>Pure Tinned Copper Bus bar with adequate size and CT used should be European make.</p>	1	No.					
6	<p>Supply, Installation, Testing and Commissioning of Surge Protection Device 4P, 40kA, Uc=415V CLASS-II, SSD (SURGE SUPPRESSOR DEVICE) Make: Schneider/Phoenix or approved equivalent</p>	1	No.					

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
7	<p>Supply, Laying and Termination of all DC cables appropriately sized (4 Sqmm. or 6 Sqmm. Stranded tinned Copper, Double insulated, 1000/1500 V DC, -40°C to +125°C, UV resistant) in accordance with the installation requirements and to connect the inverter with PV system designed with all conduits, clamps, trays and cable terminations end which shall be DC plug and socket connectors complete in all respect up to the entire satisfaction of engineering in charge. The allowable voltage drop for DC cables between inverter and PV system less than 3%. Make: Pakistan Cable/Fast Cable or approved equivalent</p> <p>Note: Contractor is advised to take measurement at site before commencement of works.</p>	1	Job.					
8	<p>Supply, Installation, and Testing of following sizes of AC Power Cables as per system requirement from Solar Inverters to AC Combiner Box and AC Combiner Box to L.V including all the accessories such as lugs, nut / bolts, or any modification required during execution of work, complete in all respect up to the satisfaction of engineering in charge. Make: Pakistan Cable/Fast Cable or approved equivalent</p> <p>Note: Contractor is advised to take measurement at site before commencement of works.</p>							

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
a	From Inverter-1 & Inverter-2 to AC Combiner Box 4 C, 240 Sq. mm Cu/PVC/PVC from Solar Inverters to A.C. combiner box.	30	Rm.					
b	From AC Combiner Box to L.V. Panel 8 x 1 C, 240 Sq. mm Al/XLPE/PVC (2 for each Phase & 2 for Neutral terminal) + 2 x 1 C 120 Sq.mm Al/XLPE/PVC as ECC, from A.C. combiner box to L.V. Panel.	35	Rm.					
9	Supply, Laying & Connecting of 1C-2.5 Sqmm Cu/PVC Conductor cable for Panel to Panel Earthing and Main Earth Connecting Point for complete solar power system. Including all the accessories such as lugs, nut / bolts, or any modification required during execution of work, complete in all respect up to the satisfaction of engineering in charge. Refer drawing No. EL-01-02. Make: Pakistan Cable/Fast Cable or approved equivalent	1	Job.					
10	Supply & installation following sizes of Anodized Aluminum Cable Channel sizes 14 SWG with 16 SWG cover including all installation accessories such as connecting plates with earth bonding, rowel bolts elbows, tees e.t.c as per system requirements. Complete in all respect up to the satisfaction of engineering in charge.							
a	100mm x 50mm	250	Rm.					

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
11	Supply, Installation, Configuration, Testing and Commissioning of PV Genset Controller to operate solar plant with Existing Generators in case Utility Supply is shut off including wiring and accessories. Complete in all respect up to the satisfaction of engineering in charge. Make: DEIF/ELUM/COMAP or approved equivalent	1	No.					
12	Modification in Existing LV Panel for the addition of 1 No. 800A 4P ACB (Icu=65 kA) Motorized breaker including imported Tin plated copper, punching of holes in existing copper, bending, insulated isolators, mounting supports, insulated protection sheet, nut bolts, door aperture etc. complete in all respect upto the satisfaction of the engineer requirement following all safety standards. (All material including ACB shall be supplied by Contractor) Note: Contractor is advised to carry out site visit to understand the complete scope of work.	1	Job					

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
13	<p>Modification in Existing LV Panel for addition of 1 No. PV Genset Controller (ComAp InteliNeo 6000 Starter Kit) including door aperture & control cabling between ACB & Module, complete in all respect upto the satisfaction of the engineer requirement following all safety standards. (All material including PV Genset Controller shall be supplied by Contractor)</p> <p>Note: Contractor is advised to carry out site visit to understand the complete scope of work.</p>	1	Job					
14	<p>Supply, Installation, Testing and Commissioning of Miscellaneous items of premium quality to complete the above job including MC4 Connectors, HDG Angles, HDG Channels, SS Nut & Bolts, Screws, Cable Ties, Cable Glands, Ferrules, Lugs, connectors etc. for entire solar power system complete in all respect up to the satisfaction of engineering in charge.</p>	1	Job.					

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
15	<p>Supply, installation, testing and commissioning of following items for DC/AC Equipment earthing system including all material, boring, labor, tools, transportation, accessories etc. Complete in all respect up to the entire satisfaction of engineering in charge and detailed detailed test reports.</p> <p>NOTE: Contractor is advised to confirm the cable running lengths and termination as per site conditions before commencement of work.</p> <p>The electrical resistance of the E.C.C together with the resistance of the earthing leads measured from the connection with earth electrode to any other position in the complete installation shall not exceed 3.0 OHM.</p>							
15.1	<p>Chemical Enhanced Earth using 38 mm dia copper rod of minimum 10 ft. length filled with soil conditioning material including 6" dia, 11' deep boring and back filled chemical to enhance conductivity material. Complete with termination clamps, 12" dia heavy duty tin plated round cover as per details given in drawings. Earthing Rods Make: Wallis, Furse or Dehn or approved equivalent</p>	5	No.					

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
15.2	Earth Connecting Point (ECP) or Equipotential bar with insulators made with 150 mm wide, 50 mm high and 5 mm thick tin plated Copper, as shown in drawings. Bar shall be provided with holes suitable for installation of 4No. 35 sqmm bare copper conductor. ECP shall be enclosed in appropriate size of powder coated metal enclosure with front accessible cover.	5	No.					
15.3	Stranded bare copper conductors of following sizes laid in floor from Earth Pit of D.C. Combiner Boxes to ECP in appropriate size of uPVC conduit. Complete in all respect including termination at ECP up to the satisfaction of engineering in charge.							
a	1C 35 Sq.mm Tin Platted copper conductor	45	Rm.					
15.4	Supply, installation, testing & commissioning of following size of single core PVC cables in appropriate size of exposed / concealed uPVC conduit from ECP to DC Combiner Boxes as per details given below, including all material, labor, tools, transportation, accessories etc. Complete in all respect up to the satisfaction of engineering in charge.							

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
a	1C 35 Sq.mm Cu./PVC (Green)	45	Rm.					
15.5	Stranded copper conductors of following sizes laid in floor from Earth Pit of A.C. Combiner Box to ECP in appropriate size of uPVC conduit. Complete in all respects including termination at ECP up to the satisfaction of engineering in charge.							
a	1C 70 Sq.mm Tin Platted copper conductor	45	Rm.					
15.6	Supply, installation, testing & commissioning of following size of single core PVC cables in appropriate size of exposed / concealed uPVC conduit from ECP to AC Combiner Box as per details given below, including all material, labor, tools, transportation, accessories etc. Complete in all respects.							
a	1C 70 Sq.mm Cu./PVC (Green)	45	Rm.					
15.7	Providing and making of copper to copper, Thermo Weld connection of following conductors. as per Drawing & Specification. Complete in all respects							
a	1C 35 Sq.mm Tin plated copper conductor of D.C. Combiner Box-1 to Earth Rod	1	No.					

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
b	1C 35 Sq.mm Tin plated copper conductor of D.C. Combiner Box-2 to Earth Rod	1	No.					
c	1C 35 Sq.mm Tin plated copper conductor of D.C. Combiner Box-3 to Earth Rod	1	No.					
d	1C 35 Sq.mm Tin plated copper conductor of D.C. Combiner Box-4 to Earth Rod	1	No.					
e	1C 70 Sq.mm Tin plated copper conductor of A.C. Combiner Box to Earth Rod	1	No.					
16	Supply, installation, testing, and commissioning of an Environmental Monitoring System (EMS) with a Pyranometer (Irradiance Sensor), Module Temperature Sensor, Anemometer, Ambient Temperature Sensor, including a data logger and power supply. One unit of each type of sensor will be installed, with the complete commissioning of the data logger and synchronization with an online monitoring solution.	1	No.					
17	Load Flow Report required from government agencies like K-Electric / NEPRA. Any documentation requirement in the desired license/report is included in this above item.	1	Job.					
	Total Amount (Rs.) Sec - A							

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
SECTION – B WIRING & WIRING ACCESSORIES								
	<p>Supply, Installation, Testing & Commissioning of the following items including all material, labor & tools required for completion of work as per item description, specifications & drawings including cutting, chiseling, making good and all necessary accessories such as bends, junction boxes, conduit sockets, earth connecting point connectors, etc. as shown on drawings, specifications and approval by the Engineer. Complete in all respects.</p> <p>Note:</p> <ul style="list-style-type: none"> . The cost of wiring items shall include Imported Wago Connectors and flexible G.I conduit with PVC Coating of appropriate size on each light point. .The circuit wire drop shall be sufficient as per ceiling levels. .The wiring shall be done with PVC Wires / Cables. - Megger Test of each circuit to be done by the Contractor. - All General Wiring grade should be 450/750 copper with green/yellow Color. <p>Surface conduiting wherever required shall be done in aesthetic manner.</p>							

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
1	<p>. Wherever the circuits are running in cable tray, it will enter / leave tray using proper glands / Junction boxes (IP44). The cost of all such accessories to be included in wiring cost.</p> <p>. All electrical circuits and power outlets shall be numbered (i.e. circuit number and distribution board number) and the circuit schedule of the distribution board must accurately reflect the installation. The load across all phases must be balanced.</p> <p>. The ECC to be run with each circuit shall be loop-in and loop-out type, joints are not allowed. It will be green in color (Refer detail BoQ & drawings)</p> <p>. All the cables shall be colour coded according to phases / types of services.</p> <p>Make: Newage Cables, Fast Cables or Pakistan Cables or approved equivalent</p> <p>Note:</p> <p>₁Contractor is advised to confirm the cable running lengths and termination as per site conditions before commencement of work.</p> <p>₂The ECC to be run with each circuit shall be loop-in and loop-out type, joints are not allowed. It will be green in color (Refer detail drawings)</p>							

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
	³⁾ All the cables shall be colour coded according to phases / types of services.							
a	Circuit Wiring for Group Control light fixtures from respective DB to first light point with 2x2.5 Sq.mm + ECC 1x2.5 Sq.mm 1-core PVC wires in 25mm dia PVC conduit as shown on drawings	6	No.					
b	Point to Point wiring above item using the same wires & conduit size as mentioned in the above item.	52	No.					
c	Emergency Circuit Wiring for Group Control light fixtures from respective DB to first light point with 2x2.5 Sq.mm + ECC 1x2.5 Sq.mm 1-core PVC wires in 25mm dia PVC conduit as shown on drawings	4	No.					
d	Point to Point wiring of above item using the same wires & conduit size as mentioned in the above item.	18	No.					
	Total Amount (Rs.) Sec - B							
SECTION – C CABLE CONTAINMENT								
1	Supply & Laying of following sizes of UPVC Conduits including all accessories such as bends, sockets, j-boxes, flexible conduits, metal saddles e.t.c for Solar System, Main / Sub Main Power, Telephone & Data Cables, concealed / surface on wall as per design drawings.							

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
	<p>Provide Pull boxes wherever required.</p> <p>Note: The below mentioned conduits will be used for items where description of the item clearly states that the conduit is not inclusive or already installed. This section will also cover empty conduit runs, sleeves, conduit risers etc.</p> <p>Make: Jeddah Polymer, DADEX or Popular Pipes or approved equivalent</p> <p>Note: Contractor is Instructed to confirm the sizes, running lengths and termination as per site conditions before commencement of work. All the conduits / cable tray crossings through partition walls shall be properly sealed by fire retardant material after installation.</p>							
a	25mm dia PVC Conduit	405	Rm.					
b	32mm dia UPVC Conduit	285	Rm.					
c	25mm dia Flexible G.I Conduit with PVC Coating	216	Rm.					
	Total Amount (Rs.) Sec - C							
SECTION -D LIGHTING FIXTURES								

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
1	<p>Supply, Installation, Testing & Commissioning of the following Light fixtures complete with all hanging accessories including clips, suspension rods / wires, ceiling frame etc.</p> <p>NOTE:</p> <ul style="list-style-type: none"> - Color temperature will be as per client's requirement. - Efficacy of light fixtures shall be equal to or more than 105 Lumens / Watt. . 3 Year Replacement Warranty is required both for fixture and driver. . Warranty period will start from the date of successful Testing & Commissioning . Power Factor shall be 0.9. <p>Make: Fast Lighting, Pierlite or approved equivalent</p>							
a	Linear LED Light Fixture with 40W LED Lamp Color 6000K, Weather proof (IP66) enclosure & Diffused Glass. Complete in all respect.	78	No.					
	Total Amount (Rs.) Sec - D							
SECTION – E LIGHTNING PROTECTION SYSTEM								

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
1	<p>Supply, installation and commissioning of Early Streamer Emission (ESE) having following specifications: Type : Generation 3 Reaction time : 50 micro seconds Maximum Discharge Rating : 200 kA Material : Stainless Steel. Length : 400mm or as per manufacturer Level of Protection: Level 4 Protection Radius : 90m Mounting height (from Rooftop to tip of ESE) : 4m (approximately) Note: The work is included with all mounting, fixing and support accessories and material required for the completion of above mention task.</p>	1	No.					
2	<p>4 meter high 75mm dia GI pipe to be used as mast for installation of ESE lightning arrestor. Complete with all supports, angles, brackets, wire guides nuts & bolts etc.</p>	1	Job					
3	<p>Supply, installation, testing and commissioning Tin plated copper conductors of following sizes in UPVC conduit laid in floor / Surface on wall from already made Earth Station to Lightning Arrestor shown in drawings. Complete in all respects including termination.</p>							

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
a	1C, 95 Sq.mm Bare Copper Conductor	175	Rm.					
4	Chemical Enhanced Earth using 38 mm dia Copper rod filled minimum 10 ft. length with soil conditioning material including 6" dia, 11' deep boring and back filled chemical to enhance conductivity. Complete with termination clamps, 12" dia heavy duty tin plated round cover as per details given in drawings. Earthing Rods Make: Wallis, Furse or Dehn or approved equivalent	4	No.					
5	Providing and making of Copper to Copper, Thermo Weld connection of following conductors. as per detail Drawing & Specification. Complete in all respects							
a	95 Sq.mm Bare Cu. Conductor to 95 Sq.mm Bare Cu. Conductor	2	No.					
b	95 Sq.mm Bare Cu. Conductor to 25mm Dia Earth Rod	4	No.					
c	95 Sq.mm Bare Cu. Conductor to ESE	1	No.					
6	Supply and installation of following size of UPVC Conduit including all accessories such as bend, socket etc. Complete in all respect.							

SN	Description of Items	QTY	Unit	Supply (incl. all taxes)		Installation (incl. all taxes)		Total
				Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Amount (Rs.)
(1)	(2)	(3)	(4)	(5)	(6) = (3) x (5)	(7)	(8) = (3) x (7)	(9) = (6) + (8)
a	38mm dia uPVC Conduit	150	Rm.					
7	Surge / Stroke Counter for indicating the number of strokes arrested by the ESE.	1	No.					
Note: Contractor is advised to confirm the cable running lengths and termination as per site conditions before commencement of work.								
Total Amount (Rs.) Sec - E								
SECTION – F AS-BUILT DRAWINGS								
1	Preparation of as-built drawings of all entire above Electrical and Allied works including Solar Power System after final approval from the consultant/client up to the entire satisfaction of engineering in charge. Note: Submission of as-built drawings 2 sets after work completion of each floor and 3 sets & soft copy of complete electrical works after final commissioning of project. Approval of final bills are subject to completion of as built drawings.	1	No.					
Sub-Total Amount (Rs.) Sec – F								

SUMMARY OF PRICED BOQ	
Section (A) - Photovoltaic (PV) Solar Power System	
Section (B) – Wiring & Accessories	
Section (C) – Cable Containment	
Section (D) – Lighting Fixtures	
Section (E) – Lighting Protection System	
Section (F) – As Built Drawings	
Section (G) – Civil Works	
GRAND TOTAL OF ALL SECTIONS	

In words (Rs.): _____

_____ Only