



KARACHI PORT TRUST
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CORRIGENDUM



REHABILITATION AND INSTALLATION OF NEW FENDERS
NOSING AT BERTHS NO-18, 19, 20 & 21 M-I YARD WEST
WHARF.

Furtherance to the advertisement published in News Paper Daily **Business Recorder** and **Daily 92 News** on 09-08-2024 for subject project, following amendment may please be note and read as under:

Tenders for the subjected work, which was due on 03-09-2024 has now been extended for 03-10-2024 due to some administrative reasons and will open on given date & time, please.

Intended Bidders are requested to attend the Pre-Bid Meeting 18-09-2024 in committee Room of Chief Engineer 2nd Floor Engineering department.

The other terms, conditions & venue will remain unchanged.

DY: CHIEF ENGINEER-III



KARACHI PORT TRUST
Gateway to Pakistan



ISLAMIC REPUBLIC OF PAKISTAN

KARACHI PORT TRUST (KPT)

**REHABILITATION AND INSTALLATION OF NEW FENDERS
NOSING AT BERTHS NO-18, 19, 20 & 21 M-I YARD WEST
WHARF.**

BID DOCUMENT (VOL-I)

SINGLE STAGE TWO ENVELOPE

(UNDER PPRA Rule 36 (b) 2020)


CHIEF ENGINEER
K.P.T


CHIEF ENGINEER
K.P.T

BID DOCUMENTS

**FOR: REHABILITATION AND INSTALLATION OF NEW FENDERS NOSING AT BERTHS
NO-18, 19, 20 & 21 M-I YARD WEST WHARF.**

SINGLE STAGE TWO ENVELOPE

(UNDER PPRA Rule 36 (b) 2020)

(TECHNICAL BID)

BID DOCUMENTS ARE PLACED IN THE FOLLOWING FOLDERS

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- 2) INSTRUCTION TO BIDDERS
- 3) BIDDING DATA
- 4) EVALUATION/QUALIFICATION CRITERIA
- 5) FORM OF BID AND APPENDICES TO BID
- 6) CONTRACT FORMS
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INSTRUCTIONS TO BIDDERS

A. GENERAL

IB.1 Scope of Bid

- 1.1 The Employer as defined in the Bidding Data hereinafter called “the Employer” wishes to receive bids for the construction and completion of works as described in these Bidding Documents, and summarized in the Bidding Data hereinafter referred to as the “Works”.
- 1.2 The successful bidder will be expected to complete the Works within the time specified in Appendix-A to Bid.

IB.2 Source of Funds

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

IB.3 Eligible Bidders

- 3.1 This Invitation for Bids is open to all bidders meeting the following requirements:
 - a. Duly licensed by the Pakistan Engineering Council (PEC) in the category relevant to the value of the Works.
 - b. Duly prequalified / enlisted with the Employer.

IB.4 One Bid per Bidder

- 4.1 Each bidder shall submit only one bid either by himself, or as a partner in a joint venture. A bidder who submits or participates in more than one bid (other than alternatives pursuant to Clause IB.16) will be disqualified.

IB.5 Cost of Bidding

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

IB.6 Site Visit

- 6.1 The bidders are advised to visit and examine the Site of Works and its surroundings and obtain for themselves on their own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the Works. All cost in this respect shall be at the bidder's own expense.
- 6.2 The bidders and any of their personnel or agents will be granted permission by the Employer to enter upon his premises and lands for the purpose of such inspection, but only upon the express condition that the bidders, their personnel and agents, will release and indemnify the Employer, his personnel and agents from and against all liability in respect thereof and will be responsible for death or personal injury, loss of or damage to property and any other loss, damage, costs and expenses incurred as a result of such inspection.

B. BIDDING DOCUMENTS

IB.7 Contents of Bidding Documents

- 7.1 The Bidding Documents, in addition to invitation for bids, are those stated below and should be read in conjunction with any Addenda issued in accordance with Clause IB.9.
 1. Instructions to Bidders.
 2. Bidding Data.
 3. General Conditions of Contract, Part-I (GCC).
 4. Particular Conditions of Contract, Part-II (PCC).
 5. Specifications – Special Provisions.
 6. Specifications - Technical Provisions.
 7. Form of Bid & Appendices to Bid.
 8. Bill of Quantities (Appendix-D to Bid).
 9. Form of Bid Security.
 10. Form of Contract Agreement.
 11. Forms of Performance Security and Mobilization Advance Guarantee/Bond.
 12. Drawings.
- 7.2 The bidders are expected to examine carefully the contents of all the above documents. Failure to comply with the requirements of bid submission will be at the Bidder's own risk. Pursuant to Clause IB.26, bids which are not substantially responsive to the requirements of the Bidding Documents will be rejected.

IB.8 Clarification of Bidding Documents

8.1 Any prospective bidder requiring any clarification (s) in respect of the Bidding Documents may notify the Employer in writing at the Employer's address indicated in the Invitation for Bids. The Employer will respond to any request for clarification which he receives earlier than 28 days prior to the deadline for submission of bids.

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

IB.9 Amendment of Bidding Documents

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

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

9.3 To afford prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may extend the deadline for submission of bids in accordance with Clause IB.20

C. PREPARATION OF BIDS

IB.10 Language of Bid

10.1 The bid and all correspondence and documents related to the bid exchanged by a bidder and the Employer shall be in the bid language stipulated in the Bidding Data and Particular Conditions of Contract. Supporting documents and printed literature furnished by the bidders may be in any other language provided the same are accompanied by an accurate translation of the relevant parts in the bid language, in which case, for purposes of evaluation of the bid, the translation in bid language shall prevail.

IB.11 Documents Accompanying the Bid

11.1 Each bidder shall:

Submit a written power of attorney authorizing the signatory of the bid to act for and on behalf of the bidder;

(b) Update the information indicated and listed in the Bidding Data and previously submitted with the application for prequalification, and continue to meet the minimum criteria set out in the prequalification documents which as a minimum, would include the following:

- (i) Evidence of access to financial resources alongwith average annual Construction turnover;
- (ii) Financial predictions for the current year and the two following years including the effect of known commitments;
- (iii) Work commitments since prequalification;
- (iv) Current litigation information; and
- (v) Availability of critical equipment.

And

(c) furnish a technical proposal taking into account the various Appendices to Bid specially the following:

Appendix-E to Bid	Proposed Construction Schedule
Appendix-F to Bid	Method of Performing the Work
Appendix-G to Bid	List of Major Equipment
Appendix-K to Bid	Organization Chart for Supervisory Staff and other pertinent information such as mobilization program etc;

11.2 Bids submitted by a joint venture of two (2) or more firms shall comply with the following requirements:

- (a) the bid and in case of a successful bid, the Form of Contract Agreement shall be signed so as to be legally binding on all partners;
- (b) one of the joint venture partners shall be nominated as being in charge; and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the joint venture partners;

- (c) the partner-in-charge shall always be duly authorized to deal with the Employer regarding all matters related with and/or incidental to the execution of Works as per the terms and Conditions of Contract and in this regard to incur any and all liabilities, receive instructions, give binding undertakings and receive payments on behalf of the joint venture;
- (d) all partners of the joint venture shall at all times and under all circumstances be liable jointly and severally for the execution of the Contract in accordance with the Contract terms and a statement to this effect shall be included in the authorization mentioned under Sub-Para(b) above as well as in the Form of Bid and in the Form of Contract Agreement (in case of a successful bid); and
- (e) a copy of the agreement entered into by the joint venture partners shall be submitted with the bid stating the conditions under which it will function, its period of duration, the persons authorized to represent and obligate it and which persons will be directly responsible for due performance of the Contract and can give valid receipts on behalf of the joint venture, the proportionate participation of the several firms forming the joint venture, and any other information necessary to permit a full appraisal of its functioning. No amendments / modifications whatsoever in the joint venture agreement shall be agreed to between the joint venture partner without prior written consent of the Employer.

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

IB.12 Bid Prices

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

12.2 The bidders shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by a bidder will not be paid for by the Employer when executed and shall be deemed covered by rates and prices for other items in the Bill of Quantities.

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

Additional / reduced duties, taxes and levies due to subsequent additions or changes in legislation shall be reimbursed / deducted as per Sub-Clause 70.2 of the General Conditions of Contract Part-I.

12.4 The rates and prices quoted by the bidders are subject to adjustment during the performance of the Contract in accordance with the provisions of Clause 70 of the Conditions of Contract. The bidders shall furnish the prescribed information for the price adjustment formulae in Appendix-C to Bid, and shall submit with their bids such other supporting information as required under the said Clause.

IB.13 Currencies of Bid and Payment

- 13.1 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 supplied from outside the Employer's country (referred to as the "Foreign Currency Requirements") shall indicate the same in Appendix-B to Bid. 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.
- 13.2 The rates of exchange to be used by the bidder for currency conversion shall be the TT&OD Selling Rates published or authorized by the State Bank of Pakistan prevailing on the date 28 days prior to the deadline for submission of bids.

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

IB.14 Bid Validity

- 14.1 Bids shall remain valid for the period stipulated in the Bidding Data after the Date of Bid Opening specified in Clause IB.23.
- 14.2 In exceptional circumstances, prior to expiry of the original bid validity period, the Employer may request that the bidders extend the period of validity for a specified additional period which shall in no case be more than the original bid validity period. The request and the responses thereto shall be made in writing. A bidder may refuse the request without forfeiting his Bid Security. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his Bid Security for the period of the extension, and in compliance with Clause IB.15 in all respects.

IB.15 Bid Security

- 15.1 Each bidder shall furnish, as part of his bid, a Bid Security in the amount stipulated in the Bidding Data in Pak Rupees or an equivalent amount in a freely convertible currency.
- 15.2 The Bid Security shall be, at the option of the bidder, in the form of Deposit at Call or a Bank Guarantee issued by a Scheduled Bank in Pakistan or from a foreign bank duly counter guaranteed by a Scheduled Bank in Pakistan or an insurance company having atleast AA rating from PACRA/JCR in favour of the Employer valid for a period 28 days beyond the Bid Validity date

- 15.3 Any bid not accompanied by an acceptable Bid Security shall be rejected by the Employer as non-responsive.
- 15.4 The bid securities of unsuccessful bidders will be returned as promptly as possible, but not later than 28 days after the expiration of the period of Bid Validity.
- 15.5 The Bid Security of the successful bidder will be returned when the bidder has furnished the required Performance Security and signed the Contract Agreement.
- 15.6 The Bid Security may be forfeited:
- (a) if the bidder withdraws his bid except as provided in Sub-Clause 22.1;
 - (b) if the bidder does not accept the correction of his Bid Price pursuant to Sub-Clause 27.2 hereof; or
 - (c) In the case of successful bidder, if he fails within the specified time limit to:
 - (i) Furnish the required Performance Security; or
 - (ii) Sign the Contract Agreement.

IB.16 Alternate Proposals by Bidder

- 16.1 Should any bidder consider that he can offer any advantages to the Employer by a modification to the designs, specifications or other conditions, he may, in addition to his bid to be submitted in strict compliance with the Bidding Documents, submit any Alternate Proposal(s) containing (a) relevant design calculations; (b) technical specifications; (c) proposed construction methodology; and (d) any other relevant details / conditions, provided always that the total sum entered on the Form of Bid shall be that which represents complete compliance with the Bidding Documents.
- 16.2 Alternate Proposal(s), if any, of the lowest evaluated responsive bidder only may be considered by the Employer as the basis for the award of Contract to such bidder.

IB.17 Pre-Bid Meeting

- 17.1 The Employer may, on his own motion or at the request of any prospective bidder(s), hold a pre-bid meeting to clarify issues and to answer any questions on matters related to the Bidding Documents. The date, time and venue of pre-bid meeting, if convened, is as stipulated in the Bidding Data. All prospective bidders or their authorized representatives shall be invited to attend such a pre-bid meeting.
- 17.2 The bidders are requested to submit questions, if any, in writing so as to reach the Employer not later than seven (7) days before the proposed pre-bid meeting.
- 17.3 Minutes of the pre-bid meeting, including the text of the questions raised and the replies given, will be transmitted without delay to all purchasers of the Bidding Documents. Any modification of the Bidding Documents listed in Sub-Clause 7.1 hereof which may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to Clause IB.9 and not through the minutes of the pre-bid meeting.

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

IB.18 Format and Signing of Bid

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

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

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

18.4 Each bidder shall prepare by filling out the forms completely and without alterations one (1) original and number of copies, specified in the Bidding Data, of the documents comprising the bid as described in Clause IB.7 and clearly mark them "ORIGINAL" and "COPY" as appropriate. In the event of discrepancy between them, the original shall prevail.

18.5 The original and all copies of the bid shall be typed or written in indelible ink (in the case of copies, Photostats are also acceptable) and shall be signed by a person or persons duly authorized to sign on behalf of the bidder pursuant to Sub- Clause 11.1(a) hereof. All pages of the bid shall be initialled and stamped by the person or persons signing the bid.

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

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

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

D. SUBMISSION OF BIDS

IB.19 Sealing and Marking of Bids

19.1 Each bidder shall submit his bid as under:

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

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

19.2 The inner and outer envelopes shall:

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

(b) bear the name and identification number of the contract as defined in the Bidding Data; and

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

19.3 In addition to the identification required in Sub- Clause 19.2 hereof, the inner envelope shall indicate the name and address of the bidder to enable the bid to be returned unopened in case it is declared "late" pursuant to Clause IB.21

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

IB.20 Deadline for Submission of Bids

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

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

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

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

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

IB.21 Late Bids

21.1 (a) Any bid received by the Employer after the deadline for submission of bids prescribed in Clause IB.20 will be returned unopened to such bidder.

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

IB.22 Modification, Substitution and Withdrawal of Bids

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

- 22.2 The modification, substitution, or notice for withdrawal of any bid shall be prepared, sealed, marked and delivered in accordance with the provisions of Clause IB.19 with the outer and inner envelopes additionally marked "MODIFICATION", "SUBSTITUTION" or "WITHDRAWAL" as appropriate.
- 22.3 No bid may be modified by a bidder after the deadline for submission of bids except in accordance with Sub-Clauses 22.1 and 27.2.
- 22.4 Withdrawal of a bid during the interval between the deadline for submission of bids and the expiration of the period of bid validity specified in the Form of Bid may result in forfeiture of the Bid Security in pursuance to Clause IB.15.

E. BID OPENING AND EVALUATION

IB.23 Bid Opening

- 23.1 The Employer will open the bids, including withdrawals, substitution and modifications made pursuant to Clause IB.22, in the presence of bidders' representatives who choose to attend, at the time, date and location stipulated in the Bidding Data. The bidders' representatives who are present shall sign a register evidencing their attendance.
- 23.2 Envelopes marked "MODIFICATION", "SUBSTITUTION" or "WITHDRAWAL" shall be opened and read out first. Bids for which an acceptable notice of withdrawal has been submitted pursuant to Clause IB.22 shall not be opened.
- 23.3 The bidder's name, total Bid Price and price of any Alternate Proposal(s), any discounts, bid modifications, substitution and withdrawals, the presence or absence of Bid Security, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening of bids.
- 23.4 Employer shall prepare minutes of the bid opening, including the information disclosed to those present in accordance with the Sub-Clause 23.3.

IB.24 Process to be Confidential

- 24.1 Information relating to the examination, clarification, evaluation and comparison of bid and recommendations for the award of a contract shall not be disclosed to bidders or any other person not officially concerned with such process before the announcement of bid evaluation report which shall be done at least ten (10) days prior to issue of Letter of Acceptance. The announcement to all Bidders will include table(s) comprising read out prices, discounted prices, price adjustments made, final evaluated prices and recommendations against all the bids evaluated. Any effort by a bidder to influence the Employer's processing of bids or award decisions may result in the rejection of such bidder's bid. Whereas any bidder feeling aggrieved may lodge a written complaint not later than fifteen (15) days after the announcement of the bid evaluation report; however mere fact of lodging a complaint shall not warrant suspension of the procurement process.

IB.25 Clarification of Bids

25.1 To assist in the examination, evaluation and comparison of bids, the Employer may, at his discretion, ask any bidder for clarification of his bid, including breakdowns of unit rates. The request for clarification and the response shall be in writing but no change in the price or substance of the bid shall be sought, offered or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the bids in accordance with Clause IB.28.

IB.26 Examination of Bids and Determination of Responsiveness

26.1 Prior to the detailed evaluation of bids, the Employer will determine whether each bid is substantially responsive to the requirements of the Bidding Documents.

26.2 A substantially responsive bid is one which (i) meets the eligibility criteria; (ii) has been properly signed; (iii) is accompanied by the required Bid Security; and (iv) conforms to all the terms, conditions and specifications of the Bidding Documents, without material deviation or reservation. A material deviation or reservation is one (i) which affect in any substantial way the scope, quality or performance of the Works; (ii) which limits in any substantial way, inconsistent with the Bidding Documents, the Employer's rights or the bidder's obligations under the Contract; or (iii) adoption/rectification whereof would affect unfairly the competitive position of other bidders presenting substantially responsive bids.

26.3 If a bid is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

IB.27 Correction of Errors

27.1 Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:

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

27.2 The amount stated in the Form of Bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors and with the concurrence of the bidder, shall be considered as binding upon the bidder. If the bidder does not accept the corrected Bid Price, his Bid will be rejected, and the Bid Security shall be forfeited in accordance with Sub- Clause 15.6(b) hereof.

IB.28 Evaluation and Comparison of Bids

28.1 The Employer will evaluate and compare only the Bids determined to be substantially responsive in accordance with Clause IB.26.

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

- (a) making any correction for errors pursuant to Clause IB.27;
- (b) excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities, but including competitively priced Daywork; and
- (c) making an appropriate adjustment for any other acceptable variation or deviation.

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

28.4 If the Bid of the successful bidder is seriously unbalanced in relation to the Employer's estimate of the cost of work to be performed under the Contract, the Employer may require the bidder to produce detailed price analyses for any or all items of the Bill of Quantities to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Employer may require that the amount of the Performance Security set forth in Clause IB.32 be increased at the expense of the successful bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful bidder under the Contract.

F. AWARD OF CONTRACT

IB.29 Award

29.1 Subject to Clauses IB.30 and IB.34, the Employer will award the Contract to the bidder whose bid has been determined to be substantially responsive to the Bidding Documents and who has offered the lowest evaluated Bid Price, provided that such bidder has been determined to be eligible in accordance with the provisions of Clause IB.3 and qualify pursuant to Sub-Clause IB 29.2.

29.2 The Employer, at any stage of the bid evaluation, having credible reasons for or *prima facie* evidence of any defect in supplier's or contractor's capacities, may require the suppliers or contractors to provide information concerning their professional, technical, financial, legal or managerial competence whether already pre-qualified or not:
Provided that such qualification shall only be laid down after recording reasons therefor in writing. They shall form part of the records of that bid evaluation report.

IB.30 Employer's Right to Accept any Bid and to Reject any or all Bids

30.1 Notwithstanding Clause IB.29, the Employer reserves the right to accept or reject any Bid, and to annul the bidding process and reject all bids, at any time prior to award of Contract, without thereby incurring any liability to the affected bidders or any obligation except that the grounds for rejection of all bids shall upon request be communicated to any bidder who submitted a bid, without justification of grounds. Rejection of all bids shall be notified to all bidders promptly.

IB.31 Notification of Award

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

31.2 No Negotiation with the bidder having evaluated as lowest responsive or any other bidder shall be permitted, however, Employer may have clarification meetings to get clarify any item in the bid evaluation report.

31.3 The notification of award and its acceptance by the bidder will constitute the formation of the Contract, binding the Employer and the bidder till signing of the formal Contract Agreement.

31.4 Upon furnishing by the successful bidder of a Performance Security, the Employer will promptly notify the other bidders that their Bids have been unsuccessful and return their bid securities.

IB.32 Performance Security

32.1 The successful bidder shall furnish to the Employer a Performance Security in the form and the amount stipulated in the Bidding Data and the Conditions of Contract within a period of 28 days after the receipt of Letter of Acceptance.

32.2 Failure of the successful bidder to comply with the requirements of Sub-Clause IB.32.1 or Clauses IB.33 or IB.35 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security.

IB.33 Signing of Contract Agreement

33.1 Within 14 days from the date of furnishing of acceptable Performance Security under the Conditions of Contract, the Employer will send the successful bidder the Contract Agreement in the form provided in the Bidding Documents, incorporating all agreements between the parties.

33.2 The formal Agreement between the Employer and the successful bidder shall be executed within 14 days of the receipt of the Contract Agreement by the successful bidder from the Employer.

IB.34 General Performance of the Bidders

The Employer reserves the right to obtain information regarding performance of the bidders on their previously awarded contracts/works. The Employer may in case of consistent poor performance of any Bidder as reported by the employers of the previously awarded contracts, inter alia, reject his bid and/or refer the case to the Pakistan Engineering Council (PEC). Upon such reference, PEC in accordance with its rules, procedures and relevant laws of the land take such action as may be deemed appropriate under the circumstances of the case including black listing of such Bidder and debarring him from participation in future bidding for similar works.

IB.35 Integrity Pact

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

IB.36 Instructions not Part of Contract

Bids shall be prepared and submitted in accordance with these Instructions which are provided to assist bidders in preparing their bids, and do not constitute part of the Bid or the Contract Documents.

BIDDING DATA

The following specific data for the Works to be bid shall complement, amend, or supplement the provisions in the Instructions to Bidders. Wherever there is a conflict, the provisions herein shall prevail over those in the Instructions to Bidders.

Instruction to Bidders, Clause Reference	<i>Bidding Data</i>
IB-1 1.1	Name and Address of the Employer: Chief Engineer, Karachi Port Trust. Eduljee Dinshaw Road Karachi, 74000 Pakistan, Karachi. mgr.eng@kpt.gov.pk 922199214318, Ext. 2211
1.1	Scope of Bid & Name of Project The Work under this Contract comprises of “REHABILITATION AND INSTALLATION OF NEW FENDERS NOSING AT BERTHS NO-18, 19, 20 & 21 M-I YARD WEST WHARF and all as per Contract Drawings and Specifications.
IB-2 2.1	Source of Funds KPT (Self-Financed).
IB-3 3.1	Eligible Bidders <i>Delete whole text of Sub-Clause 3.1 and replaced with following:</i> “This invitation for Bids is open to all constructors/firms meeting the qualification criteria provided at the end of this section “Bidding Data” and in Notice Inviting Tender (NIT). ****
IB-6	<i>Site Visit</i> Delete the text and substitute: The Bidder or his authorized representative shall visit and inspect the Site of

6.1

Works including the areas and surroundings to be used for Contractor's Camp, on his own responsibility and at his own expense, and obtain all the information from his own sources which may be necessary for the purpose of preparing the bid.

The Employer may assist but will not take any responsibility for the supply or correctness of the information.

The Bidder shall, before submitting his bid, satisfy himself in all respects including the following:

- a. The existing facilities in the vicinity of the Site of Work, the climatological conditions, the form and nature of the Site of Work.
- b. The quantities and nature of the work and materials necessary for completion of the Works.
- c. The means of access to the Site of Work and exit from the Site.
- d. The available accommodation on land for Contractor's Camp within or outside the Site of Work.
- e. All necessary information as to risks, contingencies and other circumstances, which may influence or affect the bid.
- f. The existing condition at Site.
- g. etc

Each Bidder shall also enquire and satisfy himself as to the source, the quantity of supply, the sufficiency of and the means of obtaining and transporting all plant, material, labour, fuel, water, electricity, and other matters or things required for or in connection with the Works.

In preparing the bid, Bidder shall also consider his obligation to adequately store all materials and maintain existing facilities and all Temporary Works during the period of their usage.

The Bidder must make local inquiries as to the physical conditions prevailing at the Site and obtain his own information on all matters and things that may in any way influence him in making a bid and fixing the rates in the Bill of Quantities. He must also satisfy himself as to the risks, obligations and responsibilities to be undertaken in accordance to the Contract to be entered into by him should his bid be accepted.

The Bidder shall make his own investigations, enquiries and assessments, on all matters, of all conditions of existing constructions at the site and its vicinity, to his satisfaction before submitting his bid.

<p>IB-8 8.1</p>	<p>Clarification of Bidding Documents: Time Limit for Clarifications is 10 days prior to the deadline for submission of bid and after that time limit the Employer will not entertain any clarification/query etc what so ever in nature.</p>
<p>IB-10 10.1</p>	<p>Language of Bid: English</p>
<p>IB-11 11.1 11.1a</p>	<p>Documents Accompanying the Bid:</p> <p>Delete whole Clause 11 and replace with following: Bids are invited under PPRA rule 36 (b) under Single Stage Two Envelope, wherein “The Bid shall comprise two envelopes submitted simultaneously, one called the Technical Bid containing the documents listed in Clause 11.1a.</p> <hr/> <p>The Technical Bid shall comprise the following:</p> <ol style="list-style-type: none"> i. Form of Technical Bid; ii. Appendices to Bid except Appendix D and Appendix J; iii. Bid Security in accordance with Clause 15; iv. alternative bids, if permissible, in accordance with Clause 16; v. written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with Clause 18; vi. documentary evidence in accordance with Clause 3.2 establishing the Bidder’s qualifications to perform the contract vii. The Bidder shall furnish, as part of the Technical Bid, a Technical Proposal including a statement of works, equipment, personnel, schedule and any other information as stipulated in Appendices, in sufficient detail to demonstrate the adequacy of the Bidders’ proposal to meet the work requirements and the completion.
<p>11.1b</p>	<p>The Price Bid shall comprise the following:</p> <ol style="list-style-type: none"> i. Form of Price Bid; ii. completed Price Bill of Quantities (Appendix D), in accordance with Clause 11.1c and Clause 12;

11.1c	<p>The Forms of Technical Bid and Price Bid, and all documents listed under Clause 11.1a and 11.1b shall be prepared using the relevant forms furnished at the end of Bidding Data and in Appendix D to L including Annexure Y. The forms must be completed without any alterations to the text, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.</p> <p>In case any original document is in other language, translation in bid language should be provided. The document in bid language shall prevail in case of any discrepancy.</p>
IB-12 12.3	<p>Bid Prices</p> <p>Add the following paragraphs:</p> <p>a) The Bidder, by the act of submitting a bid, acknowledges that he has inspected the Site of Works and determined the general characteristics and conditions. The Employer will not assume any responsibility for information, interpretations and deductions the bidder may make from the information furnished by the Employer or the Engineer. No verbal agreement or conversation with any officer, employee or agent of the Employer or the Engineer before, during or after the execution of the Contract, shall effect or modify any of the terms or obligations contained in the Contract.</p> <p>b) The attention of the Bidder is drawn to the fact that local regulations require special formalities to be complied with in connection with the ordering, purchasing and importing of materials from outside Pakistan. Bidder will be deemed to have obtained full information about all such matters and to have allowed in his bid for all delays, additional costs and financing charges that may arise directly or indirectly there from.</p> <p>c) Any neglect or failure on the part of the Bidder to obtain reliable information on the spot or elsewhere upon the foregoing or any other matters affecting the execution and completion of the Works, the rates, total amounts and the Contract shall not relieve the Bidder whose bid is accepted from any risks or liabilities or from the responsibility of completing and handing over the works.</p> <p>d) The rates and prices set down by the Bidder against all the items in the Bill of Quantities are to be the full inclusive value of the finished work described there under and shall be deemed to include all costs of performing the Works including all taxes and duties, profits and costs of accepting the general risks, liabilities and obligations of every kind set forth or implied in the Contract.</p>
IB-13	Currencies of Bid and Payment:

13.1	The unit rates and prices shall be quoted by the bidder entirely in Pak rupees.
13.2	Delete whole Sub-clause 13.2
IB-14 14.1	Bid Validity: Period of Bid Validity is 180 days after the date of bid opening.
IB-15 15.1	Amount of Bid Security: Rs. 3.5 Million
15.2	Delete whole Clause 15.2 and replace with following The Bid Security shall be in the form of Bank Pay Order Scheduled Bank in favour of the Chief Accounts Officer KPT, valid for a period of 28 days beyond the bid Validity date. The bid Security (original) should be submitted with the Technical Bid and the copy (ies) should be submitted with Price Bid as per IB Clause 11.
IB-16 16.1 & 16.2	Alternate Proposals by Bidders Delete the text and substitute: Alternate proposals by Bidders are not invited.
IB-17 17.1	Venue, time, and date of the Pre-Bid Meeting: 23-08-2024 at 1130 Hrs. in committee Room of Chief Engineer 2nd Floor Engineering Department KPT, Head Office. Prebid meeting/site visit shall be held as per Advertisement published in dailies.
17.2	Add at the end of the Para following Errors, Omissions & Queries The Bidder shall notify “the Employer” of any inconsistencies, errors and omissions found in the Bid Documents, prior to the Bid opening date. Withholding of any such information which will later materially affect the contract price during construction may be considered as sufficient grounds for rejection of Bid. All queries shall be directed to: Chief Engineer at the address provided in Sub-Clause 1.1 above. The Employer is not responsible for any verbal communications or instructions to the Bidders.
IB-18 18.1	Format and Signing of Bid: Delete Sub-Clause 18.1 and 18.2 and replace with following The Bidder shall prepare one original of the Technical Bid and one original of the Price Bid comprising the Bid as described in IB Clause 11 and clearly mark it “ORIGINAL - TECHNICAL BID” and “ORIGINAL - PRICE BID”. Bidders are particularly directed that the amount entered on the Form of Price Bid shall be for performing the Contract strictly in accordance with the Bidding Documents.
18.2	The original and all copies of the Bid shall be typed or written in indelible ink except Price Bid which shall be hand written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified below and

	<p>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 signed or initialed by the person signing the bid.</p> <p>The written confirmation of authorization to sign on behalf of the Bidder shall consist of:</p> <p>(a) Power of Attorney on Judicial E-Stamp Paper duly attested by Notary Public; and</p> <p>(b) No JV is allowed:</p> <p>(c) No any person other than the authorised representative is allowed to conduct business during bidding process including correspondence, clarification etc for and on behalf of bidder and in the event of award of the Contract during contract execution.</p> <p>(d) The Employer will not entertain any correspondence/clarification/query from unauthorized representative whatsoever during and after bidding process.</p>
<p>IB-18</p> <p>18.4</p>	<p>Format and Signing of Bid:</p> <p>Number of copies of the bid to be completed and returned: Original + Two (02) Copies of Technical Bid and One copy of Price Bid along with soft copies in USB</p>
<p>18.5</p>	<p>Delete the last sentence of this para from “All pages the bid” and substitute with the following:</p> <p>All pages of the bid including appendices, addendum, corrigenda, clarifications, supplementary information as are issued shall be completed, initialed and stamped by the person or persons signing the bid. One (01) copy of Power of Attorney must be attached to the Bid submitted to the Employer, if this Bid is signed/executed by a person other than the President, Partner or Owner of the Bidder’s Company.</p>
<p>18.6</p>	<p>Delete the text and substitute:</p> <p>The bid shall contain no alterations, omissions or additions, except to comply with instructions issued by the Employer, or as are necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the bid. Each correction shall be separately signed and stamped. Over-writing, erasures, use of whitening fluid, correction tape for making corrections is not permitted. Noncompliance of these instructions may be construed as sufficient ground to render the bid non-responsive.</p>

18.7	<p>At the end of this para, add the following:</p> <p>Bids shall be prepared and submitted on the forms of “Technical Bid” and “Price Bid (BOQ)” provided. All blank spaces must be filled in and completed form must be without interlineations or alteration of the original wording. Bids with incomplete and/or unsigned Form of Bids may be rejected /considered Non-Responsive. The Bidder shall stamp and sign each page of Bid Documents for the purpose of identification and acknowledgement of acceptance thereof.</p> <p>The Bids must conform in all respects to the Bid Documents.</p>
IB-19	Sealing & Marking of Bids:
19.1	<p>Delete Sub-Clause 19.1 and replace with following:</p> <p>Bidders may always submit their bids by mail or by hand. Procedures for submission, sealing and marking are as follows:</p> <p>Bidders submitting bids by mail or by hand shall enclose the original of the Technical Bid, the original of the Price Bid, and each copy of the Technical Bid and each copy of the Price Bid, in separate sealed envelopes, duly marking the envelopes as “ORIGINAL - TECHNICAL BID”, “ORIGINAL - PRICE BID” and “COPY NO... - TECHNICAL BID” and “COPY NO.... - PRICE BID.” These envelopes, the first containing the originals and the others containing copies, shall then be enclosed in one single envelope per set.</p> <p>Bidding documents will be opened as per PPRA 36(b) wherein only Technical will be opened on the same day however the Financial proposal will be opened for those firms who will stand qualified in Technical Proposals.</p>
19.2(a)	<p>Employer’s address for purpose of Bid submission:</p> <p>As per Sub-clause 1.1 above</p>
19.2(b)	<p>Name and Number of Contract:</p> <p>Chief Engineer Karachi Port Trust</p>
IB-20	Deadline for submission of bids:
20.1	As notified in the Invitation for Bid.

<p>IB-23</p> <p>23.1</p>	<p>Venue time and date of Bid opening:</p> <p>Delete Sub-Clause 23.1 and replace with following:</p> <p>Bidding documents will be opened as per PPRA 36(b) wherein only Technical will be opened on the same day however the Financial proposal will be opened for those firms who qualified in Technical Proposals.</p> <p>In public at the address, date and time specified in the Invitation for bids in the presence of Bidders` designated representatives and anyone who choose to attend.</p>
<p>23.3</p>	<p>Delete Sub-Clause 23.3 and replace with following</p> <p>All other envelopes holding the Technical Bids shall be opened one at a time, and the following read out and recorded:</p> <ul style="list-style-type: none"> (a) the name of the Bidder; (b) whether there is a modification or substitution; (c) the presence of a Bid Security; (d) any other details as the Employer may consider appropriate. <p>Only Technical Bids and read out and recorded at bid opening shall be considered for evaluation. No Bid shall be rejected at the opening of Technical Bids except for late bids, in accordance with Clause 21.</p>
<p>23.4</p>	<p>Delete Sub-Clause 23.4 add replace with following:</p> <p>Bidding documents will be opened as per PPRA 36(b) wherein only Technical will be opened on the same day however the Financial proposal will be opened for those firms who qualified in Technical Proposals.</p> <p>At the end of the evaluation of the Technical Bids and Financial Bids, the Employer will invite bidders who have submitted substantially responsive Technical Bids and Financial Proposals and who have been determined as being qualified in Technical and Lowest in Financial for award of works.</p>
<p>23.5</p>	<p>Add following Sub-Clauses 23.5 to 23.8</p> <p>The Employer will notify bidders in writing who have been rejected on the grounds of their Technical Bids being substantially non-responsive to the requirements of the Bidding Document and return their Bid Securities after selection/Appointment of Lowest Bidder by Board of Trustees of KPT and uploading of Evaluation Report on PPRA web site.</p>

23.6	The Employer shall conduct the opening of Price Bids of all Bidders who submitted substantially responsive Technical Bids, in the presence of Bidders' representatives who choose to attend at the address, date and time specified by the Employer. The Bidder's representatives who are present shall be requested to sign a register evidencing their attendance.
23.7	All envelopes containing Price Bids 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 Bid Prices, including any discounts and alternative offers if permitted; and (d) any other details as the Employer may consider appropriate. Only Price Bids and discounts read out and recorded during the opening of Price Bids shall be considered for evaluation. No Bid shall be rejected at the time of opening of Price Bids.
23.8	The Employer shall prepare a record of the opening of Price Bids that shall include, as a minimum: the name of the Bidder, the Bid Price, and any discounts. The Bidders' representatives who are present shall be requested to sign the record.
IB-24	<i>Process to be Confidential</i>
24.2	Add the following sub-para: Documents submitted by Bidders in connection with the Bid for above named Works will be treated as confidential and will not be returned.
IB-26	Examination of Bids and Determination of Responsiveness Add following paragraph at the end of Sub Clause 26.1
26.1	The Employer shall examine the Technical Bid and Financial Bids to confirm that all documents and technical documentation requested in Clause 11 have been provided, and to determine the completeness of each document submitted. The Employer shall confirm that the following documents and information have been provided in the Technical Bid. If any of these documents or information is missing, the offer shall be rejected. i. Letter of Technical Bid; ii. written confirmation of authorization to commit the Bidder; iii. Bid Security, if applicable; and iv. Technical Proposal in accordance with IB 11

26.2	<p>Examination of Bids and Determination of Responsiveness Add following text at the end of Sub-Clause 26.2 The Employer’s determination of a Bid’s responsiveness is to be based on the contents of the bid itself, as defined in IB 11.</p> <p>A substantially responsive Technical Bid is one that meets the requirements of the Bidding Document without material deviation. The Employer shall examine the technical aspects of the Bid submitted in accordance with IB 11, Technical Proposal, in particular, to confirm that all requirements of Works and Biding Documents have been met without any material deviation. Provided that a bid is substantially responsive, the Employer may waive any non-conformity in the Bid that does not constitute a material deviation, reservation or omission. Provided that a Technical Bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the Technical Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the Price Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid. Provided that a Technical Bid is substantially responsive, the Employer shall rectify nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component. The adjustment shall be made using the method indicated in Evaluation and Qualification Criteria. The Employer shall determine to its satisfaction during the evaluation of Technical Bids whether Bidders meet the qualifying criteria specified in Evaluation and Qualification Criteria. The determination shall be based upon an examination of the documentary evidence of the Bidder’s qualifications submitted by the Bidder, pursuant to Sub Clause 3.2. An affirmative determination shall be a prerequisite for the opening and evaluation of a Bidder’s Price Bid. A negative determination shall result into the disqualification of the Bid, in which event the Employer shall return the unopened Price Bid to the Bidder.</p>
IB-28 28.4	<p><i>Evaluation and Comparison of Bids</i></p> <p>In the text of sub-clause 28.4, in the sixth line, after the words, “the Employer may” add the following words: “take action under sub-clause 28.5 or may”. If the successful bidder failed to submit Performance Security of increased amount within twenty-eight (28) days of demand by the Employer, his bid shall be cancelled and his bid security shall be forfeited.</p>

28.5	<p>Add following Sub-Clause 28.5:</p> <p>A bid with highly inflated or unworkable rates of any BOQ items may be considered non-conforming and rejected. The Employer may also disqualify such bidder from participating in the subsequent bids who submits such unbalanced and/or unworkable rates of major items of work.</p>
IB-29 29.2	<p>Award of Contract</p> <p>Add the following sub-para:</p> <p>The Employer does not bind himself to award the Contract to the lowest or to any Bidder, but will take into careful consideration the bidders' prices and such other factors as are deemed applicable.</p>
IB-32 32.1	<p>Performance Security:</p> <p>The Performance Security shall be of an amount equal to 10% of the Contract Price stated in the Letter of Acceptance. Such Security shall be in the form of of Bank Pay Order in favour of Chief Accounts Officer KPT, valid for a period 28 days after the issue of defect liability certificate.</p>
IB-32 32.2	<p>Delete Sub-Clause 32.2 and replace with following:</p> <p>Failure of the successful bidder to comply with the requirements of Sub-Clause IB-31.5 or IB.32.1 or Clauses IB.33 or IB.35 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security.</p>

TECHNICAL QUALIFICATION CRITERIA.

The bidders must meet all the mandatory criteria

1. Mandatory Provisions / Eligibility

(i) Registration with PEC:

- Bidders must possess valid registration certificate of PEC in the **category C-4** or above with specialized category of **CE-03, CE-04, CE-05, CE-10 & BC-01 BC-02**
- (Attach PEC registration certificate) Single Entity: Must Meet Joint Venture:Not allowed

(ii) Registration with Income Tax Department:

Bidders must possess valid registration certificate from income tax authority (NTN). (Attach NTN certificate)

Single Entity: Must Meet

(iii) Conflict of Interest:

Bidder shall not have the Conflict of Interest. The "Conflict of Interest means:

(Attach Affidavit on e-Stamp paper attested by Notary Public,

Single Entity: Must Meet

(iv) Blacklisting:

(Attach Affidavit on E-Stamp paper attested by Notary Public,

Single Entity: Must Meet

(v) Litigation History:

Provide details or attach Affidavit in case of not applicable on E-Stamp paper attested by Notary Public.

Single Entity: Must Meet

(vi) Declaration of Ultimate Beneficial Owner as per SRO 59II/2022

Provide details as per the attached format at Annexure-Y.

Single Entity: Must Meet

(If any bidder fails in any of the Mandatory Provision/Eligibility Criteria, its bid will not be considered for further evaluation).

2 Evaluation Weight ages /Marks

- A. Work Experience 40
- B. Key Personnel 40
- C. Financial Soundness 20

For Technical Qualification, Passing Mark = 70% in Each category and sub category

A. Experience

Construction Experience 40 Marks (max.)

General Construction Experience

1	Supervision of Civil Works Project having worth upto 30 (M) or above Completed in last 10 years. Max. Marks = 20 Qualifying Marks = 14	14 Marks will be awarded on at least 02 Similar Projects. Additional 1 marks will be given for each extra project. 1 extra Mark will be given if the firm is registered in name of an Engineer.
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Relevant Scope of Work Experience

1.	Supervision of Relevant / Similar nature of Project having worth upto 15 (M) or above Completed in last 10 years. Max. Marks = 20 Qualifying Marks = 14	14 Marks will be awarded on at least 01 Similar Projects. Additional 1 marks will be given for each extra project. 1 extra Mark will be given if the firm is registered in name of an Engineer.
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Note:

It is Mandatory to obtain at least 14 marks in each category of Experience as tabulated above in i.e General Experience and Relevant Experience.

ANNEXURE-I

B. Key Personnel Qualification & Experience

40Marks (max.)

i. (ii)	Project Manager Max. Marks = 20 Qualifying Marks = 14	(B.E Civil) having experience of supervising projects with comparable scope of work at least 10 years Will be awarded 14 Marks. Additional 01 marks for each additional year of experience will be given.
i. (ii)	Port Engineer/Sr. Engr (Civil) Max. Marks = 10 Qualifying Marks = 07	01 B.E (Civil) Engineers. With relevant supervision experience of 10 years Will be awarded 07 Marks. Additional 01 mark for each additional year of experience will be given.
iii.	Site Supervisor Max. Marks = 10 Qualifying Marks = 07	02 DAE Civil and Mechanical having 05 years of experience in supervising projects with comparable scope of work Will be awarded 07 Marks. Additional 01 mark for each additional year of experience will be given.
Mandatory to Obtain Qualifying Marks in each Category.		

Note:

It is Mandatory to obtain at least minimum qualifying marks in each category of Personnel Experience as tabulated above.

C. FINANCIAL SOUNDNESS

- a) in the “Mandatory requirement” for the financial part, the provision of audited financial statements for last three years is to be kept showing minimum turnover of Rs 115 Million on average.
- b) Further, the financial criteria may be incorporated and allocated 20 marks which will be kept as per detail below:-

Financial Soundness: (Max Marks-20)	
i. Turnover:	
Rs: 135 million and above	20 marks
Above Rs. 125 and Less than 135 million	16 marks
Above Rs. 115 million to below 125 million	14 marks
Below Rs. 115 million	00 Marsk
Minimum 70% marks to qualify	

Note:

It is Mandatory to obtain at least minimum qualifying marks in Financial Soundness Criteria as tabulated above.

It is mandatory to qualify in each category and its sub- category with minimum marks tabulated above.

FORMS OF TECHNICAL QUALIFICATIONS

Form 1: Bidder Information Form

Company Profile

All individual firms shall submitting bid are requested to complete the information in this form.

1.	Name of firm (legal): Note No JV	
2.	Nature of Business: (Whether the firm is a Corporation, Partnership, Trust etc.) (In case of Consortium; whether the Lead Consortium Member is a Corporation, Partnership, Trust etc.)	
3.	Head Office address:	
4.	Telephone : Fax Number: E-mail address:	
5.	Place of Incorporation/Registration: Year of Incorporation/Registration:	
6.	Applicant's authorized representative: Telephone Fax numbers: E-mail address:	
7.	NATIONALITY OF OWNERS	
	Name:	Country:

Pending Litigation

No pending litigation (A fully settled dispute or litigation is one that has been resolved in accordance with the Dispute Resolution Mechanism under the respective contract and where all appeal instances available to the Bidder have been exhausted) **(Affidavit to be provided on E-Stamp paper attested by Notary Public)**

Pending litigation (All pending litigation shall in total not represent more than **50%** of the Bidder's net worth and shall be treated as resolved against the Bidder)

Year	Outcome as Percent of Total Assets	Outcome as Percent of Total Assets	Total Contract Amount (PKR)
		Contract Identification: Name of Employer: Address of Employer: Matter in dispute:	

Form 3: Financial Situation

Each Bidder or each member of a JV must fill in this form

Financial Data for Previous 3 Years

Information from Balance Sheet

	Year 2021	Year 2022	Year 2023
Total Assets			
Total Liabilities			
Current Assets			
Current Liabilities			

Information from Income Statement

Total Revenues of Construction			
Profits Before Taxes			
Profits After Taxes			

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

- All such documents reflect the financial situation of the Bidder or partner to a JV, and not sister or parent companies.
- Historic financial statements must be audited by a certified accountant.
- Historic financial statements must be complete, including all notes to the financial statements.
- Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).
- NTN certificate must be attached
- Foreign firms if participating in the bidding process should submit NTN Certificate of their country duly attested by Consulate of their country: (NIL)

Form 4: Average Annual Construction Turnover

Each Bidder must fill in this form

Annual Turnover Data for the Last 3 Years (Construction only)	
Year	Amount (PKR)
2021	
2022	
2023	

Average Annual Construction Turnover

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Form 5: Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract as indicated in the Qualification Criteria

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

Form 6: Current Contract Commitments / Works in Progress

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

Form 7: Details of Contracts of Similar Nature and Complexity completed over the last 03 years

Sr. No.	1	2	3	4	5
Name of Contractor:					
Country:					
Name of Procuring Agency With Address, Tele, Fax.					
Nature of works and special features relevant to the contract for which applied:					
Contract Role (Mention: Sole, Sub Contactor or Partner in a Joint Venture).					
Value of the total contract in Pak/Rs:					
Date of Award:					
Date of Completion:					
Cost per day Index					

Form 8: Personnel Capabilities

Bidder should provide the names of suitably qualified personnel to meet the specified requirements stated in Evaluation and Qualification Criteria

Sr. No.	Title of Position	Name
1		
2		
3		
4		
5		

Form 9: Curriculum Vitae (CV) for Proposed Experts

1. Proposed Position: _____

2. Name of Expert & PEC Registration No: _____

3. Name of Firm: _____

4. Current Residential address: _____

Telephone No: _____ Fax No: _____

E-Mail Address: _____

5. Date of Birth: _____ Citizenship: _____

6. Qualification: _____

7. Work Experience: Summarize professional experience in reverse chronological order.

Indicate particular technical and managerial experience relevant to the project.

From	To	Company/Project/Position/Relevant technical and management experience

Form 10: Plant & Equipment

Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment whether owned/ leased/ rented listed Evaluation and Qualification Criteria.

A. Equipment Capabilities (owned by the contractor/firm)

Sr. No	Name of Equipment	Name of Manufacturer	Model and power rating	Capacity	Year of Manufacture	Current Location
1						
2						
3						
4						
5						
6						
7						
8						
9						

Note: Provide copies of ownership of equipment.

B. Equipment Capabilities (leased/rented by the contractor/firm)

Sr. No	Name of Equipment	Mention whether leased or rented	Name of Owner	Address of owner	Contact name and title with Telephone Fax & Email of the owner	Agreements Details of rental/ lease/ manufacture agreements specific to the project
1						
2						
3						
4						
5						
6						
7						
8						
9						

Note: Provide copies of Lease Agreement/ Rent Agreement

Annexure-Y

As per SRO 59II/2022

Declaration of ultimate **Beneficial Owner** Information for Public Procurement Contracts.

1. Name:
2. Father's Name / Spouse's Name:
3. CNIC/ NICOP/ Passport No.
4. Nationality
5. Residential Address:
6. Email address
7. Date on which shareholding, control or interest acquired in the business
8. In case of indirect shareholding, control or interest being exercised through intermediary companies, entries or other legal persons or legal arrangements in the chain of ownership or control following additional particulars to be provided:

1	2	3	4	5	6	7	8	9	10
Name	partnership/ Association of persons / Single member Company/ partnership firm / Trust / Any other individual , body corporate to be	Date of incorporation / registration	Name of registering Authority	Business Address	Country	Email address	Percentage of shareholding, control, or interest of BO in the legal person of legal arrangement	Percentage of shareholding, control or interest of legal persons or legal arrangements in the company	Identify of natural persons who ultimately own or controls the legal person or arrangement

9. Information about the Board of Directors (details shall be provided regarding number of shares in the capital of the company as set opposite respective names)

10. Any other information incidental to or relevant to the Beneficial Owner(s)

1	2	3	4	5	6	6	8
Name and Surname (in Block letters)	CNIC no. (in case of Foreigner Passport No.	Father's / Husband's name in full	Current Nationality	Any other Nationality (ies)	Occupation	Residential address in full or the registered / principal office address for a subscribers other than natural person	Number of shares taken by cash subscribe (in figures and words)

Name & Signature

(Person authorized to issue notice on behalf of the company)

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FOR THE SUPERVISORY STAFF AND LABOUR

INTEGRITY PACT

FTB-1

FORM OF TECHNICAL BID

Bid Reference No. _____

(Name of Contract/Work)

To:

1. Having examined the bidding documents including Instructions to Bidders, Bidding Data, and Conditions of Contract, Specifications, Drawings and Bill of Quantities and Addenda Nos. _____ for the execution of the above-named work, we/I, the undersigned, offer to execute and complete the work and remedy any defects therein in conformity with the Conditions of Contract, Specifications, Drawings, Bill of Quantities and Addenda.
2. We/I understand that all the Appendices attached hereto form part of this bid.
3. Our bid consisting of the Technical Bid and the Priced Bid shall be valid for a period of _____ based from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period. As security for due performance of the undertakings and obligations of this bid, we/I submit herewith a bid security in the amount of Rupees _____ (Rs. _____) drawn in your favour or made payable to procuring agency.
4. We/I undertake, if our bid is accepted, to commence the works and to complete the whole of the works comprised in the contract within the time stated in Appendix-A to Bid.

5. We/I agree to abide by this bid for the period of _____ days from the date fixed for opening the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
6. Unless and until a formal Agreement is prepared and executed, this bid, together with your written acceptance thereof, shall constitute a binding contract between us.
7. We do hereby declare that the bid is made without any collusion, comparison of figures or arrangement with any other bidder for the works.
8. We understand that you are not bound to accept the lowest or any bid you may receive.
9. We undertake, if our/my bid is accepted, to execute the Performance Security referred to in Clause 10 of Conditions of Contract for the due performance of the Contract.

FTB-2

10. We confirm, if our bid is accepted, that all partners of the joint venture shall be liable jointly and severally for the execution of the Contract and the composition or the constitution of the joint venture shall not be altered without the prior consent of the procuring agency. (Please delete this in case of Bid form a single bidder) in the capacity of _____duly authorized to sign Bids for and on behalf of _____Dated this _____ day of _____2016_____

Signature: _____

(Name of Bidder in Block Capitals)

(Seal)

CNIC: _____

Address: _____

Witness 1:

Signature: _____

Name: _____

CNIC: _____

Address: _____

Occupation: _____

Witness 2:

Signature: _____

Name: _____

CNIC: _____

Address: _____

Occupation: _____

BA-1

Appendix-A to Bid

SPECIAL STIPULATIONS

Sr. #	Description	Clause Conditions of Contract	Explanation
1	Employer's name and address	1.1(a)(i)	Chief Engineer, Karachi Port Trust. Edujee Dinshaw Road Karachi, 74000 Pakistan, Karachi. mgr.eng@kpt.gov.pk 922199214318, Ext. 2211
2	Engineer's name and address	1.1(a)(iv)	CHIEF ENGINEER (THE ENGINEER)
3	Section	1.1(f)(vi)	Not Applicable
4	Notice, Consent, Approval etc	1.5	Board of Trustees KPT
5	Subcontracting	4.1	Not allowed
6	Language	5.1(a)	The Language is English
7	Law	5.1 (b)	The Law of Islamic Republic of Pakistan
8	Amount of Performance Security	10.1	10% of Contract Price stated in the Letter of Acceptance.
9	Time for Furnishing Programme	14.1	Within 28 days from the date of receipt of Letter of Acceptance.
10	Revised Programme	14.2	Revised Programme to be submitted within 14 days of the Engineer's notice.

11	Cash Flow Estimate	14.3	Within 42 days of Signing of Agreement
12	Insurance of Works and Contractor's Equipment	21.1	<p>Type of cover The Works Amount of cover The sum stated in the Letter of Acceptance plus fifteen percent (15%)</p> <p>Type of cover Contractor 's Equipment: Amount of cover Full replacement cost plus fifteen percent (15%)</p> <p>Type of cover Materials Procured by the Employer pursuant to Clause 60.11. Amount of cover Full replacement cost plus fifteen percent (15%)</p> <p>Other cover: Contractor's All Risk Policy</p>
13	Minimum amount of Third-Party Insurance	23.2	<p>Type of cover Third Party-injury to persons and damage to property as per standard policy.</p> <p>The Third Party compensation Policy must contain following conditions of indemnification per occurrence with the number of occurrence unlimited:</p> <ul style="list-style-type: none"> i) in case of death, Pak Rs. 1,000,000/= per person ii) in case of major injury, Pak Rs. 500,000/= per person iii) in case of minor injury, Pak Rs. 100,000/= per person iv) in case of damage to property, full amount of repair/replacement as the case may be.
14	Minimum amount of Workmen Compensation Insurance	24.2	i) Deleted

15	Time for Issue of Engineer's Notice to Commence.	41.1	Within 28 days from the date of signing of Contract.
16	Time for Commencement	41.1	Immediately after the date of receipt of Engineer's Notice to Commence.
17	Possession of Site	42.1	Immediately after the Notice to Commence.
18	Time for Completion	43.1 & 48.2	120 calendar days for import and procurement from the date as notified in the Engineer's Notice to Commence. 120 days (Tidal) for Installation of Fenders from the date as notified in the Engineer's Notice to Commence.
19	Normal Working Hours	45.1	8 hrs a day and 6 days a week (Tidal)
20	Amount of Liquidated Damages	47.1 & 47.3	Rs. 100,212 for each day of delay in completion of the Procurement Works subject to a maximum of 10% of Quoted Price for Procurement Works in the Contract as stated in the Letter of Acceptance. Rs. 14,788 for each day of delay in completion of the Execution Works subject to a maximum of 10% of Quoted Price for Execution Works in the Contract as stated in the Letter of Acceptance. Also, other charges mentioned in Special/Particular Conditions of Contract
21	Taking Over Certificate	48.1	Only One Certificate shall be issued. The Work shall be considered substantially completed if the whole of the work completed to the satisfaction of the Engineer, including cleaning of site.
22	Taking Over of Sections or Parts	48.2	Not Applicable
24	Defects Liability Period	49.1	One (01) year calculated from the date of completion of work certified by the Engineer.

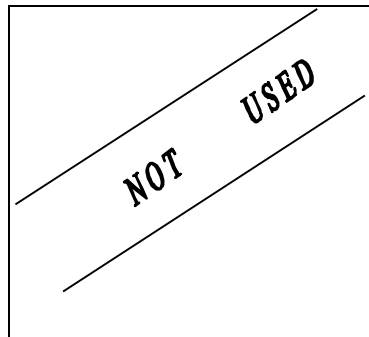
25	Secured Advance Against Material	60.1	Deleted:
26	Minimum amount of Interim Payment Certificates (Running Bills)	60.2	The minimum amount of IPC Rs. 10 million. •50 % of the amount quoted under BOQ item number 3 & 4 shall be considered as the cost of procurement of Fenders.
27	Time for Certification of Interim Payment Certificate by the Engineer	60.2	28 days from receipt of monthly statement from the Contractor or as per KPT polices
28	Percentage of Retention Money deducted from bills	60.3	10% of the amount of Interim Certificate until the amount so retained reaches the limit of Retention Money.
29	Limit of Retention Money	60.3	5% of Contract Price stated in the Letter of Acceptance and will be released Upon successful complete of Defect Liability Period. .
30	Time of Payment from delivery of Engineer's Interim Payment Certificate to the Employer.	60.10	60 days.
31	Rate of interest on delayed payment	60.10	Interest on delayed payment is not payable
32	Mobilization Advance (Interest Free)	60.12	Deleted:
33	Recovery of Mobilization Advance	60.12	Deleted:
34	Contractor's name and address	68.1	_____ (to be completed by the Tenderer) _____

35	Notice to Employer & Engineer	68.2	<p>The Employer's/ The Engineer Address is: Chief Engineer, Karachi Port Trust. Edujee Dinshaw Road Karachi, 74000 Pakistan, Karachi.mgr.eng@kpt.gov.pk 922199214318, Ext. 2211</p>
36	Currency of Contract		Pak. Rs. (PKR)

BB-1

Appendix-B to Bid

FOREIGN CURRENCY REQUIREMENTS



BC-1

Appendix-C to Bid

PRICE ADJUSTMENT UNDER CLAUSE 70

OF CONDITIONS OF CONTRACT

REFER PRICE BID

OR

AS PER THE PEC LATEST PROVISION OF PRICE ADJUSTMENT

Appendix-C To Bid

**PRICE ADJUSTMENT UNDER CLAUSE
70
OF CONDITIONS OF
CONTRACT**

The source of indices and the weightages or coefficients for use in the adjustment formula under Clause 70 shall be as follows:

(To be filled by the Employer)

Cost Element	Description	Weightages	Applicable index
1	2	3	4
(i)	Fixed Portion	0.30	
(ii)	Local Labour	0.20	Government of Pakistan (GP) Federal Bureau of Statistics (FBS) Monthly Statistical Bulletin.
(iii)	Cement – in bags	0.10	“ “ “
(iv)	Steel	0.10	“ “ “
(v)	High Speed Diesel (HSD)	0.00	“ “ “
(vi)	Bricks	0.00	“ “ “
(vii)	Bitumen	0.00	“ “ “
(viii)	Rubber	0.30	
	Total	1.000	

Notes:

- 1) Indices for “(ii)” to “(vii)” are taken from the Government of Pakistan Federal Bureau of Statistics, Monthly Statistical Bulletin. The base cost indices or prices shall be those applying 28 days prior to the latest day for submission of bids. Current indices or prices shall be those applying 28 days prior to the last day of the billing period.
- 2) Any fluctuation in the indices or prices of materials other than those given above shall not be subject to adjustment of the Contract Price.
- 3) Fixed portion shown here is for subject project, Employer to determine the weightage of Fixed Portion considering only those cost elements having cost impact of seven (7) percent or more on his specific project.

Appendix-D to Bid
BILL OF QUANTITIES
REFER PRICE BID

BE-1

Appendix-E to Bid

PROPOSED CONSTRUCTION SCHEDULE

Pursuant to Sub-Clause 43.1 of the General Conditions of Contract, the Works shall be completed on or before the date stated in Appendix-A to Bid. The Bidder shall provide as Appendix-E to Bid, the Construction Schedule in the bar chart (CPM) showing the sequence of work items and the period of time during which he proposes to complete each work item in such a manner that his proposed programme for completion of the whole of the Works and parts of the Works may meet Employer's completion targets in days noted below and counted from the date of receipt of Engineer's Notice to Commence (Attach sheets as required for the specified form of Construction Schedule):

Description

Time for Completion

Whole Work

04+04=08 Months
(04 Months for Procurement Works and 04 Months for Installation and Fixing of Fenders)
Further details as per Appendix A

BF-1

Appendix-F to Bid

METHOD OF PERFORMING THE WORK

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

1. Organization Chart indicating head office and field office personnel involved in management and supervision, engineering, equipment maintenance and purchasing.
2. Mobilization in Pakistan, the type of facilities including personnel accommodation, office accommodation, provision for maintenance and for storage, communications, security and other services to be used.
3. The method of executing the Works, the procedures for installation of equipment and machinery and transportation of equipment and materials to the site.]

BG-1

Appendix-G to Bid

LIST OF MAJOR EQUIPMENT – RELATED ITEMS

[The Bidder will provide on Sheet 2 of this Appendix a list of all major equipment and related items, under separate heading for items owned, to be purchased or to be arranged on lease by him to carry out the Works. The information shall include make, type, capacity, and anticipated period of utilization for all equipment which shall be in sufficient detail to demonstrate fully that the equipment will meet all requirements of the Specifications.]

Plant & Equipment

Contractor may propose list of equipments

BG-2

Appendix-G to Bid

LIST OF MAJOR EQUIPMENT

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

Appendix-H to Bid

CONSTRUCTION CAMP AND HOUSING FACILITIES

The Contractor in accordance with Clause 34 of the Conditions of Contract shall provide description of his construction camp's facilities and staff housing requirements.

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

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

1. Site Preparation (clearing, land preparation, etc.).
2. Provision of Services.
 - a) Power (expected power load, etc.).
 - b) Water (required amount and system proposed).
 - c) Sanitation (sewage disposal system, etc.).
3. Construction of Facilities
 - a) Contractor's Office. Workshop and Work Areas (areas required and proposed layout, type of construction of buildings, etc.).
 - b) Warehouses and Storage Areas (area required, type of construction and layout).
 - c) Housing and Staff Facilities (Plans for housing for proposed staff, layout, type of construction, etc.).
4. Construction Equipment Assembly and Preparation (detailed plans for carrying out this activity).
5. Other Items Proposed (Security services, etc.).

BI-1

Appendix-I to Bid

LIST OF SUBCONTRACTORS

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

Enclosed are documentation outlining experience of subcontractors, the curriculum vitae and experience of key personnel to be assigned to the Contract, equipment to be supplied by them, and a list of the number of contracts carried out in the past.

Deleted

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

Appendix-J to Bid

ESTIMATED PROGRESS PAYMENTS FOR INSTALLATION/EXECUTION

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

Months	Amounts (1,000 Rs.)
1	2
Ist Month	
2 nd Month	
3 rd Month	
4 th Month	
5 th Month	
6 th Month	
7 th Month	
8 th Month	
Total Bid Price	

BK-1

Appendix-K to Bid

ORGANIZATION CHART

FOR THE

SUPERVISORY STAFF AND LABOUR

BK-2

Appendix-K to Bid

PROPOSED STAFF

(Detailed CVs of following Key staff shall be provided, it is mandatory. PEC registration Certificate and qualification certificates/degrees etc. shall also be provided. It will be mandatory for successful bidder to mobilize same staff as proposed below after the approval of the Engineer. The proposed staff must be employee of the bidder)

Position	Qualification & Experience	Proposed Staff			
		Name	Qualification	Total Exp.	Relevant. Exp.
Project Manager	Qualification BE (Civil) with 10 years' experience				
Port Engineer/Sr. Engr (Civil)	BE (Civil), with 10 years' experience.				
Site Supervisor 02 Nos.	DAE (Civil) & (Mech), with 05 years' experience.				

**(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 No. _____ Dated _____

Contract Value: _____

Contract Title: _____

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

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

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

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

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

Name of Buyer:

Name of Seller/Supplier:

Signature:

Signature:

[Seal]

[Seal]

FORMS

- BID SECURITY
- PERFORMANCE SECURITY
- CONTRACT AGREEMENT
- MOBILIZATION ADVANCE GUARANTEE

BS-1

BID SECURITY

(Bank Guarantee) / Insurance Bond

Security Executed on _____
(Date)

Name of Surety (Bank) with Address: _____
(Scheduled Bank in Pakistan)/Insurance Company

Name of Principal (Bidder) with Address _____

Penal Sum of Security Rupees. _____ (Rs. _____)

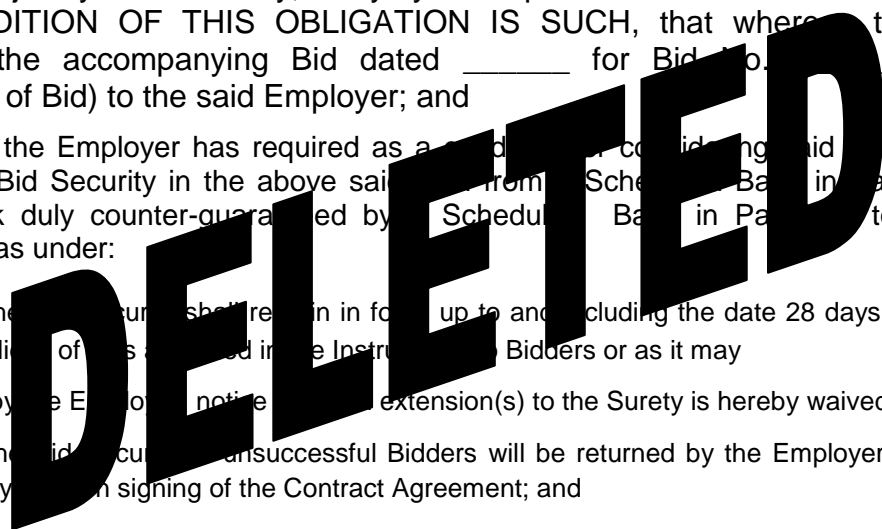
Bid Reference No. _____

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bid and at the request of the said Principal (Bidder) we, the Surety above named, are held and firmly bound unto _____

(hereinafter called the 'Employer') in the sum stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that where the Bidder has submitted the accompanying Bid dated _____ for Bid to _____ for _____ (Particulars of Bid) to the said Employer; and

WHEREAS, the Employer has required as a condition for considering said Bid that the Bidder furnishes a Bid Security in the above said sum from a Scheduled Bank in Pakistan or from a foreign bank duly counter-guaranteed by a Scheduled Bank in Pakistan to the Employer, conditioned as under:



(1) that the Bid Security shall remain in force up to and including the date 28 days after the deadline for validity of bids specified in the Instructions to Bidders or as it may

be extended by the Employer, notice of extension(s) to the Surety is hereby waived;

(2) that the Bid Security on unsuccessful Bidders will be returned by the Employer after expiry of its validity on signing of the Contract Agreement; and

(3) that in the event of failure of the successful Bidder to execute the proposed Contract Agreement for such work and furnish the required Performance Security, the entire said sum be paid immediately to the said Employer pursuant to Clause 15.6 of the Instruction to Bidders for the successful Bidder's failure to perform.

NOW THEREFORE, if the successful Bidder shall, within the period specified therefor, on the prescribed form presented to him for signature enter into a formal Contract with the said Employer in accordance with his Bid as accepted and furnish within twenty eight (28) days of his being requested to do so, a Performance Security with good and sufficient surety, as may be required,

upon the form prescribed by the said Employer for the faithful performance and proper fulfilment of the said Contract or in the event of non-withdrawal of the said Bid within the time specified for its validity then this obligation shall be void and of no effect, but otherwise to remain in full force and effect.

BS-2

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

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

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

SURETY (Bank)

WITNESS:

Signature _____

1. _____

Name _____

Title _____

Corporate Secretary (Seal)

Corporate Guarantor (Seal)

2. _____

Name, Title & Address

PS-1

FORM OF PERFORMANCE SECURITY

(Bank Guarantee) DELETED

Guarantee No. _____

Executed on _____

Expiry date _____

[Letter by the Guarantor to the Employer]

Name of Guarantor (Bank) with address: _____
(Scheduled Bank in Pakistan)

Name of Principal (Contractor) with address: _____

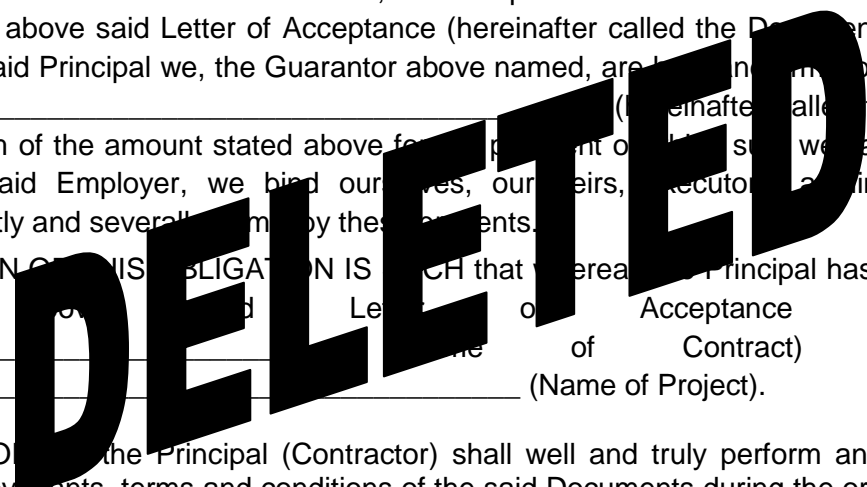
Penal Sum of Security (express in words and figures) _____

Letter of Acceptance No. _____ Dated _____

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bidding Documents and above said Letter of Acceptance (hereinafter called the Documents) and at the request of the said Principal we, the Guarantor above named, are bound unto the _____ (hereinafter called the Employer)

in the penal sum of the amount stated above for payment of which sum we and truly to be made to the said Employer, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that hereafter the Principal has accepted the Employer's _____ and _____ Letter of Acceptance for _____
_____ (Name of Contract) for the
_____ (Name of Project).



NOW THEREFORE the Principal (Contractor) shall well and truly perform and fulfill all the undertakings, covenants, terms and conditions of the said Documents during the original terms of the said Documents and any extensions thereof that may be granted by the Employer, with or without notice to the Guarantor, which notice is, hereby, waived and shall also well and truly perform and fulfill all the undertakings, covenants terms and conditions of the Contract and of any and all modifications of said Documents that may hereafter be made, notice of which modifications to the Guarantor being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue till all requirements of Clause 49, Defects Liability, of Conditions of Contract are fulfilled.

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

PS-2

We, _____ (the Guarantor), waiving all objections and defenses under the Contract, do hereby irrevocably and independently guarantee to pay to the Employer without delay upon the Employer's first written demand without cavil or arguments and without requiring the Employer to prove or to show grounds or reasons for such demand any sum or sums up to the amount stated above, against the Employer's written declaration that the Principal has refused or failed to perform the obligations under the Contract which payment will be effected by the Guarantor to Employer's designated Bank Account Number.

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

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

Guarantor (Bank)

Witness:

1. _____

Signature _____

Name _____

Corporate Secretary (Seal)

Title _____

2. _____

Name, Title & Address

Corporate Guarantor (Seal)

FORM OF CONTRACT AGREEMENT

THIS CONTRACT AGREEMENT (hereinafter called the "Agreement") made on the _____ day of _____ (month) 20____ between _____ (hereafter called the "Employer") of the one part and _____ (hereafter called the "Contractor") of the other part.

WHEREAS the Employer is desirous that certain Works, viz _____ should be executed by the Contractor and has accepted a Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW this Agreement witnesseth as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents after incorporating addenda, if any, except those parts relating to Instructions to Bidders shall be deemed to form and be read and construed as part of this Agreement, viz:
 - (a) The Contract Agreement;
 - (b) The Letter of Acceptance;
 - (c) The completed Form of Bid;
 - (d) Special Stipulations (Appendix-A to Bid);
 - (e) The Particular Conditions of Contract – Part II;
 - (f) The General Conditions – Part I;
 - (g) The completed Appendices to Bid (B, C, E to L);
 - (h) The Drawings;
 - (i) The Special Provisions & Technical Specifications.
 - (j) The Priced Bill of Quantities (Appendix-D to Bid);
 - (k) Any other document forming part of the Contract
3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy defects therein in conformity and in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor, in consideration of the execution and completion of the Works as per provisions of the Contract, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

CA-2

IN WITNESS WHEREOF the parties hereto have caused this Agreement to be executed on the day, month and year first before written in accordance with their respective laws.

Signature of the Contactor

Signature of Employer

(Seal)

(Seal)

Signed, Sealed and Delivered in the presence of:

Witness:

Witness:

(Name, Title and Address)

(Name, Title and Address)

MG-1

MOBILIZATION ADVANCE GUARANTEE

Guarantee No. _____ Date _____

WHEREAS _____ (hereinafter called the 'Employer') has entered into a Contract for _____ (Particulars of Contract)

with _____ (hereinafter called the "Contractor").

AND WHEREAS, the Employer has agreed to advance to the Contractor, at the Contractor's request, an amount of Rupees _____ (Rs _____) which amount shall be advanced to the Contractor as per provisions of the Contract.

AND WHEREAS, the Employer has asked the Contractor to furnish Guarantee to secure the mobilization advance for the performance of his obligations under the said Contract.

AND WHEREAS, _____ (Scheduled Bank in Pakistan)

(hereinafter called the "Guarantor") at the request of the Contractor and in consideration of the Employer agreeing to make the above advance to the Contractor, has agreed to furnish the said Guarantee.

DELETED

NOW, THEREFORE, the Guarantor hereby guarantees that the Contractor shall use the advance for the purpose of above mentioned Contract and if he fails and commits default in fulfilment of any of his obligations for which the advance payment is made, the Guarantor shall be liable to the Employer for payment not exceeding the aforementioned amount.

Notice in writing of any default, of which the Employer shall be the sole and final judge, on the part of the Contractor, shall be given by the Employer to the Guarantor, and on such first written demand, payment shall be made by the Guarantor of all sums then due under this Guarantee without any reference to the Contractor and without any objection.

This Guarantee shall remain in force until the advance is fully adjusted against payments from the Interim Payment Certificates of the Contractor or until _____ whichever is earlier. (Date)

The Guarantor's liability under this Guarantee shall not in any case exceed the sum of Rupees _____ (Rs _____).

This Guarantee shall remain in force 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.

DELETED

MG-2

GUARANTOR

- 1. Signature _____
- 2. Name _____
- 3. Title _____

WITNESS

1. _____

Corporate Secretary (Seal)

2. _____

(Name Title & Address)

Corporate Guarantor (Seal)

GENERAL CONDITIONS OF CONTRACT

PART I GENERAL CONDITIONS

The General Conditions shall be the Conditions of Contract for Construction for Building and Engineering Works prepared by the International Federation of Consulting Engineers (Fédération Internationale des Ingénieurs-Conseils, or FIDIC), and is commonly known as the FIDIC Conditions of Contract. The used version is the **4th Edition 1987, reprinted in 1992 with further amendments**

Copies of the FIDIC Conditions of Contract can be obtained from:

FIDIC Secretariat
P.O. Box 86
1000 Lausanne 12
Switzerland
Fax: +41 21 653 5432
Telephone: +41 21 654 4411
Email: fidic.pub@fidic.org
URL: <http://www.fidic.org/bookshop>

PART II - PARTICULAR CONDITIONS OF CONTRACT

1.1 Definitions

(a) (i) The Employer is

Board of Trustees of the Port of Karachi,

Head office Building
Eduljee Dinshaw Road
P.O. Box 4725
Karachi, 74000, Pakistan,
Telephone +92-21-921-4312

(a) (IV) The Engineer: Chief Engineer KPT

Add the following to sub-clause 1.1(a):

(vi) "Employer's Representative" means the General Manager (CW) Karachi Port Trust (KPT) or other person from time to time, duly appointed in writing by the Employer.

(vii) “Engineer-In-charge” means the same as The Engineer.

“Engineer’s Representative” means the Executive Engineer (North)

(viii) “Bidder or Tenderer” means any person or persons, company, corporation, firm or joint venture submitting a Bid or Tender, and

The word “Tender” is synonymous with “Bid” and the word “Tender Documents” with “Bidding Documents”.

Amend Part I, Clause 1.1(b)(viii) to read as under:

Throughout Part I, the term “Appendix to Tender” shall be replaced by “Appendices to Tender”

“Appendices to Tender” means Appendix A through L, annexed to the Tender and forming a part thereof.

Add the following to sub-clause 1.1(b):

(ix) “Programme” means the programme to be submitted by the Contractor in accordance with Sub-Clause 14.1 and any approved revisions thereto.

(x) “Addendum/ Addenda” means interpretation of and/or changes in the Tender Documents and understood upon issuance by the Employer to become an integral part of the Bid Documents and the Contract Documents, wherever applicable.

(e) (i) The text is deleted and substituted with the following:

“Contract Price” means the sum stated in the Letter of Acceptance as payable to the Contractor for the execution and completion of the Works subject to such additions thereto or deductions therefrom as may be made and remedying of any defects therein in accordance with the provisions of the Contract.

The Contract Price shall include all taxes, duties and other charges imposed inside and/or outside the Country on the production, manufacture, sale and transport of the Contractor’s Equipment. Plant, Materials and supplies to be used on or furnished under the Contract, and on the services to be performed under the Contract

Add the following to sub-clause 1.1(g):

“Approved” means approved by the Engineer in writing, including subsequent written confirmation of previous verbal approval and “approval means approval in writing, including as aforesaid.

2.1 Engineer's Duties and Authority

With reference to Sub-Clause 2.1(b), the following provisions shall also apply;

The Engineer shall obtain the specific approval of the Employer in writing before taking any of the following actions specified in General Conditions of Contract Part I:

- (i) approving sub-letting of any part of the Works under Clause 4;
- (ii) certifying additional cost under Clause 6
- (iii) certifying additional cost under Clause 12
- (iv) certifying additional cost under Clause 17
- (v) certifying additional cost under Clause 20
- (vi) certifying additional cost under Clause 27
- (vii) certifying additional cost under Clause 40
- (viii) certifying additional cost under Clause 42
- (ix) determining an extension of time under Clause 44
- (x) issuing a taking over certificate (s) under Clause 48
- (xi) issuing a variation order(s) under Clause 51
- (xii) certifying additional costs and/or fixing rates or prices under Clause 52;
- (xiii) notifying acceptance of principles of claims and/or certifying additional cost under Clause-53
- (xiv) issuing instructions under Clause 58
- (xv) issuing a Defects Liability Certificate under Clause 62
- (xvi) certifying additional payment under Clause 65
- (xvii) certifying additional cost under Clause 70
- (xviii) Engineer should seek specific approval from employer

2.2 Engineer's Representative

The following paragraph is added:

The Employer shall ensure that the Engineer's Representative is a professional engineer as defined in the Pakistan Engineering Council Act 1975 (V of 1976)

The following Sub-Clauses 2.7 and 2.8 are added

2.7 Engineer Not Liable

Approval, reviews and inspection by the Engineer of any part of the Works does not relieve the Contractor from his sole responsibility and liability for the supply of materials, plant and equipment for construction of the Works and their parts in accordance with the Contract and neither the Engineer's authority to act nor any decision made by him in good faith as provided for under the Contract whether to exercise or not to exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any Subcontractor, any of their representatives or employees or any other person performing any portion of the Works.

2.8 Replacement of the Engineer

"If the Employer intends to replace the Engineer, the Employer shall, not less than 14 days before the intended date of replacement, give notice to the Contractor, of the name, address and relevant experience of the intended replacement Engineer. The Employer shall not replace the Engineer with a person against whom the Contractor raises reasonable objection by notice to the Employer, with supporting particulars."

Add following sub clauses:

4.3 Approval of Sub-Contractors

Where a list of sub-contractors is provided by the Contractor under Appendix I to Tender, the sub-contractors in that list shall be subject to prior approval of the Employer. The acceptance of bid does not imply approval of subcontractors listed by the Contractor in Appendix I. The extent and nature of works to be subcontracted shall be subject to the approval of the Employer.

4.4 Approval of Sub-Contractors

In the event of a dispute of whatever nature arises between the Contractor and his Sub-Contractor, the Contractor and his Sub-Contractor shall indemnify the Employer and the Engineer against such inter disputes, resulting litigations and shall not nominate the Employer or his representative(s) or the Engineer or his representative(s) as "Respondent" or "Witness" in the Court of Law in the process of these litigations.

Affidavit to this effect shall be submitted by the Contractor and his Sub-Contractors as prerequisite for approval of a Sub-Contractor(s) under Clause 4.3.

5.1 Language(s) and Law

(a) The Contract Documents shall be drawn up in the English language.

(b) The Contract shall be subject to the Laws of Islamic Republic of Pakistan.

5.2 Priority of Contract Documents

The documents listed at (1) to (6) of the Sub-Clause are deleted and substituted with the following:

- (1) The Contract Agreement (if completed);
- (2) The Letter of Acceptance;
- (3) The completed Forms of Bid;
- (4) The Addenda/Addendum (if any)
- (4) Special Stipulations (Appendix-A to Bid);
- (5) The Particular Conditions of Contract – Part II;
- (6) The General Conditions – Part I;
- (7) The completed Appendices to Bid (B, C, E to L);
- (8) The Drawings;
- (9) Special Provisions and Technical Specifications;
- (10) The Priced Bill of Quantities (Appendix D to Bid); and
- (11) Any other document forming part of the Contract.

In case of discrepancies between drawings, those of larger scale shall govern unless they are superseded by a drawing of later date regardless of scale. All Drawings and Specifications shall be interpreted in conformity with the Contract and these Conditions. Addendum, if any, shall be deemed to have been incorporated at the appropriate places in the documents forming the Contract.

6.4 Delays and Cost of Delay of Drawings

Add “/or” in the end of the text appearing under (a) after the word “and”

Add “determined under sub clause 53.5” after the word “Contract Price” appearing in the end of text under (b)

The following Sub-Clauses 6.6, 6.7 and 6.8 are added:

6.6 Details to be Confidential

The Contractor shall treat the details of the Contract as private and confidential, save insofar as may be necessary for the purposes thereof, and shall not publish or disclose the same or any particulars thereof in any trade or technical paper or elsewhere without the prior consent in writing of the Employer. If any dispute arises as to the necessity of any publication or disclosure for the purpose of the Contract the same shall be referred to the Employer whose determination shall be final

6.7 Shop Drawings

The Contractor shall submit to the Engineer for review 3 copies of all shop and erection drawings applicable to this Contract as per provision of relevant Sub-Clause of the Contract. The Engineer shall review/approve or otherwise the shop drawings within 3 days of receipt of the same from the Contractor.

Review and approval by the Engineer shall not be construed as a complete check but will indicate only that the general method of construction and detailing is satisfactory and that the Engineer's review or approval shall not relieve the Contractor of any of his responsibilities under the Contract.

6.8 As-Built Drawings

At the completion of the Works under the Contract, the Contractor shall furnish to the Engineer 6 copies and one reproducible of all drawings amended to conform with the Works as built. The price of such Drawings shall be deemed to be included in the Contract Price.

Add following at the end of Sub-Clause 8.1:

8.1 Contractor's General Obligations

The Contractor shall prepare and submit one complete set of "As-Built" Documents on one master CD and two complete sets of print copies of "As-Built" Documents together with the back-up of the quantity calculation to the Engineer within 28 days after the date of taking over by Employer. These "As-Built" Documents shall indicate all approved changes made during construction, superimposed on the original plans / "As-Stamped Documents".

The final measured quantities for all pay items shall be included on all "As-Built" Documents. These "As-Built" Documents shall be prepared continuously as execution of the Works progresses and shall be submitted to the Engineer for review as sections or parts of the Project are completed. No Taking-Over Certificate for a Sector or the whole of Works shall be issued to the Contractor by the Engineer without the approved "As-Built" Documents. The preparation of the "As-Built" Documents shall be at the expense of the Contractor, payment for which is subsidiary to the pay items of the Contract.

The review and approval by the Engineer or by the Employer of the "As-Built" Documents does not relieve the Contractor of any responsibility for and/or liabilities arising out of inaccurate, false or otherwise incorrect "As-Built" Documents prepared and submitted by

the Contractor. The approved "As-Built Documents" shall be reproduced by the Contractor in four (4) hard copies and one (1) soft copies and return the same to the Employer.

Shop Drawings. The Contractor shall furnish to the Engineer all Contractor's, and Subcontractor's Shop Drawings. Shop Drawings shall be deemed to include design drawings, fabrication drawings, catalogue cuts, brochures, illustrations, material lists, design calculations, reference standards and performance data which may be required by the specification necessary for the proper execution of the Work, or as otherwise required by the Engineer for assurance that there is intent to meet the requirements of the specifications. All Shop Drawings shall be in English.

The Contractor shall submit all Shop Drawings to the Engineer in the manner hereinafter described, in sufficient time to prevent delays in the delivery of materials or in the progress or completion of the work. Regardless of the source of Shop Drawings, all submissions shall be deemed to be submissions by the Contractor under the Contract.

All Subcontractors' Shop Drawings shall first be sent directly to the Contractor. The Contractor shall thoroughly check all such Shop Drawings for measurements, sizes of members, materials and all other details, to assure him that the Shop Drawings conform to the intent of the Drawings and Specifications.

The Contractor shall return to the Subcontractors for correction, such Shop Drawings that are found inaccurate or otherwise in error. After the Contractor has checked and approved such Shop Drawings he shall place thereon the date of such approval and the legible signature of the checker, and shall then submit them to the Engineer for review. The Engineer may refuse to check or review any Shop Drawings that are not submitted in compliance with the foregoing requirements.

The Contractor shall submit five (5) copies of Shop Drawings plus the number that the Contractor wishes to return for his own and his Subcontractor's use.

For all Equipment, Shop Drawings shall be completed in all respects and shall show clear compliance with the Specifications. Where applicable, performance figures of equipment, finishes and reference to other relevant drawings must be noted on the Shop Drawings. Details of ancillary items being supplied with the particular equipment must be submitted. Piecemeal submissions will not be considered.

Descriptive brochures that are applicable shall be included for information. Any notation on the Shop Drawings which is on the prints and not on the original from which the prints were made shall be in GREEN INK.

The Engineer will review submitted Shop Drawings within a reasonable time and will return them stamped with "NO COMMENT", "SEE COMMENTS" or "RESUBMIT".

The Engineer may, at his discretion, require an immediate re-submission of Shop Drawings noted "SEE COMMENTS" so that he can make a further review or amendments. Drawings requiring re-submission shall be either amended and re-submitted or shall be superseded by another Shop Drawings. Comments on Shop Drawings are not orders for Extra Work.

Shop Drawings re-submitted for further review will be reviewed for response to previous notations only and the Contractor, by such re-submission shall be held to have represented that such Shop Drawings contain no other alterations, additions or deletions, unless the Contractor (in writing) directs the Engineer specific attention to the same.

Should the Contractor question, or dissent, from such notations or comments, he shall direct the Engineer's attention to the same for further clarification before re-submitting.

By reviewing Shop Drawings, the Engineer does not assume responsibility for errors or omissions and non-compliance with the Contract requirements. Such errors and omissions must be made good by the Contractor, irrespective, of the receipt, checking, or review of the Shop Drawings by the Engineer and even though the Work is done in accordance with such Shop Drawings.

Quality of Plans (“As-Built”, “As Staked” and other Drawings for Variation). All sheets of the “As-Built”, “As-Staked” and other drawings for Variations should be of uniform size and one (1) standard size (A1) using Mylar or other quality tracing paper. The sheets must be neat and clean and without any crossed-out or voided portion. The title block should be made an integral part of the sheet plans and not merely patched-up.

Supplementary Drawings and Instructions. The Engineer shall have the authority to issue to the Contractor from time to time such supplementary drawings and instructions to the proper and adequate execution of the Works and the remedying of any defects therein. The Contractor shall carry out and be bound by the same.

The Contractor shall designate an additional set of drawings as “Record Drawings” and keep them to the site.

The Contractor shall clearly and neatly mark the Record Drawing in ink to indicate all authorized changes in the work, and also as actually constructed. These additional plans will not change the work of the Contract but will elucidate or explain it

Add the following sub-clauses 8.3 and 8.4

8.3 Temporary Works

Sufficient details, drawing and calculations pertaining to Temporary Works (including formwork design, scaffolding design etc) to demonstrate the adequacy of the Temporary Works shall be submitted by the Contractor not less than 14 days before the work or the erection of any such Temporary Works commences on the Site.

8.4 Specialists Suppliers and Sub-Contractors

Where the Works required the incorporation of proprietary articles manufactured by specialist suppliers, or portions of the work involving design or specification matters to be carried out by specialist sub Contractors, the Contractor shall be fully responsible for the outcome in the use of such proprietary articles and for such design and specification executed by specialist sub Contractors.

9.1 Contract Agreement

Substitute the word 'Employer' in the second line of this para with 'Contractor'.

And add the following at the end of Clause 9.1:

The Contractor shall provide six copies of signed Contract Agreement to the Employer in proper book form for record. The cost will be borne by the Contractor.

10.1 Performance Security

The text is deleted and substituted with the following:

The Contractor shall provide Performance Security to the Employer in the prescribed form. The said Security shall be furnished or caused to be furnished by the Contractor within 28 days after the receipt of the Letter of Acceptance. The Performance Security shall be of an amount equal to 10% (ten percent) of the Contract Price stated in the Letter of Acceptance. Such security shall be in the form of Pay Order only.

The cost of complying with requirements of this Sub-Clause shall be borne by the Contractor.

10.2 Period of Validity of Performance Security

Add the following at the end of sub-clause

The performance security shall be released upon successful handing / taking over of work or as the opinion of Engineer In-charge if declared satisfied in its true prospective, which ever came first.

10.3 Claims under Performance Security

Delete sub-clause 10.3 in its entirety.

The following Sub-Clause 10.4 is added:

10.4 Performance Security Binding on Variations and Changes

The Performance Security shall be binding irrespective of changes in the quantities or variations in the Works or extensions in Time for Completion of the Works which are granted or agreed upon under the provisions of the Contract.

11.1 Inspection of Site

If any data is provided by the Employer, the Contractor is solely responsible for ascertaining the correctness of such data and the Employer shall not be liable in this behalf and no claim whatsoever in nature shall be entertained by the Engineer.

12.2 Not Foreseeable Physical Obstructions or Conditions

Add “/or” in the end of the text appearing under (a) after the word “and”

Add “determined under sub clause 53.5” after the word “Contract Price” appearing in the end of paragraph 1 of text under (b)

14.1 Programme to be submitted

The programme shall be submitted within 28 days from the date of receipt of Letter of Acceptance. In Case of delay, the contractor shall pay a penalty of Rs. 200,000 for each day of delay in the submission of said programme of work. The Employer shall recover such amount from any payment due to the Contractor under the Contract, on the Engineer's recommendations.

Add the following:

- (a) The Contractor shall submit the Programme of Works on Primavera for the agreement of the Engineer and approval of the Employer. All items of works and activities including mobilization should be included in the Programme of Works. The programme shall identify and highlight those activities, which are on the Critical Path. This programme of works as scheduled shall form basis of Liquidated Damages pursuant to clauses 47.1 and 47.3 of Conditions of Contract. In addition, cash flow estimates shall be supported with inputs of over drafts organized with financial institutions at various stages of the projects to meet the funding requirements of the project. The Contractor shall supply and maintain at his site office for his and Engineer's use a licensed copy of the project management computer software package namely Prima Vera or equivalent as used by the Contractor for programming, to monitor the progress. It shall be supplied complete with manuals and technical training and support for the duration of the Contract as per requirements assessed by the Engineer.
- (b) In order to assist the Engineer, the Contractor shall be required to submit at 2 weeks intervals data to the Engineer on the cost and quantities and other data relevant to the monitoring of progress according to a particular format suitable for computer processing.
- (c) The programme should identify all items of work including temporary work. Progress reporting by the Contractor should be supported on a monthly basis with an up-to-date analysis of the progress including a statement on items, which are or are about to become critical to the progress of the work along with the proposals on how the Contractor intends to alleviate the situation.
- (d) The programme should be resource based and must provide the critical resource. The programme must be drawn up on CPM.

General Requirements:

- a. Programme should be submitted (both hard and soft copy) strictly following the guidelines and format specified in this Clause.
- b. The Engineer at any time during the execution of the Works; direct the Contractor to change/modify the Programme / Schedule based on the Priority of Works.
- c. No payment shall be released to the Contractor prior to approval of the Base Line Programme by the Engineer.
- d. Submittal of Programme consists of:
 1. Construction Schedule (CPM);
 2. Progress Curve/Project Cash Flow;
 3. Critical Resources Usage Chart;
 4. Detailed Method Statement;
 5. Material Procurement Plan;
 6. Schedule of Submittals and Shop-Drawings;
 7. Any other details as required by the Engineer;

Construction Schedule:

- a. Construction Schedule shall be developed on the basis of Work Breakdown Structure provided or approved by the Engineer.
- b. Construction Schedule shall be detailed up to level 4 or as required by the Engineer.
- c. Durations of construction activity should be calculated practically in relation to quantity of work done and allocated resources. Any activity that demands duration greater than seven (07) calendar days should be split into number of activities to monitor the same accordingly.
- d. Construction activities of the schedule should be logically linked with preceding and succeeding activities and showed in submitted construction schedule.
- e. Critical Activities and Critical Path of the project should be highlighted with red colour in bar chart and precedence diagram. Total Float for non-critical activities should also be shown in the schedule.
- f. Appropriate quantity of direct resources (material, labour, equipment and non-consumable material) should be allocated to all activities and showed in submitted construction schedule. Labour resource should be divided according to related trades (e.g. Mason, Operator, helper etc.) Contractor should make sure that no resource is being over allocated. Indirect resources should be allocated to supervision / summary activity.

- g. BOQ amount should be loaded to each construction activity. Accrual basis should be indicated to construction activity.
- h. Construction Schedule should show Activity ID, Activity Description, BOQ Quantity, Duration, Start Date, Finish Date, Total Float, Predecessors, Resource names with quantity, BOQ Amount and timescale where the bars show start and finish dates.

Progress Curve / Projected Cash Flow:

- a. Progress Curve / Projected Cash Flow should be developed and presented on Project Management Software – Primavera Project Planner as stated above.
- b. S-Curve should be plotted between time (in weeks) and progress of work done (in % of work). The progress should be shown in cumulative percent of work done. Percent of work done should be calculated with the BOQ amount and payment terms.

Critical Resources Usage Chart:

- a. Critical Usage Chart should be developed.
- b. List of Critical Resources included Labourers, equipments, consumable/non-consumable materials and/or identified by the Engineer.
- c. Resource usage chart should show Resource Name and weekly utilization (numbers) of resources on each activity.

Detailed Method Statement:

- a. Detailed method statement should be presented in descriptive format explaining the method of carrying out works, logistics, site layout, flow of work, quality and safety measures for each activity and any other details as required by the Engineer.

Material Procurement Plan:

Material Procurement Plan for major items of purchase should be presented in a Tabular Format to be submitted to the Engineer for pre-approval. The Plan must as a minimum show the list of local & imported materials to be used, their specification reference, and planned dates for submittal to Consultant, approval process, placing of order, vendor contact, required delivery on site, status of Line of Credit (LOC) if applicable, and usage of material.

Schedule of Shop Drawings and Submittals:

Schedule of Shop Drawings and other Submittals should be presented in a Tabular Format to be submitted to the Engineer for pre-approval. Plan must as a minimum show the list of shop drawings required and their specification reference, planned dates for submittal to consultant, approval process, and usage of shop drawing.

Cash Flow Estimates:

The Contractor shall, within 28 days from the receipt of the Letter of Acceptance, provide to the Engineer for his information a detailed cash flow estimate in quarterly periods, of all payments to which the Contractor will be entitled under the Contract and the Contractor shall subsequently supply revised cash flow estimates at quarterly intervals, if required to do so by the Engineer.

Add following at end of Sub-clause 14.2

14.2 Revised Programme

The revised programme shall be submitted within fourteen (14) days of the request received from the Engineer. The Contractor shall pay a penalty of Rs.100,000/- (Rupees Hundred Thousands only) for each day of delay in the submission of said revised programme. The Employer shall recover such amount from any payment due to the Contractor under the Contract, on the Engineer's recommendations.

14.3 Cash Flow Estimate to be Submitted

The detailed Cash Flow Estimate shall be submitted within 28 days from the date of receipt of Letter of Acceptance

The following Sub-Clause 14.5 is added:

14.5 Monthly Progress Report

- (a) During the period of the Contract, the Contractor shall submit to the Engineer not later than the 8th day of the following month, 10 copies each of Monthly Progress Reports covering:
- a) A Construction Schedule indicating the monthly progress in percentage;
 - b) Description of all work carried out since the last report;
 - c) Description of the work planned for the next 56 days sufficiently detailed to enable the Engineer to determine his programme of inspection and testing;
 - d) Monthly summary of daily job record;
 - e) Photographs to illustrate progress ;and
 - f) Information about problems and difficulties encountered, if any, and proposals to overcome the same.
- (b) During the period of the Contract, the Contractor shall keep a daily record of the work progress, which shall be submitted to the Engineer at the end of each day. The daily record shall include particulars of weather conditions, number of men working, deliveries of materials, quantity, location and assignment of Contractor's equipment.

The following Sub-Clauses 15.2, 15.3 and 15.4 are added:

15.2 Language Ability of Contractor's Representative

The Contractor's authorised representative shall be fluent in the English language. Alternately an interpreter with ability of English language shall be provided by the Contractor on full time basis.

15.3 Contractor's Representative

The Contractor's authorised representative and his other professional engineers working at Site shall register themselves with the Pakistan Engineering Council.

The Contractor's authorised representative at Site shall be authorised to exercise adequate administrative and financial powers on behalf of the Contractor so as to achieve completion of the Works as per the Contract.

15.4 Provision of In-House Design Review / Check Capabilities of the Contractor

The Contractor is required to associate qualified and experienced technical experts to ensure in-house design review capability to deal with technical problems during construction and shall give prompt notice to the Engineer of any error, omission, fault or other defects in design or specifications of the work. The final responsibility of practicality and technical adequacy of construction rests with the Contractor.

The following Sub-Clauses 16.3 and 16.4 are added:

16.3 Language Ability of Superintending Staff of Contractor

A reasonable proportion of the Contractor's superintending staff shall have a working knowledge of the English language. If the Contractor's superintending staff are not fluent in English language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.

16.4 Employment of Local Personnel

The Contractor is encouraged, to the extent practicable and reasonable, to employ local staff and labour and associated sub-Contractors with appropriate qualifications and experience from Pakistan

Add following sub-clauses (d), (e), (f) and (g)

19.1 Safety, Security and Protection of Environment

- (d) The contractor, to ensure protections of the environment, shall take all necessary measures and precautions in conformity with statutory and regulatory environmental requirements enforced and amended from time to time.
- (e) The Contractor shall exercise due care to protect the natural landscape and shall conduct his construction operations so as to prevent any unnecessary destruction, scarring or defacing of the natural surroundings in the vicinity of the Works, except where clearing is required for Permanent Works, Approved Temporary Works and for excavation operations. All watercourses, ponds wells trees and native

vegetation shall be preserved and shall be protected from damage, which may be caused, by the Contractor's construction operations and equipment. On completion of the Works, all work areas shall be smoothed and graded in a manner to conform the natural appearance of the landscape. Where necessary, destruction, scaring, damage or defacing may occur as a result of the Contractor's operations, it shall be repaired, replaced, replanted or otherwise corrected at Contractor's expenses to the satisfaction of the Engineer and national and/or provincial Environment Protection Agency.

- (f) Borrow areas shall be located and operated so as not to detract from the future usefulness or value of the sites. Upon completion of operations, borrow areas shall be left in a safe and rightly conditions. No borrow area shall be located within 500m from the right of way, except where approved by the Engineer.
- (g) During performance of the work, the Contractor shall carryout proper and efficient measures as often as necessary to reduce the dust pollution.

The following Sub-Clauses 19.3 and 19.4 are added:

19.3 Safety Precautions

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 authorise 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 make, maintain and submit reports to the Engineer concerning safety, health and welfare of persons and damage to property, as the Engineer may from time to time prescribe.

19.4 Lighting Work at Night

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's Representative.

20.4 Employer's Risks

The Employer's risks are

Delete the text and substitute with the following:

- (a) insofar as they directly affect the execution of the Works in Pakistan:
 - (i) war and hostilities (whether war be declared or not), invasion, act of foreign enemies,
 - (ii) rebellion, revolution, insurrection, or military or usurped power, or civil war,
 - (iii) ionizing radiations, or contamination by radioactivity from any nuclear fuel, or from any nuclear waste from the combustion of nuclear fuel, radioactive toxic explosive or other hazardous properties of any explosive nuclear assembly or nuclear component thereof,

- (iv) pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds,
- (v) riot, commotion or disorder, unless solely restricted to the employees of the Contractor or of his Subcontractors and arising from the conduct of the Works;
 - (b) loss or damage due to the use or occupation by the Employer of any Section or part of the Permanent Works, except as may be provided for in the Contract;
 - (c) loss or damage to the extent that it is due to the design of the Works, other than any part of the design provided by the Contractor or for which the Contractor is responsible; and
 - (d) any operation of the forces of nature (insofar as it occurs on the Site) which an experienced contractor:
 - (i) Could not have reasonably foreseen, or
 - (ii) Could reasonably have foreseen, but against which he could not reasonably have taken at least one of the following measures:
 - (iii) Prevent loss or damage to physical property from occurring by taking appropriate measures, or
 - (iv) Insure against.

21.1 Insurance of Work and Contractor's Equipment

In para (a) of this clause, in the first line, after the word "plant", Add the following words: "and material whether provided by the Contractor or the Employer".

Add the following words at the end of Sub-para (a) and immediately before the last word of sub-para (b) of sub-clause 21.1

"it being understood that such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred."

The insurance for works, contractor's equipment and material shall be denominated in the currency or currencies and in the proportions in which the contract is administered

21.2 Scope of Cover

Amend sub-para. (a) of Sub-Clause 21.2 by deleting the words “from the start of work at the Site” and by substituting therefore the words “from the first working day after the Commencement Date.”

Add following sub-clause (c)

It shall be the responsibility of the Contractor to notify the insurance company of any change in the nature and extent of the Works and to ensure the adequacy of the insurance coverage at all times during the period of the Contract

Amend sub-clause 21.4

21.4 Exclusions

The text is deleted and substituted with the following:

There shall be no obligation for the insurances in Sub-Clause 21.1 to include loss or damage caused by the risks listed under Sub-Clause 20.4 paras (a) (i) to (iv).

25.1 Evidence and Terms of Insurances

Amend Sub-Clause 25.1 by inserting the words “as soon as practicable after the respective insurances have been taken out but in any case” before the words “prior to the start of work at the Site.”

The following Sub-Clause 25.5 is added:

25.5 Insurance Company

The Contractor shall be obliged to place all insurances relating to the Contract (including but not limited to the insurances referred to in clauses 21, 23 and 24) with Insurance Company having at least AA rating from PACRA/JCR in favour of the Employer valid for a period 28 days after the expiry of Defects Liability Period.

Costs of such insurances shall be borne by the Contractor.

27.1 Fossils

Add “/or” in the end of the text appearing under (a) after the word “and”

Add “determined under sub clause 53.5” after the word “Contract Price” appearing in the end of first line of text under (b)

30.3 Transport of Material or Plant

Delete the whole text of this sub-clause and substitute as follows:

If, notwithstanding Sub-Clause 30.1 any damage occurs to any bridge or road communicating with or on the routes to the Site arising from the transport of materials or Plant, the Contractor shall notify the Engineer with a copy to the Employer, as soon as he becomes aware of such damage or as soon as he receives any claim from the authority entitled to make such claim.

The Employer shall not be liable for any costs, charges or expenses in respect of any damage occur to any bridge or road arising from the transport of Material or Plant by the Contractor. The Contractor shall keep indemnified the Employer against all such claims. The Contractor shall negotiate the settlement of claim with the authority and pay all sums due in respect of all claims, proceeding, damages, costs, charges and expenses.

The Contractor shall notify the Engineer and Employer about the negotiations, in-respect of settlement of claim. In case of failure in payment of claimed amount by the Contractor, the Employer shall recover the amount of claim from the Contractor by making deduction from any monies due or to become due to the Contractor and shall notify the Contractor accordingly.

Add following sub clause 30.5

30.5 Extraordinary Traffic

Nothing contained above shall excuse the Contractor or any of his sub-contractor(s) from complying with state laws regulating traffic on highway and bridges.

The following Sub-Clause 31.3 is added:

31.3 Co-operation with other Contractors

During the execution of the Works, the Contractor shall co-operate fully with other contractors working for the Employer at and in the vicinity of the Site and also shall provide adequate precautionary facilities not to make himself a nuisance to local residents and other contractors.

The following Sub-Clauses 34.2 to 34.19 are added

34.2 Rates of Wages and Conditions of Labour

The Contractor shall pay rates of wages and observe conditions of labour not less favourable than those established for the trade or industry where the work is carried out. In the absence of any rates of wages or conditions of labour so established, the Contractor shall pay rates of wages and observe conditions of labour which are not less favourable than the general level of wages and conditions observed by other employers whose general circumstances in the trade or in industry in which the Contractor is engaged are similar.

34.3 Employment of Persons in the Service of Others

The Contractor shall not recruit his staff and labour from amongst the persons in the services of the Employer or the Engineer; except with the prior written consent of the Employer or the Engineer, as the case may be.

34.4 Housing for Labour

Save insofar as the Contract otherwise provides, the Contractor shall provide and maintain such housing accommodation and amenities as he may consider necessary for all his supervisory staff and labour, employed for the purposes of or in connection with the Contract including all fencing, electricity supply, sanitation, cookhouses, fire prevention, water supply and other requirements in connection with such housing accommodation or amenities. On completion of the Contract, these facilities shall be handed over to the Employer or if the Employer so desires, the temporary camps or housing provided by the Contractor shall be removed and the Site reinstated to its original condition, all to the approval of the Engineer.

34.5 Health and Safety (KPT's EHS POLICY)

Due precautions shall be taken by the Contractor, and at his own cost, to ensure the safety of his staff and labour at all times throughout the period of the Contract. The Contractor shall further ensure that suitable arrangements are made for the prevention of epidemics and for all necessary welfare and hygiene requirements.

34.6 Epidemics

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

34.7 Supply of Water

The Contractor shall, so far as is reasonably practicable, having regard to local conditions, provide on the Site, to the satisfaction of the Engineer or his representative, adequate supply of drinking and other water for the use of his staff and labour.

34.8 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Statutes, Ordinances and Government Regulations or Orders for the time being in force, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or suffer any such importation, sale, gift, barter or disposal by his Subcontractors, agents, staff or labour.

34.9 Arms and Ammunition

The Contractor shall not give, barter, or otherwise dispose of, to any person or persons, any arms or ammunition of any kind or permit or suffer the same as aforesaid except to those who are employed or hired for security of the work, Plant & Equipment, Material, Camp Sites, Offices, Housing including Employer's/Engineer's facilities, etc.

34.10 Festivals and Religious Customs

The Contractor shall in all dealings with his staff and labour have due regard to all recognised festivals, days of rest and religious and other customs.

34.11 Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst staff and labour and for the preservation of peace and protection of persons and property in the neighbourhood of the Works against the same.

34.12 Repatriation of Labour

The Contractor shall be responsible for the return to the place of recruitment or domicile of all persons recruited and employed for the purpose of or in connection with the Contract, and shall maintain suitable accommodation and amenities for such persons until they have left the site.

34.13 Measures against Insect and Pest Nuisance

The Contractor shall at all times take the necessary precautions to protect all staff and labour employed on the Site from insect nuisance, rats, and other pests and reduce the danger to health and the general nuisance caused by the same. The Contractor shall provide his staff and labour with suitable prophylactics for the prevention of malaria and shall take steps to prevent the formation of stagnant pools of water. He shall comply with all the regulations of the local health authorities in these respects and shall in particular arrange to spray thoroughly with approved insecticide all buildings erected on the Site. Such treatment shall be carried out at least once a year or as instructed by the Engineer. The Contractor shall warn his staff and labour of the dangers of bilharzias and wild animals

34.14 Burial of the Dead

The Contractor shall make any necessary arrangements for the transport, to any place as required for burial, of any of his expatriate employees or members of their families who may die in Pakistan. The Contractor shall also be responsible, to the extent required by the local regulations, for making any arrangements with regard to burial of any of his local employees who may die while engaged upon the Works.

34.15 Supply of Foodstuffs

The Contractor shall arrange for the provision of a sufficient supply of suitable food at reasonable prices for all his staff and labour for the purposes of or in connection with the Contract

34.16 Accident Prevention Officer

The Contractor shall have on his staff at the site an officer dealing only with questions regarding the safety and protection against accidents of all staff and labour. This officer shall be qualified for this work and shall have the authority to issue instructions and shall take protective measures to prevent accidents. Adequate number of Site Safety Inspectors shall be deployed by Contractor to assist Accident Prevention Officer and ensure safety of workers in the hazardous work areas.

34.17 First Aid Facilities

The Contractor shall provide and maintain adequate First Aid Facilities convenient to the site to the approval of the Engineer.

34.18 Dangerous Materials

The Contractor and his subcontractors shall convey, store and make use of all explosives, dangerous petroleum, acetylene, carbide of calcium and other similar material provided by them for use in or on the Works in strict accordance with the provision of all laws, orders and regulations that are in force at the site or may be issued from time to time by the Government.

34.19 Compliance by Subcontractors

The Contractor shall be responsible for compliance by his Subcontractors of the provisions of this Clause.

The following Sub-Clauses 35.2 and 35.3 are added:

35.2 Records of Safety and Health

The Contractor shall maintain such records and make such reports concerning safety, health and welfare of persons and damage to property as the Engineer may from time to time prescribe.

35.3 Reporting of Accidents

The Contractor shall report to the Engineer details of any accident as soon as possible after its occurrence. In the case of any fatality or serious accident, the Contractor shall, in addition, notify the Engineer immediately by the quickest available means.

Add the following at the end of sub clause:

36.1 Quality of Materials, Plant, Supplies and Workmanship

The place of such tests shall be situated in Pakistan and notified to the contractor whenever the need arises

36.2 Cost of Samples

Correct the clause No. from 36.1 to 36.2 Cost of Samples

36.5 Engineer's Determination where Test not provided for

Add "/or" in the end of the text appearing under (a) after the word "and"

Add "determined under sub clause 53.5" after the word "Contract Price" appearing in the end of first line of text under (b)

The following Sub-Clause 36.6 is added:

36.6 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.

40.2 Engineer's Determination following Suspension

Add "/or" in the end of the text appearing under (a) after the word "and"

Add "determined under sub clause 53.5" after the word "Contract Price" appearing in the end of first line of text under (b)

41.1 Commencement of Works

The text is deleted and substituted with the following:

The Contractor shall commence the Works on Site within the period named in Appendix-A to Bid from the date of receipt by him from the Engineer of a written Notice to Commence. Thereafter, the Contractor shall proceed with the Works with due expedition and without delay.

42.2 Failure to give Possession

Possession of site within the period named in Appendix-A

Add "/or" in the end of the text appearing under (a) after the word "and"

Add "determined under sub clause 53.5" after the word "Contract Price" appearing in the end of first line of text under (b)

45.1 Restriction on Working Hours

Add the following paragraph at the end of Sub-Clause 45.1:

The Contractor shall pay overtime payment to the Engineer's Support Staff/Personnel who were required by the Contractor to perform their respective work assignment beyond the normal working hours stated in Part A – Particular Conditions (Appendix A). The payment to the Engineer's Staff shall be made in the presence of the Employer's Representative.

47.1 Liquidated Damages

The rate of liquidated damages shall be 0.1% per day of the contract price stated in Letter of Acceptance for every day of delay in which whole or part of the work(s) remained unfurnished subject to a maximum of 10% of the contract price stated in Letter of Acceptance.

Add the following at the end of the sub-clause.

"In addition to the Liquidated Damages, the Contractor shall borne all the cost/expenses related to the supervision of the works by the Project Consultants covering salaries of the Engineer and all of his Site Supervision staff including all the benefits, providing, running and maintenance of all the Engineer's Facilities up to the issuance of the Taking Over Certificate by the Employer. All the above cost/expanses will not be reimbursed/paid to the Contractor beyond the approved completion period of the works"

The following Sub-Clause 47.3 is added:

47.3 Interim Liquidated Damages

Contractor's works programme submitted under clause 14.1 of General Conditions of Contract and Conditions of Particular Applications shall be considered part of the contract agreement. If the contractor's progress is not as per approved programme of works, the contractor shall be liable for interim liquidated damages at the rate of 0.05% of the contract price stated in Letter of acceptance for each day of delay, which shall be refunded if the progress again matches the approved programme of works during the currency of works.

The amount of interim liquidated damages deducted by the Employer from the payment of the contractor and refunded shall be taken into consideration while determining the liquidated damages for the whole of the Works under clauses 47.1 and 47.2.

If the progress of works is observed to be behind approved programme of works against three consecutive months then the Employer may invoke clause 63.1 (Default of Contractor).

48.1 Taking Over Certificate

Add the following after the word “-----works” in the 7th line

Within 14 days of the date of receipt of contractor’s notice for issuance of Taking Over Certificate the Employer shall on the written request by the Engineer constitute a committee comprising of Engineer/Engineer’s Representative, Employer’s and Contractor’s Representatives. The Committee shall conduct a detailed inspection of the works completed by the contractor to ascertain the completion or the extent of completion to decide about the issuance of certificate.

Amend the portion of this sub-clause starting from “The Engineer shall within 21 days of delivery of such notice” with the following;

The Engineer in pursuance to the recommendations of the committee shall within 28 days of the date of delivery of the notice mentioned herein before from the contractor

48.2 Taking over of Sections or Parts

The whole of the works to be completed within the time stated in Appendix to Tender. No separate completion certificate (s) in parts will be issued for any part of the work substantially completed

Add following paragraph before the first para

49.2 Completion of Outstanding Works and Remedying Defects

At the completion of the Defects Liability Period the Employer shall constitute a committee comprising of Engineer/Engineer’s Representative, Employer’s and Contractor’s Representatives. The Committee shall conduct a detailed inspection of the works to ascertain the issuance of Defects Liability Certificate or otherwise

Add following sub clause 49.5

49.5 Extension of Defects Liability Period

The defects liability period for the works shall be extended by a period equal to the period during which the Works cannot be used by reason of defect or damage. If only part of the works is affected, the Defect Liability Period shall be extended only for that part. In neither case shall the Defects Liability Period extend beyond 2 years.

51.1 Variations

Add the following para at the end of this sub-clause in part I:

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 progress of the works in awaiting the approval of rates of all variations.

51.2 Instructions for Variations

At the end of the first sentence, after the word "Engineer", the words "in writing" are added.

52.1 Valuation of Variations

In the tenth line, after the words "Engineer shall" the following is added:
"within a period not exceeding one-eighth of the completion time subject to a minimum of 56 days from the date of disagreement whichever is later."

53.3 Substantiation of Claims

Add "and approved by the Employer" in the first line after the word "Engineer"
Add "but not more than 28 days" in the end of sixth line after the word "require"
Delete the text "if required by the Engineer so to do" appearing in the second and third last lines.
Add following at the end of Sub-clause 53.4

53.4 Failure to Comply

Notwithstanding anything contained hereinabove the Contractor shall not be entitled for any extension of Time for Completion and/or additional payment in respect of the claim(s) if the Contractor fails to comply with the requirements or any of the requirement of Sub-Clauses 53.1, 53.2 and 53.3 within the time period stipulated there in the clauses above mentioned and or fails in keeping and producing necessary records whenever demanded by the Engineer
Add following paragraph at the end of sub clause

54.1 Contractor's Equipment, Temporary Works, and materials; Exclusive use for the Works

The Contractor shall forward to the Engineer at the end of each month returns showing the Construction Plant, Material, etc., on site in a form prescribed by the Engineer. In addition, the Contractor should submit details of resources (labour, plant & equipment) at the end of each day to the Engineer.

54.5 Conditions of Hire of Contractor's Equipment

The following paragraph is added:

The Contractor shall, upon request by the Engineer at any time in relation to any item of hired Contractor's Equipment, forthwith notify the Engineer in writing the name and address of the Owner of the equipment and shall certify that the agreement for the hire thereof contains a provision in accordance with the requirements set forth above.

Add following sub clause

55.2 Omission of Quantities

Items of works described in the Bill of quantities for which no rate or price has been entered in the Contract shall be considered as included in other rates and prices in the Contract and will not be paid for separately by the Employer.

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

Delete sub clause 57.1 and replace with following

57.1 Method of Measurement

The measurement of the Works shall be performed on the basis of the Specifications. All work completed under the Contract shall be measured according to the metric system for all items, unless otherwise provided herein or in the Special Provisions. All longitudinal measurements for area or volume will be made horizontally along the road centerline, and no deduction will be made for individual fixtures in the pavement having an area of 1 sq. meter or less. All transverse measurements for area or volume of pavement courses will be made horizontally in accordance with the dimensions indicated on the plans, or the dimensions ordered by the Engineer. In computing volume of excavation, embankment and borrow material, the average end area method will be used. Where no items are provided in the Bill of Quantities for work required under the Contract, costs shall be deemed to be distributed among the quoted rates and prices entered for other items of work in the Bill of Quantities. The Works shall be measured net notwithstanding any general or local custom except where otherwise specifically described or prescribed in the Contract.

Add following sub clause 57.3

57.3 Copies of Payment Certificate

The Contractor will supply to the Engineer's Representative six (6) copies of the abstract of Contractor's certificate of payment every month along with two copies of detailed measurements, quality control tests and cross sections with calculations, and any other document or information which form the basis of payment

The following Sub-Clauses 59.4 & 59.5 are added:

59.4 Payments to Nominated Subcontractors

The Contractor shall pay to the nominated Subcontractor the amounts which the Engineer certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with Clause 58 [Provisional Sums], except as stated in Sub-Clause 59.5 [Certification of Payments].

59.5 Certification of Payments & Nominated Subcontractors

Before issuing a Payment Certificate which includes an amount payable to a nominated Subcontractor, the Engineer may request the Contractor to supply reasonable evidence that the nominated Subcontractor has received all amounts due in accordance with previous Payment Certificates, less applicable deductions for retention or otherwise. Unless the Contractor:

- a) submits reasonable evidence to the Engineer, or
- b)
 - i) satisfies the Engineer in writing that the Contractor is reasonably entitled to withhold or refuse to pay these amounts, and
 - ii) submits to the Engineer reasonable evidence that the nominated Subcontractor has been notified of the Contractor's entitlement,

then the Employer may (at his sole discretion) pay direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above. The Contractor shall then repay, to the Employer, the amount which the nominated Subcontractor was directly paid by the Employer.

60 Certificates and Payment

Delete sub clause 60.1 and replace with following:

60.1 Monthly Statements

The Contractor shall submit six copies of the statement to the Engineer at the end of each month, in a tabulated form approved by the Engineer, showing the amounts to which the Contractor considers himself to be entitled. The statement shall include the following items, as applicable, which shall be taken into account in the sequence listed:

- (a) the estimated Contract value of the Permanent Works executed up to the end of the month in question, determined in accordance with Sub-Clause 56.1, at the unit rates and prices included in the Contract;
- (b) the actual value certified for payment for the Permanent Works executed up to the end of the previous month, at the unit rates and prices included in the Contract;

- (c) the estimated Contract value at the unit rates and prices included in the Contract of the Permanent Works for the month in question, obtained by deducting (b) from (a);
- (d) the equivalent of the amount set forth in (c), expressed in the various currencies (if applicable) in which the Contract Price is payable, and calculated by applying the proportions and the exchange rates set forth in the Appendix to Bid to the amount set forth in (c);
- (e) the value of any variations executed up to the end of the month in question, less the amount certified in the previous Interim Payment Certificate, expressed in the relevant amounts of foreign (if applicable) and local currencies, pursuant to Clause 52;
- (f) amounts approved in respect of Daywork executed up to the end of the month in question, less the amount for Daywork certified in the previous Interim Payment Certificate, as determined from the Daywork Schedule of the Bill of Quantities;
- (g) amounts in local currency reflecting changes in cost and legislation, pursuant to Clause 70;
- (h) any amount to be withheld under the retention provisions of Sub-Clause 60.3, determined by applying the percentage set forth in Sub-Clause 60.3;
- (i) any amounts to be deducted as recovery of the Advance under the provisions of Sub-Clause 60.12;
- (j) adjustment of any other sum, expressed in the applicable currency or currencies, to which the Contractor may be entitled under the Contract or to be recovered from the Contractor; and
- (k) any amounts to be deducted as Withholding Tax under the provisions of Income Tax Laws and Central Board of Revenue regulations.

60.2 Monthly Payments

Delete sub-clause 60.2 and replace with following:

The said statement shall be approved or amended by the Engineer in such a way that, in his opinion, it reflects the amount in various currencies due to the Contractor in accordance with the Contract, after deduction, other than pursuant to Clause 47, of any sums which may have become due and payable by the Contractor to the Employer. In cases where there is a difference of opinion as to the value of any item, the Engineer's view shall prevail. Within 28 days of receipt of the monthly statement referred to in Sub-clause 60.1, the Engineer shall determine the amounts due to the Contractor and shall issue to the Employer and the Contractor a certificate herein called "Interim Payment Certificate", certifying the amounts due to the Contractor.

The Engineer shall not be bound to certify any payment under this Sub-clause if the net amount thereof, after all retention and deductions, would be less than the Minimum Amount of Interim Payment Certificates stated in the Appendix A to Tender. However, in such case, the unpaid certified amount will be added to the next interim payment, and the cumulative unpaid certified amount will be compared to the minimum amount of interim payment

Notwithstanding the terms of this Clause or any other Clause of the Contract, no amount will be certified by the Engineer for payment until the Performance Security has been provided by the Contractor and approved by the Employer”.

Add following paragraph at the end

60.3 Payment of Retention Money

Retention Money shall be 5% of the Contract Price. From each interim certificate of the Contractor, 10% of amounts certified under Clause 60.2 shall be deducted from bills until the amounts so retained reach 5% of the Contract Price.

The retention money shall be released within 30 days upon successful issuance of Defects Liability Certificate.

Add following paragraph at the end

60.6 Final Statement

If, following discussions between the Engineer and the Contractor and any changes to the draft final statement which may be agreed between them, it becomes evident that a dispute exists, the Engineer shall issue to the Employer an Interim Payment Certificate for those parts of the draft final statement which are not in dispute. The dispute shall then be settled in accordance with Clause 67. The Final Statement shall be agreed upon settlement of the dispute.

60.8 Final Payment Certificate

Delete the words “other than pursuant to Clause 47” from para (b) line 2 and 3

Add the following para at the end of this sub-clause

The Contractor shall also submit the following documents with his final statement to the Engineer:

- (a) Approved final As-built drawings.
- (b) An affidavit by the Contractor that the Works have been executed according to approved specifications, drawings, designs and standard and have not concealed defects known to him.

60.10 Time for Payment

Delete the text and substitute:

The amount due to the Contractor under any interim certificate issued by the Engineer pursuant to this Clause, or to any other terms of the Contract, shall, subject to Clause 47, be paid by the Employer to the Contractor within 30 days after such interim certificate has been delivered to the Employer, or, in the case of the Final Certificate referred to in Sub Clause 60.8, within 60 days, after such Final Payment Certificate has been delivered to the Employer.

All payments to the Contractor shall be made in Pak Rupees only under the Contract. No payments in foreign currency are admissible.

Add following sub clause 60.11, 60.12 and 60.13

60.11 Place of Payment

Payments to the Contractor by the Employer shall be made in the currencies in which the Contract Price is payable into a bank account or accounts nominated by the Contractor

60.12 Financial Assistance to Contractor

Mobilization Advance Payment

b) Deleted

The Employer shall be empowered to call in the guarantee in whole or in part(s) if the Contractor defaults in the repayment(s) for any reason(s).

60.13 Withholding of Payment

a) The Employer may withhold the whole or a part of any payment invoiced by the contractor and certified by the Engineer if it is necessary in the opinion of the Employer to protect himself against losses on account of the following reasons.

- i. Defective work not rectified.
- ii. Non-fulfilment of any demand regarding guaranties.
- iii. Claims of third parties raised against the employer caused through fault of the contractor in connection with the works.
- iv. Damages caused by the contractor or his personnel or any sub-contractor, to the Employer, or to a third party on the site.
- v. Non-fulfilment of the contract by the contractor.

b) After the reasons for withholding of payments have been eliminated, to the satisfaction of the Employer and the Engineer, payments to the contractor will be undertaken by the Employer without delay.

Add following as paragraph (b) (iii);

63.1 Default of Contractor

If the progress of works with respect to the Programme of Works is observed to be behind the approved program of works against three consecutive months.

Delete the last paragraph of this sub-clause and substitute with:

“then the Employer may, after giving 14 days’ notice to the Contractor, enter upon the Site and expel the Contractor therefrom without thereby voiding the Contract, or releasing the Contractor from any of his obligations or liabilities under the Contract, or affecting the rights and powers conferred on the Employer or the Engineer by the Contract, and may himself complete the Works or may employ any other contractor to complete the Works.

The Employer or such other contractor may use for such completion so much of the Contractor's Equipment, Plant, Temporary Works, and materials, which have been deemed to be reserved exclusively for the execution of the Works, under the provisions of the Contract, as he or they may think proper, and the Employer may, at any time, sell any of the said Contractor's Equipment, Temporary Works, and unused Plant and materials, and apply the proceeds of sale in or toward the satisfaction of any sums due or that may become due to him from the Contractor under the Contract."

Provided further that in addition to the action taken by the Employer against the Contractor under this Clause, the Employer may also refer the case of default of the Contractor to Pakistan Engineering Council for punitive action under the Construction and Operation of Engineering Works Bye-Laws 1987, as amended from time to time.

63.2 Valuation at Date of Termination

Modify the heading of Sub-Clause 63.2 by substituting "Valuation at Date of Expulsion" for "Valuation at Date of Termination." In Sub-Clause 63.2, delete the word "termination" on the second and fifth lines and substitute "expulsion."

63.3 Payment after Termination

Modify the heading of Sub-Clause 63.3 by substituting "Payment after Expulsion" for "Payment after Termination." In Sub-Clause 63.3, delete the words "terminates the Contractor's employment" on the first line, and substitute "shall enter and expel the Contractor."

63.4 Assignment of Benefit of Agreement

In Sub-Clause 63.4, delete the word "termination" on the second line, and substitute "expulsion".

Add following sub clause

63.5 Corrupt and fraudulent Practices

If in the judgment of the Employer the Contractor has engaged in corrupt or fraudulent practices, in competing for or in executing the contract, then the Employer may, after having given 14 days notice to the contractor, terminate the contractor's employment under the contract and expel him from the site, and the provision of clause 63 shall apply as if such expulsion had been made under sub-clause 63.1.

For the purpose of this sub-clause:

"corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

"Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition

65.2 Special Risks

The text is deleted and substituted with the following:

The Special Risks are the risks defined under Sub-Clause 20.4 sub paragraphs (a) (i) to (a) (v).

67.3 Arbitration

In the sixth to eight lines, delete the words “shall be finally settled”to..... “appointed under such Rules” and substitute the following:

shall be finally settled under the Rules and provisions of Arbitration Act 1940 of Islamic Republic of Pakistan enforced for the time being and as amended from time to time by one or more Arbitrators appointed in accordance with said Rules. The place of Arbitration shall be Karachi, Pakistan.

68.1 Notice to Contractor

The following paragraph is added:

For the purposes of this Sub-Clause, the Contractor shall, immediately after receipt of Letter of Acceptance, intimate in writing to the Employer and the Engineer by registered post, the address of his principal place of business or any change in such address during the period of the Contract.

68.2 Notice to Employer and Engineer

For the purposes of this Sub-Clause, the respective addresses are:

- a) The Employer
CHIEF ENGINEER (Civil Works),
Karachi Port Trust
Karachi Port Trust.
Eduljee Dinshaw Road
Karachi, 74000
Pakistan.
mgr.eng@kpt.gov.pk

- (a) The Engineer

69.3 Payment on Termination

Delete sentence from “but in addition to the payments..... of such termination”

69.4 Contractor’s Entitlement to Suspend Work

Add “/or” in the end of the text appearing under (a) after the word “and”

Add “determined under sub clause 53.5” after the word “Contract Price” appearing in the first line of text under (b) Add the following sub-clause

70.1 Increase or Decrease of Cost

Sub-Clause 70.1 is deleted in its entirety, and substituted with the following:

The amounts payable to the Contractor, pursuant to Sub-Clause 60.1, shall be adjusted in respect of the rise or fall in the cost of labor, materials, and other inputs to the Works, by applying to such amount the formula prescribed in this Sub-Clause.

(a) Other Changes in Cost

To the extent that full compensation for any rise or fall in costs to the Contractor is not covered by the provisions of this or other Clauses in the Contract, the unit rates and prices included in the Contract shall be deemed to include amounts to cover the contingency of such other rise or fall of costs.

(b) Adjustment Formula

The adjustment to the monthly statements in respect of changes in cost shall be determined from the following formula:-

$$P_n = A + b \frac{L_n}{L_o} + c \frac{M_n}{M_o} + d \frac{E_n}{E_o} + \dots$$

Where:

P_n is a price adjustment factor to be applied to the amount for the payment of the work carried out in the subject month, determined in accordance with Paragraph 60.1 (a), and with Paragraphs 60.1 (b) and (e), where any variations and daywork are not otherwise subject to adjustment;

A is a constant, specified in Appendix-C to Bid, representing the nonadjustable portion in contractual payments;

b, c, d, \dots , are weightages or coefficients representing the estimated proportion of each cost element (labour, cement and reinforcing steel etc.) in the Works or Sections thereof, net of Provisional Sums and Prime Cost; the sum of A, b, c, d, \dots , shall be one;

L_n, M_n, E_n, \dots , are the current cost indices or reference prices of the cost elements for month “ n ”, determined pursuant to Sub-Clause 70.1(d), applicable to each cost element; and

Lo, Mo, Eo, etc., are the base cost indices or reference prices corresponding to the above cost elements at the date specified in Sub-Clause 70.1(d).

(c) Sources of Indices and Weightages

The sources of indices shall be those listed in Appendix-C to Bid, as approved by the Engineer. As the proposed basis for price adjustment, the Contractor shall have submitted with his bid the tabulation of Weightages and Source of Indices if different than those given in Appendix-C to Bid, which shall be subject to approval by the Engineer.

(d) Base, Current, and Provisional Indices

The base cost indices or prices shall be those prevailing on the day 28 days prior to the latest date for submission of bids. Current indices or prices shall be those prevailing on the day 28 days prior to the last day of the period to which a particular monthly statement is related. If at any time the current indices are not available, provisional indices as determined by the Engineer will be used, subject to subsequent correction of the amounts paid to the Contractor when the current indices become available.

(e) Adjustment after Completion

If the Contractor fails to complete the Works within the Time for Completion prescribed under Clause 43, adjustment of prices thereafter until the date of completion of the Works shall be made using either the indices or prices relating to the prescribed time for completion, or the current indices or prices, whichever is more favorable to the Employer, provided that if an extension of time is granted pursuant to Clause 44, the above provision shall apply only to adjustments made after the expiry of such extension of time.

(f) Weightages

The weightages for each of the factors of cost given in Appendix-C to Bid shall be adjusted if, in the opinion of the Engineer, they have been rendered unreasonable, unbalanced, or inapplicable as a result of varied or additional work executed or instructed under Clause 51. Such adjustment(s) shall have to be agreed in the variation order.

70.2 Subsequent Legislation

If, after the date 28 days prior to the latest date for submission of bids for the Contract, there occur in Pakistan changes to any National or State Statute, Ordinance, Decree, or other Law or any regulation or by-law of any local or other duly constituted authority, or the introduction of any such State Statute, Ordinance, Decree, Law, regulation, or by-law that causes additional or reduced cost to the Contractor, other than under sub-clause 70.1 of this clause, in the execution of the Contract, such additional or reduced cost shall, after due consultation with the Employer and the Contractor, be certified by the Engineer and be paid by or credited to the Employer and the Contract Price adjusted accordingly.

Addition/reduction in the cost of Works due to change in the cost of the specified construction inputs in Appendix-C mentioned in paragraphs (i), (ii), (iii) and (iv) of sub clause 70.1 on account of the legislative action described hereinabove, shall not be adjusted under this sub clause as adjusted due to increase or decrease in the price of these inputs is covered by sub clause 70.1 (i), (ii), (iii) and (iv).

Any increase or decrease in the cost of the Works due to increase or decrease in the haulage, cartage of any goods/materials on account of any changes in legislation shall also not be adjusted.

Notwithstanding anything contained herein above, any increase in the rate of Income Tax or Withholding Tax levied upon the Contractor on the incomes or profits arising out of this Contract under the Income Tax Laws of Pakistan applicable in the years of currency shall not be adjusted under this or any other provision of Contract and shall be the sole responsibility of the Contractor

70.3 Adjustment for Delays and after Completion

If the Contractor fails to complete the Works within the time for completion prescribed under Clause 43, adjustment of prices thereafter until the date of completion of the Works shall be made using either the indices or prices relating to the prescribed time for completion, or the current indices or prices, whichever is more favorable to the Employer, provided that if an extension of time is granted pursuant to Clause 44, the above provision shall apply only to adjustments made after the expiry of such extension of time.

Currency and Rates of Exchange

The Sub-clauses 71.1, 72.1, 72.2 and 72.3 are deleted being not applicable for this Contract as the Currency of the Contract is Pak. Rs.

The following Sub-Clauses 73.1, 73.2, 73.3, 74.1, 75.1, 76.1, 77.1, 78.1, 79.1, 80.1, 81.1, 82.1, 83.1, 84.1, 85.1, 86.1, 87.1, 88.1, 89.1 and 90.1 are added:

73.1 Payment of Income Tax

The Contractor, Subcontractors and their employees shall be responsible for payment of all their income tax, super tax and other taxes on income arising out of the Contract and the rates and prices stated in the Contract shall be deemed to cover all such taxes.

73.2 Cost Inclusive of Duties and Taxes

Local Taxation

The prices bid by the Contractor shall include all customs duties, import duties, business taxes, and income and other taxes that may be levied in accordance with the laws and regulations in being on the date 28 days prior to the latest date for submission of bids in the Employer's country on the Contractor's Equipment, Plant, materials, and supplies (permanent, temporary, and consumable) acquired for the purpose of the Contract and on the services performed under the Contract. Nothing in the Contract shall relieve the Contractor from his responsibility to pay any tax that may be levied in the Employer's country on profits made by him in respect of the Contract.

Foreign Taxation

The prices bid by the Contractor shall include all taxes, duties, and other charges imposed outside the Employer's country on the production, manufacture, sale, and transport of the Contractor's Equipment, Plant, materials, and supplies to be used on or furnished under the Contract, and on the services performed under the Contract.

73.3 Income Tax Provision in Sub-Contracts

Provisions to the like effect as those contained in this clause shall be incorporated by the Contractor in all sub-contracts agreement(s).

74.1 Integrity Pact

If the Contractor or any of his Subcontractors, agents or servants is found to have violated or involved in violation of the Integrity Pact signed by the Contractor as Appendix-L to his Bid, then the Employer shall be entitled to:

- (a) recover from the Contractor an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by the Contractor or any of his Subcontractors, agents or servants;
- (b) terminate the Contract; and
- (c) recover from the Contractor any loss or damage to the Employer as a result of such termination or of any other corrupt business practices of the Contractor or any of his Subcontractors, agents or servants.

The termination under Sub-Para (b) of this Sub-Clause shall proceed in the manner prescribed under Sub-Clauses 63.1 to 63.4 and the payment under Sub-Clause 63.3 shall be made after having deducted the amounts due to the Employer under Sub-Para (a) and (c) of this Sub-Clause.

75.1 Termination of Contract for Employer's Convenience

The Employer shall be entitled to terminate the Contract at any time for the Employer's convenience after giving 56 days prior notice to the Contractor, with a copy to the Engineer. In the event of such termination, the Contractor:

- (a) shall proceed as provided in Sub-Clause 65.7 hereof; and
- (b) shall be paid by the Employer as provided in Sub-Clause 65.8 hereof.

76.1 Liability of Contractor

The Contractor or his Subcontractors or assigns shall follow strictly, all relevant labour laws including the Workmen's Compensation Act and the Employer shall be fully indemnified for all claims, damages etc. arising out of any dispute between the Contractor, his Subcontractors or assigns and the labour employed by them.

77.1 Joint and Several Liability

If the Contractor is a joint venture of two or more persons, all such persons shall be jointly and severally bound to the Employer for the fulfilment of the terms of the Contract and shall designate one of such persons to act as leader with authority to bind the joint venture. The composition or the constitution of the joint venture shall not be altered without the prior consent of the Employer.

78.1 Details to be Confidential

The Contractor shall treat the details of the Contract as private and confidential, save in so far as may be necessary for the purposes thereof, and shall not publish or disclose the same or any particulars thereof in any trade or technical paper or elsewhere without the prior consent in writing of the Employer or the Engineer. If any dispute arises as to the necessity of any publication or disclosure for the purpose of the Contract, the same shall be referred to the decision of the Engineer whose award shall be final.

79.1 Quality and Safety

The Contractor shall submit a quality and safety plan to the Engineer for approval, within 14 days after commencement of work.

80.1 Coordination of Work at Site:

The Contractor shall take cognizance that during the execution of the project, other Contractors will be working concurrently on this site or adjacent to the site.

All works of his responsibility shall be coordinated by the Contractor so as to give the necessary facilities to other Contractors or their workmen or any other employees, who execute or supervise any work on the Site.

The Contractor shall ensure that the necessary safety precautions will be observed and interferences shall be avoided especially for the works executed side-by-side by different Contractors.

Due consideration must be given to permit access to sections of the work as required by other Contractors for the execution of their works. With a view to coordinate the works, the Engineer's Representative may from time to time direct the order of the work to be carried out.

Allowances for coordination of work at site shall be made by the Contractor in his prices & programming.

Add the following sub clause:

81.1 Government and other Regulations in Pakistan

The operation, proceedings and other activities in Pakistan of the Contractor and his sub-Contractors in connection with the works shall be conducted in strict accordance with the requirements and provisions of all laws, decrees, orders, rules and regulations of the Government and other Authorities from time to time in force, which are applicable to the Works.

The Contractor and his Sub-Contractors shall be at all times during the execution and maintenance of the works comply with all municipal and local bye-laws, regulations, rules and orders from time to time in force which are applicable to the works.

Add the following sub clause:

82.1 State of Emergency

In addition to his other responsibilities under the Contract the Contractor shall comply with any police or Military regulations, orders or instructions in force in the area of the Works due to a State of Emergency.

83.1 Contractor to keep Engineer fully informed

The Contractor shall keep the Engineer fully informed, as to all matters connected with the Works and the progress thereof, including any modification in the procedure for carrying out the Works, dispatch and delivery to the Site of materials and plant, moving of items of plant and such like matters.

84.1 Personal Liabilities

Neither any member of the Employer's staff, nor the Engineer nor any member of his staff, nor the Engineer's Representative shall be in any way personally liable for the act or obligations under the Contract, or answerable for any default or omission on the part of the Contractor in the observance of the provisions of the contract or performance of any of the act matters or things which are herein contained.

85.1 Freight Charges, etc.

The Contractor shall pay all freight charges and expenses in connection with the transporting of materials, Plant and other things from the port of importation to the Site and from the Site to the port of exportation.

86.1 Accidents

The Contractor shall within 24 hours of the occurrence of any accident at or about the site or in connection with the execution of the Works report such accident to the Engineer and the Employer.

87.1 Acquisition of Land and Relocation of Utilities

The acquisition of land within the Right of Way and the relocation of utilities from the Right of Way shall be the Employer's responsibility and in order to allow commencement and execution of the Work on Site in accordance with a programme approved by the Engineer sufficient "Right of Way (ROW)" shall be handed over to the Contractor clear of all encumbrances.

The Contractor shall conduct his operations, make necessary arrangements, take suitable precautions and perform all required work incident to the protection of and avoidance of interference with power transmission, telegraph and natural gas lines, oil lines, water and sewerage mains and other utilities within the areas of his operations in connection with this contract. If any harm/ damage is done to the existing utility lines/ services because of the Contractor works, the cost thereof shall be borne by the Contractor. The Contractor shall save harmless and indemnify the Employer in respect of all claims, demands, proceedings, damages, costs, charges and expenses whatsoever arising out of or in relation to any such operations or interference.

88.1 Wastage

No payment shall be made under any circumstances for wastage of materials, supplies and/or fixtures supplied by the Contractor. In all cases payment shall be made only on the basis of the net quantities of work done. It is up to the Tenderer/Contractor to calculate and make allowance for any or all such wastage (e.g. cut ends of reinforcement bars, spillage of cement and the like) in establishing the unit rates or prices for the items of works.

89.1 Weather, Flood, Seismic and Traffic Vibrations Conditions

The Contractor shall be deemed to have taken all weather, flood, inundation, seismic, traffic, vibrations conditions, arising from any cause whatsoever, into account when preparing his Tender and he shall not be entitled to extra payment by reason of the occurrence or effect of excessive traffic vibrations, rain fall, floods, temperature or humidity, high winds, earthquakes or an, other heavier flood inundation, seismic or environmental conditions.

Without limiting his liabilities under the Contract, the Contractor shall make suitable arrangements to protect the works, Including temporary Works, and Constructional Plant against the effects of weather flood inundation seismic and traffic vibrations conditions.

No work shall be performed when; in the opinion of the Engineer such work is liable to be injuriously affected by the weather, flood, inundation seismic or traffic vibrations conditions. The Contractor shall not be entitled to extra payment on account of loss alleged to have been sustained directly or indirectly by reason of the Engineers declining to permit such work to start or continue or ordering any work damaged by the weather flood inundation seismic or traffic vibrations conditions to be made good or removed and re-executed.

The Contractor shall be responsible for obtaining and acting upon all relevant weather flood inundation and seismic information during the period of the Contract. The Contractor shall promptly supply copies of all weather flood inundation and seismic forecasts to the Engineer

90.1 Dealing with Water

The Contractor shall take all necessary measures to prevent water from the Site causing a nuisance on or, in any neighboring land or property either by causing flooding or by depositing sediment on the surface of the ground or in drains or watercourses. Wherever necessary to prevent this, the Contractor shall construct temporary drainage channels, layer sumps and traps (in addition to those shown on the Contract) discharging into existing drain, ditches or watercourses. The Contractor shall remove over all sediment, which may accumulate on any land or in any drains, ditches or watercourses or in any other property as a result of his operations.

All works including those below sub-soil standing water level shall be carried out in the dry unless specified otherwise. The Contractor's arrangements for controlling the inflow of water into the parts of the excavation being worked and during the placing of concrete and other works therein and for the collection and disposal of water shall be to the Engineer's Approval. Such arrangements may include inter alia temporary cofferdams, well-point systems, pumps; drains trenches, flumes and other recognized means. All Costs and charges in dealing with water in any way whatsoever and the effects thereof will be deemed to be included in the Contract Price and in the unit rates or prices of the Contractor for excavations.

Water flowing into excavations shall be carried by trenches, drainage layers or open jointed drains to sumps from which it shall be pumped. Such trenches drains or sumps shall generally be clear of the Permanent Works unless approved otherwise by the Engineer. If, with the said Approval of the Engineer trenches drains or sumps are excavated under or immediately adjacent the Permanent Works, these shall comprise open-jointed pipes with gravel mounds. When no longer required and when approved by the Engineer they shall be filled with a cement /sand grout injected under pressure so as to fill the pipe and all voids completely.

The Contractor shall keep all surfaces upon or against which concrete is to be deposited free from running water and no concrete shall be placed until such surfaces are properly drained. Suitable precautions shall be taken to prevent running water from washing out cement or concrete while it is setting or from injuring the Works in any other way.

Notwithstanding the Approval by the Engineer of the Contractor's methods of dealing with water, the Contractor shall be responsible for and accept all the risks and liabilities of dealing with water from whatever source and of all effects thereof.

Special Provisions

1.1 Contractor shall arrange abroad site visit for three relevant officers for Inspection and testing of Fenders and to witness for third party certifications of Fenders.

1.2 Contractor shall arrange 01 Laptop and one Split type Air Condition (2 Tons), as approved by the Employers.

MEASUREMENT & PAYMENT

The cost of providing, furnishing and abroad visits for Engineer's staff shall be included the Bid price. No separate payment shall be made.

SPECIFICATIONS

CIVIL WORKS

ITEM – 1 GENERAL

1.1 COMPONENT PARTS

The component parts of this contract i.e. Drawings, the Specifications, and Description of items/Bill of Quantities shall be read together, in accordance with assigned precedence as given elsewhere in the contract.

1.2 CLARIFICATION

Description of items of work in the Bills of Quantities are in the nature of specification and are deemed to be the part of these specification. In case the Contractor finds any conflict between the description of items and the detailed text in the volume of specifications the same shall be got clarified by him before submission of the bids whereupon an addendum might be issued to all the bidders. After award of work the discretion of interpretation and applicability shall rest with the Engineer whose decision shall be final and binding without any increase either in cost or completion time.

Any item for which no specifications have been laid down, but shown on drawings or added in future, shall be done in a workmanlike manner according to the pertinent standards as per ASTM/BSS (where ASTM not available). The engineer may supplement such specification during the progress of work. All materials and processes used for such an item shall be subjected to standard testing and, if found below the pertinent ASTM/British (where ASTM not available) Standards, shall be removed from the site immediately at Contractor's expenses.

ITEM – 2 SUBSOIL INVESTIGATION

The Contractor shall be deemed to have acquainted himself with the subsoil conditions on site and his rates shall fully cover all the works involved for excavation, dewatering and other factors affecting the works.

Where directed by the Engineer the Contractor shall hire a soil specialist as a Sub-contractor to drill 2 Nos. bore holes at the proposed site in natural soil 40 feet deep and at least 4 No. test pits, including mobilizing/demobilizing, carrying out standard penetration test at 3 ft intervals, collection, Grain size Analysis, Specific gravity, Bulk density, Unconfined Compression Direct Shear, Consolidation, Sulphate content & PH of Soil, Total Soluble salts & chlorides, compaction modified AASHTO and soaked CBR, all complete including submission of soil report etc. as per instruction/direction of the Engineer.

2.1 MEASUREMENT AND PAYMENT

No separate measurement or payment shall be made for above section. All costs and charges shall be deemed to have been included in the rates for related items of works.

ITEM - 3 CLEARING, GRUBBING & DISPOSAL

3.1 SCOPE OF WORK

The work covered by this section of Specifications consists of furnishing all labour, materials, necessary equipment, services, miscellaneous and necessary items required to satisfactorily complete the clearing, grubbing and setting out of the Works, as indicated on Drawings, specified herein or both, until and unless directed otherwise by the Engineer.

3.2 **CLEARING**

Clearing shall consist in the felling and cutting up, or trimming of trees if any and the satisfactory disposal of tree and other vegetation designated for removal, together with the down timber, snags, bushes, and rubbish occurring within the areas to be cleared. Trees, other vegetation, stumps, roots, and bushes in areas to be cleared shall be cut-off below the original ground to extract the roots except such individual trees, groups of trees and vegetation as may be indicated on the drawings or designated by the Engineer to be left standing. Individual trees, groups of trees, and other vegetation, to be standing, shall be thoroughly protected from damage incident to construction operations, by the erection of barriers or by such other means as the circumstances required, and as approved by the Engineer. Clearing operation shall be conducted so as not to cause any damage or harm to existing structures and installations and to those under construction, and so as to provide for the safety of employees and others.

3.3 **GRUBBING**

Grubbing shall consist of the removal and disposal of all occurring stumps, roots larger than 1" in diameter, and matted roots in the designated grubbing areas, stumps, roots, logs or other timber more than 1 1/2" in diameter, matted roots and other debris, shall be excavated and removed to a depth not less than 18" below any subgrade, shoulder or slope. In areas where the cut is over 1m, grubbing shall not be necessary. In areas to be paved, or in areas indicated on the drawings as future paved areas, excess excavation from grading operations in places, or in areas designated by the Engineer as future paved areas where excess excavation from grading operations is placed, grubbing will be necessary.

3.4 **DISPOSAL**

Unless directed otherwise, timber and other refuse shall be disposed off by burning at locations approved by the Engineer in a manner that will avoid all hazards such as damage to existing structures, construction in progress, trees and vegetations. The Contractor shall be responsible for compliance with all pertinent laws and regulations pertaining to the burning of fires and observance of any security regulations applicable thereto, including environmental laws under specific ordinance or rules.

Disposal by burning shall be kept under constant attendance until the fires have burned out or have been extinguished. No materials will be permitted to be pushed or placed on adjacent property without prior written approval of the owner of such property.

3.5 **MEASUREMENT AND PAYMENT**

No separate measurement or payment shall be made for above section. All costs and charges shall be deemed to have been included in the rates for related items of works.

ITEM - 4 SETTING OUT OF WORKS/DRAINAGE

4.1 **SETTING OUT OF WORKS**

The Contractor shall set out the Works and shall be responsible for true and perfect levels and setting out of the same and for correctness of the direction, levels, dimensions, and alignments of all parts thereof. If any error in this respect shall appear during the progress of the work, the Contractor shall at his own expense rectify such error to the satisfaction of the Engineer. Any checking by the Engineer shall not relieve the contractor from his complete unshared responsibility for correct setting out of works. The Contractor shall construct and maintain accurate bench marks so that the lines and levels could be easily checked by the Engineer.

4.2 **DRAINAGE DITCHES/DEWATERING**

The Contractor shall construct and maintain such ditches/drains, in addition to those shown on drawings or as may be ordered by the Engineer to adequately drain the areas under construction of the water from any source including sub-soil water in foundations. If due to any negligence the area is flooded the same shall be drained with adequate measures by the contractor at his own cost.

4.3 **MEASUREMENT AND PAYMENTS**

No direct payment for the above item will be made and will be treated as incidental to other items of work.

ITEM - 5 EXCAVATION, FILLING, BACKFILLING & DISPOSAL

5.1 **SCOPE OF WORK**

The work covered by this section of the Specifications consists of furnishing all plant, labour, equipment, appliances and materials & in performing all operations in connection with excavating, dewatering, filling, backfilling and disposal for all construction works and other foundations complete in strict accordance with this section of the specifications and the applicable drawings and subject to the terms and conditions of the Contract, notwithstanding any caving in of the trenches or filling in, etc.

5.2 **SUB-SOIL CONDITIONS**

The Contractor shall be deemed to have acquainted himself, with the sub-soil conditions on site and his bid shall be fully covering the work involved.

The Contractor shall make his own deductions for sub-surface conditions which may affect methods or cost of constructions of the work and he shall make no claim whatsoever for damages or compensation, should he find conditions during the progress of the work, different from those as calculated and/or anticipated by him.

5.3 **EXCAVATION**

Excavation shall include the removal of all material of every name and nature. If rock is encountered it should be removed carefully and without excessive noise and vibration. Blasting shall only be undertaken with the permission of Engineer. In case the Engineer does not allow blasting it will not be a ground for extra rates or any payment in such a case to the Contractor.

The excavation shall conform to the dimensions and elevations as indicated on the drawings or as directed by the Engineer. Foundations on made up ground shall have to be taken down to natural bottom soil as per drawings, and direction and approval of the Engineer.

Excavation shall extend to a sufficient distance from wall and footings to allow for placing and removal of forms, installation of services and for inspection but the same shall not be paid separately in the event of any excavations being carried out wider or deeper than authorised, the same shall be filled in by the Contractor at his own cost to the required levels with lean concrete (1:4:8 mix) if below footing or beneath the slabs and with properly compacted well graded sand free from any deleterious matter as directed by the Engineer, if the excavation is wider than authorised.

In case any excavation is carried out and after the levels have been checked by the Engineer, the pits and trenches, thereafter, are filled with accumulated sand or debris from blowing windstorm, duststorms, moving sand dunes or by any other reasons thereof, the excavation or levelling shall have to be carried out again in the same manner as before unless and until concreting is done in the foundation/trenches. No separate payment shall be made on any such account.

Shoring and Bracing

The Contractor shall provide at his own cost, where required, all shoring, wall supports etc. to the sides of the excavation to prevent sliding or any movement. Where necessary, excavated sides shall be sloped as directed by the Engineer with no extra cost to the Employer.

Dewatering and Drainage

The Contractor shall control at his own cost all the grading in the vicinity of site of work in order to prevent any water from running into the excavated areas.

He shall at his own cost keep drop dry all pits and trenches during construction and all dewatering and pumping out whether due to ground water seepage or otherwise shall be included in the bid price. The method employed in all cases shall be approved and agreed by the Engineer.

Protection of Utility Lines

When any existing utility line, whether to be retained or to be removed, are encountered within the area of operation the Contractor shall notify the Employer/Engineer and shall not proceed until necessary measures are taken for protection or removal of the lines and instructions are obtained from the Engineer/Employer. This will be done at no extra cost to the Employer.

5.4

FILL AND BACKFILL

Where concrete slabs, floors and pavements are to be placed on the ground any and all loam, organic and other unsuitable material shall be removed.

Fill where required to raise the subgrade for concrete slabs shall be clean, unadulterated, free from deleterious and organic substance and shall be free from wood, stones and other debris. In case sand shall be provided for filling, the same shall be clean and free from harmful substances.

All materials, where used in fill shall be compacted upto 95% modified AASHTO Density by power roller, mechanical rammer, or other approved equipment, in layers not more than 150 mm thick. In sand filling each layer shall be uniformly spread, saturated with water or dried and then compacted. Contractor shall arrange at his own cost the testing of the compaction.

After completion of foundation, footings, walls, slabs and other construction below the elevation of the final grades and prior to backfilling, forms shall be removed and excavation shall be cleaned of trash and debris. No backfilling shall be done until the entire foundations and footings etc. have been cured, inspected and approved by the Engineer. Backfill shall be placed in horizontal layers not more than 150 mm thick and shall have a proper moisture content for the required degree of compaction upto 95%. Each layer shall be compacted by mechanical tampers or by other suitable equipment approved by the Engineer. Backfill shall be brought to a suitable elevation above grade to provide for anticipated settlement and shrinkage thereof.

Backfill shall not be placed against foundation walls etc. prior to the damp proofing treatment if specified elsewhere in these documents or ordered later and after approval by the Engineer. Backfills shall be brought up evenly on each side of structures as far as practicable. Heavy equipment for spreading and compacting backfill shall not be operated closer to the structures less than distance equal to the height of the backfill above the top of footing.

The filling material shall be subject to the approval of the Engineer.

5.5

COMPACTION

Fill and/or backfill within the building or wherever required within the premises shall be compacted to a density of not less than 95% of the maximum density at optimum moisture content.

5.6

ROUGH GRADING

Necessary rough grading shall be carried out by the Contractor to establish the finish grade or construction requirements of the site, grades not otherwise indicated shall be uniform levels or slopes between points on existing and finished grades. Abrupt changes in slopes shall be rounded. Additional fill required to complete rough grading shall be provided as directed by the Engineer.

Where paving or slabs are specified, all rough grading shall be done to the sub-grade of the base course, removing all large stones and debris and shall be compacted uniformly to the correct lines and levels ready to receive the paving or slab. Refilling, where required shall be executed with suitable selected materials in layers not exceeding 150 mm in thickness and thoroughly compacted to the required density.

5.7

MEASUREMENT AND PAYMENT

Accepted quantities measured shall be paid at the contract unit price of net volume of excavation including backfill for the items listed below, and shown in bill of quantities which price and payment will constitute full compensation for all cost involved in proper completion of work.

ITEM - 6 PLAIN AND REINFORCED CONCRETE

6.1

SCOPE OF WORK

The work covered by this section of the Specifications consists of furnishing all materials, formwork, plant, labour, equipment, appliances and in performing all operations in connection with plain and/or reinforced concrete work whether cast-in-situ or precast, complete in strict accordance with the applicable Drawings, and the Specifications and descriptions in Bills of quantities of the contract and as approved by the Engineer. Adequate arrangements and skilled manpower shall be provided to produce homogenous concrete without honeycomb and to correct levels, grades, alignment and plumb. Until and unless specified or directed otherwise by the Engineer all materials and workmanship shall be based on the latest versions of applicable ASTM Standard. Any defective work shall be removed and reconstructed without undue delay to the approval of the Engineer. Any previous checks by the Engineer shall not in any way relieve the Contractor of his responsibility in respect of quality and accuracy of work.

Full care shall be taken to install embedded items, and form ducts and openings etc. Embedded items shall have been inspected and check tests for concrete and other materials or for mechanical operations shall have been completed and approved before concrete is placed. The Contractor shall submit and shall be solely responsible for the accuracy of the bar bending schedules of reinforcement to be approved by the Engineer for guidance only prior to the cutting of reinforcement. All concrete work including reinforcement etc. shall be carried out in accordance with the applicable requirements of ACI-318-89 and the instructions of the Engineer.

Prior to the commencement of work on the Site, the Contractor shall prepare, for approval by the Engineer, a plan showing the proposed locations of the aggregate and sand stock piles, cement storage area, steel yard, shuttering yard, batching and mixing plant etc., and a schedule of equipment to be used for mixing, transporting and placing of the concrete. He shall also detail all sources of materials that he intends to incorporate in, and use for, the making of concrete, which sources shall be similarly, subject to the Engineer's approval.

6.2

MATERIALS

Cement

Grey portland cement shall be normal setting cement of approved make and source and of the specific gravity fineness and chemical composition fully conforming to British Standard Specifications B.S. No.12 and shall be capable of satisfying all tests such as the tensile strength tests contained therein. Standard test briquettes prepared with 1:3 cement-sand mortar shall give the following tensile strength:

At 3 days not less than 21 kg/sq.cm (2.1 N/sq.mm)

At 7 days not less than 28 kg/sq.mm (2.8 N/sq.mm)

Sulphate resistant cement where required shall be sulphate resistant portland cement of approved make fully conforming to British Standard Specification No. 4027 and satisfying the requirements for fineness, chemical composition, strength, setting time soundness, etc.

The supply of cement must be so programmed by the Contractor such that at no time the quantity of cement stock shall be less than that required for an average consumption of four weeks. Lorry or truck or other means of transportation, for the conveyance of cement to the site of work, shall be clean, dry, metal-lined and covered from top with water proof sheets, so that cement is sufficiently protected from any deterioration during transit.

The Contractor shall provide at his own cost on the site all necessary sheds which shall be perfectly dry and water tight for the storage of cement to be delivered to the work, to ensure adequate supplies being available for the work.

If any time the Engineer considers that any batch of cement may have deteriorated on site during storage for any reason, he will direct that tests shall be made and the batch of cement on the site which may be in question shall not be used until it has been shown by test at a laboratory, approved or appointed by the Engineer to be satisfactory. Contractor shall bear all costs of such testing. Any rejected cement shall be removed from the site by the Contractor without delay. Cement reclaimed from cleaning bags or leaking containers shall not be used.

Cement shall be consumed in the sequence of receipt of shipments unless otherwise directed by the Engineer.

Aggregates

All fine and coarse aggregates to be used shall be supplied from approved sources which shall not be changed without permission in writing from the Engineer. Aggregate shall conform to the requirements of applicable ASTM C-33-82.

Fine Aggregate

Fine aggregates, shall be from an approved source of supply of a uniform quality conforming to ASTM C-33-82 and shall be clean and sharp and free from clay, earth vegetable and organic matters, alkaline or acid reactions or other deleterious salts or such harmful matters and impurities and shall have dry specific gravity not less than 2.6 and %age absorption not greater than 2%.

Fine aggregates shall conform to the requirements of the relevant ASTM C-33-82 Specifications, and shall be graded as follows:

Sieve Number/Size	%age (by weight) passing
9.50 mm (3/8")	100
4.75 mm (No.4) 3/16"	95 - 100
2.36 mm (No.8) 3/32"	80 - 100
1.18 mm (No.16)3/64"	50 - 85
1.18 mm (No.30)	25 - 60
0.30 mm (No.50)	10 - 30
0.15 mm (No.100)	2 - 10

Fineness modulus of fine aggregate (sand) shall be not less than 2.3 and not more than 3.1.

Limits for deleterious substances of total sample shall be:

- Clay lumps and friable particles Maximum 3.0% by weight
- Material passing No.200 sieve Maximum 3.0% by weight
- Coal and lignite Maximum 0.5% by weight

Weight loss of sand subjected to 5 cycles of soundness test when sodium sulphate is used shall not be greater than 10%.

Coarse Aggregate

Coarse aggregate shall be approved hard crushed stone from a source approved by the Engineer and shall be clean insert, hard, non-porous and free from laminated particles, sand, dust, salt, lime, chalk, clay organic impurities or other deleterious matter and shall have dry specific gravity not less than 2.6 and %age absorption not more than 2%.

Coarse aggregate shall also conform to gradation the requirements of ASTM C-33 and shall be graded as follows:

(Nominal Size of Graded Aggregates shall be 19mm down)

Sieve Number/Size	%age (by weight) passing
19.00 mm	90 - 100
12.50 mm	-
9.50 mm	20 - 55
4.75 mm	0 - 10
2.36 mm	0 - 5

Weight loss of coarse aggregate when subjected to 5 cycles of soundness test using sodium sulphate shall not exceed 12% and %age loss for Los Angles Abrasion (500 revolutions) not greater than 50.

All aggregates shall be stored on properly constructed paving and in bins and there shall be a physical partition between the stock piles of coarse and fine aggregates. No mixed up aggregates shall be used in any concrete Under no circumstances aggregates shall be allowed to be in contact with ground.

Aggregates shall be screened and washed if required, to the satisfaction of the Engineer, before use by proper screening and washing plant. Adequate time is to be allowed, therefore, for the moisture content to become substantially uniform before use in works.

Water

Water to be used in the work shall be potable water and shall be free from all impurities whether suspended or dissolved. Further, the water shall not contain any chemical impurities, salts etc. of any kind. Water shall be tested for its fitness in works in accordance with AASHTO Method T26-51.

6.3

CLASSIFICATION OF CONCRETE

Classes of concrete to be used in various parts of the works shall be as indicated on the drawings and mentioned in the bill of quantities. The concrete of various grades shall be proportioned as set out in Table-1 below:

TABLE – 4

Type of Concrete	Max. Size of coarse aggregate	28 day compressive strength (cylinders)		Minimum Nos. of Cement Bags /100/Cft	Consistency (Range in Slump inches)
		Laboratory	Field Cured		
Class A	21	Kg/cm ² (psi)	Kg/cm ² (psi)	24	2-3
		330 (4680)	210 (3000)		
Class B	20			17	2-3
Lean Concrete	51	204 (2900)	170 (2400)	13	-
		120 (1700)	100 (1400)		

6.4

PROPORTIONING OF CONCRETE MIXES

All concrete shall be proportioned by weight for design of concrete mixes, unless specifically agreed by the Engineer to proportion them by volume, which permission shall be given only if the arrangements made at site are satisfactory. The Contractor shall submit to the Engineer proposed mix designs for concrete to be used, based on preliminary laboratory test to determine proportion of cement, aggregates and water in the concrete conforming to the quality and strength requirements specified herein. Quantity of cement so arrived at shall be increased but not decreased from the minimum quantity of cement stated in Table-1 above. Preliminary test results of at least three different mixes of each class of concrete with varied water-cement ratios shall be submitted. The results of 7 days and 28 days cylinders tests shall be used to establish the ratio between 7 days and 28 days strengths of used concrete. The Engineer may order adjustments in the ratio of fine to coarse aggregate in the mix for a certain work which shall be done without additional cost. Preliminary design of mixes and testing shall be the responsibility of the Contractor at his own cost. The proportion of voids in the coarse aggregate shall be controlled and if it exceeds 45%, sand and consequently the cement shall be increased by the Contractor without any charge. If the proportion is less than 45%, sand shall be decreased but not the cement.

Maximum Allowable Water Content

All concrete specimens shall be made, cured and tested in accordance with ASTM Standard. A curve representing the relation between the water content and the average 28 days compressive strength or earlier strength at which the concrete is to receive its full working loading shall be established for a range of values including all the compressive strengths shown in the Drawings or in BOQ. The curve shall be established by at least four points, each point representing average values for at least four points, each point representing average values content for atleast four specimens. The maximum allowable water content for the concrete shall be as determined from this curve and shall correspond to a strength 15% greater than that required. However water cement ratio of 0.50 shall not be exceeded.

Slump Test

The slump for concrete, determined in accordance with ASTM C-143 Test for Concrete, shall be minimum of 25 mm and a maximum of 75 mm (normally 50 mm to be adopted) provided the requisite strength is obtained. Corrective additions to remedy deficiencies in aggregate gradations shall be used only with the written approval of the Engineer. When such additions are permitted, the material shall be measured separately for each batch of concrete.

6.5 MIXING WITH CONCRETE MIXERS (ELECTRIC/MECHANICAL OPERATED)

No hand mixing under any circumstances even with extra cement shall be permitted. If during concreting, the mixing plant fails, the concrete already poured shall be removed, unless directed otherwise by the Engineer. Mixers which have been out of use for more than 30 minutes shall be thoroughly cleaned before any further concrete is mixed.

The capacity and number of mixers provided by the Contractor shall be such as to meet requirements but without producing an appreciable excess concrete at any time. Special attention shall be devoted to this point in hot weather when the setting of concrete is considerably accelerated.

The volume of the mixed material per batch shall not exceed the manufacturer's rated capacity of the mixer.

To ensure that the concrete materials can be mixed most readily into a homogeneous mass, wherever possible the cement, aggregates and water should be fed into the drum simultaneously.

Each batch of materials including water shall be mixed in the drum of the mixer until the concrete is of uniform colour and consistency. The minimum time of mixing shall be three minutes for drum mixers. The mixing time shall be measured from the time all materials required for the batch, including water, are in the drum of the mixer.

The drum shall be completely emptied before recharging and any water retained in the mixing drum be completely discharged.

The mixing water shall be regularly sampled and tested for salt content and contamination.

On completion of each working period, the drum of the mixer shall be thoroughly cleaned and all adhering concrete shall be removed.

Concrete shall be discharged from the mixers and conveyed to the work in such a manner that no segregation or leakage of the constituent materials takes place. The method and equipment used for transporting concrete shall be subjected to the approval of the Engineer. The means of transportation shall ensure that the concrete is of the required quality at the point and time of placing.

6.6 TRANSPORTING AND PLACING CONCRETE

Concrete shall be conveyed and deposited as quickly as possible after mixing and shall proceed so that, as far as possible, a complete section of the work is done in one operation. The concrete may be distributed in barrows, skips, chutes and by any other method such as pumps, conveyor belts etc. all to the approval of the Engineer.

Transport of concrete shall be in a manner approved by the Engineer and shall be so as to avoid segregation or loss of ingredients of concrete.

All foundations, superstructure and roofs and other portions of work to be concreted shall be approved by the Engineer in writing before concrete is poured. For this purpose a standard format shall be provided by the Engineer (called Pour Slip).

All forms and reinforcement shall be completed, cleaned, to be inspected and approved before pouring of concrete. No concrete is to be deposited till the Engineer has inspected and approved in writing all aggregates, cement, reinforcement, forms, details, positioning of all fixture and materials to be embedded in concrete, control levels and screeds, etc. and is satisfied with the arrangements the Contractor has made to efficiently proceed with the work such as sufficient labour, materials, plants etc. Such an approval will not relieve the Contractor from any of his obligations under the Contract. No concrete shall be deposited without the written permission from the Engineer (Pour slip to be signed) who shall have no authority to waive off this condition. Any concrete without such written authorization shall be liable to be rejected.

Placing of concrete shall not be permitted when, in the opinion of the Engineer the sun, heat, wind, cold, snow, or limitations or facilities furnished by the Contractor prevent proper preparation, placing, finishing and curing of concrete.

All concrete shall be thoroughly compacted and consolidated by means of pneumatic or mechanical immersion type vibrators of suitable size having minimum frequency of 8000 RPM. Care shall be taken to avoid segregation due to excessive vibration. The Contractor shall maintain on site at all times one or more standby vibrators. Tapping or other external vibration of forms shall not be allowed, unless so directed by the Engineer in that case form work shall be adequate to withstand vibrations. Compaction shall be done until the whole mass assumes a jelly like appearance and consistency with water just appearing on the surface. Concrete shall be sufficiently tamped and consolidated around the steel rods, care shall be taken that the vibrator does not touch steel or formwork, and is worked into all parts of the moulds in order that no voids

or cavities are left. Steel shall not be disturbed during operation of concreting. Concrete shall be brought up in even layers not more than 200 mm thickness and worked against side of forms to give a smooth and uniform surface. No surplus water shall be allowed to come out and lie on the surface of concrete. The concrete must be of such a consistency that after ramming, consolidating and tamping is completed, a thin film of water is just appearing on the surface. In vibrating, care shall be taken to avoid displacing the reinforcement.

Hardened concrete, debris and foreign materials shall be removed from interior of forms and form inner surface of mixing and conveying equipments.

Runways and gangways shall be provided for wheeled concrete handling equipment and workmen, and such equipment shall not be wheeled over reinforcement, nor shall runways be supported on reinforcement.

Concrete shall not be dropped freely from a height of more than 3 metres. In cases where an excessive drop is inevitable the Contractor shall provide spouts, down pipes, chutes, or side ports to forms with pockets

which will let concrete stop and flow easily into the form without any risk of segregation. The discharge of the spouts, down pipes or chutes shall be controlled so that the concrete may be effectively compacted into horizontal layers not more than 200 mm thick.

Concrete is to be deposited as quickly as possible after mixing and to proceed continuously. Concrete which has attained its initial set or has contained its mixing water for more than 30 minutes shall not be allowed to be placed in the work.

When concrete is laid on hard core, such as subgrade for floor slabs, or other absorbent material, the surface is to be watered, consolidated and, blinded before the concrete is deposited.

Fresh concrete shall not be placed on previously laid concrete or on old concrete surfaces until the latter has been cleaned of all dirt, scum and laitence by wire brushes. The clean surface shall then be thoroughly wetted and grouted with cement slurry as approved by the Engineer.

Care shall be taken not to disturb newly placed concrete by vibrator, indirect loading or otherwise. No traffic or loading shall be allowed on the concrete until it has thoroughly set and hardened.

Construction joints in concrete shall only be given at locations indicated on the drawings or as approved by the Engineer. If approved by the Engineer, the concrete at the end of the day's work shall be finished off against a temporary shutter stop which shall be vertical and securely fixed. Such stops shall be removed within 24 hours of placing of concrete. Construction joints not shown on the drawings shall be reinforced with steel bars or dowels if deemed necessary by the Engineer and to be furnished by the Contractor without any additional payment.

No concrete shall be placed during rains or inclement weather and all fresh concrete shall be suitably protected from rain fall and excessive heat or cold.

Should any part of the exposed surface present a rough, uneven or imperfect appearance, when the shuttering is removed, it shall be picked out to such depth and refilled and properly re-surfaced and entirely redone, at the cost of the Contractor, as per directions and approval of the Engineer.

On removal of the forms and before the concrete skin has had time to harden all faces of the concrete inside and outside, to be kept exposed (i.e. unplastered) shall be rubbed over with carborundum stone, and washed with cement to remove all marks, projections, hollows, or any other defect. No extra payment shall be made for this work.

All exposed surfaces and lines of the concrete work are to be true and fair without cracks, bends, windings and distortions of all kinds, without any extra charges by the Contractor. All concrete work to remain exposed and unplastered is to be fair face smooth, pleasing in appearance and to the entire satisfaction of the Engineer.

A float or screed is to be worked over the exposed surfaces of all concrete work on the flat or curve, so as to render the surfaces perfectly smooth, clear and to the necessary slopes or falls or as required to receive the floor or roof finishes according to the drawings and as directed by the Engineer without any extra charge by the Contractor.

6.7

PROTECTION AND CURING

All exposed concrete shall be cured. Curing shall be accomplished by preventing loss of moisture, rapid temperature change and mechanical injury from rain or flowing water for a period of at least twenty eight (28) days. Curing shall be started as soon as the concrete has hardened sufficiently for the surface not to be marked. Curing shall be done either by continuous sprinkling of water on the surface or by covering with sand, hessian, canvas or other approved fabric mats which shall be kept continually wet and shall be continued at least for a period of fourteen (14) days with watering atleast thrice a day in the next fourteen (14) days. If required and so directed by the Engineer, formed surface with forms in position shall also be

cured by keeping all forms continually wet. As an alternative, curing of concrete on all exposed surfaces which could not be kept covered, such as sides of the beams, under side of the slabs, may also be done by sealing concrete surfaces with liquid membrane forming curing compounds white pigment type conforming to ASTM C-309 or equal so as to arrest loss of moisture from concrete, with the approval of the Engineer.

Care should be taken so as to spray the compound/chemicals on all the exposed faces of concrete so that no loss of moisture takes place. The Contractor shall take special care that curing of concrete is satisfactorily carried out and in accordance with methods specified herein and /or as instructed by the Engineer.

Any negligence in this regard may result in total rejection of such concrete works which in the opinion of the Engineer have not been adequately cured. Period of curing for any concrete shall be as stated above or as directed by the Engineer. All concrete pours and concreted structures shall be clearly marked with non-washable paints to indicate the date of placing concrete. During hot weather, curing shall be done even at night. It shall be obligatory on the part of the Contractor to obtain a certificate from the Engineer that the curing has been properly done. A suitable format shall be printed and kept on site to be signed by the Engineer for every part of the work.

6.8 **SAMPLE AND TESTING**

Testing of Concrete

All test cylinders shall be of 150 mm dia x 300 mm long size cast in steel moulds. Set of 6 cylinders shall be prepared numbered and initialed by Engineer each for foundations, plinth, band, columns, door level band and roof.

Three cylinders of the set shall be tested at 7 days and shall be tested at 28 days.

All test specimens shall be made, cured & tested in accordance with ASTM or applicable British standard.

If the strength tests of the specimens for any portion of the work falls below the minimum required compressive strength at 28 days for the class of concrete used in the portion, the Engineer shall have the right to order dismantling & replacement of the affected work.

Water

Water to be used in the work shall be potable water.

Cement

Cement shall be tested as prescribed in BS-12.

Aggregate

Aggregates shall be tested as prescribed in ASTM C-33. In addition, fine aggregates shall be tested for organic impurities in conformity with ASTM C-40.

Reinforcement

Reinforcement bars shall be tested as prescribed in BS-4461 (for Ribbed Tor Steel), ASTM A-615-82(S1) (for Mild Steel Plain Bars). Refer Item 6.12 of this Section for minimum yield strength and other requirements.

6.9 **PRECAST CONCRETE UNITS**

Precast concrete units shall be cast to the sizes and dimensions as indicated on the drawings. Separate precasting platform of the size and at the location approved by the Engineer shall be made. All the concrete used for precast units shall conform to the specifications laid down for cast in situ reinforced concrete unless otherwise required. Special vibrating tables shall be employed for thin sections.

All concrete for precast units shall be cast against formica lined formwork to finish smoothly to the required lines, angles and all the units shall be adequately cured in water tanks and shall be properly stacked on the platform to prevent damage or cracks. All precast units shall be transported and erected into position in the manner as approve by the Engineer.

6.10 **WATERPROOF CONCRETE**

Wherever specified on the drawings and all liquid or water retaining structures and those subject to water pressure shall be executed with approved waterproofing compound such as PUDLO or approved equivalent. The waterproofing compound shall be mixed with the concrete in strict accordance with the manufacturer's directions and/or as directed by the Engineer.

Special care will be observed to make the shuttering waterproof. The shuttering joint shall be well made to make them leakproof. Tin strips to join the shuttering planks will not be used as they result in leakage. New timber or plywood shuttering shall be used for work under this section.

REINFORCEMENT STEEL

General

The work covered by this sub-section of the Specifications consists of furnishing all materials, tools, labours and in performing all operations in connection with the providing, straightening, cutting, bending, fixing, binding including binding wire, chairs, pins, spacer blocks complete in strict accordance with this sub-section of the Specifications, the applicable drawings and approved bar bending schedule.

Materials

Reinforcing steel to be new billet stock of mild steel (plain bar) and ribbed to steel bar as specified hereunder and on the drawings and shall conform to relevant British Standard Specifications for Ribbed Tor Steel and ASTM for Mild Steel. It should be free from loose mill scale, loose rust, oil, grease, dirt or other harmful substance.

The Contractor shall furnish from the agency supplying the steel, the manufacturer's mills certificates to guarantee that supplied steel is from new billets and the steel meets all the requirements of the relevant specifications and further meets the minimum certified requirements as follows:

- | | | | | |
|-----|---|----|---------------------------|-----|
| i) | Mild steel plain and deformed bars grade 40 conforming to ASTM 615-82 (S). | | | |
| a) | Minimum Ultimate tensile strength | | 4,922 kg/sq.cm | |
| b) | Minimum Yield Strength | | 2,812 kg/sq.cm | |
| c) | Minimum Elongation | | 8% to 12% | |
| ii) | High yield steel bars: These are Ribbed tor steel conforming to BS 4461-1978. | | | |
| a) | Minimum Ultimate tensile strength | | upto 16 mm 5,104 kg/sq.cm | |
| | | | over 16 mm 4,781 kg/sq.cm | |
| b) | Minimum Yield strength | | upto 16 mm 4,711 kg/sq.cm | |
| | | | over 16 mm 4,360 kg/sq.cm | |
| c) | Minimum Elongationupto | 16 | mm | 12% |
| | | | over 16 mm | 14% |

Bendability

All Mild Steel bars shall be capable of being bent cold through 180 degree round a bar of two times its own dia without fracture or injury of any kind.

All Tor Steel bars shall be capable of being bent cold through 180 degree round a bar of two times its own dia without fracture or injury of any kind.

18 gauge galvanized wire shall be used for binding the steel reinforcement.

Samples shall be tested for above requirements in an approved laboratory before starting the cutting of the bars and when so required by the Engineer; and all cost of such tests shall be borne by the Contractor.

Storage

Reinforcing bars shall be stored on platform sufficiently above ground surface and be free from scales, oil, structural defects prior to placement in works. Rusted or dirty steel bars shall not be used in the works unless brushed and cleaned by proper steel wire brushes and after being approved for use by the Engineer.

Reinforcement Cutting and Placing

All reinforcement steel shall be cut and bent cold in strict accordance with the drawings and bar bending schedules approved by the Engineer. In case any bars, cut, bent or even fixed in position are found incorrect in dimensions, size, and shape and are not according to the requirements of the drawings or instructions of the Engineer, notwithstanding any previous approval of the Engineer, the Contractor shall replace such steel bars, cut, bent or fixed in position, by correct sizes bars at his own cost and no extra payment shall be made to the Contractor on such account. Suitable spacers, chairs as approved by the Engineer shall be used

for supporting and spacing purposes of bars. In case any bars are bent or displaced they shall be straightened or replaced prior to pouring. All reinforcement bars within the limit of a days pour shall be in place and firmly tied with 18 gauge G.I. wires. Bars with kinks or bends not shown on the drawings shall not be used. Reinforcement bars shall not be used for supporting the workman and concreting work. Separate supporting system shall be used for this purpose.

Laps and Splices

No. splicing of bars shall be allowed at position other than shown on the drawings. All lap lengths shall be of the minimum sizes as indicated on the drawings and in no case shall lap length be less than 40 times the diameter of bigger bar in tension and 35 times the diameter of bigger bar in compression for nominal M.S. bars. High yield (tor steel) bars shall have laps of 50 times the bigger diameter of lapping bars in tension and 40 times for compression. Splices of adjacent bars shall be staggered, unless approved otherwise by the Engineer. All reinforcing steel fixed in position shall be inspected by the Engineer and no concrete shall be poured until steel placement has been approved in writing by the Engineer. For inspection purposes the Contractor shall give to the Engineer reasonable notice before the scheduled pouring time. Clear concrete cover to reinforcement steel shall be as specified or indicated on the drawings or as directed by the Engineer.

6.12

FORMWORK

General

The Contractor shall provide all materials and labour, necessary for a good and speedy making and erection of form work such as scaffolding, shuttering, planks, struts, bolts, stays, gangways, boards, fillets etc. and shall do all that is essential in executing the job in a workman like manner to the satisfaction of the Engineer.

The formwork for columns, beams, slabs, walls and all other works whether to be precast or cast-in-situ shall conform to ACI-347 and shall be made of sound and properly seasoned timber or other approved material and shall be rigidly formed and designed by the Contractor to the required shapes and forms, so as to be able to withstand, without displacement, deflection or deformation or movements of any kind, the pressure of the moist concrete and all other loads.

Contractor shall remain solely responsible for any damage or injury caused to the work and people, due to improper formwork resulting in dislocation or collapse when loaded or early striking of formwork.

Materials

Forms

Forms shall be constructed of wood or metal, and shall conform to ACI 347.

Form Oil

Form oil shall be non-staining colorless mineral oil, free from kerosene; the flash point shall be not lower than 149 degrees C, determined in accordance with ASTM D92.

Form Sealer

Shall be best of its kind and shall be as approved by the Engineer.

Form Accessories

Form ties, anchors and hangers shall be of sufficient strength to completely resist displacement of forms due to construction loads and the depositing of concrete. Provide tie and spreader type form ties designed to that no metal will be within 25 millimeters of any surface when forms are removed. Where concrete surfaces are exposed to view, do not use form ties which, when removed, will leave a depression larger than 25 millimeters in diameter. Use water seal ties in concrete exposed to hydrostatic pressure. Conform to ACI 301 and 347.

Design of Formwork

All formwork and supports thereto shall be designed by the Contractor for the type and quantum of loads and forces to be supported and relevant drawings shall be submitted, if so directed, to the Engineer for approval before the work is taken in hand. Such an approval shall not relieve the Contractor from all or any of his obligations under the contract.

Formwork: Fabrication and Erection

Forms shall be fabricated and erected in position, perfect in alignment, levels and true to plumb and shape and securely braced so as to enable it to stand all weights, dead and live, to be endured during placing of concrete and its subsequent hardening till the form work is struck. It shall be sufficiently rigid as not to lose its shape and shall be made to compensate for bulging, and deflection to give the finished concrete the required lines, plumb, size and shape.

The form work shall be so designed and arranged as not to unduly interfere with concrete during its placing, and easy to be removed without injuring the finished concrete. Wedges, clamps, bolts and rods shall be used, when permitted and where practicable, in making the form work rigid and in holding it to true position.

The joints in the form work for all concrete surfaces shall be close jointed and treated smooth so as not to allow any leakage of mortar from the concrete and show any appearance of leaking mortar on concrete surface.

Formwork for Fairfaced Concrete

In addition to the provision made elsewhere, for all the concrete work covered in this contract which are to remain exposed in the finished work and left unplastered, the formwork shall be smoothly faced by using plywood sheets or lining the shuttering with smooth G.I. sheet or non-absorbent material like formica sheets or in any manner as approved by the Engineer so as to make a perfectly smooth surface of the finished concrete.

Temporary Openings in Formwork

Wherever concreting is required to be carried out within forms of depth exceeding 2 metres, temporary openings in the side of the form shall be provided to facilitate the pouring and consolidation of the concrete. Small temporary openings may be provided at the bottom of all forms to permit the removal of rubbish etc; but the same shall be suitably closed before pouring of concrete.

Openings and Other Details

Provision shall be kept in the form work such as openings, recesses, holes, pockets, fillets, etc. for housing services and other details in the finished concrete or on its surface and edges as shown on the drawings or as directed by the Engineer and to fix all necessary inserts, dowels, pipes, holdfast etc. in concrete as shown on the drawings or as directed.

Treatment and Inspection of Forms

All rubbish particularly chippings, shavings and sawdust shall be removed from the interior of the forms, before placing concrete. Forms shall be coated with approved shuttering oil before reinforcement is placed. Surplus oil on forms and any oil on reinforcement steel shall be removed. If the forms are not used within 24 hours, a fresh coat of oil shall be given before placing of concrete if so directed by the Engineer.

Striking Shuttering

Forms shall be removed in such a way as to permit the concrete to take the stress uniformly and gradually. Any method of form removal likely to cause overstress of the concrete shall not be used.

No struts or timbering which serve the purpose of supporting the shuttering or centering shall be struck and removed without permission from the Engineer in writing and the work of striking and removal after the receipt of such permission shall be conducted under the personal supervision of the competent foreman in the employment of the Contractor; and the Contractor even after the permission from the Engineer shall hold himself fully responsible for any consequence whatsoever. In all cases the Engineer will direct and control the minimum period of time for which the forms, shuttering or centering the minimum period of time for which the forms, shuttering or centering shall remain in place before being struck; but, for the general

guidance of the Contractor, the following are to be considered as the desired periods for the main classes of work:

Removal of Shuttering	Cold Weather No. of days	Normal Weather No. of days
Beams sides, walls and Columns (unloaded)	4	2
Slabs soffits	18	14
Beams soffits	21	15

The Engineer may require, however, that any wallings, solders, struts or other timbers or supports, the removal of which may cause the transference of load to the finished work, to be kept in place for three weeks after the placing of the concrete.

The Contractor shall be responsible for any injury to the work and any consequential damages caused by or arising from the removal and striking of forms, centering and supports, due to striking too soon, and any advise, permission or approval given by the Engineer relative to the removal and striking of forms, centering and supports shall not relieve the Contractor from his responsibilities under the Contract.

Treatment after Removal of Forms

Any minor surface blemishes or other irregularities are to be properly made good immediately upon the removal of the form work and the surface made good to the satisfaction of the Engineer. Any small voids shall be neatly grouted with cement mortar consisting of one part of cement to two parts of sand and the whole surface rubbed over with carborundum stone and cement wash and bring the whole to a smooth and pleasing finish and uniform colour.

6.13 **CONSTRUCTION JOINTS**

Construction joints shall be located as indicated on the drawings and/or as approved or directed by the Engineer. For slab and beams, construction joints shall be located at mid point of the span unless a secondary beam intersects a main beam at the centre in which case the joints in the main beam shall be off-set a distance equal to thrice the width of the beam and provision for shear shall be made by the use of inclined reinforcement at the cost of the Contractor. Joints in columns shall be made at the under side of the deepest beam framing thereto. Beam stems and slabs shall be poured monolithically unless allowed otherwise by the Engineer in writing. Joints not specified or shown on the drawings if so required and approved by the Engineer, shall be so located as to least impair the strength and appearance of the work. Except and where indicated on the drawings, no jointing shall be made in footings or foundations without written approval of the Engineer. Construction joints shall be at right angles to the member and shall be formed against firm stop boards. The stop board shall be removed as soon as possible after placing the concrete but without the risk of movement of the concrete and the concrete surface shall be well brushed with a hard brush and washed off with a spray of water, two to four hours after castings, to expose the aggregate and provide a key for the next pour. In all liquid retaining structures and other sub-structure pits and trenches P.V.C, stopper sheets or any other approved water stops shall be provided at the construction joints in the manner shown on the drawings and/or approved by the Engineer.

Whenever a section of concrete is left unfinished, for any reasons with the prior approval of the Engineer, leaving surface which will be hard-set before additional concrete can be joined to it, additional measures such as dovetails, grooves or other bonds shall be provided as may be necessary to ensure a good bond with the new work, at the cost of the Contractor. Before depositing fresh concrete upon or against any concrete which is already set, the surface of the set concrete shall be roughened with a cutting tool, any laitance removed, thoroughly cleaned from all foreign matter, well watered and covered with approved bonding compound, and special care shall be taken to ram the fresh concrete thoroughly up and against the set concrete; and, if deemed necessary by the Engineer, the joints shall be reinforced with steel bars or dowels to be all furnished and done by the Contractor without any additional payment.

6.14 **ANCHOR BOLTS, INSERTS, SLEEVES, CHASES, RECESSES, STEEL FRAMES**

The Contractor shall furnish and place in position accurately, as shown on the drawings, all inserts, sleeves, chases, recesses, etc., supplied by himself or other sub-contractor or Contractors, as directed and full cooperation and coordination shall be maintained with other contractors, sub-contractors in this regard.

6.15 **MEASUREMENT AND PAYMENT**

Concrete

Payment shall be made for the net volume of Concrete as per drawings or as actually executed whichever is less (provided that the Engineer has agreed and allowed the reduction in sizes whenever occurred, which however shall not be a usual case).

Steel Reinforcement

Payment for steel reinforcement shall be made for the actual length of steel bars incorporated in the work multiplied by the standard weight without consideration of over-rolling etc. Wastage, laps not shown in drawings, spacer bars, chairs, binding wire etc. shall not be paid and the Contractor shall be deemed to have made provision for such matters in his rates for steel reinforcement in the Bill of Quantities.

Formwork and Construction Joints

No separate measurement or payment shall be made for Formwork and Construction Joints and all costs and charges shall be deemed to have been included in the rates for related items of concrete in the Bill of Quantities.

ITEM - 7 BRICK MASONRY WORK

7.1 SCOPE

The work covered by this section of the Specifications consists of furnishing all plant, equipment, appliances, and materials, and in performing all the operations in connection with brick masonry work complete in strict accordance with the specifications herein and the applicable drawings and subject to the terms and conditions of the contract.

7.2 MATERIALS

Cement

The cement shall be normal setting portland cement of approved make complying all respects with BS-12.

Sand

Sand shall be sharp, cubical, hard, dense, durable and shall pass through 3/16 sieve and 2 to 10% through sieve No.100. It should free from organic impurities and lumps and salts of any nature and kind.

Water

Water shall be as specified under Item - 6 on page SPC-13 for Concrete and shall be free from salts of any nature and kind.

Bricks

Bricks shall be hand moulded or machine made of the best kind conforming to relevant BS 3921 having a size not less than 220 mm x 105 mm x 67 mm. They shall be hard, sound, well burnt, regular in shape and colour, uniform in size, and free from nodules of lime. When the bricks are struck together they shall give a ringing sound.

Samples shall be approved by the Engineer at intervals and consignments rejected shall be immediately removed from the site. Colour of the bricks shall be as approved by the Engineer.

Minimum crushing strength shall be 85 kg/sq.cm. The bricks shall not absorb more than 15 percent water (of their dry weight) when immersed in water for 24 hours.

The finished brick work shall not show any sign of efflorescence as the same will pass through the plaster and spoil internal finish e.g. distemper, plastic paint.

7.3 CEMENT MORTAR FOR MASONRY

Mortar shall be composed of one part cement and four parts of sand or as described in the relevant B.O.Q. Mortar shall be machine mixed and hand mixing shall not be allowed in any case.

Mixing Time

Mortar shall be mixed in the mechanical mixer for 2 minutes. Mortar shall be used within half an hour of mixing. Mortar standing for more than half an hour shall not be used.

The ingredients for mortar shall be measured in boxes. No retempering of mortar shall be allowed nor mixing of any antifreezing ingredients in mortar shall be permitted.

The mortar shall be subject to compressive strength test and the average compression strength of three Nos. 50 mm cubes of mortar shall be not less than 126 kg per sq. cm (1800 psi) at 28 days.

MASONRY AND JOINTING

All bricks for laying in cement mortar directed by the Engineer shall be thoroughly soaked in water for 24 hours before use.

All masonry shall be laid in plumb, true to line and level in accurately spaced course with each breaking joints with the course below, corners and reveals shall be plumb and true, chases, grooves, reglet bricks and raked out joints shall be kept free from mortar and other debris.

The thickness and length of various walls shall be as indicated on the drawings.

Unless otherwise shown on the drawings or specified, the spaces around frames and other build-in-items shall be solidly filled with mortar except those joints which are to be caulked shall be raked out 20 mm deep.

Bricks for brick work which shall not be covered with plaster will remain exposed, shall be pre-selected and the face, or faces, of the brick which will remain exposed shall be ground smooth prior to installation to give a even, uniform and smooth texture. Samples of which will have to be approved by the Engineer.

Work required to be build in with masonry including anchors, wall plugs and accessories shall be build in as the work progresses. Wood plugs and blocking shall not be built into masonry.

All horizontal and vertical joints shall be completely and solidly filled with mortar as the bricks are laid.

The thickness of joints shall not exceed 10 mm and the joints shall be pressed 12 mm deep when the mortar is still fresh so as to provide for proper bond for the plaster and pointing.

No masonry to be erected when temperature of outside air is below 40 degree F, unless suitable means, as approved by the Engineer are provided to heat materials, protected from cold and frost and ensure that material will harden without freezing.

Where masonry work abuts columns, it shall be anchored there, by means of dovetail 10 mm dia M.S. bar at every 4th course of masonry unless otherwise directed by the Engineer.

The top course of partitions under slabs and beams shall not be laid until the forms have been removed and the roof slab placed.

All bricks to be thoroughly soaked in water before being laid in cement.

All joints to be well flushed up at every course. The walls shall be carried up regularly, not leaving any part more than 1 m lower than another, unless special circumstances render this impracticable and are so approved by the Engineer.

Any walls left at different levels to be racked back, courses to be properly levelled, perpends, quoins, jambs and other angles plumbed, as the work proceeds.

All brick work shall gauge four courses to 300 mm in height including four joints.

All brick work to be build in English Bond unless otherwise directed by the Engineer, no half bricks or bats being used except where necessary to complete the bond.

When the masonry is to receive plaster on one side and pointing on the other, the brick shall be placed in such a way that the better face shall be on the side of pointing.

7.5 COORDINATION

Provide chases, and openings required under other sections to sizes and location shown in the drawings.

Cooperate with other trades in setting build in items, take special care in cutting, fitting, setting units so that built in members are in their true, respective positions, flush voids full.

For items provided in other sections such as door frames, hold fasts, miscellaneous metal work occurring in the masonry, sleeves, anchors, supports, nailing strips, braces, jambs, are to be built-in the masonry.

Special care shall be taken in building walls of door frames, Contractor shall see that frames are square and in plumb. Check frames before building work around or against them. The Contractor shall see that full electric conduits are not housed into frames, so as to prevent extension of frame anchors.

The Contractor shall be responsible for any damage to his own work and also to the work of other sections.

7.6 PROTECTION AND CLEANING

Surface of masonry not being worked or shall be properly protected to all times during the construction operations. When rain and/or snow is expected and the work is discontinued.

Exposed masonry surfaces shall be cleaned with water and fibre brushes or as directed by the Engineer.

Protect adjacent work during cleaning operations, make good damage from neglect of this precaution.

7.7 SAMPLES

Samples of all kind of materials to be used on the job shall be submitted to the Engineer and to be approved by him before bulk quantities are procured. Source of supply or quality of materials not to be changed unless authorised in writing by the Engineer.

7.8 TESTING

All the materials and samples shall be subject to standard testing and if found below the recognized standard specifications such as BSS, ASTM or equal shall be rejected. Rejected materials shall be removed from the site immediately. All testing shall be done at contractor's cost.

7.9 CURING

Curing shall be done as specified in Item - 6.

7.10 MEASUREMENT AND PAYMENT

Masonry work below plinth shall be measured in cubic measure and above plinth measurement shall be made in square measure. Payment shall be made for the square measurement of walls area actually constructed. No separate measurement or payment shall be made for wall ties, or holding clips etc.

ITEM - 8 FLOORING

8.1 SCOPE OF WORK

The work covered under this section shall include furnishing of all materials, labour, equipment and appliances and performing all operations required in connection with flooring work as described hereinafter, shown on the drawings, stated in the description of items of work in the Bills of Quantities and as directed and approved by the Engineer.

8.2

MATERIAL

The material of fill shall be obtained from approved sources. Suitable material obtained from excavation shall also be used. Quality of fill material shall be governed by the relevant specifications.

Stone Soling (Hard core)

Course aggregates shall be crushed or uncrushed stone, angular or rounded in shape and shall have granular, crystalline or smooth surface free from friable, flaky and laminated pieces, mica and shale, all coarse aggregate shall conform to BSS 882. Aggregate shall be thoroughly rolled and compacted mechanically to achieve a compaction of 95% modified AASHTO.

Lean Concrete Sub-floor

Lean concrete sub-floor shall conform to the relevant specifications for Concrete.

Class-B Concrete Base

Class-B concrete base shall conform to the relevant specification for Concrete.

Ceramic Tiles

150mm x 150mm 200 x 300 size 1st quality Ceramic Tiles manufactured by M/s. "EMCO" Tiles Ltd or approved equivalent shall be used.

The relevant information regarding the quality, finish and origin as to the surface finishes have been stipulated on the drawings and described in B.O.Q which shall be provided.

8.3

WORKMANSHIP

Sandfill

Fill shall be placed in layers not exceeding 150 mm thickness and shall be thoroughly rolled and compacted mechanically by the addition of controlled amounts of water required to achieve a compaction of 95% AASHTO density. Compaction test at different places shall be submitted for approval of the Engineer. The Engineer shall have complete freedom in rejecting any work in full which is not properly compacted to the required degree. The top surface shall be finished smooth as to elevation or falls shown on the drawings or directed. This surface shall be made over to receive subfloor wherever required.

Ceramic Tiles Work

Materials

Cement

Cement shall be white cement as per ASTM or British Standard.

Sand

Approved sand shall be used which shall be clean, washed, uncoated aggregate, free from deleterious substance, uniformly graded with 100 percent passing No. 4 screen, not more than 5% passing No.100 screen and shall conform to ASTM C-144.

Tiles

Ceramic tiles shall be 1st quality "EMCO" brand or approved equal of 150 mm x 150 mm size. Tiles for floor work shall be non-skid type.

Workmanship

Ceramic tiles shall be installed as indicated on drawings and finishing schedules. The colour and samples of ceramic tiles shall be selected and approved by the Engineer.

Cutting of tiles shall be done in a neat manner to make tiles fit, to conform properly to adjoining works and to suit conditions, without marring the tile surfaces.

Ceramic Tiles on Floor

The work consists of laying ceramic tiles with 1:1 cement sand mortar slurry to achieve good bonding on levelling base of Class-B concrete and Lean concrete subfloor over hard core & sand fill laid to slope as required towards floor drains. The joints in the tiles shall then be filled neatly with grout of cement and integral colouring to match colour of ceramic tiles. The tiles shall then finally be cleaned and protected against abrasion and damage.

Ceramic Tiles on Walls

The work consists of laying ceramic tiles with 1:1 cement sand slurry to achieve good bonding. The joints in the tiles shall then be filled, finished and protected as per direction of Engineer.

8.4

INSITU MOSAIC FLOOR

12 mm thick insitu Mosaic floor shall be laid with one part by weight of cement to two parts by weight of approved marble chips size No. 3 of approved colour and quality. Addition of marble powder will not be allowed. The insitu mosaic shall be done in panels of maximum 10 sft using 1/4" (5 mm) thick glass divider strips. The insitu mosaic shall be cured, ground smooth to obtain an even texture and exposure of marble chips. The surface shall then be cleaned and finally wax polished.

INSITU MOSAIC SKIRTING.

Insitu mosaic skirting be done by using one part by weight of cement to two parts by weight of marble chip of size No. 3 to a thickness of 3/8" and shall be same colour and quality as sued for flooring. Addition of marble powder will not be allowed. The skirting should be either flush with the plaster or slightly recessed, skirting standing proved of the plaster surface shall not be accepted except where shown in the drawings. The skirting shall be ground smooth to obtain an even texture and exposure of the marble chips. The surface shall then be cleaned and finally wax polishes.

8.5 CURING, GRINDING AND POLISHING:

Floor should be kept continuously wet for seven days before grinding and no one shall be allowed to walk on floor during that period.

After seven days the terrazzo floor shall be machine ground to a true even surface using various grades of abrasive stones as required. After the first grinding, the floor shall be thoroughly grouted with the same cement and colour composition as used for tiles manufactured. The grout shall be of the consistency of thick cream ad shall be brushed over the floor to eliminate all imprisoned air and thoroughly fill the surface for final grinding.

The floor shall be kept continuously wet after grouting for atleast 7 days and then the grouting coat shall be removed by grinding. The final finished surface should have very smooth finish. Small areas, in accessible portions and corners and the skirting which cannot be reached by the grinding machine shall be ground and rubbed by hand.

After final grinding is complete the floor shall be washed and left for 7 days for drying. During this drying period, the floor shall be kept covered such that no dust is allowed to settle on the floor. After the floor is perfectly dry, the surface shall be thoroughly cleaned but without the use of water. Wax polishing shall then be applied to provide smooth glossy finish. The surface, then shall be covered with sawdust and all movements over the floor prevented. The final gloss shall be given by final coat of polishing to the satisfaction of the Engineer.

8.6 **SAMPLES**

Samples of all kinds of materials to be used on the job, shall be submitted to the Engineer and to be approved by him.

8.7 **MEASUREMENT AND PAYMENT**

Payment shall be made for the actual area covered in square measure and shall include all under base i.e earth filling, concrete subfloor, concrete base course, slurry base etc. for which no separate measurement or payment shall be made.

ITEM - 9 PLASTERING

9.1 **GENERAL**

The work covered by this Section of the Specification consists of furnishing all plant, labour, appliances and materials and in performing all operations in connection with lathing and plastering, complete in strict accordance with this section of the Specifications and the applicable drawings and subject to the approval of the Engineer.

Except as may be otherwise shown or specified, all plaster shall be cement plaster. Plastered walls shall include partitions, columns, pilasters, plastered jambs and other returns, reveals, and backs of recesses and alcoves, and jambs and heads of windows and doors, unless otherwise specified or shown on the drawings. Plaster on walls, shall be carried down to dado, skirting and projected bases.

9.2 **MATERIALS**

Portland cement shall be normal setting cement of approved make complying in respects with ASTM.

Sand shall comply with the requirements of ASTM C-35.

Water shall be clean and free from oils, acids, alkalies salts and organic or other injurious matter.

9.3 **MIXING OF MORTAR FOR PLASTER**

Mechanical mixers of an approved type shall be used for the mixing of mortar for plaster. Frozen, caked, or lumped materials shall not be used. Mechanical mixers, mixing boxes, and tools shall be cleaned after mixing each batch and kept free of mortar from pervious mixes. Mortar shall be thoroughly mixed with the proper amount of water until uniform in colour and consistency. Retempering will not be permitted, and all mortar which has begun to stiffen or where 30 minutes have passed since mixing of water shall not be used.

9.4 **PROPORTIONING OF PLASTER**

All plaster shall be portland cement plaster, all coats of which shall be mixed in the proportions of one part of cement and four parts of sand by volume unless shown otherwise in the relevant items of work in the Bill of Quantities.

All coats of plaster in water retaining structures shall be waterproofed by addition of an approved compound like PUDLO in liquid form or solid used at the rate of 3% by weight of cement. The water proofing compound shall be commercially pure with no clods or oils or other ingredients detrimental to the cement.

9.5 **APPLICATION OF PLASTER**

All the holes and blocking for the installation of electrical and mechanical fixtures and wiring, conduits and pipe sleeves, metal anchors of all types, openings for installation of equipments etc. shall be installed and approved before plastering. Cutting and drilling in finished plaster shall not be permitted.

Masonry joints shall be raked and concrete surface to receive plaster shall be thoroughly hacked to provide a rough surface for proper key to the plaster. The surface shall be properly wetted and a spray coat of cement slurry shall be applied before laying the plaster.

Two (2) coats of plaster shall be used on masonry and concrete surface where thickness is more than 13 mm. Plaster work shall be carried out only when the temperature is not less than 5°C. Plaster shall not be applied when the surface contains frost.

In case of 2 coats the first coat shall be full and thick and shall be applied with sufficient force to form good keys. The scratch coat shall be cross-scratched upon attaining its initial set and shall be kept damp with a fog spray.

Finish coat shall not be applied until the first coat has seasoned for 2 days. Just before application of the finish coat, the first coat shall again be wetted evenly with a fog spray. Finish coat shall be smooth finished. The finish coat shall be kept moist with a fog spray for at least 2 days and thereafter shall be protected against rapid drying until properly and thoroughly cured.

All plaster shall be finished true in line, levels and plumb. The surface shall be even and smooth without travel marks, kinks, bulges or deformities of any sort.

9.6 **SAMPLING OF PLASTER**

Samples may be taken by the Engineer at any time from plaster work in place. Areas represented by samples which show over sanding will be rejected.

9.7 **PATCHING**

Plaster containing cracks, blisters, pits, checks, or discolouration will not be accepted. Such plaster shall be removed and replaced with plaster conforming to this Specification and approved by the Engineer. Patching shall match with existing work in texture and colour.

9.8 **CONCRETE/MASONRY JOINTS**

All joints of concrete and masonry walls shall be specially treated. A 200 mm wide approved G.I. wire mesh of 24 gauge weighing 1.5 kg/sq.m shall be securely fixed at the joint and then plaster shall be applied. The item for plaster shall include this wire mesh and no separate payment shall be made for the same.

Plaster shall be kept continuously wet atleast for 10 days and thereafter wetted atleast at the interval of 4 hours (or less if directed by the Engineer) for the next 10 days.

9.9 **MEASUREMENT AND PAYMENTS**

Payment against the item of plaster shall be made in square metres as per actual area plastered including jams without separate measurement of payment being made for providing wire mesh on concrete/masonry joints which shall be deemed to have been included in the rate of plaster the price & payment shall constitute full compensation for all costs involved in proper completion of work.

ITEM – 10 CARPENTRY, JOINERY AND HARDWARE

10.1 **SCOPE OF WORK**

The work covered by this section of the Specifications consists in furnishing all plant, labour, equipment, appliances and materials and in performing all operations in connection with supply and installation of wooden doors, frames, panels, shutters, in size, thickness and dimensions shown on the drawings or as required, complete in strict accordance with this section of the Specifications and the applicable approved shop drawings (to be prepared by the Contractor) and subject to the terms and conditions of the Contract with materials and workmanship best of their kinds as used in Pakistan.

MATERIALS

The entire timber shall be from the heart of sound and full grown trees, it shall be uniform in substances, properly seasoned, straight in fibre, free from large, loose or dead knots, twists, cracks, incipient decay. The scantlings of all timber shall be bright sound and square edged. The colour of the timber shall be uniform throughout. The timber shall be tested before use to evaluate its suitability. The moisture content shall not exceed 10%. The Contractor shall pay for such tests. All timber before use shall be subject to the approval of the Engineer.

Hardware and Fittings

Brass fittings are to be furnished and oxidized on exposed surfaces. Aluminium fittings are to be anodized on exposed surfaces. Chromium plated fittings are to be the best quality of their respective kind and shall have a base coat of brass or copper all as approved. Brass oxidized fittings are to be fixed with brass screws.

Locks, handles/heavy handles, door stoppers, shall be as specified and approved by the Engineer.

Lock and latch furniture (doors) shall conform to relevant ASTM or BS 4951: (Builder's Hardware).

The whole of the iron, oxidized brass must be of the best possible quality and workmanship. The Contractor shall submit samples for the approval of the Engineer and all such iron, brass and bronze mongery shall conform to these approved samples.

Glue shall conform to the requirement of BS 745 for cake or powder glue.

Nails and Screws

Nails shall comply with requirements of relevant ASTM or BS 1202. Screws with the requirements of relevant ASTM or BS 1210.

Hold-fasts shall consist of 125 mm screws at 300 mm centre to centre in plastic plug countersunk and wood plugged.

Hinges

Heavy duty brass hinges and brass screws as per table given below and approved by the Engineer and as specified on the drawings:

WEIGHTS FOR TEN NOS. ARTICLES IN KG

(including weight of necessary screws)

SIZE IN MILLIMETERS

	50	75	100	125
	Brass	Brass	Brass	Brass
Hinges Butt	0.39	0.85	1.42	2.27

Tolerance in weight 10%

All other fittings shall be best available of its kind as required and approved by the Engineer. Samples shall be submitted to the Engineer free of cost for his approval. All fittings such as hold-fasts, hinges, tower bolts, locks, door stoppers, door closers shall be included in the rates of items for doors and joinery and no separate payment shall be made on this account.

10.3

FABRICATION

The Contractor shall perform all necessary morticing, tenoning, grooving, notching, tonguing, housing, revetting, hard wood pinning on joints and all other work necessary for the correct jointing. The Contractor shall also provide all metal plates, screws, nails and other fixing that may be instructed by the Engineer or which may be necessary for the proper execution of the joinery work specified. The Contractor shall also be required to carry out all works necessary for the proper construction of all framings, and for their support and fixing in the building. All shop drawings to be prepared by the Contractor for the wood work shall be approved and initialled by the Engineer before being fabricated and fixed in position.

Any joinery which may show signs of defects arising from the unsound materials or defective workmanship before the expiry of the maintenance period shall be cut out and replaced at Contractor's own expense.

Solid well seasoned deodar wood frames as per Bill of Quantities or as shown on the drawings are to be prepared with posts tenoned with the heads. The shutters will be fixed to the frames with approved quality fittings. The frames will be fixed to the wall with 80 mm screws at 300 mm centre to centre in plastic plug countersunk and wood plugged.

Flush Doors shall be complying with BS 3444 (Sterling Plywood Industries Karachi or approved equivalent).

Flush doors shall be constructed of 3 mm commercial plywood. The thickness of shutter shall be 40 mm with 40 mm x 15 mm sheesham wood lipping.

The solid core shall consist of well seasoned soft wood battens.

Flush doors shall be manufactured by pressing under a specific pressure of 13 kg/sq.cm.

Bonding shall be done under pressure between the veneers and the core with synthetic resins under heat of water proof and water resistant qualities respectively.

Urea Formaldehyde for water resistant and melamine urea formaldehyde for water proof bonding types shall be used as these are highly resistant to micro-organism attacks.

The finished doors shall have a moisture content of 8 to 12% which is within the tolerance limit of twist and warp under BS 3444.

Each door shall be suitable to receive hinges and locks in the position shown.

Glazing wherever shown on the drawings or given in Bill of Quantities shall be Hasanabdal Glass or equivalent.

Anti-termite treatment of approved quality shall be applied to frames on the surface in contact with earth, or wall.

Three (3) coats of approved quality enamel paint over a coat of red oxide as primer coat approved quality wax or french polish shall be applied to the doors including door frames as per directions of the Engineer or as described in the description of items or in drawings. No additional payment shall be made against this item.

10.4 **SAMPLES**

Samples of corner section of each type of door, window and panel of each kind of wood and fitting e.g. locks, bolts, hinges, screws, holdfast shall be delivered to the Engineer for approval and ordering necessary tests to be arranged by the Contractor without cost.

10.5 **MEASUREMENT AND PAYMENT**

All doors, cabinets and wardrobes shall be measured in square measure of elevation measured between outer edges of the frames and shall include all the wood work/chip boards, formica etc., fittings and hardware, anti-termite treatment and painting/polishing etc. and no separate measurement or payment shall be made for any of such component items.

ITEM – 11 STEEL DOORS / WINDOWS

(A) **STEEL DOORS**

11.1. **SCOPE OF WORK**

The work covered by this section of the specifications consists of furnishing all plant, labour, equipment, appliances and materials and in performing all operations in connection with the furnishing and installing of steel doors with painting complete, in strict accordance with this section of the specifications and the applicable drawings, and subject to the terms and conditions of the contract.

11.2. **MATERIALS**

All materials shall be best quality and type used for the purpose. Material shall be free from all defects and imperfections that might affect the serviceability of the finished product and shall conform to relevant British Standard Specifications.

11.3. **MANUFACTURE**

Doors shall be constructed as indicated on the drawings, consisting of stiles, rails and other members of the frames and shutters. The drawings and details shown profiles and design of doors and pressed steel frames and these specifications describe minimum requirements. Stock fabricated items complying with these profiles, designs and requirements may be used subject to approval of the Engineer and provided the quality is at least equal to that specified. The work required under this, shall be made by an approved manufacturer regularly engaged in the production of the kind of work shown and specified. All door frames shall be constructed of steel single profiles as shown on the drawings and shall be provided with strip steel anchor 1/4" x 3/4" x 12" split at the end, 30" c/c.

11.3.1 **Construction**

Construction joints of steel work shall be continuously welded full depth and width or equivalent splice plates where so directed shall be welded on unexposed faces of frames. Exposed surfaces of welded joints shall be mitred and butt welded and shall be dressed and flat finished to produce invisible connections, spot welding may be used where practicable and if approved by the engineer.

11.3.2 **The Finished Work**

The work shall be strong and rigid, neat in appearance and free from defects. Plain surfaces shall be smooth and free from warp or buckle. Moulded members shall be cleaned out straight and true. Miters shall be well formed and in true alignment. Fastenings shall be concealed where practicable. All doors and door frames shall be cleaned by a hot dip phosphate or a cold phosphate chromate treatment. Immediately after drying these shall be applied with two shop coats of approved rust-inhibitive paint such as red oxide which will produce a hard tough film of good appearance, flexibility and rust resistance and then painted with 3 coats of approved enamel paints.

11.4. **CUT-OUTS**

Cut-outs where so required shall be accurately located and made to fit the hardware. Cut-outs shall have dust covers of galvanised sheet welded in place to prevent mortar and plaster from contact where the reinforcing plates and lock strikes.

11.5. **CLEARANCE**

Unless directed otherwise, doors shall have not more than 1/8" clearance at jambs and heads and not more than 3/8" clearance from floor or from threshold at the bottom, and shall have the proper level on lock stiles rails to operate without bending. They shall be made strong and reinforced at corners sufficiently to prevent sagging or twisting.

11.6. **BASE ANGLE AND SPREADERS**

Where required the base angle for fastening to floor shall be welded to each jamb section. Provide removable angle spreaders securely fastened to bottom of each jamb.

11.7. **INSTALL FRAMES AND DOORS**

Install frames plumb, grout, rigid and in true alignment and braced to retain position and clearance during construction of walls and partitions. Doors shall be installed in accordance with the working drawings and the instructions of the Engineer.

The doors shall be provided with all hardware, necessary for an efficient operation, such as hinges, lock sets, latchsets, cylinders, levers, lifting and sliding accessories. The final selection of the hardware, which shall all be the best of its kinds, shall be done during the execution of the contract, by the Engineer.

11.8. **PAINTING**

For painting and its application the specification given painting and finishing Chapter of the Specifications shall be followed.

(B) STEEL WINDOWS

11.9. SCOPE:

The work covered by this section consists of furnishing all labour, equipment, supplies and materials and in performing all operations in connection with the fabrication, construction and installation of metal windows, complete, in strict accordance with this section of the Specifications and the applicable Drawings, and subject to the terms and conditions of the Contract. Insect screens shall be provided in the locations where required by the Drawings.

11.10. LOCATIONS AND QUANTITIES:

It is the intent of the Specifications to indicate the quality, character and type of the items. All locations and quantities of the various items shall be obtained from the drawings.

11.11. STANDARD MANUFACTURED ITEMS:

The Specifications describing the individual items indicate the type, construction, size or style, but substantially meeting the requirements specified, may be acceptable provided the quality is at least equal to the specified, and provided approval is obtained from the Engineer prior to purchase. The contractor shall clearly describe any deviation from the Drawings and Specifications for the items he proposes to furnish.

11.12. CONSTRUCTION:

Steel windows shall conform to relevant ASTM or BS 990 Part 2. All metal windows and screens shall be the products of a reputable manufacturer of metal windows approved by the Engineer. Windows shall be of the type indicated on the drawings and shall conform to the requirements herein specified for the respective types:-

Each window and screen shall be complete including all anchors, clips, bolts, mullions, and hardware and all attachments required for the installation of window screens.

Drips and weep holes, where required for satisfactory drainage shall be in accordance with manufacturer's standard practice for windows of the various types.

All metal window mullions shall be standard sections.

Where indicated on the drawings, provide openable sections of windows conforming to requirements hereinafter specified.

All windows shall be left in satisfactory operating condition and shall be water-tight.

11.13. **STORAGE:**

Windows and screens shall be stored in a vertical position at the site to prevent distortion or injury to hardware or finish.

11.14. **VERTICAL MULLIONS:**

Unless otherwise detailed on the drawings, vertical mullions required to combine two or more windows in a single opening shall be the manufacturer's standard mullion complete with bolts for attaching, and with inside and outside covers.

11.15. **ANCHORS:**

The windows shall be provided with all necessary clips and anchors required for attaching windows to steel, concrete, and/or masonry as required by the drawings.

11.16. **ERECTION:**

Windows shall be erected in prepared opening in accordance with the relevant drawings/details. They shall be set plumb and true, properly aligned and securely anchored as shown on detail drawings, with all ventilators correctly adjusted before glazing, joints at mullions between connecting windows and contact of windows with masonry sills shall be bedded in mastic. There shall be one (1) anchor at the top and bottom of each jamb and at not over 3'-0" intervals between jambs.

Anchor, clips and belts shall be furnished.

11.17. **CAULKING:**

All fixed joints between various parts of the windows assemblies shall be buttered with caulking compound before the windows are assembled. All joints between windows and surrounding masonry construction shall be caulked with gray caulking compound of standard make.

11.18. **GLAZING:**

All windows shall be provided with best quality sheet glass 1/4" (5 mm) thick fixed with putty and deodar wood beading. Also refer relevant Chapter of the Specifications.

11.19. **MEASUREMENT AND PAYMENT:**

Doors and windows shall be measured in square measure between outer edges of the frames and top edges of the frame to floor level in case of doors. No separate measurement or payment shall be made for component items, such as hardware, glazing chaulking, painting etc.

ITEM - 12GLAZING

12.1 SCOPE OF WORK

The work covered by this section of the Specifications consists of furnishing all plant, labour, equipment, appliances and materials, and in performing all operations in connection with this Section of the Specifications and the applicable drawings subject to the terms and conditions of the contract.

12.2 MATERIALS

All glass shall be from an approved local manufacturers and of approved best quality free from specks, bubbles and other defects and give clear undistorted vision. It shall be 5 mm or 6 mm thick or as shown on drawings/described in Bid Schedules or directed. All glass to generally comply with relevant ASTM or BS 952.

Putty

Putty shall be made as follows:

930 gm fine powder whiting

58 gm white lead (dry)

350 gm raw linseed oil

30 gm litharge

for glazing in metal ashes, 5% red lead should be added.

Glazing Compound

It shall be a standard product of manufacture; and a composition approved by the Engineer.

12.3 INSTALLATION

Materials installed under this section shall be certified to be as specified hereinbefore in quality, colour, performance and pattern.

All glass shall be cut accurately to the required sizes and all the edges shall be cleaned out.

Glass cut incorrectly, damaged or not meeting minimum requirement specified above shall be removed from position immediately and replaced.

Glazing shall be done in weather proof and water proof conditions. If the work schedule requires glazing work to be done at temperature below 5 degree C, proper grade of glazing compound (sealant) as certified by the manufacturer shall be applied according to manufacturer's direction with work full guaranteed.

Glazing beads shall be removed while performing glazing operation. Beads to be set back in correct locations.

Glass shall be set in with equal bearings on entire perimeter with the help of clip and putty. Glazing surface shall be clean, dry, completely dust free before commencing application of glazing material.

Excess sealant compound shall be removed immediately from glass and other adjacent surface to prevent permanent stains or other damages to said surfaces.

12.4 **ACCEPTANCE AND CLEANING**

Labels showing glass manufacturer's identity, type of glass, thickness and quality will be required on each piece of glass. Labels must remain on glass until it has been set and inspected.

The Contractor shall clean all work on completion. Clean up all stains, marks, spots and disfigurements from all work, touch up as required, clean all window panes, remove all rubbish and debris from building and site and leave premises clean and tidy and fit for occupation in all respects and to the entire satisfaction of the Engineer.

Glass shall be protected against damage. After inspection any label, paint, smears, stains, dirt, shall be removed from the glass, and the glass shall be washed clean on both sides taking care not to scratch or damage the glass. Damaged or broken glass shall be removed and replaced with new glass of same kind before acceptance.

12.5 **GUARANTEE**

Contractor shall, and does hereby guarantee as part of the Contract, that all glazing joints in exterior openings shall remain water tight for a period of at least two years after the final acceptance of the buildings. The Contractor shall also guarantee that during the above period, caulking compound shall not crack, dry out, crumble or fall away from sash on glass.

12.6 **SAMPLES**

Samples of all kinds of materials to be used on the job shall be submitted to the Engineer for approval before the same are procured.

12.7 **TESTING**

All materials shall be subject to standard testing and specifications such as ASTM Standard C-797, if found below the standard the same shall be rejected and removed from the site immediately.

12.8 **MEASUREMENT AND PAYMENT**

No separate payment for the work described in this section of the specifications or incidental thereto shall be made to the contractor and his quoted price for doors, windows, ventilators fixed panel etc. shall be deemed to be inclusive of glass and glazing where the same is to be fixed.

ITEM - 13 EXTERNAL FINISHES/ PAINTING

13.1 **SCOPE**

The work covered by this section of the Specifications consists of furnishing all plant, labour, equipment, appliances and materials and in performing all operations in connection with protective and general painting steel, wood, plaster work, concrete surfaces etc. all as directed and finishing complete in strict accordance with this section of the Specifications and the applicable drawings, Description of Items and subject to the terms and conditions of the contract.

13.2 **GENERAL**

The term "Paint" as used herein includes, emulsions, enamels, paints, distempers, stains, varnishes, sealers, primers, colour washes etc. All colours shall be subject to the approval of the Engineer.

13.3 **MATERIALS**

Paints shall be well ground, shall not settle badly, cake or thicken in the container, shall be readily broken up with a paddle to a smooth consistency and shall show easy brushing properties. The paint shall be suitable for spraying when thinned with not more than 12 percent by volume of mineral spirits. All paint materials shall be delivered to the job in original unbroken containers with labels and tags intact.

All paints shall be the best of their kind as used in Pakistan and a first class quality product made by an approved manufacturer of good standing and repute and shall conform to the requirements of current British Standard Specifications or ASTM Standards.

All colours shall be pure tint colours ground in linseed oil and guaranteed non-fading.

Colour shall be lime proof where used on cement block, concrete, or plaster.

All colours and shades shall be as directed by the Engineer. The colour of each coat of paint shall be a different shade from that following.

Until and unless specified or directed otherwise, paints shall be of Berger Pakistan Ltd's paint or equivalent. Colour wash shall mean coloured chalk applied with glue at the rate of 2.25 kg per bag of 30 kg chalk. Chalk wash shall mean white chalk with glue at the rate of 2.25 kg per bag of 30 kg.

13.4 **PROTECTIVE PAINTS**

Unless otherwise specified all exterior and interior ferrous metal surfaces, except reinforcing steel, bolts, rough hardware and metals with non ferrous coatings shall be given a shop coat of protective paint (zinc compound). Paint shall conform to the requirements of ASTM D-80. Surface to be painted shall be thoroughly cleaned of scale, dirt, and rust by the use of steel scrapers, wire brushes, sand blast or other equally suitable tools or methods. Oil and grease shall be removed with benzene or other suitable solvent. Paint shall be kept well stirred while it is being applied. No paint shall be used after it has caked or hardened. Paint shall be well worked into all joints and corners. Paint shall not be applied to damp surfaces nor when the temperature is below 5 degree centigrade.

13.5 **GRAFFITO**

This textured finish is based on quartz powder around 300 mesh and silica sand averaging 70 mesh. Split up mesh sizes are used for improving the conglomeration. A round stone of desired mesh size is used to create the radial or linear effects.

Graffito shall be applied as external finish on external plastered surfaces (13mm thick, 1:4 plaster).

13.6 **SAMPLES AND TESTS**

Samples of each type of paint and each colour proposed for use shall be submitted to the Engineer and approval thereof received before the material, represented by the sample, is used on the project. Samples shall consist of 1 pint and 3 displays of each type and colour of paint applied to material strips 50 mm by 150 mm. Back material used for display stains, shall be the same kind as that on which the stain is ultimately to be applied. In addition to the submission of samples, the Contractor shall submit authenticated report of tests of the materials proposed for use, as directed by the Engineer.

13.7 **PREPARATION OF SURFACES**

General

Hardware, accessories, plates, lighting fixtures, and similar items in place shall be removed prior to painting operations and completion of the painting in each space, or shall be otherwise protected. All surfaces to be painted shall be clean, smooth, dry and free from dust, grit and other objectionable materials.

Concrete and Plaster Work

Concrete and plastered masonry surfaces to be painted shall be prepared by removing all dirt, dust, oil and grease for good adhesion for the paint. The method of surface preparation shall be left to the discretion of the Contractor, provided the results are satisfactory to the Engineer. Nails and similar exposed metal occurring in concrete or plaster surfaces shall be coated with shellac or oil paint before the cement-water paint is applied. All surfaces required to be painted with oil-base paints shall be free from alkali and shall be thoroughly dry before paint is applied.

Plaster shall be sufficiently old and shall be thoroughly dry, clean and free from grit, loose plaster, and surface irregularities before paint is applied. Cracks and holes shall be repaired with patching plaster with approved additive such as "Thorite" and properly keyed to the existing plaster. All plaster surfaces shall be tested for the presence of alkali, which if present, shall be removed with a solution of zinc sulphate mixed in the proportion of 1 kg to 1.5 kg of compound to 4 litres of water. After drying, the precipitate shall be removed by brushing. Plaster patches shall be worked to match the appearance of the adjoining plaster.

Before the application of the cement-water paint, all holes in joints or masonry plaster surface shall be filled with mortar and suitably tooled and caulking installed around wood or metal frames built into masonry, shall be thoroughly checked. Plaster surface shall be cleaned and free from dust, dirt, grease, or any other material which might affect the proper adhesion of paint. Surfaces shall be thoroughly dampened with a fine spray of water before application of paint.

Internal Painting of Concrete and Plastered Surfaces (Distemper)

All the surfaces shall be prepared as stated in sub item 15.7 hereinbefore.

Irregularities in the surfaces shall be made smooth by applying coat of proper putty such as Berger Robbialac plastron putty or approved equivalent.

Finished surfaces shall then be treated with one coat of Berger Robbialac plastron wall primer sealer or approved equivalent.

3 coat of Synthetic Polyvinyl Distemper of Berger Robbialac make or approved equivalent shall then be applied.

Application of primer and paint in coats shall be done strictly in accordance with the manufacturer's instructions.

External Painting of Concrete and Plastered Surfaces (Weather Shield Paint)

All the surfaces shall be prepared as stated in sub item 15.7 hereinbefore.

Irregularities in the surfaces shall be made smooth by applying coat of proper putty such as Berger Robbialac plastron putty or approved equivalent.

3 coat of Berger Robbialac Chlorinated Rubber Base Paint or 3 coat of "Weather Fighter" brand paint of Buxly Paint Ltd. Pakistan or approved equivalent shall be applied.

Application of primer and paint in coats shall be done strictly in accordance with the manufacturer's instructions.

External Painting of Concrete and Plastered Surfaces (Snowcem/Durocem)

Before the application of the cement-water paint, all plastered surfaces shall be clean and free from dust, dirt, grease, or any other material which might affect the proper adhesion of paint. After application of paint the surface shall be water cured as per manufacturer's instructions.

Mix the paint in accordance with the manufacturers' directions and allow it to stand 30 to 45 minutes.

Before application mix to uniform consistency and stir frequently during application. Dampen, but do not saturate, the surface uniformly by spraying for several minutes and let the moisture penetrate through.

Apply the paint with a brush having relatively short, stiff, fibre bristles by scrubbing the paint into the surface voids. Cure the first coat by keeping the surface damp for at least 24 hours; spray the surface as soon as the paint has hardened sufficiently to resist injury and repeat the spraying as often as necessary to keep the surface damp before applying second coat. Apply the second coat in such a manner as to completely cover the first and cure as specified above, except that curing shall be continued as long as practicable, and for not less than 48 hours.

Apply the paint in the shade rather than in bright sunlight, specially avoiding painting during warm windy weather. In applying the finish coat, layout the work so that an entire wall surface may be completed in one operation; if this is impracticable, carry the painting to some natural stopping point.

Metal Work

Shop-primed metal work shall be kept clean and free from corrosion following installation. Abraded surfaces shall be retouched prior to finish painting, using the same type of paint as the priming coat (zinc compound).

Wood Work

Small, dry, seasoned knots shall be thoroughly cleaned and scraped, and shall be given a thin coat of orange shellac varnish before the priming coat is applied. Large, open, unseasoned knots and all beads or streaks of pitch, shall be heated by a blowtorch and then scrapped off, or, if the pitch is still soft, it shall be removed with mineral or denatured alcohol. Resulting voids, if any, shall be filled with putty. Nails shall be set. Painting shall proceed only when, in the opinion of the Engineer, the wood is satisfactorily dry.

13.8

APPLICATION OF PAINTS

All the work shall be done in a workmanlike manner, leaving the finished surfaces free from drips, ridges, waves, laps, and brush marks. Except as specified or required for, cement-water paints shall be applied under dry and dust-free conditions and unless otherwise approved by the Engineer shall not be applied when the temperature is below 5 degree centigrade nor when a temperature drop of 11 degree centigrade or more is in forecast. All primer and intermediate coats of paint shall be unscarred and completely integral at the time of application of each succeeding coat. Each coat of paint shall have slight variations of colour to distinguish it

from the preceding coat. Sufficient time shall be allowed between coats to ensure proper drying. Paints shall be thoroughly stirred and kept at a uniform consistency during the application and shall not be opened until required for use. Except as otherwise, paint may be applied by the spray method except during cold weather or when, in the opinion of the Engineer, spraying in any particular application would produce unsatisfactory result. Floors, roofs and other adjacent work shall be properly protected by drop cloths or other covering.

Polishing/Painting of Wood Work

Wood work (and including also the inside face of exterior doors and frames) shall be stained to match an approved sample prepared by the Contractor and given three (3) coats of spar varnish. Top and bottom edges of doors shall be given three (3) coats of spar varnish.

Wherever indicated otherwise on the drawings, the wooden doors and partitions shall be painted with three (3) coats of enamel paint. All wood work specified to be painted shall be primed in all sides in the shop before delivery to the job. After the priming coat has been applied, nail holes, cracks, and other depressions shall be filled flush with putty, coloured to match the finish coat and sand-papered smooth. Putty shall be dry before subsequent painting. Glazing rabbets and beads in exterior glazed doors shall be given 1 coat of exterior primer before glazing. All exposed putty shall be painted.

Ferrous Metal Work (Enamel Paint)

Exterior ferrous metal surfaces shall be painted three (3) coats of exterior oil enamel paint after the protection coat of zinc compound.

Protective Coating

All structural steel should be given a shop coat of anti-rust protective paint (zinc compound) of standard manufacturer. Paint shall conform to the requirements of B.S. 2523, type "A" or equivalent ASTM standard. Surface to be painted shall be thoroughly cleaned of scales, dirt and rust by the use of steel scrapers, wire brushes, sand blast or other equally suitable tools. Oil or grease shall be removed with benzene or other suitable solvent. Paint shall not be applied to damp surface nor when temperature is below 5 degree centigrade.

Surface Treatment and Painting

After each item of metal work has been fabricated, the Contractor shall clean and prime paint and/or protect it in the manner specified herein. All exposed surface of structural steel members, shall have all oil and grease removed by washing with a suitable solvent. The surfaces shall then be thoroughly cleaned to expose clean metal.

Following the above surface treatment and on the same day and before any visible rusting takes place, apply 0.05 mm dry film thickness of an approved red oxide/zinc chromate primer. The primer shall be of a high quality.

This shall be followed by at least two (2) coats of approved first quality enamel paint. The first coat or under coat shall be of the specified colour in flat base paint and shall fully mask the prime coat. The second coat or finish shall be of an approved alkaloid resin pigmented enamel paint. Each coat to have a minimum dry film thickness of 0.05 mm. Primer and paint shall be of I.C.I. Pakistan or Berger Paints or approved equivalent.

Where mating machine ferrous surfaces are required to remain in contact after shop assembly, each together with the shanks and threads of bolts used, shall immediately before assembly, be uniformly coated with a thin mixture of white lead and graphite in oil.

All exposed bright and/or ferrous surface not intended to be painted, including exposed screw threads, shall be cleaned and given a heavy uniform coating of petroleum soluble rust preventative compound. Such protection shall be adequate to prevent corrosion during transport and/or storage in the open.

Where mating unmachined ferrous surfaces will be in permanent contact after shop assembly, each surface shall receive the surface treatment as specified above followed by one coat of red oxide/zinc chromate and the surfaces shall be brought together whilst the paint is still wet. All coatings shall be applied by qualified trades men painters. Painting shall not be carried out in unsuitable weather when humidity is less than 80% and the temperature is above 40°F or higher temperatures if recommended by the manufacturer. Spray painting shall be adopted wherever possible. All paints shall be used and mixed according to the manufacturer's instructions, including thinning, if necessary. Finishes shall be smooth and free from brush marks. Minimum drying and curing times recommended by the manufacturers shall be strictly observed before recoating.

Application of all coating systems shall be carried out in accordance with the instruction of the manufacturer. Colour scheme and paint shades shall be approved by the Engineer.

Buried Piping

All steel piping and all exposed threads of galvanized piping, where run in or through concrete or masonry, or buried underground, shall be given one (1) coat of approved asphalt varnish.

13.9

CLEARING

All cloth and cotton waste, which might constitute a fire hazard, shall be placed in metal containers or destroyed at the end of each work day. Upon completion of all work, all staging, scaffolding and containers shall be removed from the site or destroyed in a manner satisfactory to the Engineer. Paint spots, oils, or stains upon adjacent surfaces shall be removed and the entire job left clean and acceptable to the Engineer.

13.10

MEASUREMENT AND PAYMENT

Measurement of painting work of distemper, emulsion and snowcem/durocem on concrete/plastered surfaces, application of graffito on plastered surfaces shall be made for actual area painted/treated and paid for as per rates of pay items in B.O.Q.

Enamel painting of steel and wooden surfaces of doors, windows, cabinets, wardrobes etc. shall not be measured or paid and the same shall be deemed to be included in the rates of these items of wood and metal work in the Bill of Quantities.

ITEM - 14 CAULKING (SEALANT OR MASTIC)

14.1

SCOPE

The work covered by this section of the Specifications consists of furnishing all plant, labour, equipment, appliances, and materials, and in performing all operations in connection with the application of caulking complete, subject to the terms and conditions of the Contract, and in strict accordance with this section of the Specifications, applicable Drawings and Descriptions of items.

The Contractor shall caulk at the sills, jambs, and heads of all windows and louvers and at the jambs and heads of all doors in walls. He shall also caulk the joints and intermediate joints of windows sills and around the perimeters of concrete framing members such as columns, masonry, and beams. Caulking noted on the Drawings as "Mastic" shall be included under this section.

Caulking occurring in connection with joints in concrete floors, in walls, and roofing and sheet metal work is also included in this section.

14.2

MATERIALS

Materials shall conform to the following requirements:

Caulking Compound

Caulking compound shall be elastic waterproof and non-corrosive, firm when set, but not hard or brittle and shall have "Elastomeric" properties. Oils shall not leave the body of the materials to such an extent as to extend beyond the periphery of the material when it is applied to any type of masonry. It shall be of such composition that a thin tough skin will form an exposed surface while underneath remains plastic

indefinitely. It shall have no tar or asphalt content, but shall be composed of specially prepared porous pigments so treated that they will absorb and retain sufficient oil to provide long life, elasticity, and complete and permanent adhesion to wood, iron glass, concrete, concrete blocks, and masonry. It shall show no sagging puckering, cracking, or shrinking under any weather conditions after application. The colour of the caulking compound shall match the colour of the adjacent surfaces. Delivery of the caulking compound to the project site shall be in the manufacturer's original sealed package, bearing the name of the manufacturer.

Sealer

The sealer for the joint grooves in masonry shall be a quick-dry liquid, and of a type and consistency recommended by the manufacturer of the caulking compound.

Rope Yarn

Rope yarn shall be the beveled strands of rope fiber, free from oil or other staining element.

14.3 **SAMPLES**

Before the work of application is started, samples of all materials proposed for use shall be submitted to the Engineer for approval.

14.4 **APPLICATION**

Caulking compound shall be applied by the gun method using nozzles of proper sizes to fit the several widths of the joints. The type of gun shall be subject to approval by the Engineer.

Preparation

Caulking in joints shall be a minimum of 20 mm in depth and 4 mm in width, unless otherwise indicated on the Drawings. Where adequate grooves for caulking have not been provided, grooves shall be prepared by cutting and cleaning out the mortar to the minimum depth and by grinding to the minimum width, taking care that adjoining metal work is not reduced in section. All particles of mortar, dust, and other foreign matter shall be brushed out and just prior to caulking, the joint grooves shall be treated with an application of sealer, where a suitable mortar backs top has not been provided, the back of joint grooves shall be packed tightly with rope yarn.

Caulking

The compound shall be driven into the joint grooves with sufficient pressure to force out all air and to fill the joints grooves solidly. Caulking joint where exposed, shall be free of wrinkles and shall be filled slightly convex to obtain a flush joint when dry. Upon completion of the caulking any caulked joints not entirely filled shall be roughened and filled as specified and the exposed surface tooled smooth.

Cleaning

The surfaces of all materials adjoining caulked joints shall be cleaned of any smears of compound or other soiling due to the caulking application.

14.5 **GUARANTEE**

The Contractor shall, and as part of his contract does, guarantee that for a period of three (3) years after acceptance of the Contractor's work, the caulking will be weather tight and the caulking compound will not become brittle, sag, run, or crumble or fall out of place.

14.6 **MEASUREMENT AND PAYMENT**

No separate measurement or payment shall be made for caulking work described in this section.

The cost of caulking work shall be deemed to be included in the rates/prices of related items of work in the Bill of Quantities.

ITEM - 15 WATERPROOFING

15.1 **SCOPE OF WORK**

The work covered by this section of the Specifications consists of furnishing all plant, labour, equipment, appliances and materials and in performing all operations in connection with the application of Water Proofing as specified hereunder complete, in strict accordance with this section of the Specifications and the applicable Drawings, Description of items and subject to the terms and conditions of the Contract to the entire satisfaction of the Engineer.

15.2 **GENERAL**

All materials shall be delivered to the site in containers with labels, comments and seals unbroken and shall not be opened until inspected by the Engineer. Work required under this Section of Specifications shall not be performed when ambient temperature is lower than 5°C or during rain or snow or where surfaces are damp.

15.3 **MATERIALS**

Bitumen for Roofing shall be an asphalt with the following characteristics and shall be a standard manufacture of National Petrocarbon Ltd. or equivalent as approved by the Engineer.

	Max.	Min.
i) Specific Gravity at 25°C	1.06	1.01
ii) Softening Point (Ring & Ball Method)	93°C	80°C
iii) Penetration at 25°C, 0.1 mm	35	20
iv) Ductility at 25°C, Min. cm	-	3
v) Loss on heating (ASTM), Max.% wt.	0.05	-
vi) Solubility in CCL4, Min.% wt.	-	99
vii) Pouring temperature °C	180°C	170°C
viii) Flash Point	-	200°C

Precast stools

Precast stool shall be concrete class-E of size 300x300x100 mm high.

15.4 **SAMPLES AND TESTS**

Samples of all materials prepared or ordered for use in works under this section of the Specifications and a written statement indicating exact proportions, method of mixing, constant weight per cubic metre and method of application etc., as per manufacturer's instructions shall be submitted to the Engineer. Necessary

tests as required by the Engineer shall be carried out by the Contractor at his own cost to establish their suitability and ascertain the quality claimed.

15.5 **PREPARATION OF SURFACES**

Construction of the roof slab and related work shall be completed prior to start of application of roofing materials. The surfaces shall be thoroughly clean, free of dirt and foreign materials and shall be dry, firm and smooth. Vents and other projections shall be properly flashed and secured in position. No damp proofing or roofing materials shall be applied prior to approval of the condition of the roof surface by the Engineer.

15.6 **APPLICATION OF MATERIALS**

All applications shall be in strict accordance with ASTM D-1327 and the manufacturer's specifications as approved.

No material shall be applied when temperature is below 5°C or during rain or snow or where surfaces are damp.

Asphalt shall not be applied when its temperature exceeds 180°C. Heating of asphalt shall be rigidly controlled by means of an approved type thermometer suitably suspended over the kettle while heating is in progress and it shall not be heated above 245°C.

15.7 **ROOF WATER PROOFING**

Scope

The work covered by this section of the Specifications consists of furnishing all plant, labour, equipment, appliances and materials and in performing all operations in connection with the application of insulated roofing including felt water proofing, flashing and concrete protective stools and roofing screed, complete in strict accordance with this section of the Specifications and the applicable Drawings, and subject to the terms and conditions of the Contract.

The work under this section of the Specifications comprises the following:

Installation of Roofing

- a) One prime coat and two flood coat of SIB 10/20 hot bitumen at the rate of 15 kg. Per 100 sq.ft. each over RCC slab.
- b) Apply one layer of polythene sheet 0.20 mm laid 75 side laps and 100 mm end laps staggered with layers bonded together with bitumen, broom sheet to ensure that it is free of wrinkles.
- c) Earth shall be laid to desired slopes and tiles shall be laid on a mortar bed (average thickness 75 mm) to the required slopes as shown on plans. The preparation of mud plaster shall be as follows:-

The clay containing sand not more than 5% shall be laid out in stakes not exceeding 12" height and saturated with water and allowed to stand for not less than 3 days, water being added during this period to ensure complete saturation. The binding material (Bhoosa) shall then be added and the mixture well puddle and left 2 days or so. It will then be thoroughly mixed to the required consistency of mortar and laid to slope.

d) Brick tiles of specified size and first class quality shall be laid wet, grouted and pointed flush in cement sand mortar (1:2). The top surface shall be smooth and accurately level in accordance with the specified slopes. No brick or cracked tile to be used. Special Tiles for sloped roof shall be laid as per details shown on the drawings

15.8. **CURING**

Tiles, after laying, grouting and flush pointing is completed, shall be kept wet throughout for at least seven days.

15.9. **PROTECTION**

The Contractor shall take each and every care to maintain the slopes levels and shall protect the work from any damage. The Contractor shall have to remove, replace and rectify such damaged work at his own cost.

Screeding

Laying of Class-B cement concrete plain screeding of average thickness of 50 mm shall be started using approved quality 10 mm & down graded crush stone & approved quality sand. All concrete to be machine mixed, laid in required slope compacted & properly cured.

Bitumen/Sand Water Proofing (where shown on drawings)

After thoroughly cleaning the concrete surface and removing all dirt and dust, Hycarb A-20 shall be applied at the rate of 2 kg/sq.m while sufficiently hot, coarse sand shall be spread evenly and pressed into the Bitumen Coat such that entire surface is fully covered.

15.10 **MEASUREMENT AND PAYMENT**

Measurement and payment shall be made for the composite work for the roof area covered and measured in square measure. No separate measurement or payment to be made for component items of screed, waterproofing layers, stools, etc.

ITEM – 16 DAMP PROOFING

16.1. **DESCRIPTION**

The Damp Proof Course shall be horizontal and vertical as shown on the drawings and specified in the Bill of Quantities.

16.2. **HORIZONTAL**

16.2.1 **In Walls**

The horizontal D.P.C. shall consist of 50 thick, Class-B cement concrete with two (2) sand blinded coats of Hycrab-A-20

16.2.2 Under Floors

Same as in walls except bitumen layers to be laid on 12/20 mm blinding screed (1:6) to even out surface of lean concrete hard core.

16.3. **VERTICAL**

The vertical D.P.C. shall consist of 20 thick 1:3 cement sand mortar with 5% pudlo and two (2) sand blinded coats of hot Hycrab-A-20

16.4. **MATERIAL REQUIREMENTS**

All material i.e. cement, sand aggregate, water polythene sheet and bitumen shall conform to the specification given in respective section.

16.5. **CONSTRUCTION REQUIREMENTS**

The Contractor shall lay the D.P.C. only when the level, quality of masonry work, etc. is approved.

The concrete work of D.P.C. shall conform to the relevant specifications given in this section for the execution of these items.

Horizontal D.P.C. shall extend to the full width of the wall i.e. upto the external faces. No portion of doors opening, etc. shall be left while laying D.P.C. The period of curing of concrete shall be not less than 72 hours. Every care should be taken that concrete is not left dry during this period. The work of laying Damp Proof Course shall be carried out as follows unless otherwise described in BOQ:-

- a. Placing 2" layer of Class-B cement concrete.
- b. Laying 2 Coats of hot bitumen Hycrab-A-20 grade @ 20 lbs. per % sq.ft. (each coat) over entire width and lengths of concrete after the concrete has been properly cured for at least 72 hours, and sand blinding where specified.

The application of bitumen coating in case of vertical D.P.C. shall be same as mentioned above.

16.6. **MEASUREMENT AND PAYMENT**

The measurement shall be made in per sq.ft./M by measuring length and breadth/height of actual work done and as shown on the drawings.

ITEM - 17 TERMITE CONTROL

17.1 **SCOPE OF WORK**

The work covered by this section of Specification consists of furnishing all labour, materials, equipments, services, miscellaneous and necessary items required to complete Termite Control Work, related works as indicated on Drawings specified herein or described in description of items.

17.2 MATERIALS

Pesticides shall be solution of an approved chlorinated hydrocarbon such as 0.5% Dieldrin or 0.5% Aldrin mixed in clean water for application in earth, and mixed with pure turpentine for application to wood.

Pesticides (Dieldrin and Aldrin) shall be obtained under permission of the department controlling their sale in Pakistan, in sealed drums at rate in force at the time of their acquisition and only in the quantity necessary for work of this Project. All mixing shall be done at site and the amount of pesticides used shall be verified by the Engineer.

17.3 METHOD OF APPLICATION

Pesticides solution shall be applied with approved pressure spraying equipment maintaining a pressure of 1N/mm^2 (10kg/cm^2) to all applications to, on or in earth. Spraying to wood shall be done by hand compression sprayers with an approximate pressure of 0.15N/mm^2

17.4 EXTENT OF APPLICATION

All excavation, all walls and bottoms of all pits or trenches for footings or foundations are to be sprayed. Pesticide shall penetrate to a depth of 12" minimum in porous earth at bottom and 3" minimum at sides of excavations.

Stockpiled excavated material to be used as back fill is to be spray treated as above. After backfilling to plinth level, area of the whole building upto 10'-0" outside the building line is again to be sprayed penetrating a minimum of 12" into soil.

After grading, compaction and levelling and before formation of hard core/soling under floor slabs all areas to receive slabs shall be sprayed with pesticides, penetrating a minimum of 12" into soil.

All rough wood work for the entire project shall be pesticide treated (before application of solignum in the case of material to receive both treatments). Pesticide shall be sprayed on all surfaces of blocking, furring planks, scantlings, boards etc. before installations. Spraying shall be once again done at the site, after delivery and before installation. All spraying will be done within one week of working of the material.

17.5 LOCATION AND SCHEDULING

Saturation of earth is to be done by adequate personnel and in such a manner as to in no way disrupt the progress of work.

Spraying of rough wood work will be done on or near the site at location and in such enclosures as proposed by the Contractor and approved by the Engineer. Such work is to be scheduled and done by sufficient skilled personnel as to in no way impede the progress of the work.

Care shall be exercised to ensure that no marks or damage occurs to the finished building as a result of the work under this Section, and Contractor shall verify and ensure that no material used herein will impede the growth of grass or plants at areas where spraying is done.

17.6 STANDARD

All methods of termite protections used herein shall be in accordance with best standard practices of National Pest Control Association, U.S.A. and the British Wood Preserving Association.

17.7 GUARANTEE

The Contractor is to guarantee that the building shall be free from termite (white ants), wood bores and other pests or rodents which cause damage to wood or other organic material for 10 years from the date of acceptance of the building and that.

In the event of any damage caused within the guarantee period, the Contractor shall replace at his own cost such damaged material, finishes and affected portion thereof and suitably preserve and treat the entire premises with the best method known to the trade to prevent the spreading of termites.

17.8 **TESTING**

All materials and samples shall be subject to standard testing in accordance with the standards specified herein and shall be rejected if found below these standards. Rejected materials shall be removed from the site immediately.

17.9 **MEASUREMENT AND PAYMENT**

The item of work of termite proofing is given in BOQ on the basis of plinth area of the Buildings while it shall cover application of termite proofing to all bottoms and sides of pits, fill material, floor sub-grade and all the works requiring termite proofing in an area extending upto 3 metres outside the building line as elaborated in para 4 "Extent of Application" of these specifications.

ITEM - 18 TREES AND PLANTER AREAS

18.1 **SCOPE OF WORK**

The work covered under this section of specifications consists of preparation of ground, pits and trenches and providing and planting trees, shrubs and planter areas such that these are well grown at the time of completion of the project works.

18.2 **TYPES**

Shrubs and planters shall be of type that are well grown and blossoming in a short time but well suited to the area. Trees to be planted shall be of type suitable for growth in the area, capable of growing in a shorter time and to provide shades.

18.3 **TOP SOIL**

Top soil furnished from one source shall be typical sterile, soil obtained from well-drained area and possessing characteristics of representative soils in the project vicinity that produce vigorous plant growth. The top soil shall be free of sub-soil, brush, organic litter, objectionable weeds, clods, shale, large stones stumps, roots or other material 13mm in diameter or more, or any substance which might be harmful to plant growth or be a hindrance to grading, planting and maintenance operations.

18.4 **FERTILIZER**

The fertilizer shall be well decomposed organic manure which shall be subject to approval by the Engineer.

18.5 **PLANTING PITS FOR TREES AND SHRUBS**

Excavation for planting shall include plant pits and planting beds. The minimum depth of plant pits or beds shall be measured from finished grade.

Plant beds and pits shall be tested for drainage before planting by filling with water twice in succession. Conditions permitting the retention of water in planting beds or pits for more than 24 hours shall be brought to the attention of the Engineer.

If rock, underground construction obstruction, tree roots or other obstruction are encountered in the excavation of plant pits, alternate locations may be selected by the Engineer.

The Contractor shall review the applicable architectural or engineering drawings and shall be familiar with the alignment of utility lines, ducts and buried cables existing in the area. The Contractor shall field check the location of utilities shown on the drawings before any installation of material or plants. The Contractor shall be responsible for all damage resulting from any neglect or failure to comply with this requirements.

Following excavation of the planting pits, the pits shall be back filled with the sweet soil mixture as specified. Three days prior to planting, the pit shall then be filled with water for consolidation of the soil.

The dimension of the planting pits are as follows, unless specifically directed otherwise by the Engineer.

- a) Trees 1m x 1m x 1m
- b) Shrubs 600mm x 600mm x 600mm
- c) Hedges Trenching 600 x 600 mm deep of required length.
- d) Edges and flower beds: Fill the flower box with sweet soil as per drawings. For seasonal flowers, the beds are to have a minimum of 300 mm sweet soil and 150mm manure.

18.6 **SHRUBS AND PLANTER AREAS**

Should the existing grades be at the proposed elevations, the soil must be "trenched or plowed" 300mm deep over the entire surface. Should the soil be unsuitable, it must be removed and replaced with sweet soil.

Sweet soil shall be placed in the planter areas as shown on the drawings and raked. All stones in excess of 25mm in diameter and all rubbish shall be removed. Sweet soil not be spread in muddy state.

Sweet soil shall have minimum thickness of 300mm after natural settlement and light rolling, and shall conform to the finish grades and elevations shown in the plans. The finish grades shall be refined under the supervision of the Engineer.

Cover the sweet soil with 100mm of well decomposed organic manure and mix into the top 100mm of the top soil.

The prepared surface shall be free from all rivulets, crusting and caking. The sub-grade soil shall be scarified to a 300mm minimum depth and brought to a true and uniform grade before dumping and spreading of sweet soil.

18.7 **MAINTENANCE AND PROTECTION**

Maintenance by the Contractor shall begin immediately after the planting operation is completed and shall continue until acceptance. All replacement, adjustment and maintenance shall be done at no additional cost.

18.8 **CLEAN UP**

After completion of all work, all debris, rubbish and surplus material shall be removed from the site at the Contractor's expense. The site shall be left clean, presentable and to the satisfaction of the Engineer.

18.9 **MEASUREMENT AND PAYMENT**

Planter area shall be measured in square measure of the plan area covered and paid the rate per sq. meter in the B.O.Q.

Trees shall be measured in number and paid at the rate per number in the B.O.Q.

ITEM – 19 FOOT PATH AND PAVEMENT

Footpath and pavement shall be constructed with component parts as under:

Compacted fill to 95% compaction to required grades

150 mm thick compacted sand filling.

100 mm thick Lean concrete.

300 x 300 x 25 thick class-B concrete tiles laid with 2" inches joints which is to be filled either by sweet soil or shall be grouted with pebbles in approved patterns.

19.1 **MEASUREMENT AND PAYMENT**

Walkways to be measured in square measure between outer edges of pavement no separate measurement or payment to be made for component parts.

ITEM - 20 ALUMINIUM DOORS AND WINDOWS

20.1 **SCOPE**

This section of the technical specifications comprises the provision of all labour, materials and plant and performing all construction operations in connection with the erection and installation of all aluminum doors, windows, ventilators, fixed panels, with grills and glazing, etc, complete in every respect, including all related items required by the drawings and as specified herein or as directed. Materials and workmanship shall be the best of their kind and always above the minimum requirements of relevant British and/or American Standards. The standard of manufacture shall be **ALCOP/KRUDDSON** or equal as approved by the Engineer.

20.2 **SHOP DRAWINGS**

Before any work in connection with the windows and doors commences, the Contractor shall prepare shop drawings and specifications for all the windows and doors with all detail drawings showing fixings, details for materials and workmanship, etc., necessary for their complete manufacture and installation. The Contractor after consulting the manufacturer shall submit the shop drawings and specifications to the Engineer for approval within a period of 20 days (minimum) prior to any commencing of work on the window or door lugs and fittings.

Shop drawings shall indicate elevations of windows and doors, full size sections, thickness and gauges of metal, proposed method of anchoring, the size and spacing of anchors, details of construction, method of glazing, method and materials for weather stripping when specifically required, and details of installation.

20.3 SITE MEASUREMENTS

Measurements in the knowledge of the Engineer shall be taken on the site as necessary to verify and supplement dimensions shown on the contract drawings.

20.4 SAMPLES

The Contractor shall submit samples of metal and materials of Engineer and his Representative for approval of finish and shall also submit manufacturer's literature describing all manufactured items. All materials used in the works shall be the best of its kind and at least equal in all respects to the samples approved.

20.5.1 MATERIALS

EXTRUDED SECTIONS

All extrusions are to be in accordance with B.S.1476 alloy HE9 with the mechanical properties of the WP condition unless required otherwise.

Sheet (Aluminium)

All aluminium sheet shall be to B.S.1470 alloy NS ¼ hard condition, unless required otherwise.

Anodising

All aluminium sections exposed to atmosphere shall be anodised in accordance with B.S. 3987 with a satin surface finish or other as required and approved. The average thickness of the anodic coating on a significant surface at the time of delivery shall not be less than 25 microns and at no point on the significant surface shall the measured thickness be less than 23 microns, or more than 30 microns. The method of testing shall be that described in Appendices, A,B and C of British Standard 3987.

Lacquer Finish to Anodised Aluminium

Unless directed otherwise all anodised aluminium shall be dipped one coat of methacrylate lacquer and stoved on at the works to a required temperature for a period of 20 minutes, the dry film thickness must be 12 microns minimum. Air drying sprayed coatings of lacquer or wax coatings and other removable protected methods will not be acceptable.

Steel

All steel fixing cleats, structural sections and steel cores which if required to be used to reinforce the aluminium windows or used in conjunction with the fixing, shall be hot dip galvanized in accordance with B.S.729: Part 1. Electro-galvanizing or metal spraying is not acceptable.

Neoprene Gaskets

The glazing shall be manufactured from neoprene to B.S.4255: Part 1, which covers performed rubber gaskets for weather exclusion from building, as approved by the Engineer.

Polystyrene Foam

The external aluminium windows and doors where required shall have expanded polystyrene foam (thermopore) picked into the hollow perimeter frame section to form a base for the mastic perimeter sealing.

Glazing

The glazing work shall be carried out according to the section "GLASS & GLAZING" and adhere to the recommended procedure of the window manufacture, to assure proper water tightness of the glazing and in any position where aluminium opening windows are used. They must be set strictly as the window manufacturer's instructions and British Standard Code of Practice C.P.152.

Fastening and fixing

All opening windows and doors are to be fitted with suitable opening, bolting at locking devices, catches and stays from the inside as necessary, with the best of their kinds as approved by the Engineer.

Grills

All grills shall be of approved material, shape and design as shown on the drawings or as directed, where required.

Aluminium Wire Net

Aluminium wire net shall be provided for mosquito proofing as approved on all openable windows and elsewhere, unless not required, as shown on the drawings.

20.6 DESIGN

All the external windows and doors must be designed always subjected to the approval of the Engineer to meet the following conditions:

- i) The wind load for design purposes to be a maximum of 100 kg per square metre.
- ii) The provision for expansion and contraction for the temperature range of 50°C to 0°C.
- iii) The design must accept single thickness of tinted or float glass or alternatively,
- iv) All glazing is to be neoprene channel gaskets with vulcanized corners and fixed with spring beads.
- v) Mastic perimeter sealing and at joints between adjacent frames shall be with polysulphide in accordance with B.S.4254.
- vi) The finished doors and windows shall be free from all sharp edges, burrs and the like that might be a hazard to the user.
- vii) It shall not be possible for a panel or leaf to become accidentally disengaged from the outer frame.
- viii) On all finished doors and windows means shall be provided to prevent injury to the user's hand where the end grip may meet or pass close to another panel during operation.

20.7 DELIVERY AND PROTECTION

Delivery

Windows and doors are to be delivered to the site complete with fittings and fixings. The Contractor shall install, clean down and protect the windows and doors against further building work under the direction and supervision of the Engineer and to his complete satisfaction.

Protection of Aluminium from Dissimilar Materials

Where aluminium windows and doors come into contact with block work, steelwork, concrete or plaster, they shall be coated with an insulating lacquer, paint or tape, to ensure that electro-chemical corrosion is avoided.

20.8 INSTALLATION OF WINDOWS AND DOORS

General

Doors and windows shall be installed and adjusted by experienced workmen. They shall be installed, without forcing, into prepared opening unless detailed or specified otherwise in accordance with manufacturer's instructions and the approved shop drawings and set at the proper elevation and location in level and in alignment with properly braced frames to prevent distortion and misalignment.

Anchors and Fastenings

Anchor all the units to masonry, or to other or adjacent construction as shown on details and the approved shop drawings. Where windows are set in prepared openings, place the necessary anchorage during progress of wall construction. Anchors and fastenings shall be built into anchored, or bolted to the jambs of openings, and shall be fastened securely to the windows or frames and to the adjoining construction. Unless otherwise detailed, anchors shall be spaced not more than 45 cm apart on heads, jambs and sills. All anchors shall have sufficient strength to hold the member firmly in position.

Protection

Care shall be taken in handling windows and doors during transportation and at site. Doors and windows shall be stored upright on pieces of timber in a dry location, and under cover. After installation, protect windows and doors frame damage during subsequent construction activities.

Cleaning

Surfaces of windows and doors shall be cleaned on both the inside and outside of all mortar, plaster, paint and other foreign matter to present a neat appearance and prevent fouling of weathering surfaces and weather-stripping. In addition, windows shall be washed off with a stiff-fibre brush, soap and water, and thoroughly rinsed with clean water. Where windows and doors have become stained or discoloured they shall be cleaned or have finish restored in accordance with recommendations of the manufacturers. Stained, discoloured, or abraded windows that cannot be satisfactorily repaired shall be replaced with new windows at the Contractor's expense.

20.9 FIXED GLAZED PANELS

Wherever required fixed glazing shall be installed. This shall contain ventilator grills on area, capable of being opened, and being integrated within the anodized aluminium frame work in which the glazing will be fixed. The Contractor shall submit shop drawings obtained from the manufacturers (marked in English) and submit these to the Engineer for approval of the design.

20.10 SPECIAL DOORS

Glazed double swing self-closing doors wherever required or as shown in the drawings shall be of a type and design and for which prior approval of the Engineer shall be obtained by the Contractor.

20.11 MEASUREMENT AND PAYMENT

The doors, windows and ventilators shall be measured net between the outer edges of the aluminium frames and paid for at the unit rates entered in the Bill of Quantities and in accordance with the Conditions of Contract. Unit rates for doors, windows, ventilators shall be inclusive of all materials, labour, etc including anodizing, netting, fittings, fixtures and glazing, etc complete covering any other items incidental thereto

SPECIFICATIONS PART- II FOR RUBBER FENDERING SYSTEM

1. GENERAL:-

The work consists of replacing the damaged / missing rubber fenders, coping / waling, rubbing strips etc. Complete with approved 'Rubber Fendering System as per type, sizes and details shown in the attached Plan and as per manufacturer's specifications and instruction & of the Engineer. Chiseling / cutting /drilling in the R.CC. Concrete, without damaging the structure, will be carried out to take out the broken M.S Anchor bolts etc with approved epoxy resin / chemical as specified in Schedule of Quantities.

The work of replacing the damaged/missing timber fenders will be carried out at the work site indicated under subject but it can be shifted to any other Lash/ Berths without assigning any reasons and no claims to this effect will be entertain able by K.P.T.

The work is of tidal and important nature, therefore, the contractor shall be required to work round the clock as soon as the site is made available in whole or portions to the contractor for the named work. The contractor may have to engage more equipments / labours to work on 2 or more different locations simultaneously for timely and expeditious completion of the work

2. AMBIENT CONDITIONS:-

All Materials and equipments supplied and installed shall be designed, manufactured and tested to meet the following ambient conditions:

1.	Maximum Ambient Temperature	45 C
2.	Minimum Ambient Temperature	5 C
3.	Maximum Humidity	100 %
4.	Minimum Humidity	10%
5.	Atmosphere	Tropical, Humid, Arid, Dust.

3. MAIN CHARACTERISTICS

Rubber V-type fenders with sizes of 600 Height x 2000 Length & 600 Height x 2500 Length , as manufactured by the company according to PIANC guidelines of rubber fenders system of 177 KN.m (min.) Energy Absorption and 883 KN. (max.) Reaction Force for 600 H x 2000 L and 221 KN.m (min.) Energy Absorption and 1108 KN. (max.) Reaction Force for 600 H X 2500 L at Design Deflection of 45%.

The fenders must correspond to the basic requirements as laid down in relevant international specifications. They are to be manufactured from natural or synthetic rubber, free of Pores, cracks and impurities.

Furthermore, the following minimum properties shall be present in the rubber fenders:

- Sea Water resistance.
- Resistant against sun rays.
- Oil resistance.
- Tensile strength of minimum 160 kg/ cm².
- Elongation greater than or equal to 250%.
- Aging property.
- Abrasive Strength.
- Resistance against tearing.

The base plate of the fender shall be manufactured of steel, as per B.S. 3706 or of an equivalent international standard quality. The steel base plate shall be firmly connected to the rubber body through vulcanizing or other suitable measures. The unit is to be covered with high quality layer leoprene. Corrugated corrosion-resistant synthetic resin plugs are to be supplied for all mounting bolts, which embed in the concrete structure.

The tenderer will be required if asked to submit any information of the proposed fender type before his tender is considered as well as reference from the supplier and works certificates of already executed deliveries. These documents are to be accompanied by a binding statement from –the supplier, in which the maximum duration for the assumption of a guarantee on the assumed properties of the fender is given. The tenderer will have to furnish any other information required by the department for the evolution of the tender.

4. COMPLETION PERIOD

The proposed work consists of two major operations i.e.

(i) Import of rubber fenders and (ii) Installation / fixing of rubber fenders on the berths.

The following time schedule is specified for the two operations:-

i) IMPORT OF RUBBER FENDERS

The contractor should arrange the import, shipment and delivery to the site, the required number of rubber fenders as per BOQ with accessories within a period of 4 months, commencing after 14 days of the receipt of Work Order.

ii) INSTALLATION / FIXING OF RUBBER FENDERS

The Contractor shall complete the entire work of fixing of rubber fenders in position on the berth within a period of 03 months, after procurement the fender at site during which the berth in portions will be made available to the Contractor for installation of rubber fenders. After completion of the work the berth should be in such a position that the same can be put in commission immediately. This also includes complete clearance of Site from all kind of materials, machinery, debris etc. etc. As directed by the Engineer / In-Charge.

In case the contractor fails to complete the above operations within specified Periods the liquidated damages as mentioned & here under will be recovered from the contractor.

5. DECOMMISSIONING OF BERTH

The berth on which the rubber fenders are to be provided will be decommissioned in portions & handed over to the contractor for the execution of the work. The contractor will be informed about the decommissioning of the berth through a 24 hours notice, written or verbal, to take-up the work.

6. LIQUATED DAMAGES

(i) Should the contractor fail to import shipment and deliver the requisite rubber fenders on site; within a period of 04 months; commencing after 14 days of the receipt of work order a sum of 10% of Contract Agreement (max) or part there-of shall be received from the contractor as ascertained liquidated damages.

(ii) Should the contractor to complete the work of installation / fixing the rubber fenders on a berth decommissioned and handed over to him; within a period of 03 months, a sum of Rs. 890/- (for each day delay) or part there-of shall be recover & from contractor as ascertain & liquidated damages.

7. LIAISON OFFICER OF THE CONTRACTOR

The Contractor shall keep one authorized representative, duly qualified, to keep liaison between concerned Asstt; Ex; Engineer Office and the contractor. All correspondence related to the site work shall be handed over to the representative of the contractor, in person, by the Asstt; Ex; Engineer's Office. This condition shall be enforced on the contractor as the nature work at most importance and KPT can not afford to keep the berth un-attended during the course the berth is decommissioned. In case authorized representative absents from site or fails to acknowledge the information regarding commissioning or decommissioning of berth, the contracting firm shall be liable for all the consequences. Therefore it is expected from the contractor that the firm is always represented by representative during office hours.

8. CLAIMS OF CONTRACTOR

It is already mentioned under decommissioning of berth shall be provided to the contractor in portions on a abort notice of 24 hours (written or verbal). The contractor shall gear up his men & materials within the notice period and shall give satisfactory progress within the decommissioning period. However KPT reserves the rights to provide the berth as are when it deems fit. The contractor shall not as a matter of right compel the KPT for the vacant possession of berth. The contractor shall not be entitled to claim any amount in case the berth provided to contractor is re-commissioned due to emergencies or any other unforeseen circumstances but he shall be responsible to clear the berth on receipt of such information. The apron of the berths shall have to kept fully operational by the Contractor. The contractor shall not be allowed to dump any material etc. On the crane track / rail- way track etc. He shall be responsible to keep these tracks 100% operational. The contractor shall have to arrange and provide at his cost enough cranes / pontoons etc. To carry out the major portion of work from the channel side. The contractor shall not as claim matter of right the apron of the berth for working. However the contractor may use a particular bay of the apron fro the pose of transportation of men & materials for fixing the fenders at the said bay.

9. TERMINATION OF CONTRACT:

Should the contractor entirely fail to execute the work on three consecutive decommissioning notices, the contract shall be terminated by giving 14days notice and the work shall be carried out at the Contractor's risk and cost through some other agency.

10. CAUTION:

As mentioned earlier that the work is of tidal nature and shall be executed at the face of the berths, round the clock, therefore, the contractors are advised in their own interest to inspect the site and acquaint themselves with the nature of work before tendering as no claim whatsoever in this regard will be entertained afterwards.

11. THIRD PARTY INSPECTION

The Contractor shall arrange the abroad visit of least Five Engineers Officials to witness the third party inspection and obligated to provide the original copy of well reputed consulting.

12. APPOINTMENT OF 3RD PARTY

The contractor shall get prior approval to appoint 3RD Party certification firm and shall provide one original alongwith 02 copies of 3RD Party report duly signed by Employers Witnessed Engineers. The employer serves right to accept or reject the material imported if not found as per Specifications and 3RD Party report of Imported Materials (Fenders & Bollards etc.)

13. TOOLS AND PLANTS

Special tools as required for erection, testing and maintenance of Rubber fenders as started in the specifications / manufacturer's instructions shall be supplied by the contractors alongwith the equipment / materials. The cost of special tools and plants, pontoons, cranes etc. Drilling equipments, etc. Including labours, skillets and unskilled shall be included in the rates. No extra payment will be made for the supply of the special tools and plant etc.

14. MANUFACTURER'S INSTRUCTIONS:

The contractor shall supply to the Engineer six (6) copies of manufacturer's instruction's manuals for installation and maintenance of the Rubber fenders alongwith the "Test Report" of each of the fender supplied under the contract.

15. GUARANTEE:

The contractor shall furnish a written guarantee of the manufacturer with respect to satisfactory Performance of each of the fender. Guarantee shall be given for replacement and repair of part or whole of fender which may be found defective, in material or workmanship. The guarantee shall cover a minimum period of Ten (10) years after commissioning of the system. The guarantee shall not relieve the contractor of his obligations. He will be fully responsible for the repair or replacement of any defective material in time, so as not to cause any undue in carrying out the repairs and replacements.

16. TESTING:

Verified copies by the manufacturer of quoted fender, specification including type, size, performance of fender, physical properties of rubber, type of rubber with analytical test an internationally recognized third party, type of plate with accessories type of Bolts and Washers, Fender top material with physical properties and drawing of fender.

17. MODE OF PAYMENT:

Normally, all the payments are to be made on completion of the respective items of Schedule of Quantities in Pakistan Rupees - currency; however in this particular work, 50% amount of the rubber fenders will be released when the fenders alongwith the accessories have been physically brought at the site. Rest of the payment would be released after completion of job /project.

09 August 2024



KARACHI PORT TRUST
ENGINEERING DEPARTMENT

**DOCUMENTS TO
BE RETURNED**

**NAME OF WORK: REHABILITATION AND INSTALLATION OF NEW
FENDERS NOSING AT BERTHS NO-18,19,20 & 21 M-I
YARD WEST WHARF.**

S.No Description of Work Unit Rate Quantity Amount(Rs.)

Notes:-

- a) After the completion of the work the contractor is required to clear away and remove from the site all construction plants, surplus material, rubbish, debris and temporary works of every kind etc. to the entire satisfaction of the Engineer. It may be noted that Contractors' account will not be finalized till such time a certificate to this effect is obtained from Executive Engineer and submitted to the Chief Engineer for his information.
- b) The Contractor must ensure that the dismantled materials should be disposed in accordance with safety standards fixed by the civic agencies and specified environmental protection rules.
- c) Debris dismantled materials, rubbish etc. should be disposed in such a way that it should not cause any pollution and shall not be source of harm to public.
- d) The tenderers are advised to avoid cutting / over writing in B.O.Q. In case any cutting / over writing it should be properly re-write, sign and stamp otherwise, the tenders may not be considered.
- e) The (Contractor Tech Representative) is bound to visit the plan monthly & give satisfactory report after checking the plan or he is bound to visit on the call of the Engineer Incharge as & under required.
- f) ***“Only the FBR & SRB Registered Contractors are eligible for bidding, Contractor has to quote their rates inclusive of all Govt. Taxes”.***

B. O. Q. ITEMS

Dated :

Plan #

Dated :

Case -Id REHABILITATION AND INSTALLATION OF NEW FENDERS NOSING AT BERTHS NO-18,19,20 & 21 M-I YARD WEST WHARF.

<u>S.No.</u>	<u>Ref.</u>	<u>Item description</u>	<u>Unit</u>	<u>R a t e</u>	<u>Rate in Words</u>	<u>Quantity</u>	<u>Amount</u>
1		DISMANTLING OF R.C.C / C.C QUAY WALL EDGES / NOSING BEAM & STAIR STEPS ETC. WITHOUT DISTURBING THE EXISTING REINFORCEMENT, BY USING ELECTRICAL / MECHANICAL MEANS INSTRAIGHT EDGE CUT SMOOTH AND DISPOSAL OF DEBRIS MATRIAL OUT SIDE KPT LIMIT AND STRAIGHTING THE EXISTING REINFORCEMENT AND REMOVAL OF RUST I/C PROVIDING PIPE / WOODEN SCAFFOLDING OR JHULA / SWING ING / HANGING ARRANGEMENT ETC. AS REQUIRED ON SITE AND DIRECTED BY ENGINEER INCHARGE.	PER/CUM			20.00	
2		PROVIDING & LAYING 1:1 ½:3 R.C.C/ CEMENT CONCRETE OF 5000 PSI STRENGTH UP TO REQUIRED THICKNESS USING S.R. CEMENT 50 % CRUSHED GRADED BOULDER 20 MM AND DOWN GAUGE AND 50 % SCREENED GRADED BAJRI FOR MAKING GOOD THE DAMAGED BROKEN C.I. BOLLARD / SURFACE OF THE QUAY WALL & APRON I/C FAIR FACE FORM WORK (SHUTTERING) LEVELING, COMPACTING CURING AND (FILLING THE JOINTS BY APPROVED SEALING COMPOUND) WHERE EVERREQUIRED CONCRETE COMPLETE TO SMOOTH FINISH I/C MAKING THE CORNER IN ROUND SHAPE AS PER REQUIREMENT BOLLARDETC I/C PROVIDING & APPLYING EPOXY RESIN COMPOUND TO OLDSURFACE / STEEL TO MAKE PROPER BOUND I/C WIRE BRUSHING THE SURFACE CLEANING DUSTING THE M.S. BARS BY USING SAND PAPERING AND DISPOSING OF NOSING OUT SIDE KPT LIMITS.	PER/CUM			10.00	
3		PROVDING EPOXY MORTAR FOR FILLING AND SEALING HOLES IN QUAY WALL WITH APPROVED OF EPOXY RESIN MORTAR COMPLETE SMOOTH FINSH WITH EXISTING CONCRETE SURFACE AS PER DIRECTION OF ENGINEER/ INCHARGE.	PER/CU M			4.00	
4		SUPPLY AND FIXING OF RUBBERISED MATERIAL CORNER GUARDS OF 25 MM THICK SIZE 1000 MM X 400MM X 200 MM AS PER SPECIFICATION COMPLETE OF BEST APPROVED QUALITY ALL AS SPECIFIED WITH MAINTAIN LEVEL ,AFTER TAKEN OLD M.S. NOSING . THE RECOVERED OLD DAMAGED RUBBER NOSING PLATE WILL BE SUBMITTED TO AXEN (MIY) STORE.	PER/RMT			195.00	
5		DRILLING HOLES 20 MM DIA CHEMICAL STAINLESS STEEL ANCHOR (STUD TYPE) OF REQUIRED DEPTH IN CONCRETE AS DIRECTED.ON THE HORIZONTAL & VERTICAL FACES OF THE EXISTING QUAY WALL AFTER APPLYING EPOXY MORTAR OF APPROVED MAKE TWO COMPOUND CAPSULE TYPE / FOIL TYPE SINGLE DISPENDING THROUGH MANUAL DISPENSER / GLASS CAPSULE TYPE OF EQUIVALENT GRADE IN DRILLED HOLES I/C CLEANING, BRUSHING & BLOWING OF DRILLED HOLES AS PER SPECIFIED.	EACH			450.00	

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6		REMOVAL OF EXISTING DAMAGED / BROKEN RUBBER FENDERS VERY CAREFULLY FROM THE QUAY WALL INCLUDING PLUG, WASHERS, BOLTS ETC. THE RECOVERED MATERIAL WILL BE THE KPT PROPERTY AND CONTRACTOR WILL STACK RUBBER FENDERS AND SALVAGED MATERIAL IN THE OFFICE OF AXEN(MIY) WITH HIS OWN TRANSPORTATION AND LABOUR.	EACH		22.00	
7		PROVIDING AND FIXING V-TYPE HORIZONTAL RUBBER FENDER 600H X 2000L (WEIGHT 1000 KG RUBBER GRADE TO BE AGREED AND SHOULD BE IN ACCORDANCE TO SPECIFICATION AS APPROVED IMPORTED MAKE GIVEN IN SPECIFICATION FOR RUBBER FENDERING SYSTEM INCLUDING ALL FITTINGS AND FIXTURE INCLUDES, IMPORT,TRANSPORTATION, HANDLING, DRILLING HOLES AND FIXING NUT BOLTS, WASHER WITH APPROVED TYPE OF EPOXY RESIN / CHEMICAL ADMIXTURE OF APPROVED MANUFACTURER (WITH PRIOR APPROVAL OF ENGINEER) FIXING OF FENDER IN POSITION AS PER DIRECTION OF ENGINEER INCHARGE.	EACH		12.00	
8		PROVIDING AND FIXING V-TYPE VERTICAL RUBBER FENDER 600H X 2500L WEIGHT 1200 KG) RUBBER GRADE TO BE AGREED AND SHOULD BE IN ACCORDANCE TO SPECIFICATION AS APPROVED IMPORTED MAKE GIVEN IN SPECIFICATION FOR RUBBER FENDERING SYSTEM INCLUDING ALL FITTINGS AND FIXTURE INCLUDES, IMPORT,TRANSPORTATION, HANDLING, DRILLING HOLES AND FIXING NUT BOLTS, WASHER WITH APPROVED TYPE OF EPOXY RESIN / CHEMICAL ADMIXTURE OF APPROVED MANUFACTURER (WITH PRIOR APPROVAL OF ENGINEER) FIXING OF FENDER IN POSITION AS PER DIRECTION OF ENGINEER INCHARGE .NOTE: ALL SALVAGED MATERIAL (FENDERS, BOLLARDS ETC) SHALL REMAIN PROPERTY OF KPT AND SHALL BE HANDED OVER TO CENTRAL STORE DEPARTMENT, KPT. NOTE: THE BOQ INCLUDES THE AMOUNT OF FOREIGN VISIT FOR MAXIMUM UPTO 05 PERSONS FOR THIRD PARTY CERTIFICATION AND ALSO IT INCORPORATES THE PRICE OF EMPLOYERS' FACILITIES AS PER BIDDING DOCUMENT AND NO SEPARATE PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR SUCH PROVISIONS. NOTE: THE BOQ INCLUDES THE AMOUNT OF FOREIGN VISIT FOR THIRD PARTY CERTIFICATION AND ALSO IT INCORPORATES THE PRICE OF EMPLOYERS' FACILITIES AS PER BIDDING DOCUMENT AND NO SEPARATE PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR SUCH PROVISIONS.	EACH		10.00	
9		REMOVAL OF REMMANTS OF EXTISTING BOLLARD TO CLEAR THE POINTS FOR FIXING OF NEW BOLLARD.	EACH		4.00	


CHIEF ENGINEER
K.P.T

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10	PROVDING & FIXING OF NEW G.I BOLLARD OF 100 TON PULLING CAPICTY 1300 KG TO 1400 KG (26 CWT TO 28 CWT) AS PER EXISTING DESIGN & SHAPE IN PROPER POSITION AND FROM BY THE ENGINEER / INCHARGE FILLING UP THE VOIDS WITH 1:11/2:3 CONCRTE USING CRUSHED STONE AS COURES AGGREGATE AND MAKING GOOD SURFACE OF THE COPING BEAM WITH VIBARATED C.C 1:11/2:3 AND PLASTERING CURRING ETC AS PER DESIGN /DRAWING INCLUDING 03 COATS OF BLACK BITUMMASTIC PAINT.	EACH		4.00	
11	SUPPLYING AND FIXING IN POSITION 16" LONG 2" DIA GALVANIZED CARBON STEEL BOLTS WITH WASHERS AS PER EXISTING IN PLACE OF LOOSENED, MISSING & DISLOCATED BOLTS WASHERS IN HORIZONTAL AND VERTICAL RUBBER FENDERS INSTALLED AT BERTHS BY APPROVED MEANS I/C HOLDING THE RUBBER FENDERS TO ITS ORIGNAL POSITION INCLUDING ALL THE ARRANGEMENTS SCAFFOLDING ETC WHAT SO EVER REQUIRED DURING THE PROCESS AS DIRECTED BY THE ENGINEER INCHARGE.	EACH		85.00	
12	DRILLING THE 16" LONG HOLE THROUGH CORE CUTTING MACHINE OF REQUIRED DIA BY APPROVED MECHANICAL MEANS AT REQUIRD LOCATION OF BERTH QUAY WALL INCLUDING ARRANGEMENT OF SCAFFOLDING AND ALL SAFETY PRECUATIONS AND PROVIDING AND FIXING THE FEMALE PLUG AS PER EXISTING MATERIAL DESIGN AND SIZE FOR FIXINGG OF BOOLTS WITH APPROVED EPOXY RESIN / CHEMICAL ADMIXTURE OF APPROVED MANUFACTURER COMPLETE IN ALL RESPECT AS DIRECTED BY THE ENGINEER INCHARGE. NOTE:- 1.ELECTRIC CONNECTION WILL BE PROVIDED BY KPT. 2. CONTRACTOR WILL CARRY OUT THE WORK DURING THE GAPE OF SAILING / BERTHING OF THE SHIPS AND IN LOW TIDE LEVEL.	EACH		55.00	
13	PROVIDING & APPLYING 1:4 C.C. MIX TO ACHIVE STRENGTH OF 4500 PSI SHOTCRETE FOR VARIABLE THICKNESS FROM 2" THICK THROUGH MECHANICAL APPROVED MEANS AT DAMAGED SURFACE OF QUAY WALLS WITH SPECIFIED MATERIALS & EQUIPMENT I/C ALL NECESSARY ARRANGEMENT LIKE FLOATING BARGE, PANTOONS SCAFFOLDING , COMPRESSOR AS PER SITE REQUIREMENT AND AS PER DIRECTION OF ENGINEER INCHARGE. NOTE: (1) ALL THE SAFETY MEASURES OF STANDARD SPECIFICATIONS GOVERNING TO EHS SHOULD BE FOLLOWED WITH APPLICATION BY THE CONTRACTOR. (2) THE BERTH WILL BE DECOMMISSIONED & HANDED OVER TO THE CONTRACTORS FOR EXECUTION OF WORK IN PHASES THE CONTRACTOR WILL BE INFORMED ABOUT THE DECOMMISSIONING / COMMISSIONING OF THE BERTH ON 24 HOURS NOTICE & IN CASE OF EMERGENCY FOR COMMISSIONING CONTRACTOR WILL CLEAR THE SITE FOR BERTHING OF SHIPS WITHIN 3 HOURS NOTICE, NO SUCH CLAIM OF WHATSOEVER NATURE SHALL BE PAID TO CONTRACTOR.	PER/SQM		350.00	

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	<p>NOTE: * ALL SALVAGED MATERIAL (FENDERS, BOLLARDS ETC) SHALL REMAIN PROPERTY OF KPT AND SHALL BE HANDED OVER TO CENTRAL STORE DEPARTMENT, KPT.</p> <p>NOTE: * THE BOQ INCLUDES THE AMOUNT OF FOREIGN VISIT FOR THIRD PARTY CERTIFICATION AND ALSO IT INCORPORATES THE PRICE OF EMPLOYERS' FACILITIES AS PER BIDDING DOCUMENT AND NO SEPARATE PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR SUCH PROVISIONS.</p> <p>* USE OF BARGES ETC AT SITE BY CONTRACTOR AT HIS OWN COST.</p> <p>* ALL PREVAILING EHS STANDARDS SHOULD STRICTLY COMPLAINE BY CONTRACTOR AT HIS OWN COST.</p> <p>* DIVERS / BOATS DURING EXECUTION WILL BE PROVIDED BY CONTACTOR AT HIS OWN COST.</p>				

TOTAL :	<input type="text"/>
ADD 5% CONTINGENCIES	<input type="text"/>
NET TOTAL	<input type="text"/>
ADD 15% S.R.B	<input type="text"/>
GRAND TOTAL	<input type="text"/>


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