



COCHIN PORT TRUST

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**E-QUOTATION DOCUMENT FOR REPAIRING WORK AND PROVIDING
DRAINAGE FACILITIES AT ERNAKULAM WHARF CANTEEN**

Website:www.tenderwizard.com/CPT

EXE. ENGINEER(CM-I)'S OFFICE

COCHIN PORT TRUST

COCHIN-682009

QUOTATION No.T1/Q-07/2020-C

1.GENERAL CONDITIONS

1. The work consists of **“Repairing work and providing drainage facilities at Ernakulam Wharf Canteen”** and includes the following:
 - i) Dismantling/ demolishing old plaster, tile floor, cement concrete etc.
 - ii) Flooring with Kota Stone.
 - iii) Masonry with precast cement concrete blocks.
 - iv) Cement plastering work.
 - v) Providing and fixing ceramic glazed wall tiles,
 - vi) Providing and laying 60mm thick factory made cement concrete blocks,
 - vii) Cement concrete work,
 - viii) Granite stone flooring,
 - ix) Painting work with cement primer, Acrylic emulsion, wood primer & Synthetic enamel paint etc.
2. The bidders need to obtain the one time User ID & password for log-in to e-tendering Portal www.tenderwizard.com/COPT from the service provider M/s. KEONICS by paying registration amount of Rs.1124/- through online Payment using Credit/Debit Card/Net banking or DD in favour of “KSEDCL, Bangalore”.
3. The intending bidder must have valid Class-II or III digital signature certificate to submit the bid. For further details, please contact e-Tender Help Desk No. 080-40482000/ 080-49352000/ 9746118529/ 9605557738.
4. The quotationers shall have experience in taking up installation of DRDO Technology Bio- Digesters. Scanned copy of relevant certificate shall be submitted along with the quotation.
5. e-Quotations are invited only from the Registered contractors of Cochin Port.
6. The Quotation document will be available as two separate files in the e-quotation Portal; containing the following:
 - i. Quotation Notice & General Conditions.
 - ii. Schedule of Quantities of Work.
7. Both 5(i) & filled in 5(ii) above shall be submitted “Online” only. The name and address of the quotationers shall be necessarily entered in the space provided in the Schedule of Quantities of Work.
8. The Quotationer shall inspect the site before submitting the quotation in order to make them fully aware of the site and its conditions.
9. Clarifications if any required can be obtained by contacting the Asst. Exe. Engineer/ Asst. Engineer of concerned Civil section.
10. The work shall be completed within 60 Days from the date of receipt of work order.
11. The Engineer-in-Charge of the work (Engineer’s Nominee/ Nominee) shall be Exe. Engineer (CM-I).
12. Payments will be made online after completing the work to the entire satisfaction of the Engineer-in-Charge and also after deducting the taxes prevailing in force at the time of payment of bills.
13. Water & Electricity

Water: Water, if required for the work, shall be arranged by the Quotationer at his own cost.

Electricity: The Quotationer shall make his own arrangements for the temporary connection for electricity required, if any, and make necessary payment for it direct to the Department concerned. No payment will be made by the Employer on this account.

14. The rate/percentage quoted shall be excluding Goods & Service Tax (GST).
15. The Quotationer shall have valid GST Registration number. GST as applicable for the work will be paid extra by the Port. The GST applicable as per law can be billed on the Port Trust, which will be paid to the Quotationer by the Board along with the bills, for which the Quotationer shall hold valid GST Registration number.
16. All materials, tools, plants and equipments required for completing the work shall be provided by the Quotationer at his own cost. All materials required for the work shall be got approved by the Engineer-in-Charge before using in the work. Any fittings or accessories which may not be specifically mentioned in the specification but are usual or necessary as per good industry practice, shall be provided by the Quotationer without extra cost to the Port. All works shall be carried out as per relevant ISS.
17. All labour, skilled or unskilled for the work shall be provided by the Quotationer at his own cost and settling any disputes with the labour shall be, Quotationer's responsibility.
18. All care and precautionary measures for avoiding any kind of damage/ accidents in the work site shall be taken by the Quotationer. All safety precautions shall be taken while carrying out the work. The Quotationer shall supply the necessary safety equipments to the workers employed by him and also ensure that they use it, while carrying out the work. The Quotationer shall be solely liable and responsible for accidents if any, occurring during the period of Contract.
19. The work shall be completed without causing any damage to the existing structures/cables etc. In case any damage is caused, the same has to be rectified at Quotationer's risk and cost.
20. The Port will in no way be responsible for any loss/damages caused in connection with the work.
21. The quantities specified in the schedule of quantities of work are only approximate and shall be increased or decreased at the discretion of the Engineer-in-Charge according to actual requirements. Payment will be made as per actual measurements, according to the percentage quoted.
22. Quotations shall be valid for a period of 60 days from the due date of submission of quotation.
23. Completion Period: The whole work shall be completed within 60 days from the date of receipt of work order. In case the Quotationer is not permitted to carry out the work due to some problem from Employer's side, he should maintain a record of such time lost, duly counter signed by the Engineer-in-Charge and this period

will not be included while determining the delay in completion period. In case the works are not completed within the specified completion periods due to any fault of the Quotationer, it will be considered as a breach of contract and the Quotationer will not be considered for any other work in future.

24. Liquidated Damages: In case of delay in completion of the contract, liquidated damages (L.D) may be levied at the rate of half percent (½%) of the Contract Price per week of delay, subject to a maximum of 10% of the Contract Price. The amount of Liquidated Damages can be adjusted or set-off against any sum payable to the Quotationer.
25. Defects Liability Period: The defects liability period for the work shall be 12 months from the date of completion of the work. In the event of any defect/ deficiency being noticed during the period, which is attributable to the defective materials/design/ workmanship, the Quotationer shall make good the same at his cost.
26. Security Deposit: Security deposit @ 5% of Contract Price shall be recovered from the Quotationer's bill. The amount towards Security Deposit so deducted will be released only after successful completion of the defect liability period, subject to certification from the Engineer-in-Charge.
27. Execution of Agreement: The successful Quotationer will be required to execute within 14 days from the date of receipt of work order, an agreement at his expense on proper value Kerala State Stamp Paper in the prescribed departmental form, consisting of the work order issued to the Quotationer, together with the Quotation submitted by him including General Conditions, for the due and proper fulfilment of the contract.
28. Till signing of agreement, the Quotation together with the acceptance letter shall constitute a binding contract between the Quotationer and Cochin Port.
29. The Contractor shall comply with all the provisions of the Indian Workmen's Compensations Act, Public Liability Policy, Provident Fund Regulations, Employees Provident Fund and ESI Act etc. amended from time to time and rules framed there under and other laws affecting the Contract labour that may be brought in to force from time to time.
30. The Contractor shall be registered under EPF and ESI act and the employees employed under them shall be covered in the EPF and ESI Scheme, if required as per applicable rules. The Contractors shall regularly remit, the Employer & Employee contribution to the authorities in such cases. If not, the Dept. would be required to remit the same and the amount so remitted shall be deducted from the part/ final bill of Contractors.

SIGNATURE OF QUOTATIONER

2.SPECIFICATIONS FOR MATERIALS

1. GENERAL

- 1.1 Except where otherwise specified or authorized by the Engineer-in-Charge, materials supplied by the contractor shall conform to the latest edition of the Indian Standard Specifications and code of practices published by the Indian Standard Institution. Samples of materials to be supplied by the contractor shall be shown to the Engineer-in-Charge sufficiently in advance for approval of its quality for use on the work.
- 1.2 All materials supplied shall be stored appropriately to prevent deterioration/ damage from any cause what so ever and to the entire satisfaction of the Engineer-in Charge.
- 1.3 The materials required for the work shall be brought to the site and stacked at the places shown by the Engineer-in-Charge and the same shall be got approved for use in work sufficiently advance so that the progress of the work is not affected by the supply of materials.
- 1.4 Payment for the materials supplied, shall be given only after they are used on the work.
- 1.5 Tolls are payable by the contractor as per rules for vehicles using the Port's road for supplying the materials.

2. AGGREGATES FOR CONCRETE

- 2.1 Aggregates (fine and coarse) for concrete shall comply with the requirements of I.S. 383 – 'Specifications for coarse and fine aggregate from natural sources for concrete'. Aggregate shall be obtained from sources approved by the Engineer-in-Charge. Aggregates, which are not perfectly clean, shall be washed in clean water to the entire satisfaction of the Engineer-in-Charge.
- 2.2 The fine aggregate shall be clean, hard, durable, uncoated, dry and free from injurious, soft or flaky pieces and organic or other deleterious substances.
- 2.3 Each type of aggregate shall be stored separately for the approval of Engineer-in-Charge. Wet aggregate delivered at the site shall be kept in storage for at least 24 hours to ensure adequate drainage before being used for concreting.
- 2.4 Contractor shall maintain at site at all times such quantities of each type of aggregate as are considered by the Engineer-in-Charge to be sufficient to ensure continuity of work.

3. CEMENT

- 3.1 Quality of cement used for the work shall be 43 grade ordinary Portland cement conforming to I.S. 8112 or 53 grade ordinary Portland cement conforming to I.S. 12269 or Pozzolona cement conforming to I.S. 1489 unless otherwise approved by the Engineer-in-Charge.
- 3.2 The cement required for the work will have to be procured by the contractor and shall comply with the relevant IS. As far as possible, the cement required for the work will have to be procured from the government agencies. The cement shall, if required by the Chief Engineer / Engineer-in-Charge, be tested and analyzed by

an independent analyst at the Contractor's cost and result produced to the Engineer-in-Charge.

- 3.3 Supply of cement shall be taken in 50kg bags bearing manufacture's name and ISI marking. Samples of cement arranged by the Contractor shall be taken by the Engineer-in-Charge and got tested in accordance with provisions of relevant B.I.S codes. In case, test results indicate that the cement arranged by the Contractor does not conform to the relevant B.I.S codes, the same shall stand rejected and shall be removed from the site by the Contractor at his own cost within a week's time of written order from the Engineer-in-Charge to do so.
- 3.4 A cement godown of adequate capacity as directed by the Engineer-in-Charge shall be constructed by the Contractors at the site of the work for which no extra payment shall be made. Double lock provision shall be made to the door of the cement godown. The key of one lock shall remain with the Engineer-in-Charge or his authorized representative and the key of the other lock shall remain with the Contractor. The Contractor shall be responsible for the watch and ward and safety of the cement godown. The Contractor shall facilitate the inspection of the cement godown by the Engineer-in-Charge.
- 3.5 The cement brought to the site and cement remaining unused after completion of work shall not be removed from the site without written permission from /of the Engineer-in-Charge.
- 3.6 The cement shall be stored in a weather proof building with facilities for inspection.
- 3.7 The Contractor shall maintain a cement register showing dates of receipt and issue, quantities used daily and balance which shall be accessible to the Engineer-in-Charge.

4 STEEL REINFORCEMENT

- 4.1 The reinforcement steel used for the work shall be HYSD bars conforming to IS: 1786 (Grade Fe 415) and the same will have to be procured by the contractor.
- 4.2 As far as possible, the reinforcement steel required for the work shall be procured from Steel Authority of India or Rashtriya Ispat Nigam Ltd. in case steel is not available from the above sources, the contractor shall obtain specific approval from the Engineer-in-Charge well in advance for purchase of steel from other sources.
- 4.3 The contractor shall have to obtain and furnish test certificates to the Engineer-in-Charge in respect of all supplies of steel brought by him to the site of work. Samples shall also be taken and got tested by the Engineer-in-Charge as per provisions in this regard in relevant BIS codes. In case the test results indicate that the steel arranged by the Contractor does not conform to BIS codes, the same shall stand rejected and shall be removed from the site of work by the Contractor at his cost within a week's time of written orders from the Engineer-in-Charge to do so.
- 4.4 The steel reinforcement shall be stored by the contractor at site of work in such a way as to prevent distortion and corrosion and nothing extra shall be paid on this account. Bars of different sizes and lengths shall be stored separately to facilitate easy counting and checking.

- 4.5 Steel brought to site and steel remaining unused shall not be removed from site without the written permission of the Engineer-in-Charge.

5 WATER

- 5.1 Clean fresh water free from oils, acids, alkalies, salt, sugar, organic materials or other harmful materials shall be used for washing aggregates, mixing and curing of concrete. The water used shall comply with clause 5.4 of I.S. 456-2000. Potable water is generally considered good for mixing concrete.
- 5.2 Cochin Port Trust will not provide/supply water for the work. Water has to be arranged by the Contractor himself for the cleaning, painting and construction works including curing work at his own risk and cost.
- 5.3 Samples of water arranged by the Contractor shall be taken by the Engineer in Charge and got tested in accordance with the provisions of relevant BIS codes. In case test results indicate that the water arranged by the Contractor does not conform to the relevant BIS codes, the same shall not be used for any works. The cost of tests shall be borne by the Contractor.

6 SAND FOR MAKING MORTAR FOR MASONRY WORK/ PLASTERING WORK

- 6.1 Sand used for masonry mortar shall conform to IS: 2116. Sand used for plastering shall conform to IS: 1542.

7 KOTA STONE SLABS

- 7.1 The slabs shall be of selected quality, hard, sound, dense and homogeneous in texture free from cracks, decay, weathering and flaws. They shall be hand or machine cut to the requisite thickness. They shall be of the colour as instructed by the Engineer-in-Charge.
- 7.2 The slabs shall have the top (exposed) face polished before being brought to site, unless otherwise specified. The slabs shall conform to the size required. Before starting the work the contractor shall get the samples of slabs approved by the Engineer-in-Charge.
- 7.3 Dressing
Every slab shall be cut to the required size and shape and fine chisel dressed on the sides to the full depth so that a straight edge laid along the side of the stone shall be in full contact with it. The sides (edges) shall be table rubbed with coarse sand or machine rubbed before paving. All angles and edges of the slabs shall be true square and free from chippings and the surface shall be true and plane.
- 7.4 The thickness of the slab after it is dressed shall be as specified in the description of the item. Tolerance of ± 2 mm shall be allowed for the thickness.

8 PRECAST CEMENT CONCRETE BLOCKS

- 8.1 Factory made precast solid concrete blocks shall be of size 300 mm x 200 mm x 150 mm or nearest available size conforming to IS : 2185 – Part I - 1979 in plain cement concrete of M-10 grade with 20mm /12mm graded metal. However, the length and shape of blocks to be provided at junctions shall be suitably modified to fit into the general configuration. These blocks are to be cast in appropriate

moulds preferably steel moulds, which shall provide a smooth surface. The finished blocks shall be cured properly for a minimum period of 14 days. Blocks damaged during the removal of forms and handling will be rejected.

9 GLAZED TILES FOR DADOING

- 9.1 Glazed tiles shall be of approved make, first quality and shade and shall generally conform to IS: 15622. They shall be flat, true to shape and free from cracks, crazing spots clipped edges and corners. The glazing shall be of uniform shade. The tiles shall be of approved size and thickness to be specified by the manufacturer.
- 9.2 The top surface of the tiles shall be glossy as approved by the Engineer-in-charge. The underside of the tiles shall be completely free from glazing in order to adhere properly to the base.
- 9.3 Tests like water absorption, impact strength and crazing has to be carried out for the tiles. The cost towards these tests has to be borne by the contractor.

10 CEMENT CONCRETE INTERLOCKING PAVER BLOCKS 60mm THICK

- 10.1 The cement concrete paver blocks are of factory made interlocking blocks of M30 grade and the thickness of the blocks shall not be less than 60mm. The paver blocks shall be made by block making machine with strong vibratory compaction, of approved size, design, shape, colour and pattern.

11 P.V.C PIPE FOR RAIN WATER DOWN PIPES/DRAINAGE PIPES

- 11.1 P.V.C pipes shall be of approved brand and make conforming to IS 13592 Type A and class as specified in the schedule.

12 PRIMER

- 12.1 The primer used for the work shall be Silicon based primer, manufactured by Asian/ Nerolac/ Berger/ Nitco or approved equivalent of premium quality.

13 EXTERIOR ACRYLIC EMULSION PAINT

- 13.1 The Weather Proof Exterior Acrylic Emulsion paint shall be of approved premium quality manufactured by either Asian Paints/ Berger Paints/Nerolac Excel Paints or its equivalent. The coverage shall conform to the Manufacturer's specification. The colour / shade shall be as per schedule or as per the direction of Engineer-in-Charge. . The paint shall be brought to the site of work by the Contractor in its original containers in sealed condition. The material shall be brought in at a time in adequate quantities to suffice for the whole work or at least a week's work. The materials shall be kept in the joint custody of the Contractor and the Engineer-in-Charge. The empty containers shall not be removed from the site of work till the relevant item of the work has been completed and permission obtained from the Engineer-in-Charge.
- 13.2 The Contractor shall invariably produce the Test Certificates and Bills with batch number and date, signed by an authorised person of the Manufacturer / Dealer, while seeking final approval of the Engineer-in-Charge for use on the Work.

14 SYNTHETIC ENAMEL PAINT

- 14.1 The Synthetic Enamel paint shall be of approved premium quality and shall conform to IS : 2923 (2003). The coverage shall conform to the Manufacturer's specification. The colour / shade shall be as per schedule or as per the directions of Engineer-in-Charge. The paint shall be brought to the site of work by the Contractor in its original containers in sealed condition. The material shall be brought in at a time in adequate quantities to suffice for the whole work or at least a week's work. The materials shall be kept in the joint custody of the Contractor and the Engineer-in-Charge. The empty containers shall not be removed from the site of work till the relevant item of the work has been completed and permission obtained from the Engineer-in-Charge.
- 14.2 The Contractor shall invariably produce the Test Certificates and Bills with batch number and date, signed by an authorised person of the Manufacturer / Dealer, while seeking final approval of the Engineer-in-Charge for use on the Work.

15 MATERIALS NOT SPECIFIED

- 15.1 All materials not herein detailed and fully specified but which may be required for use on works, shall be subjected to the approval of the Engineer-in-Charge without which they shall not be used anywhere in the permanent works

16 SAMPLING AND TESTING OF MATERIALS

- 16.1 Sampling and testing of the material supplied by the contractor for use on the Work shall be done as per the provisions of the relevant BIS codes/specifications. In the absence of BIS specification in a particular case, the sampling and testing shall be done as directed by the Engineer-in-Charge as per sound engineering practice. Material conforming to the specifications and approved by the Engineer-in-Charge shall only be used by the Contractor.
- 16.2 All the sampling and testing shall be done at the Contractor's cost.

SIGNATURE OF QUOTATIONER

3.DETAILED SPECIFICATIONS FOR ITEMS OF WORKS

1. GENERAL

- 1.1 Except where otherwise specified or authorized by the Engineer-in-Charge, materials supplied by the contractor shall conform to the latest edition of the Indian Standard Specifications and code of practices published by the Indian Standard Institution. Samples of materials to be supplied by the contractor shall be shown to the Engineer-in-Charge sufficiently in advance for approval of its quality for use on the work.
- 1.2 All materials supplied shall be stored appropriately to prevent deterioration/ damage from any cause whatsoever and to the entire satisfaction of the Engineer-in-Charge.
- 1.3 The materials required for the work shall be brought to the site and stacked at the places shown by the Engineer-in-Charge and the same shall be got approved for use in work sufficiently in advance so that the progress of the work is not affected by the supply of materials.
- 1.4 Payment for the materials supplied, shall be given only after they are used on the work.
- 1.5 Tolls are payable by the contractor as per rules for vehicles using the Port's road for supplying the materials.

2. PLAIN / REINFORCED CEMENT CONCRETE

2.1 GENERAL

The concrete used for all works, concreting procedure etc. shall be in accordance with I.S. 456-2000.

2.2 CONCRETE MIX

For Plain cement concrete, nominal mix shall be used unless otherwise specified in the schedule.

2.3 NOMINAL MIX

- 2.3.1 For nominal mix concrete, proportion of fine aggregate to coarse aggregate shall be 1:2 by volume. The minimum cement content per cubic metre of nominal mix concrete shall be as given below.

Sl. No	Type of Concrete	Cement content Per Cu. M
1	Cement concrete 1:4:8 (1 cement: 4 sand: 8, 20 mm size graded metal)	170 Kg.
2	Cement Concrete 1:1.5:3 with 20mm size graded metal	400 Kg

- 2.3.2 For all grades of nominal mix concrete the requirement of water cement ratio shall be as per IS:456-2000

2.4 SIZE OF COARSE AGGREGATE

- 2.4.1 For all concrete 20 mm size graded aggregate shall be used unless otherwise specified.

2.5 PROVIDING REINFORCED CEMENT CONCRETE

2.5.1 General

2.5.1.1 The concrete used for all works, concreting procedure etc. shall be in accordance with IS:456-2000. The concrete mix shall be of 1:1.50:3 grade using 20mm size graded aggregate metal with a cement content of not less than 320kg/m³ and water cement ratio not exceeding 0.50

2.5.1.2 Designed concrete mix shall be used for the work. For this purpose, the contractor shall make calculations and carry out all the tests at his cost to determine the proportion by weight of cement, aggregates, admixtures and water necessary to produce concrete having required strength, prior to commencement of works. The contractor shall submit all the particulars of the design mix to be used for the work to the Engineer-in-Charge for approval as per clause 1.2.3.4 above. The quality of concrete shall be assured by conducting the required tests so as to meet the requirements as per BIS.

2.5.1.3 The concrete for slabs shall be of pre-cast. Concrete for kerbs shall be of cast-in-situ.

2.5.1.4 Assembly of reinforcement for Reinforced Cement Concrete.

2.5.1.4.1 The contractor shall, when ordered, submit to the Engineer-in-Charge the detailed bar bending schedule for his scrutiny and approval sufficiently in advance (about four weeks) of the due date of commencement of the relevant items of works. While working out the bar bending schedule, the contractor shall ascertain the length of bars likely to be made available to him and the schedule shall be so made, keeping the wastage/ cut bits of bars to bare minimum without hampering technical requirements. If the size of the steel bars specified in the drawing or schedule is not available, the nearest size available shall be used. Revised drawing shall be issued to the contractor substituting the new size of reinforcement and bar bending schedule shall be prepared by the contractor accordingly. No extra payment shall be made to the contractor for making this substitution. The fabrication of reinforcement shall commence only after the bar bending schedule is approved by the Engineer-in-Charge.

2.5.1.4.2 Reinforcement shall be cut to the exact length and made truly straight and then bent to the exact shape and dimensions as indicated in the drawings. The bending and fixing of bars shall be done in accordance with IS:2502 unless otherwise specified.

2.5.1.4.3 All cut bits of steel are the property of the contractor. However, the contractor can dispose them off only with the permission in writing of the Engineer-in-Charge. If the department requires the cut lengths, they are to be handed over to the department and will be paid for at the rates at which they were purchased by the contractor.

2.5.1.4.4 The reinforcement shall be cleaned by wire brush etc. to remove oil, grease, loose mill scale, loose rust or other deleterious matter that may reduce or destroy bond etc. before tying in position and also immediately before placing the concrete.

2.5.1.4.5 All reinforcement shall be placed and maintained in accordance with the drawings. Tolerance on placing of reinforcement shall be in accordance with

clause 12.3 of IS:456-2000. Bolts, nuts, washers and rivets etc. required for complete erection of reinforcement and keeping in position shall be supplied by the contractor at his own cost.

2.5.1.5 FORM WORK

2.5.1.5.1 The form work shall be designed and constructed to the shape, lines and dimensions shown in the drawings within the tolerance limit and specified in clause 11.1 of IS:456-2000. Joints of the form works shall be made water tight by providing suitable beadings / gasket as approved by the Engineer-in-Charge. All rubbish, particularly chippings, shaving and saw dust, shall be removed from the interior of the forms before the concrete is placed and the form work in contact with the concrete shall be cleaned and thoroughly wetted or treated with an approved composition. Care shall be taken that such approved composition is kept out of contact with the reinforcement.

2.5.1.6 MIXING OF CONCRETE

2.5.1.6.1 Concrete shall be mixed in a drum or pan type batch mixer, the type and capacity of which is to be approved by the Engineer-in-Charge. Time allowed for mixing, after all ingredients have been placed in the mixers shall not be less than two minutes. If there is segregation after unloading from the mixer, the concrete should be remixed.

2.5.1.7 TRANSPORTING, PLACING, COMPACTING AND CURING OF CONCRETE

2.5.1.7.1 Transporting placing, compacting and curing of concrete shall be as per clause 13 of IS: 456-2000.

2.5.1.7.2 Concrete shall be transported from the mixer to the worksite as rapidly as possible which will prevent the segregation or loss of any ingredient, and for maintaining the workability.

2.5.1.7.3 The concrete shall be placed and compacted before setting commences and should not be subsequently disturbed. Care should be taken to avoid displacement of reinforcement or movement of formwork.

2.5.1.7.4 All concrete shall be vibrated unless otherwise specified or approved by the Engineer-in-Charge and such vibrating shall be as required by the Engineer-in-Charge. The mechanical vibrators complying with IS: 2505, IS: 2506 or IS: 4656 shall be used for compacting concrete. All vibrations shall be carried out to a plan approved by the Engineer-in-Charge. No workman shall be allowed to operate the vibrator without having received instructions and training in its use. Care must be taken to avoid segregation and excessive vibration.

2.5.1.7.5 Concreting shall be carried out continuously upto construction joints, the positions and arrangement of which shall be as directed by the Engineer-in-Charge. When the work has to be resumed the construction joints shall be prepared in accordance with clause 13.4 of I.S: 456-2000.

2.5.1.7.6 Unless otherwise specified, all concrete shall be kept continuously in a damp condition by ponding or by covering with a layer of sacking, canvas, hessian or similar materials with fresh water for not less than 7 days after laying the concrete. If curing is not done properly the department will be at liberty to engage labour for curing and the expenditure incurred will be recovered from

the Contractor's bill. The decision of the Engineer-in-Charge will be final on this.

- 2.5.1.7.7 Stripping time for the form work shall be as stipulated in clause 11.3 of IS: 456-2000. Any impression, fins etc. that may occur from the form work shall be removed and treated with cement mortar 1:1.5 (1 cement: 1.5 sand).
- 2.5.1.7.8 Contractor shall arrange to fix any fixtures wherever necessary while doing concreting work without any extra cost. Cost of fixtures will be paid separately, if it is provided by the Contractor.
- 2.5.1.7.9 The unit rate quoted by the tenderer shall be for the finished work and deemed to include cost of all materials and labour, form work, provision of holes, recess, other contingent items etc. required for the completion of work as specified etc.

3. DISMANTLING/ DEMOLISHING WORKS

- 3.1 The tenderer shall inspect the site and carry out the required investigation by himself about the present position and condition of the existing structures and assess the difficulties and the work involved in its dismantling and removal. It will be deemed that the tenderer has satisfied himself the condition of the structure and the nature of the work involved for the dismantling and removal and estimated its cost accordingly and port will be in no way responsible for the lack of such knowledge and also consequences thereof to the tenderer. The dismantling shall be done carefully without causing any damage to the remaining portions / structure.
- 3.2 Old plaster/ old tile work/ Cement Concrete etc., are to be dismantled as per the direction of Engineer-in-charge. All the dismantled usable materials shall be stacked at the area pointed out by the Engineer –in –charge and all unusable materials shall be disposed by the contractor.
- 3.3 All the dismantling works shall be done carefully without causing any damage to the adjacent portion/existing structure. The unserviceable dismantled / cut materials shall be disposed off within 6kms of the work site and levelled as directed by the Engineer-in-Charge.

4. EARTH WORK EXCAVATION

- 4.1 Contractor shall be responsible for the true and proper setting out of the work in relation to original points, lines and levels of reference and for corrections of the level dimension and alignment of all parts of the work.
- 4.2 All excavations shall be carried out to give exact length, width and depth as per the profiles indicated in the drawings or as directed by the Engineer-in-Charge. The phasing and method of excavation for all foundations and earthwork shall be to the approval of Engineer-in-Charge. The contractor shall provide suitable arrangements to prevent water from any source entering into foundation pits at his cost.
- 4.3 Necessary shoring and timbering shall be provided as per IS: 3764 for preventing slipping of the soil in trenches and for protecting the safety and stability of the existing structures. Dewatering, if required shall also be carried out at no extra cost to keep the excavated surface dry for construction. Excavation taken wider or deeper than required shall be filled back with sand or selected materials approved

by the Engineer-in-Charge, thoroughly compacted in layers of thickness not more than 20 cm or as decided by the Engineer-in-Charge.

5. FLOORING WITH KOTA STONE SLAB

5.1 Laying

5.1.1 Base concrete or the RCC slab on which the slabs are to be laid shall be cleaned, wetted and mopped. The bedding for the slabs shall be with cement mortar 1:4 (1 cement : 4 coarse sand) or as given in the description of the item.

5.1.2 The average thickness of the bedding mortar under the slab shall be 20 mm and the thickness at any place under the slab shall be not less than 12 mm.

5.1.3 The slabs shall be laid in the following manner:

Mortar of the specified mix shall be spread under the area of each slab, roughly to the average thickness specified in the item. The slab shall be washed clean before laying. It shall be laid on top, pressed, tapped with wooden mallet and brought to level with the adjoining slabs. It shall be lifted and laid aside. The top surface of the mortar shall then be corrected by adding fresh mortar at hollows. The mortar is allowed to harden a bit and cement slurry of honey like consistency shall be spread over the same at the rate of 4.4 kg of cement per sqm. The edges of the slab already paved shall be buttered with grey or white cement with or without admixture of pigment to match the shade of the marble slabs as given in the description of the item. The slab to be paved shall then be lowered gently back in position and tapped with wooden mallet till it is properly bedded in level with and close to the adjoining slabs with as fine a joint as possible. Subsequent slabs shall be laid in the same manner. After each slab has been laid, surplus cement on the surface of the slabs shall be cleaned off. The flooring shall be cured for a minimum period of seven days. The surface of the flooring as laid shall be true to levels, and, slopes as instructed by the Engineer-in-Charge. Joint thickness shall not be more than 1 mm. Due care shall be taken to match the grains of slabs which shall be selected judiciously having uniform pattern of Veins/ streaks or as directed by the Engineer-in-Charge.

5.1.4 The slabs shall be matched as instructed by the Engineer-in-Charge.

5.1.5 Slabs which are fixed in the floor adjoining the wall shall enter not less than 12 mm under the plaster skirting or dado. The junction between wall plaster and floor shall be finished neatly and without waviness.

5.1.6 Kota slab flooring shall also be laid in combination with other stones and/or in simple regular pattern/design as described in item of work and/or drawing.

5.2 Polishing and Finishing

5.2.1 The day after the tiles are laid all joints shall be cleaned of the grey cement grout with a wire brush or trowel to a depth of 5 mm and all dust and loose mortar removed and cleaned. Joints shall then be grouted with grey or white cement mixed with or without pigment to match the shape of the topping of the wearing layer of the tiles. The same cement slurry shall be applied to the entire surface of the tiles in a thin coat with a view to protect the surface from abrasive damage and fill the pin holes that may exist on the surface.

5.2.2 The floor shall then be kept wet for a minimum period of 7 days. The surface shall thereafter be grounded evenly with machine fitted with coarse grade grit block (No.60). Water shall be used profusely during grinding. After grinding the surface

shall be thoroughly washed to remove all grinding mud, cleaned and mopped. It shall then be covered with a thin coat of grey or white cement, mixed with or without pigment to match the colour of the topping of the wearing surface in order to fill any pin hole that appear. The surface shall be again cured. The second grinding shall then be carried out with machine fitted with fine grade grit block (No.120).

5.2.3 The final grinding with machine fitted with the finest grade grit blocks (No.320) shall be carried out the day after the second grinding described in the preceding para or before handing over the floor, as ordered by the Engineer-in-Charge.

5.2.4 For small areas or where circumstances so require, hand grinding/polishing with hand grinder may be permitted in lieu of machine polishing after laying. For hand polishing the following carborundum stones, shall be used:

1st grinding	—	coarse grade stone (No. 60)
Second grinding	—	medium grade (No. 80)
Final grinding	—	fine grade (No. 120)

In all other respects, the process shall be similar as for machine polishing.

5.2.5 After the final polish, oxalic acid shall be dusted over the surface at the rate of 33 gm per square metre sprinkled with water and rubbed hard with a 'namdah' block (pad of woollen rags). The following day the floor shall be wiped with a moist rag and dried with a soft cloth and finished clean.

5.2.6 If any tile is disturbed or damaged, it shall be refitted or replaced, properly jointed and polished.

5.2.7 The finished floor shall not sound hollow when tapped with a wooden mallet.

5.3 Measurements

5.3.1 Kota stone flooring shall be measured separately and in square metre correct to two places of decimal. Length and breadth shall be measured correct to a cm before laying skirting, dado or wall plaster. No deduction shall be made nor extra paid for voids not exceeding 0.20 square metre. Deductions for ends of dissimilar materials or other articles embedded shall not be made for areas not exceeding 0.10 square metre. Nothing extra shall be paid for laying the floor at different levels in the same room.

5.4 Rate

5.4.1 The rate shall include the cost of all materials and labour involved in all the operations described above. No deductions shall be made in rate even if flooring is done without any pattern/design.

6. CEMENT CONCRETE BLOCK MASONRY

6.1 The blocks shall be laid to level and alignment to bring out joint not more than 10 mm wide between the blocks. The grade of mortar shall be specified in the schedule of items. Curing shall be done for 7 days.

6.2 Payment for cement concrete block masonry shall be made on cubic meter. The rate shall include all labour and materials including curing etc. complete required for completion of work.

7. CEMENT PLASTERING

7.1 Cement plastering shall be with the grade of mortar and of thickness specified in the schedule. The surface to be plastered shall be thoroughly cleaned and kept wet for 4 hours before plastering.

- 7.2 All the corners shall be rounded off to a radius of 25 mm unless otherwise specified.
- 7.3 Where smooth finishing is specified in the schedule the plastering shall be floated over with neat cement slurry using 2.2 kg of cement per square metre immediately after the final coat of plastering and rate quoted for plastering shall include cost of this finishing work.
- 7.4 The plastered surface on which glazed tiles or other similar type of finishing are to be provided subsequently shall not be finished smooth but shall be scarified for forming a base for providing the final surface finish as required.
- 7.5 The surface shall be cured for 7 days.
- 7.6 The rate shall include all labour and materials including scaffolding, curing etc. complete required for completion of work. Measurement of the work under this head shall be made on the basis of the area of work done.

8. PROVIDING AND FIXING GLAZED WALL TILES

- 8.1 Dadoing with glazed tiles shall be done using tiles of approved quality set in plastered and scarified surface. Glazed tiles shall be chamfered at all edges / corners.
- 8.2 The plastered and scarified surface shall be wetted and neat cement Slurry of honey like consistency-using cement at the rate of 3.30kg/m² shall be smeared on the surface just before fixing the tiles. The tiles shall be laid over the slurry to the correct level and alignment with Minimum joint thickness. The joints shall be raked and pointed with tile jointing powder of same colour as tiles. Finally the surface shall be cleaned with oxalic acid.
- 8.3 All the exterior corners of columns, walls etc. to be provided with PVC corner beading of approved quality and colour of tiles.
- 8.4 The unit rate is inclusive of providing bed plastering with cement mortar 1:3,12mm thick and fixing glazed tiles over it and jointing with grey cement slurry @ 3.3kg per sqm, including pointing.

9. PROVIDING AND LAYING CEMENT CONCRETE INTERLOCKING PAVER BLOCKS

- 9.1 The paver blocks shall be neatly stacked as per standard practice and as directed by the Engineer- in- Charge.
- 9.2 Over the prepared surface, coarse sand shall be spread to an average thickness of not less than 50mm and it shall be rammed and compacted as directed by the Engineer-in-Charge. The blocks shall be set hand tight and the surface shall be rammed and vibrated properly to bring out joints not more than 2 to 3mm wide between blocks. After compacting, the fine sand shall be brushed in to joints. Coarse sand required for the work shall be stacked near to work site and shall be pre measured before using it on the work.
- 9.3 The top surface of the paved area shall be in uniform level and no protrusions shall be seen at the top.
- 9.4 Measurement shall be made in square meters for the gross quantity of work done including providing compact bed. The rate quoted shall include cost of all

materials, labour etc. required for completion of work including cost of coarse sand.

10. WATER THINNABLE PRIMER COAT

10.1 Primer coat shall be preferably applied by brushing and not by spraying.

10.2 Preparation of the Surface

The surface shall be thoroughly cleaned of dust, old white or colour wash by washing and scrubbing. The surface shall then be allowed to dry for at least 48 hours. It shall then be sand papered to give a smooth and even surface. Any unevenness shall be made good by applying Putty made of Plaster of Paris mixed with water, on the entire surface including filling up the undulations and then sand papering the same after it is dry.

10.3 Application

The water thinnable primer shall be applied with a brush on the clean dry and smooth surface. Horizontal strokes shall be given first and vertical strokes shall be applied immediately afterwards. This entire operation will constitute one coat. The surface shall be finished as uniformly as possible leaving no brush marks. It shall be allowed to dry for at least 48 hours, before emulsion Paint is applied.

10.4 Measurements of the work under this head shall be made on the basis of the area work done and the rate quoted shall include the cost of labour, materials scaffoldings etc. required for the completion of the work.

11. PROVIDING AND APPLYING PREMIUM ACRYLIC EMULSION EXTERIOR/ INTERIOR PAINT TWO COATS.

11.1 The weather proof exterior acrylic emulsion paint shall be of approved good quality either “Weather coat “ by Berger or Nerolac Excel or “Weather shield” by ICI Dulux or Snowcrl XT-premium by Snowcem India Ltd. The interior acrylic emulsion paint shall be of approved good quality either manufactured by Berger or Dulux or Nicholson. The coverage shall conform to the manufacture’s specification.

11.2 Before applying the Interior/Exterior Emulsion Paint, the surface shall be thoroughly cleaned of dust and then be sand papered to give a smooth and even surface. Any unevenness shall be make good by applying Putty made of Plaster of Paris mixed with water on the entire surface including filling up the undulation and then sand papering the same after it is dry. Over the prepared surface one coat of Interior Emulsion Paint shall be applied with hand brush in horizontal stroke followed immediately by a vertical one which together shall constitute one coat (1st coat).

11.3 After the 1st coat has dried for at least 48 hours, the finishing coat of Interior Emulsion Paint shall be applied as instructed by the Engineer-in-Charge with hand brush in horizontal stroke followed immediately by a vertical one which together shall constitute one coat.

11.4 Measurements of the work under this head shall be made on the basis of the area of work done and the rate quoted shall include the cost of labour, materials scaffoldings etc. required for the completion of the work.

12. PROVIDING AND APPLYING SYNTHETIC ENAMEL PAINT

- 12.1 Paints/ primers of approved premium brand and manufacture shall be used. Only ready mixed Paint (Exterior grade) as received from the manufacturer without any admixture shall be used. If for any reason, thinning is necessary in case of ready mixed Paint, the brand of thinner recommended by the manufacturer or as instructed by the Engineer-in-Charge shall be used.
- 12.2 The surface shall be thoroughly cleaned off all dirt, rust, dust, grease etc. with wire brush, sand paper etc., and be made perfectly clean and dry while painting. For wood surfaces visible knots, holes etc. shall be filled with appropriate filling material as per IS:345 with some shade as paint and rubbed smooth before applying paint.
- 12.3 The number of coats shall be as per schedule. Successive coats shall be applied only on the next day after rubbing with the finest grade of wet abrasive paper and dusting of the loose particles.
- 12.4 Measurements of the work under this head shall be made on the basis of the area of work done and rate quoted shall include the cost of surface preparation, materials, labour, scaffolding etc. required for the completion of works as detailed above.

SIGNATURE OF QUOTATIONER