



MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

FACE SHEET TO ACCOMPANY THE TENDER DOCUMENTS

- A. 1. Name and full address of the Contractor
to whom the Tender Documents are issued. :
2. Whether registered with Engineering (Civil)
Department, if so, class of registration. :
3. If not registered, reference to the letter of the Chief
Engineer authorising issue of the tender Documents. :
4. Date of issue of Tender Documents. :

Asst. Engineer (Accts)

- B. 1. Name of work: **Development of Storage Area for Containers at
Mormugao Port, Goa.**
2. Cost of each set of Tender Documents : Rs. 10,000/-
3. Date of Sale of Tender Documents : From :04.05.2016
To 24.05.2016
upto 15.00hrs.
4. Date of receipt of tender and time : 25.05.2016
Upto 15.00hrs
5. Amount of E.M.D. : Rs. 14,18,000/-
6. Date of opening of tender and time : On 25.05.2016
at 15.30 hours.
- 7 a) Whether E..M.D. received : Yes/No.
b) if so, in which shape : Demand Draft
8. Form of contract : Percentage Rate
9. Whether tender received in duplicate : Yes/No
10. Whether rates have been quoted in : Yes/No.
the tenders both in words and figures.
11. Total No. of Tenders received for the work :

Dy. CAO (CWC)

EXECUTIVE ENGINEER (P)



**MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT**

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

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An ISO 9001 : 2008 Port
ISPS CODE Compliant

MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

TENDER No. CE/39/2016

**Name of Work: Development of Storage Area for Containers at Mormugao
Port, Goa.**

FIRST COVER

(TO BE SUBMITTED IN SEPARATE SEALED ENVELOPE / COVER)



MORMUGAO PORT TRUST
SERVING THE NATION SINCE 1885

ENGINEERING (CIVIL) DEPARTMENT
www.mptgoa.com

NOTICE INVITING TENDER

TENDER NOTICE NO.: CE/N-39/2016

TENDER No.: CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

Percentage Rate tenders in the prescribed form in sealed covers super scribing the Tender No. and due date and time are invited by the Chief Engineer for the above work as per the details given in the table below:

Cost of tender document	Estimated cost	Tender Sale From/To	Submission on	Opening on
EMD	Completion Time			
Rs.10,000/- (Rupees Ten thousand only)	Rs. 14,17,99,100/- (Rupees Fourteen crores seventeen lakhs ninety nine thousand one hundred only)	04.05.2016 To 24.05.2016 Upto 15.00 hrs.	25.05.2016 Upto 15.00 hrs.	25.05.2016 At 15.30 hrs. Technical Bid (Cover No.I)
Rs.14,18,000/- (Rupees Fourteen lakhs eighteen thousand only)	Eight (8) Months including monsoon			

Detailed tender notice along with complete tender documents can be downloaded from our website www.mptgoa.com on or before the last date of sale of tender document. Tenders are also available for sale at the Civil Engineering Department of Mormugao Port Trust.

For further details and general enquiries, prospective bidders may contact the Executive Engineer (Planning), telephone no. 0832 2594611, mobile 09764006075, during working hours before the last date and time of sale of tender document.

[sd/-]
Chief Engineer



**MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT**

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

i) - UNDERTAKING BY THE TENDERER

To,
The Trustees of the PORT OF MORMUGAO,

I/We, M/s _____ have gone through the tender document carefully and hereby confirm as under:

The complete tender set i.e. First Cover and Second Cover in sealed cover separately and together in a separate cover is returned WITHOUT any defacement, addition, alternation or interpolation. All details have been indicated separately in our tender covering letter with all the relevant Annexures and Proformae duly filled in.

I/We have submitted our tender alongwith Earnest Money Deposit separately enclosed in the Envelop. I/We have not indicated anywhere in the first cover the amount of our Price Bid.

I/We have not made any counter stipulation and conditions and I/We agree that in the event of any such counter conditions my/our tender will be summarily rejected and such offer will not be evaluated and considered at all by you. Percentage Rate quoted by me/us in the schedule of quantities along with other submission will remain valid for the period of 180 days from the submission of the tender.

I/We hereby declare that, all information furnished by me/us with this tender is true to best of my/our knowledge, belief and in case, if it is found that, the information furnished is not true or partially true or incorrect, I/We agree that, my/our tender shall be summarily rejected without prejudice to the right of the Board of Trustees of PORT OF THE MORMUGAO to take further action into the matter.

Witness's : _____
Signature : _____
Name : _____
Designation : _____
Address : _____
Tel. No. : _____
Date : _____

Tenderer's : _____
Signature : _____
Name : _____
Designation : _____
Address : _____
Tel. No. : _____
Date : _____



**MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT**

ii) DETAIL NOTICE INVITING TENDER

TENDER NOTICE NO.: CE/N-39/2016

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

1. SALE OF TENDER COMMENCES : **On all working days between 04.05.2016 to 24.05.2016 from 9.30 hrs. to 12.00 hrs. and 14.00 hrs. to 15.00 hrs.**
2. LAST DATE FOR SALE : **Upto 15.00 hrs. On 24.05.2016**
3. LAST DATE FOR SUBMISSION OF TENDER (DUE DATE) : **Upto 15:00 hrs. On 25.05.2016**
4. OPENING DATE FOR FIRST COVER : **At 15:30 hrs. On 25.05.2016**
(Technical Bid)

Note: Any clarification on the bid document bidders may contact the Executive Engineer (Projects), telephone No. 0832 2594617, mobile 09423062087, during working hours before the pre-bid meeting. Port's website [www. mptgoa.com](http://www.mptgoa.com).

MORMUGAO PORT TRUST

Civil Engineering Department,
Administrative Office Building
Headland – Sada. 403804,
Tel: 0832 252 1160

CHIEF ENGINEER
MORMUGAO PORT TRUST



MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

ii – DETAIL TENDER NOTICE

1. INVITATION

1.1 Mormugao Port Trust (MPT) invites *sealed Percentage rate tenders in original under two cover bidding procedure and to the MPT's designs, drawings, relevant I.S. codes and specifications contained and referred directly/indirectly in this tender document and on Percentage basis for the work of "**Development of Storage Area for Containers at Mormugao Port, Goa.**"

* "Sealed" shall means sealed with wax or closed with gum, to the satisfaction of authority opening the tender.

1.2. **Eligibility Criteria for tendering will be as follows:**

(A) **Financial Criteria** :

The average annual financial turnover during the last three years ending 31st March 2015 of the tenderer should be at least **Rs.4,25,39,800/-**.

Note: **1. The above information shall be submitted along with documentary proof i.e. Income Tax Returns acknowledgement, Audited Statement of Accounts duly certified by the Statutory Auditors of the firm.**

(B) **Technical Criteria**

The firm shall have experience of successfully completing the "similar works" during last seven years ending March, 2015, in either of the following:

(a) **Three similar works each costing not less than Rs.5,67,19,700/-.**

OR

(b) **Two similar works each costing not less than Rs.7,08,99,600/-**

OR

(c) **One similar work costing not less than Rs.11,34,39,300/-**

Note : (i) "**Similar works**" means the (i) works of paving of roads, land development with concrete/asphaltic pavements, concrete pavements, etc.

(ii) **Weightage for the cost of the completed works will be considered based on the difference in Consumer Price Indices.**

1.2.1 The Tenderer should have executed works in the Railways/ Public Sector Govt. Undertakings/ State Governments / Private Sector/ Port Authorities.

1.2.2 Mode of Selection of Contractor:

Tenderer shall have to satisfy minimum Financial and Technical eligibility Criteria mentioned in the tender at 1.2 above. Only those tenderers who satisfy minimum Financial and Technical eligibility Criteria will be pre-qualified for opening of Cover No.2 (Price Bid). Lowest Price offer is the sole criteria for award of work among qualified tenderers. During scrutiny of Price offer, lowest price offer will be considered.

1.2.3 The tenderer shall furnish relevant information in respect of their firm etc. to ascertain their financial and technical capabilities and work experience in Proformae 1 to 4.

1.2.4 Offers received from the tenderer with counter stipulation and conditions will be summarily rejected and such offers will not be evaluated and considered at all.

1.2.5 The Port reserves the right to get any information from the tenderer before opening of the Price offer.

1.3 Scope of the Work :

1.3.1 The proposed work comprises of following specification:

- a. Excavation in dense or hard soil/murram, murram interspersed with rubbles etc. using Heavy earth machinery.
- b. Providing Soling for storm water drain and paving area to the required thickness.
- c. Plain Cement Concrete (1:3:6) for drain and paving area using 20mm graded black trap stone metal as coarse aggregate.
- d. Providing and placing in position RCC Precast drain cover slabs of grade M25 for covering the drains of size 90 x 40 x 20 & 30 cm thick.
- e. Providing & fixing shuttering /formwork, concrete of (1:3:6) grade, for storm water/service trenches.
- f. Providing water bound macadam road having a consolidated thickness of 7.5cm.
- g. Providing and laying Non pressure NP-4 Class (Heavy Duty) RCC hume pipes of size 450mm dia.
- h. Manufacturing, supplying and laying of Precast concrete interlocking Paver blocks, 100mm thick (Heavy duty) of grade M50, of approved make & pattern, laying over a coarse sand bed of 50-80mm average thickness.

1.4 The estimated cost of the work is Rs.14,17,99,100/- (Rupees Fourteen crores seventeen lakhs ninety nine thousand one hundred only). The estimated cost

of work is furnished herewith for the guidance of the tenderer and they are advised to make their own assessment for the same.

The tenderers are required to offer their percentage at the end of each Part in figures as well as in words at the space provided in the Schedule of Quantities and Rates.

- 1.5 The tenderer will have to work in close co-ordination with the other contractors employed, Port users, Cargo operators, etc. if any.
- 1.6 The quantities provided in the tender are approximate and may vary. The tenderers are strongly advised to inspect the site of work and acquaint themselves with the site conditions and quantum of works involved etc. so that they are fully aware of the nature and scope of the works to be carried out before tendering. No claim will be entertained due to variations in the quantities.
- 1.7 **The tenderers will be prequalified based on the information furnished by them. The Second Cover of the only those qualified tenderers will be opened on the date which will be intimated to them.**

2. PROCEDURE FOR OBTAINING TENDER DOCUMENTS

- 2.1 The tender documents can be obtained in person from the Office of the Chief Engineer, Mormugao Port Trust, Administrative Office Building, Headland Sada, Mormugao, 403804. Telephone No.0832 2594628 during working hours from 9.30 hours to 12.00 hours & 14.00 hours to 15.00 hours on any working day upto the last day stipulated for the sale of tender documents, on submission of an application in writing on the firm's letterhead and on payment of the prescribed charges set out below:

a) For the complete set including drawings : **Rs.10,000/- per set**

The above charges are NON-REFUNDABLE.

- 2.2 The interested firms may alternatively download the tender documents from the Mormugao Port Trust web site www.mptgoa.com. The payment of Rs. **10,000/-** (Rupees Ten thousand only) will have to be made in that case, before the time of submission of the offers and evidence of payment made shall be enclosed or disclosed during opening of Technical cover. **Volume I containing the General Conditions of Contract can also be downloaded from the Port's website. Volume – I shall also form the part of Cover No. I.**
- 2.3 The above prescribed charges should be paid in cash or by Demand Draft drawn in favour of "**FA & CAO**", **M P T** on any branch of a Scheduled Bank within the jurisdiction of State of Goa.
- 2.4 Tender sets will not be sent by Post OR Courier Service.

2.5 The tender documents are NOT TRANSFERABLE.

3. **EARNEST MONEY TO BE DEPOSITED FOR THIS TENDER:**

The Earnest Money to be deposited in respect of this tender is Rs.14,18,000/- (Rupees Fourteen lakhs eighteen thousand only) shall be in the form of Demand draft of any Nationalised or Scheduled Bank within the jurisdiction of State of Goa payable at Vasco.

4. **NUMBER OF COPIES OF TENDER TO BE SUBMITTED:**

The tenderer shall submit only one (original) copy in each of First cover and Second cover separately.

5. **RELEASE OF SITE:**

5.1 The site for paving will be released after the work is awarded in parts. Contractor shall commence the work immediately and same shall have to be complete in all respect within a period of **Eight (8) months including monsoon**. It shall be the responsibility of the contractor not to cause any hindrance to the existing road/rail traffic and shall not obstruct the daily routine works in the vicinity. The dust, dirt and debris resulted at the site shall be controlled properly and removed daily. The complaints received in this respect will be viewed seriously and the cost of resultant damages, if any will be recovered without any reference. The Tenderer should take all these aspect into account while quoting for the tender and to complete the work within stipulated completion period.

6. **TIME FOR COMPLETION OF THE WORK:**

6.1 The total completion period for the work is **Eight (8) months** (including monsoon) and period completed as 7days from the date of receipt of acceptance letter or from the date of release of site or part thereof, whichever is later.

6.2 Time is essence of the contract. If the tenderer stipulates a completion period longer than the one stipulated above, the same is liable for rejection.

6.4 Tenderer's specific attention is invited to the conditions of the proposed work site. The site for paving will be released after the work is awarded. The site for paving is used to store cargo and close to operational railway lines contractors are required to plan their construction activities accordingly without causing any hindrances to the rail traffic operations, also routine shunting movements and other activities of MPT contractor operating / working in the area.

6.5 Proposed work site of building is within Port operational area, hence contractor is required to make Harbour Entry Permit (HEP) for all labour and

materials in and out of operational area.

7. **LIQUIDATED DAMAGES AND PENALTY:**

- 7.1 Liquidated damages for delay in completion of the works are 1/2 percent (0.5 %) of the Contract Price of work for delay of each week or part of a week subject to a maximum ceiling of 5 percent of the Contract Price. However, if the work is delayed by more than 25% of the contracted completion period, the contract is liable to be terminated and the balance works are liable to be got completed by Mormugao Port Trust through some other agency at the risk and cost of the defaulting Contractor.

8. **PROGRAMME OF WORKS:**

Every tenderer must prepare and submit with his tender detailed CPM network based programme or Bar Chart and list of control milestones for the execution of the work, keeping in mind the site conditions and the possible hindrances due to monsoon, existing rail and other cargo traffic, etc duly signed and dated in accordance with Clause 15 of General Conditions of Contract & the Instructions for Preparation and Submission of Tenders. The Bar Chart and list of control milestones will form part of the tender.

9. **MAINTENANCE PERIOD:**

The free maintenance period is 1 (one) year from date of completion of the entire work as certified by the Chief Engineer.

10. **FACILITIES TO THE CONTRACTOR:**

Tenderers are advised to price their bids after taking into account, among other provisions of the tender documents:

- a) MPT will generally not supply any material for the work.
- b) MPT will supply water for construction purpose subject to availability as per the Special Condition of Vol .I Clause No. 9.19. In the event water is not supplied by MPT, the contractor will have to make his own arrangements for water which shall be from an approved source (Refer Appendix – II).
- c) It is possible to give electric supply by MPT subject to availability during building construction as per Special Conditions of contract Vol. I Clause No. 9.20. The contractor will have to make his own arrangements for drawing the electricity which shall be approved by MPT. Contractor has to maintain generator set of the adequate capacity for the electrical supply in case of emergency at his own cost (Refer Appendix – II).

11. **FACILITIES NEED TO BE PROVIDED BY THE CONTRACTOR:**

Tenderer's are advised to price their bids after taking into account the facilities need to be provided by them free of cost to the Employer, which shall include following facilities.

- a) The contractor shall have to install a laboratory consisting of, concrete cube testing machine, sieve analysis for aggregates and testing of

material at his cost at site or has to conduct all the required tests from approved laboratory as directed by Engineer. No payment for testing of cubes at site/reputed laboratory will be made to the contractor.

b) Stamp Duty on the Contract Agreement will be borne by the contractor.

12. **EXPENSES INCURRED BY THE TENDERER:**

Mormugao Port Trust will not reimburse any costs or expenses incurred by the tenderer in connection with the preparation or delivery of this tender, including costs and expenses related to visit the site.

13. **INSPECTION OF SITE:**

Tenderers are strongly advised to inspect the site of work and acquaint themselves with the site conditions and quantum of work involved, etc. before tendering. Access to the site for inspection will be arranged by Executive Engineer, Engineering Civil Department, Mormugao Port Trust, Administrative Office Building, Headland Sada, Mormugao Vasco, Goa - 403804, Telephone No. 0832 2594611. Mobile: 09764006075.

14. **RIGHT OF ACCEPTANCE / REJECTION OF ANY TENDER :**

The Board of Trustees of the Port of Mormugao reserves the right to reject any or all tenders or to accept any tender in part or whole and does not bind itself to accept the lowest or any tender.

15. **DEADLINE FOR RECEIPT AND OPENING OF TENDER:**

15.1. The tenders duly completed in accordance with the "Instructions for preparation and submission of tenders" contained in this tender document should be placed in the tender box (marked "Tender No. **CE/39/2016**") kept outside the cabin of the Asst. Engineer (Accts), Civil Engineering Department, Mormugao Port Trust, upto due date as indicated in face sheet.

The First Cover – Technical Cover will be opened at 15.30 hrs. on the due date in the presence of such of the tenderers who may wish to remain present.

15.2 The tenders whether sent by Courier/ Post or by hand delivery must reach this office on or before the due date and time. OFFERS RECEIVED LATE WILL NOT BE CONSIDERED EVEN THOUGH POSTED BEFORE THE DUE DATE AND TIME.

15.3 Offers sent by telex/telegram/fax will not be considered.

15.4 Unsigned tenders will not be considered.

16. **PROCEDURE FOR SUBMISSION OF TENDERS:**

The tenders are required to be submitted in accordance with procedure set out at Clause No.4 of Instructions for Preparation and Submission of tenders.

17. Further to provision to this contract the other recoveries shall also include deduction of Income Tax at source, works contract tax, cess, etc. as may be applicable as per the prevailing rules and regulations. Service tax as applicable shall be paid extra.
18. Tax at source will be applicable on the value of works contract in terms of Section 28 of Goa Value Added tax (Act) 2005. The present rate of such tax is 5% on the value of the work contract will be deducted from the bill(s) payable to the contractor. The contractor should indicate the registration number with all the applicable statutory authorities regarding Service Tax, VAT, Sale tax (LST & CST). Service tax as applicable shall be paid extra.
19. The tenderers are requested to obtain Certificate of Registration under Rule No.24 of the Building and other Construction Workers Central Rules, 1998 from the office of the Asst. Labour Commissioner, Mormugao.
20. The contractor should comply the provisions of the Building and Construction Workers (Regulations of Employment and Conditions of Services) Act, 1996. The Act envisages that every Contractor shall obtain registration certificate from the Registering Officer, if he engages 10 or more workers for the work.
21. Tenderers are requested to submit Audited Balance sheets along with their tender and quote their Permanent Account Number (PAN) / Employment Provident Fund No (EPF) and ESI No. In the absence of this information, The Board of Trustees of the Port of Mormugao will be at the liberty not to consider their tender, which will be deemed to be void. The tenderers who have applied for fresh EPF/ESI registration should submit proof of the same.
22. **VALIDITY OF THE TENDER:**

The tenders shall remain valid for a period of 180 days from the date of submission of Bid offer.

CHIEF ENGINEER
MORMUGAO PORT TRUST
MORMUGAO – GOA

Mormugao, Headland Sada.

Dated:



MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

iii - FORM OF TENDER

**The Chief Engineer,
Mormugao Port Trust,
MORMUGAO HEADLAND SADA (GOA).**

I/We _____ do hereby offer to execute the work comprised in the annexed Tender Notice "**Development of Storage Area for Containers at Mormugao Port, Goa.**" in strict accordance with the Instructions to Tenderers, General Conditions of Contract (GCC), Specifications, etc. at the rate entered in the attached Schedule of Quantities and Rates.

2. I/We undertake to complete the work included in the Schedule of Quantities and Rates in **Eight (8) months** from the date receipt of work order or date of release of site whichever is later. I/We also agree that this tender will remain open for acceptance until disposed off by the Trustees of Port Mormugao. I/We have independently considered the question of the amount of loss or damage likely to result to the Trustees from the delay on my/our part in the performance of the contract and I/We agree that the Liquidated damages at the rate of 0.5% of the contract price per week or part thereof delay in work subject to a maximum ceiling at 5% of the contract price represents a fair estimate of the loss likely to result from the delay.

3. I/We enclose herewith a sum of **Rs.14,18,000/- (Rupees Fourteen lakhs eighteen thousand only) towards earnest money deposit** in the form of Demand draft as proof of my/our willingness to enter into the contract if my/our tender is accepted.

4. In the event of my/our tender being accepted, I/We agree to enter into a contract in the prescribed form with such alterations or additions thereto which may be necessary to give effect to the acceptance of this tender and such contract shall contain and give full effect to the specifications, Schedule of Quantities and Rates attached to this tender.

5. I/We also agree, if awarded the contract that the earnest money lodged with this tender will be retained by the Trustees towards part of the Security Deposit and to make further deposit by cheque/demand draft of a Bank Guarantee, within seven

days or such extension of the period permitted by the Chief Engineer, in writing, after receipt of information that my/our tender has been accepted by the Port Trust.

6. I/We further agree, if awarded the contract, to lodge the Retention Money equivalent to 5% of the contract price of my/our tender by way of deductions from my/our bills at the rate of 10% of the gross value of work certified in each bill till the amount of 5% of the contract price is accumulated.

7. Should this tender be accepted, I/we hereby agree to abide by and fulfil all the terms and conditions of the said tender annexed hereto, so far as applicable or in default thereof to forfeit and pay the Board of Trustees and/or its assignees, the sum of money mentioned in the said conditions and to execute and agreement in the prescribed form with the Mormugao Port Trust within 30 days of the award of the contract, or in default thereof, to forfeit the Earnest Money deposited by me/us. Unless and until, a formal agreement is prepared and executed, this tender together with your written acceptance thereof shall constitute a binding contract between us.

8. I/we undertake, if our tender is accepted, to commence the work within 7 days of receipt of the Chief Engineer's orders to commence and to complete and deliver the whole of the work comprised in the contract within the time allowed for the work.

9. A sum of **Rs.14,18,000/- (Rupees Fourteen lakhs eighteen thousand only)** has been deposited by me/us with the Financial Adviser and Chief Accounts Officer of Mormugao Port Trust as Earnest Money, the full value of which is to be absolutely forfeited to the Board of Trustees without prejudice to any other rights or remedies of the said Board, should I/we fail to commence the work specified in the above mentioned memorandum, otherwise the said sum of **Rs.14,18,000/- (Rupees Fourteen lakhs eighteen thousand only)** shall be detained by the Port Trust as a part of the Security Deposit as aforesaid.

10. I/we agree to abide by this tender to be valid for the period of six months from the date fixed for receiving/opening the same and it shall remain binding upon me/us and may be accepted any time before the expiration of that period.

11. I/we further agree that if I/we withdraw the tender before the expiration of this period of six months, or fail to execute an agreement in the form aforesaid within 30 days from the date of award of contract, the Earnest Money deposited shall be forfeited to the Board.

12. I/we understand that the Board is not bound to accept the lowest or any tender you may receive and may reject the same (the lowest) or any other tender without assigning any reason therefore.

13. "I have read and understood the General conditions and specification of the work which are printed in Volume – I supplied to me by the Department which will form a part of tender and this shall remain binding on me".

14. I/We have enclosed herewith the following completed documents as required

under instructions to tenderers:-

- a) Organisation Chart.
- b) List of similar works carried out by me/us.
- c) Bar Chart/ CPM Chart.
- d) List and description of main plant and equipments proposed to be used on this work and Proforma 1 to 4.
- e) Check list and Vendor Registration Form

15. I/We have inspected the site and I am /we are fully aware of the work to be carried out while tendering for the contract.

16. (A) Mine is a proprietary firm and I am sole proprietor of the firm. My firm is/is not registered with Registrar of firms.

Name : _____ Age _____ Years

(B) Ours is a partnership firm and the names of all major partners are given below:

	NAME	AGE
1.	_____	_____ Years
2.	_____	_____ Years
3.	_____	_____ Years
4.	_____	_____ Years

We understand and confirm that if our offer is accepted, the contract will be entered into with the above mentioned partners only and the Trustees will not recognize or deal with any minor partners of their guardians.

(C) Ours in a company with liability and a copy of our Memorandum and Articles of Association will be sent for perusal upon acceptance of our offer.

Proposed contract is intended to be signed by a duly constituted Attorney and original power of Attorney in his favour will be submitted for perusal immediately on acceptance of the tender.

17. The name and address of our Banker is ** _____

18. My/our permanent Income Tax Accountant No. is _____.

Witness's

Tenderer's

Signature _____ Signature _____

Name _____ Name _____

Address _____ Address _____

Tel. No. _____ Tel No. _____

Hand Phone (Mobile) No. _____

Date _____ Date _____

N. B. : Strike out whichever is not applicable.
Here the Name of the Bank should be stated.

NAME AND ADDRESS OF TENDERER:-

SIGNATURE OF TENDERER

Witness: - _____

Date: _____ Day of _____ 2016

Witness: - _____

Witness: - _____



MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

TENDER No. CE/39/2016

iv) APPENDIX TO THE TENDER NOTICE

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

APPENDIX- I

The following Clauses shall be read in conjunction with respective Clauses of General Conditions of Contract (GCC)

Sr. No.	Particulars	Clause of G.C.C.(Vol. I)	
1.	Amount of Initial Security and Time.	11(1)	Five percent of the contract price and 26 months.
2.	Period for commencement from the Chief Engineer's orders to commence.	38	7 days
3.	Period of Completion	40	8 (Eight) months
4.	Amount of liquidated damages.	43	Calculated at 0.5% value of the contract per week of seven days, or part thereof subject to a ceiling of 5% value of the contract.
5.	Free Maintenance Period.	45(1)	12 (Twelve) months.
6.	Percentage of retention from each running account bill	54(1)	10%.
7.	Limit of Retention Money	54(1)	5% value of the contract.
8.	Total initial Security Deposit and Retention Money.	11(1) 54(1)	10% value of the contract.
9.	Minimum amount of interim Certificate	54(1)	Rs. 1,50,00,000/-.
10.	Time within which payment to be made after contractor's submission of the bill based on joint measurement.	54(1)	100 % within 15 working days
11.	Mobilisation Advance	N.A	Not Applicable
12.	Interest rate on mobilization advance.	N.A	Not Applicable
13.	Mode of recovery of Mobilisation Advance	N.A	Not Applicable
14.	Variation in price of labour and materials.	70	Not Applicable to this contract.

15.	Arbitration Clause	66	Not Applicable to this contract.
16.	Minimum amount of third party Insurance.	Cl. No.13 to 15 of Special Instructions	5% of the tendered amount.
17.	Lease rent.	Cl. No.9 to 11 of Special Instructions	Refer Appendix III

Dated this ----- day of ----- 2016

Signature ----- in the capacity of _____

----- duly authorised to sign tender for and

on behalf of -----.

(IN BLOCK LETTERS)

ADDRESS : -----

Witness : _____

Occupation : _____



iv) APPENDIX- II

**MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT**

TENDER No. CE/39/2016

**Name of Work: Development of Storage Area for Containers at
Mormugao Port, Goa.**

MATERIALS TO BE SUPPLIED BY THE DEPARTMENT FOR THE WORK

Sr. No.	Description of materials	Approx. qty. to be supplied	Unit	Rate in Figures/Words	Place of Delivery
1.	Water	--	Cubic Metre	Rs.37.5/m3 (Rupees thirty five only)	Ref. Clause No.9.19 of Special Conditions – Vol.I
2.	Electric Power	----	KWH	Electric supply as per the relevant rate applicable and supply point will be indicated by the CME's Department.	Ref.Clause No.9.20 of Special Conditions – Vol.I
3.	Harbour Entry Permit (HEP)	--	Per Person per day/month	As applicable	To be Collected from Traffic Department

SIGNATURE OF THE CONTRACTOR



iv) APPENDIX- III

MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

TENDER No. CE/39/2016

ESTATE RENTAL CHARGES

Name of Work: Construction of Signalling Building with Internal Electrification.

Sr. No.	Description	Rate* Rs.	Remarks
1.	Licence fees on Port land for maintenance office buildings and other structures.	Rate will be charged as per Scale of Rates prevailing during period of contract.	Payment shall be made to CDC Section, Finance Dept based on the recovery advice.

NOTE : Location of suitable area subject to the availability shall be decided by the Chief Engineer.

* Rate per 10 sq. m. or part thereof per calendar month or part thereof.

SIGNATURE OF THE TENDERER



**MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT**

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

EXECUTION OF SIMILAR WORK CARRIED OUT AS PRINCIPAL CONTRACTOR DURING EACH OF LAST SEVEN YEARS ENDING 31ST MARCH 2015.

(Rs. in lakhs)

Sr. No.	Tender No.	Name of the work	Employer	Amount Received Rs.
1	2	3	4	5

NAME, SIGNATURE
& SEAL OF TENDERER :

DATE :



**MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT**

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

EXECUTION OF SIMILAR WORK IN PROGRESS AS PRINCIPAL CONTRACTOR TILL DATE.

(Rs. in lakhs)

Sr. No.	Tender No.	Name of the work	Employer	Amount Received Rs.
1	2	3	4	5

NAME, SIGNATURE
& SEAL OF TENDERER :

DATE :



An ISO 9001 : 2008 Port
ISPS CODE Compliant

MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

**LIST OF MAJOR TOOLS, PLANT AND MACHINERY, SURVEY EQUIPMENTS,
TESTING APPARATUS IN WORKING CONDITION AND
OWNED BY THE TENDERER**

(USE CONTINUATION SHEET IF REQUIRED)

SR. NO.	DESCRIPTION	NO. OF UNITS	YEAR OF PURCHASE	PRESENT CONDITION	PRESENT LOCATION
	MAKE				
	CAPACITY				
1	2	3	4	5	6

NAME, SIGNATURE
& SEAL OF TENDERER :

DATE :



MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

LIST OF PROFESSIONALS TO BE DEPUTED FOR THE SUBJECT WORK

(USE CONTINUATION SHEET IF REQUIRED)

SR. NO.	NAME OF PERSON	AGE	PROFESSIONAL EXPERIENCE DETAILS	POSITION HELD IN THE FIRM	SINCE WHEN
		QUALIFICATION			
1	2	3	4	5	6

NAME, SIGNATURE
& SEAL OF TENDERER :

DATE :



MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

(vi) - INSTRUCTIONS FOR PREPARATION AND SUBMISSION OF TENDER

1. EARNEST MONEY DEPOSIT (EMD) :

- 1.1 The Earnest Money shall be lodged by the tenderer on the understanding that in the event of the tenderer withdrawing his tender before the expiry of the tender validity period stipulated in the Tender Notice, the Earnest Money deposited by the tenderer shall be forfeited.
- 1.2 Earnest Money Deposit will be accepted only in the form of Demand Draft issued from any Nationalised or Scheduled Banks having office in the State of Goa. The same shall be drawn in favour of "FA&CAO/MPT" and payable at Vasco -de- Gama. **EMD in cash or in the form of Bank Guarantee will not be accepted.**
- 1.3 For Two cover bidding procedure i.e. one is Technical Bid and other is Financial Bid, the E.M.D. should be placed in a third cover. All the three covers shall be placed in fourth cover properly sealed. The inner envelopes should be separately marked "EMD", "Technical bid" and "Financial Bid". The outer envelope should bear identifications such as (i) Tender No., (ii) Description of work, (iii) Bidders Name and Address and (iv) Time and Date of Bid opening.
- 1.4 Bids if not accompanied by the requisite Earnest Money Deposit (EMD) and in the manner described at 1.2 and 1.3 above is liable to be rejected at the discretion of the Port.
- 1.5 Proper receipt for having received the Earnest Money Deposit (EMD) shall be issued to the bidders after opening the bids.
- 1.6 **Refund of Earnest Money Deposit:**
Mormugao Port Trust will return, generally within 10 days of the opening of the Price Covers of the tenders; the Earnest Money Deposits lodged by all tenderers except for those whose offers are ranked as the first three lowest acceptable tenders. Such tenderers are requested to contact the Asst. Engineer (Accts), Engineering (Civil) Department in the Head Office for claiming the same.

- 1.7 E.M.D. of other tenderers, i.e. two among the first three lowest tenderers will be refunded to them only after acceptance of work order by successful tenderer. E.M.D. of successful Contractor will be retained as part of Initial Security Deposit (I.S.D.)
- 1.8 The return of Earnest Money will be effected through e-payment mode. Tenderers are therefore requested to submit details in Vendor Registration Form. The Mormugao Port Trust will not be responsible for reimbursing to the tenderers the Banker's commission.

2. **INSPECTION OF SITE**

Tenderers are advised to inspect the site before tendering and fully acquaint themselves about the nature and scope of the works to be carried out and other factors relating to the performance of the contract as no claims or complaint/s will be entertained after award of the contract in this context.

3. **DECLARATION AS REGARDS EMPLOYMENT OF MPT'S FORMER CLASS- I OFFICERS**

The tenderer should furnish information before the award of the contract, whether he himself or any of his partners, Directors, or employees had held a Class I post in the Mormugao Port Trust within the period of last two years.

4. **PROCEDURE FOR PREPARATION OF TENDERS BY TENDERERS:**

- 4.1 The tenderer shall complete the annexed Tender, Schedule of Quantities and Rates and insert all the information called for therein, sign and date them. Unsigned tenders will not be considered. The tenderer shall furnish with the tender a xerox copy of the Power of Attorney, or other acceptable authorisation of the person/s signing the tender, unless such copy is already registered with the Mormugao Port Trust.
- 4.2 Tenderers must return the complete tender set. The tender documents shall not be defaced or detached. Additions and alterations or interpolations shall not be made in the tender document.
- 4.3 Unless otherwise stipulated in the Tender Notice, the tenderer shall submit his tender strictly based on the official design and specifications.
- 4.4 All the tenderers shall submit/ furnish along with the tender the followings:-
 - (a) List of similar works executed by the tenderer.
 - (b) Detailed CPM network based programme for execution of the work. The network chart shall show the various identifiable activities, their logical inter-dependencies, the duration of each activity, backed up by break-up of the resources based on which the duration has been

estimated, the source (owned/ to be purchased/ hired) of the envisaged resources. The tenderer should note that the completion period includes monsoon and it is possible that works may be affected by monsoon. However, he has to plan all his activities in such a manner that work will be completed in the stipulated period.

- (c) All tenderers must furnish complete information in accordance with this document alongwith Proformae 1 to 4.
- (d) Check list and Vendor Registration Form duly filled in

5. **SUBMISSION OF TENDER:**

The tenderer is required to submit his tender in the manner described below.

5.1 **Tenders invited under Two cover system:**

5.1.1 The tender is required to be submitted in Two cover system and First cover shall contain:

- (a) All the tender document including the required information of the tenderer's along with the Proformae duly filled in **excluding** Preamble to Schedule of Quantities and Rates, Schedule of Quantities and Rates and Form of Tender which is required to be sealed separately in second cover.
- (b) All the accompaniments set out in Clause 4.4 above
- (c) The First sealed cover shall be superscribed with the Tender Number, Name of Work, Due Date and with the words "TECHNICAL BID (Cover No.1) – To Chief Engineer" and should bear in the bottom left corner, the Name of Tenderer.
- (d) Duly executed power of attorney in the name of Bidders authorised representatives to act on behalf of Bidder in case of Firms/ Partnership duly authenticated by a Notary Public.
- (e) **All Technical Certificates and Financial Statements shall be certified by the Statutory Auditors of the firm or notarized by Notary.**

5.1.2 The Second sealed cover shall contain Preamble to Schedule of Quantities and Rates, Schedule of Quantities and Rates for Part I and II and Form of Tender in the form as described in Clause No.5.1.1(a) above as the case may be. The Second sealed cover shall be superscribed with the Tender Number, Name of the work, Due date and with the words "FINANCIAL BID – (Cover No.2)" and should bear in the bottom left corner, the Name of the Tenderer.

5.1.3 **The Tenderer must ensure that his tendered amount or rates are not mentioned, either directly or indirectly in any of the papers enclosed in the First cover. If any such mention is made there, the tender is**

liable to be treated as invalid and will not be considered.

5.1.4 The EMD shall be placed in "Third cover" marked as "EMD" and all the three covers shall be placed in "Fourth cover" properly sealed which shall be superscribed with the Tender Number, Name of the work, Due date and with the words "Complete Tender" and shall be addressed to the Chief Engineer, Mormugao Port Trust. The Name of Tenderer shall appear in the bottom left corner of the cover. Tenderer should also write on this cover whether the tender is submitted against EMD lodged with the tender or against Permanent Earnest Money Deposit.

5.2 Delivery of Tenders

5.2.1 The tenders duly completed in accordance with the "Instructions for preparation and submission of tender" contained in this tender document should be placed in the Tender Box (marked "**Tender No.CE/39/2016**") kept outside the cabin of the Asst. Exec. Engineer (Accts), Civil Engineering Department, Administrative Office Building, Mormugao Port Trust, Headland Sada, Mormugao, 403804, Tel: 0832 2594628. upto 3.00 pm on due date as indicated in face sheet and First cover Chief Engineer, Mormugao Port Trust offers will be opened at 3.30 p.m. on the same date in the presence of such of the tenderers who may wish to be present.

5.2.2. The tenders addressed to the Chief Engineer/MPT whether sent by post or by hand delivery must reach the office of the Asst. Engineer (Accts), Civil Engineering Department, Mormugao Port Trust, Administrative Office Building ,Headland Sada , Mormugao ,403804, on or before the due date and time. **OFFERS RECEIVED LATE WILL NOT BE CONSIDERED EVEN THOUGH POSTED BEFORE THE DUE DATE AND TIME.**

5.2.3. Offers sent by Telex/Telegram/FAX will **not** be considered.

5.2.4. Unsigned tenders will not be considered.

6. OPENING OF TENDERS:

6.1 The tender will be opened at the time and date notified in the Tender Notice, in the presence of such of the tenderers who may wish to be present.

6.2 In the case of Two cover tenders, only the First cover marked to Chief Engineer, (MPT) will be opened at the time and date notified in the Tender Notice.

6.3 The Second cover i.e. "**Financial Bid**" of non-qualified bidders will be retained unopened and no correspondence on this decision will be entertained. The Second covers of only those tenderers, who are found to be eligible, will be opened later. The date and the time of opening the Second cover will be notified to the concerned tenderers and the Second cover will be opened in the presence of such of those tenderers who may wish to be present.

7. **VALIDITY PERIOD OF TENDERS**

- The validity period of the tender shall be 180 days after the submission of the Bid Offer. Tenders with a shorter validity period shall be rejected.
8. Tenderers should not send revised or amended offer after the closing day and the time of tender.
9. The contractor shall take special care to protect and support at their own cost the underground service like electrical cables, telephone cables, water-mains, drainage pipelines and other services lines etc. coming in the way of works. Damages if any will be at tenderer's cost.
10. Further clarification, if any, can be obtained from the Executive Engineer, (P&C Section) Engineering Civil Department, Mormugao Port Trust or by contacting the officer designated in the Tender Notice.
11. The tenderers are not allowed to fill in the tender or seal the tender in the MPT premises.

CHIEF ENGINEER
MORMUGAO PORT TRUST
MORMUGAO – GOA

Mormugao, Headland Sada.

Dated:



MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

TENDER No. CE/39/2016

(vii) FORM OF AGREEMENT

THIS AGREEMENT made this _____ day of _____ two thousand fourteen BETWEEN the Board of Trustees of the Port of Mormugao, a body corporate under the Major Port Trusts Act. 1963 (herein under referred to as "the Board" which expression shall unless repugnant to the context or meaning thereof mean and include their successors and assigns) of the ONE PART of M/s. _____, having their registered office at _____ (hereinafter referred to as "the contractor", which expression shall unless repugnant to the context or meaning thereof, mean and include their heirs, executors, administrators, representatives and assignees or successors in office) of the OTHER PART.

WHEREAS the Board is desirous of executing the work of " _____ " on the terms and conditions stipulated in the contractor's tender dated _____ and read with the conditions contained in the tender documents attached to the above mentioned tender.

AND WHEREAS the contractor by their above mentioned tender has offered to execute, complete and maintain such work, which tender has been accepted by the Board and such tender with correspondence, specifications, schedule. Amendments and acceptance thereof will constitute abiding contract between the Board and the contractor.

AND WHEREAS the contractor has furnished to the Board, a Bank Guarantee No. _____ dated _____ for a sum of Rs. _____ (Rupees _____)

_____ only) as Initial Security for the due performance and observance by the contractor of the terms and conditions of this Agreement.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

01. In this agreement words and expressions shall have the same meaning as are respectively assigned to them in the conditions of contract herein after referred to.

02. The following documents shall be deemed to form and be read and construed as part of this agreement.

(A) **COVER No. - I**

- a. Contents of Tender Document
- b. Undertaking by the Tenderer
- c. Tender Notice
- d. Clause of General Conditions of Contract.
- e. Appendix I
- f. Appendix II (Materials to be supplied by Department)
- g. Appendix III (Estate rental)
- h. Proforma 1, 2, 3 & 4.
- i. Instructions for preparation and submission of tender.
- j. Additional special instructions.
- k. Scope of Work
- l. Form of Bank Guarantee for EMD and Security Deposit and Form of Agreement (Annexures I & II)
- m. Integrity Pact
- m. Indicative Drawing No.
- n. A printed set containing Instructions to tenderers, General and special conditions of contract. (VOLUME –I)

(B) **COVER No. II**

- i) Preamble to Schedule of Quantities and Rates
- ii) Schedule of quantities and rates
- iii) Tender Form
- iv) Contractor's acceptance letter No. _____ dated _____.
- iv) Any other relevant correspondence exchanged upto the issue of work order which has not been specifically mentioned above.
- v) All additional drawings, specifications and written Instructions when issued by or approved in writing by the Chief Engineer as per clause No.9 of the General Conditions.

03. The contractor hereby covenants with the Board to construct, complete and maintain the work in conformity in all respects with the provisions of the contract.

04. The Board hereby covenants to pay to the contractor the contract price in consideration of the construction, completion and maintenance of the work, at the times and in the manner prescribed by the contract.

05. IN WITNESS WHEREOF THE PARTIES HAVE placed their hand and seals, the day, month, year first above written

THE COMMON SEAL OF THE TRUSTEES OF

THE PORT OF MORMUGAO HAS HEREUNTO
AFFIXED AND THE CHAIRMAN THEREOF CHIEF ENGINEER
HAS HEREUNTO SET HIS HAND IN THE
PRESENCE OF

1.

2.

SIGNED AND SEALED BY THE CONTRACTOR
IN THE PRESENCE OF

1.

2.



MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

TENDER No. CE/39/2016

(vii) FORM OF BANK GUARANTEE FOR SECURITY DEPOSIT

In consideration of the Board of Trustees of the Mormugao Port Trust (hereinafter called "The Board") having offered to accept the terms and conditions of the proposed agreement between _____ and _____ (hereinafter called "the said Contractor(s)" for the work _____(hereinafter called "the said agreement") having agreed to production of an irrevocable Bank guarantee for Rs. _____ (Rupees _____ only) as a security/guarantee from the Contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement.

1. We _____ (hereinafter referred to as the "Bank") hereby undertake to (indicate the name of the Bank) pay to the Board an amount not exceeding Rs. _____ (Rupees _____ only) on demand by the Board.

2. We _____ do hereby undertake to pay the amounts due and payable (indicate the name of the Bank) under this Guarantee without any demur, merely on a demand from the Board stating that the amount claimed is required to meet the recoveries due or likely to be due from the said Contractor(s). Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this Guarantee shall be restricted to an amount not exceeding Rs. _____ (Rupees _____ only).

3. We, the said Bank, further undertake to pay to the Board any money so demanded notwithstanding any dispute or disputes raised by the Contractor(s) in any suit or proceeding pending before any Court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder, and the Contractor(s) shall have no claim against us for making such payment.

4. We _____ further agrees that the Guarantee herein contained shall (indicate the name of the Bank) remain in full force and effect during the period that would be taken for the performance of the said agreement, and it shall continue to be enforceable till all the dues of the Board under or by virtue of the said agreement have been fully paid, and its claims satisfied or discharged, or till the Engineer-In-Charge, on behalf of the Board, certifies that the terms and conditions of the said agreement have been fully and properly carried out by the said Contractor(s), and accordingly discharges this Guarantee.

5. We _____ further agree with the Board that the Board (indicate the name of the bank) shall have the fullest liberty without our consent, and without effecting in any manner our obligations hereunder, to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Board against the said Contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement, and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Contractor(s) or for any forbearance, act of omission on the part of the Board or any indulgence by the Board to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the Constitution of the Bank or the Contractor(s).

7. We _____ lastly undertake not to revoke this Guarantee except with (indicate the name of the Bank) the previous consent of the Board in writing.

8. This Guarantee shall be valid upto _____ unless extended on demand by the Board. Notwithstanding anything mentioned above, our liability against this Guarantee is restricted to Rs. _____ (Rupees _____ only), and unless a claim in writing is lodged with us within six months of the date of expiry or extended date of expiry of this Guarantee all our liabilities under this Guarantee shall stand discharged.

Dated the _____ day of _____ For _____
(indicate the name of the Bank)



MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

(ix). SCOPE OF WORK

1. Excavation in dense or hard soil/murram, murram interspersed with rubbles etc. using Heavy earth machinery.
2. Providing Soling for storm water drain and paving area to the required thickness.
3. Plain Cement Concrete (1:3:6) for drain and paving area using 20mm graded black trap stone metal as coarse aggregate.
4. Removal of filled debris from the existing drain by excavation including removal of excavated material.
5. Providing and placing in position RCC Precast drain cover slabs of grade M25 for covering the drains of size 90 x 40 x 20 & 30 cm thick.
6. Providing & fixing shuttering /formwork and concrete (1:3:6) storm water/service trenches.
7. Providing & fixing reinforcement for Precast drain cover slabs.
8. Providing water bound macadam road having a consolidated thickness of 7.5cm.
9. Transporting and dumping surplus excavated material/dismantled material in the low lying areas within a lead of 5Kms., including loading, unloading, transporting, rough levelling etc.
10. Providing and laying Non pressure NP-4 Class (Heavy Duty) RCC hume pipes of size 450mm dia.
11. Providing and fixing of G.I pipes, B class, 80mm dia complete with all fittings.
12. Manufacturing, supplying and laying of Precast concrete interlocking Paver blocks, 100mm thick (Heavy duty) of grade M50, of approved make & pattern, laying over a coarse sand bed of 50-80mm average thickness.



MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

(x) ADDITIONAL SPECIAL INSTRUCTIONS

1. Tenderers are required to sign with date the Schedule of Quantities and Rates and the form of tender and fill in all the particulars and details called for therein. Unsigned tenders, without the details called for are liable for rejection.
2. **Measurements**
The quantities provided for in the Schedule of Quantities and Rates are only approximate and are given to provide a common basis for tendering. The actual quantity may differ from those provided for in the Schedule in view of the special and complex nature of the work. Payments will be made according to the actual quantities of work ordered and carried out, jointly measured by the representative of Chief Engineer and the contractor.
3. **Rates and Prices to be inclusive.**
The rates entered in the Schedule of Quantities by the tenderer shall include the provision of all supporting special equipment, labour of required skill, supervision, materials, overheads and profits, watch and ward, insurance charges, during execution and every incidental and contingent costs and charges, whatsoever, including sales tax on works contracts, Entry tax, etc. if any, for compliance with conditions of contract and specification. **Service tax is applicable as per relevant provisions of the act time to time and shall be paid extra.**
4. The tenderer shall inspect the site and fully study the work involved vis-à-vis the specifications etc. before tendering for the work.
5. Any damage to the property of Port should be made good or compensated by the contractor.
6. After completion of the days, work / contract period the contractor shall clean, clear the work site to the satisfaction of the Chief Engineer or his site representative.
7. Permission for working beyond the normal working hours of the Port or on Sundays and Public Holidays as stipulated under Clause No.43 of the General Conditions of Contract, Volume – I of the tender document will be given to

the contractor subject to his agreeing to bear the cost of overtime, if any, which may have to be paid to the Port's supervisory staff.

8. The contractor and his workers / agents shall be required to obtain from MPT and display a Photo Identity Card during entry, stay and exit from the Port security areas guarded by CISF personnel.
9. All applications for issuance of Photo Identity cards shall be routed through the Chief Engineer, who shall forward the same to the Port's Traffic Department, whose pass section will issue the Photo Identity Card to the contractor or his agents on payment of necessary fees as prescribed from time to time and the same shall be valid for the duration of the contract or a period of one year, whichever is less. Application form and prescribed fees for Harbour Entry Permit (HEP) as indicated in **Annexure 'B'**.
10. Subject to the availability, land for construction of temporary sheds/stores/labour hutments, etc. will be given to the contractor in Port areas at Headland. The contractor shall clear away all the temporary structures built within a period of fourteen days after completion of the work and leave the whole of the site clean to the satisfaction of the Chief Engineer. In case the contractor fails to vacate the Port area / premises allotted to him for site office / store within the stipulated period after the completion of the work, the Board shall have the right to debar such defaulting contractors for future contracts of the Board by blacklisting him and shall also be charged penal lease rental at the prescribed rates.
11. Lease rent shall be charged to the contractors for the area allotted for construction of their temporary sheds for site office/store/labour hutments required in the contract works. The licence fee shall be as per Port's scale of Rates vide item (i) and (ii) of Part - I (Appendix-III).
12. No temporary structures/sheds which are constructed to house the contractor's office/store/labour hutments shall be permitted to be retained during the period of maintenance.
13. All the materials to be used in the structure shall be conforming to relevant ISI specifications or as specified in the Tender Schedule. Contractor shall undertake laboratory test as specified in the relevant I.S.I. at the discretion of Chief Engineer and only approved materials/approved brand of materials shall be used.
14. Electrical power and water required for the work shall be supplied as per the availability at the Port's Scale of Rates vide Item No. I & II of Part - I (Appendix - II).
15. The contractor shall have EPF Registration No. of the firm and shall contribute towards Employees Provident Fund (EPF) and submit the copy of the same along with the details in prescribed format while submitting bills. Necessary documents/registered shall be maintained by the tenderer during the contract period.
16. The contractor shall register with E.S.I. and should submit the copy of the minimum amount of insurance (ESI) etc. obtained before the commencement

of the work. Necessary documents/registered shall be maintained by the tenderer during the contract period.

17. Contractor may submit the following information in order to refund the EMD'S, BG'S/SECURITY DEPOSITS/ RETENTION MONEY, payment of bill's etc.
 - a. NAME OF BANK
 - b. PLACE
 - c. ACCOUNT No.
 - d. TYPE OF A/C No.
 - e. MICR / RTGS / IFS No.
 - f. Permanent Account Number

18. SITE REGISTERS:-

The contractor shall maintain following registers at Site, which shall be entered on day to day basis and produced on demand.

1. Cement Register (Starting total received, daily consumption and balance on each day.)
2. Steel Register (Starting total received, consumption, balance and rolling margin on each day)
3. Sand Register
4. Aggregate Register
5. Concrete Cube Register (Testing 7 days and 28 days)
6. Test Register (Performed on Cement, Steel, Sand, Aggregate and other Construction Material)
7. Hindrance Register
8. Site Instruction Book
9. Joint Record / Measurement Register.
10. Pour Card Register
11. Labour Register
12. Any other register required by the Chief Engineer or his representative.

The Contractor shall keep all registers in safe custody.

19. Contractor shall have to survey the proposed alignment as per the drawing issued and prepare detailed drawing showing cable route, position of junction boxes, battery boxes, etc. and any other working drawing required, if any, for the execution of work as directed by the Chief Engineer or his representative. Approval of all such drawings shall be obtained before commencement of the work from PMC Consultants.

20. All precautions to ensure safety of workmen must be taken while unloading & loading the materials during execution of work. Traffic rules should be strictly followed to avoid accidents & unforeseen incidents.
21. The contractor must ensure the safety of labourers engaged by him while crossing the track during the course of execution of work & the Port will not be responsible for any injury sustained by the labourer or for any fatal accident. The contractor should bear all the loss & expenditure involved. Wherever necessary he should also provide necessary look out men.
22. During the course of execution of work if any underground /overhead or any other cable/OFC are damaged by the contractor or his labour etc., purely due to the default of the contractor, the cost of damage, as decided by the Port Administration will have to borne by the contractor.
23. Before taking up any digging work, it is the responsibility of the contractor to get cable layout plan from Chief Mechanical Engineer or his representative of the work & arrange to demarcate at the same at the site. The contractor shall take special precaution while carrying out works at location where there is likelihood of any underground cables/OFC etc., & the work shall not be carried out without the presence of an authorized Port supervisor.
24. The Additional Special Instructions given above shall prevail over those stipulated elsewhere in the tender documents forming part of the contract. The volume containing the Instructions of Tenderers, the General conditions, Special conditions and Specifications forms an integral part of the tender document and the same shall be submitted along with the Volume - I of the tender documents all duly signed by the tenderer.



MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

PART III TECHNICAL SPECIFICATIONS

SECTION - I

GENERAL SPECIFICATIONS

1. Figured dimensions on drawings shall supersede measurements by scale and drawings to a large scale shall take precedence over those to a smaller scale. Special dimensions or directions in the specifications shall supersede all else.
2. Before the commencement of the work, accurate surveys and levels of the ground proposed to be excavated or filled up shall be taken by the Contractor or his agent along with the Engineer's representative and recorded in level book which shall be signed by the Contractor and the Engineer's representative. The quantities obtained from these recorded levels shall be final and binding upon both the contracting parties but subject to the Engineer's power to vary the works as and when found necessary.
3. One permanent benchmark and two baselines (N-S & E-W) shall be provided at site, from where the survey lines and levels are to be extended by the Contractor. The Contractor shall provide and carryout all survey work as required for laying out the premises properly and carryout the work throughout to true lines and levels as indicated in drawing and specification. All survey works to be done for above works shall be deemed to be included in rates for respective items of civil works. The Contractor shall provide his own measuring / surveying equipment for setting out, leveling and aligning work at his own expense. He will also provide all necessary equipment / help the Purchaser to check the said work.
4. The Contractor shall provide suitable flat tops and build the same in cement concrete or brick masonry for temporary bench marks. All the pegs and sight rails for setting out the work and fixing the necessary levels required for the execution thereof shall be built in brick masonry at such places and in such

- manner as directed by the Engineer's representative.
5. The layout and levels of all structures, etc. shall be made by the Contractor at his own cost from the general grid of the plot and bench mark given by the Engineer in charge. He shall provide all instrument, materials and men to the Engineer in charge for checking the layout and levels. However, the Contractor shall be fully responsible for correctness of layout and levels.
 6. The whole of the materials used on the work should be of the best quality of their respective kinds as specified or described and all the materials to be used in and about every part of the work may from time to time be subjected to tests by means of such machines, instruments and appliances as the Engineer's representative may direct. Samples whether submitted to govern bulk supplies or required for testing before use and suitable packages to contain them, shall be provided free of charge by the Contractor. Testing charges for tests ordered by the Engineer's representative shall be borne by the contractor. All manufactured materials shall, unless otherwise allowed by Engineer's representative shall bear ISI mark. All other expenditure required to be incurred for taking samples, conveyance, packaging etc. shall be borne by the Contractor.
 7. The work to be performed under this specification consists of providing all labour, materials, construction equipment, tools and plant, scaffolding, supplies, transportation, all incidental items not shown or specified, but reasonably implied or necessary for successful completion of the work including Contractor's supervision and in strict accordance with the drawings and I.S specifications. The nature of work shall generally involve earthwork in excavation, formation of road/pavement embankment by providing soling, water bound macadam, backfilling around completed structures, disposal of surplus excavated materials, r.c.c works for drains etc.
 8. The drawings included in the Bidding Document provide a general idea about the work to be performed under the scope of this contract. These are preliminary drawings for bidding purposes only and are by no means the final drawings or show the full range of the work under the scope. Work has to be executed according to drawings issued for construction.
 9. The whole of the materials used on the work should be of the best quality of their respective kinds as specified or described and all the materials to be used in and about every part of the work may from time to time be subjected to tests by means of such machines, instruments and appliances as the Engineer's representative may direct. Samples whether submitted to govern bulk supplies or required for testing before use and suitable packages to contain them, shall be provided free of charge by the Contractor. Testing charges for tests ordered by the Engineer's representative shall be borne by the contractor. All manufactured materials shall, unless otherwise allowed by Engineer's representative shall bear ISI mark. All other expenditure required to be incurred for taking samples, conveyance, packaging etc. shall be borne by the Contractor.

10. Contractor shall mobilise all necessary equipment such as excavator, 8-10t capacity road roller, concrete mixers, weigh batchers, Bulldozers, Hot mix mixer, trucks, tractors, etc. for efficient and speedy execution of works. Any machinery found to be unsuitable/malfunctioning in the opinion of the consultant shall be removed from the site and replaced.
11. The Tenderer shall inspect the site, examine and obtain all information required and satisfy himself regarding matters such as access to site, communications, transport, right of way, equipment and facilities required for the work, availability of local labour, materials and their rates, local working conditions, weather, natural drainage, water table etc. Ignorance of the site conditions shall not be accepted by the client as basis for any claim for compensation or extension of time.
12. The Chief Engineer may during progress of work, order the removal of part / whole of such work already executed, which is found not to be in accordance with drawings, specifications and instructions of the Purchaser. No extra claim shall be entertained for re-executing or altering of such works. Similarly the Contractor immediately at his own expense shall remove any materials brought to site and rejected by the Chief Engineer or his representative from the site.
13. If due to design or other stipulations in the Contract or requirements at site a particular sequence of overall construction has to be followed due to which certain interruptions to any one or more items of work are inherent, no claims for such interruptions will be admissible.
14. All handling and transport charges of raw materials and fabricated structures including double handling as required for completion of the work in accordance with time schedule are deemed to be included in the quoted rates.
15. Should the Contractor wish to deviate from any specifications or details shown on the approved drawings and / or Technical specifications, he shall obtain from the Chief Engineer written approval before carrying out such deviations.
16. The Contractor shall follow all safety norms throughout the period of work. Provisions of Bureau of Indian Standards and other sound engineering practices shall be followed for the same.
17. The Contractor shall take all the precautions for rain, storm etc. and no liability shall rest with the Chief Engineer for any loss on cost of re-erection, rectification etc. due to these factors.
18. The Contractor shall not remove any material or equipment brought by him from construction site without written permission from the Chief Engineer.

19. Contractor shall submit in detail the Quality Assurance Programme for Chief Engineer's approval.
20. In the event of any discrepancies between drawings and specifications, it may be noted that drawings shall supersede the specifications. Similarly in case of any discrepancies between description in specification or drawings and schedule of items, the provision in schedule of item shall prevail.
21. **Dimensions**
Figured dimensions shall prevail in preference to scaled dimension. In case of discrepancy between dimensions, the contractor shall obtain clearance of engineer before proceeding with work.
22. **Sequence of work**
Contractor shall plan and sequence all works so as to achieve the desired progress keeping in mind overall safety and stability at all point of time. If due to particular design or specification or availability of machines or any other reason, a particular sequence of operation is demanded by the Engineer due to which some interruption to any one or more types of work or items of execution are inherent, then no claim for such interruption shall be entertained and contractor shall have to follow the sequence as instructed by the Engineer.
23. **Damages**
Any existing services or other properties if damaged or demolished during the course of execution either wilfully or negligently, shall be repaired or re-erected by the Contractor. The Contractor will take all precautions against damages due to rain and storm and no liability shall rest with the Chief Engineer for any loss for redoing of any work due to this account. Existing underground services coming in the way of trench or foundation excavation etc. have to be adequately supported by the Contractor at his own cost so as to avoid any damage to those services. In case of any accidental damage, the Contractor shall arrange to rectify and reinstall those services immediately.

24 APPROVAL AND TESTS

- 24.1 A high standard of quality is required for all materials and workmanship in construction work. They shall be best of the kind obtainable indigenously in each case and shall be procured from manufacturers of repute in order to ensure uniformity of quality and timely supply.
- 24.2 All materials shall be subjected to inspection and testing. The Contractor shall submit samples for testing as may be required by the Engineer. Sampling and testing shall be carried out in accordance with relevant IS/IRC Standards.
- 24.3 All specimens and approved samples shall be maintained by the Contractor under safe custody. The Contractor shall make arrangements for proper storage of the same.
- 24.4 Wherever IS/IRC codes are referred; they shall be latest edition/ publication as on date irrespective of the date of finalisation of the work.

25 REJECTION OF MATERIALS

- 25.1 Any material brought to site which, in the opinion of the Chief Engineer or his representative is damaged, contaminated, deteriorated or does not comply with the requirement of this specification shall be rejected.
- 25.2 If the routine tests or random site tests show that any of the materials, brought to site, do not comply in any way with the requirements of this specification or of IS/IRC codes as applicable, then that material shall be rejected.
- 25.3 The Contractor at his own cost shall remove from site any and all such rejected material within the time specified by the Client.

SECTION II

TECHNICAL SPECIFICATIONS

1. SITE CLEARANCE

1.1 Removing and disposing of all materials bushes, shrubs, stumps, roots, grass weeds, top soil, rubbish etc., which in the opinion of Engineer is unsuitable for incorporation in the work including draining out stagnant water if any from the area of road land, drain, and other areas, as specified in the drawing by Engineer. It shall include necessary surface dressing using dozer or any other suitable equipment, back filling of the pits, by suitable soil, resulting from uprooting of trees & stumps and making the surface in proper grade by suitable equipment and compacted by power roller to required compaction. The work also includes handling salvaging and disposal of cleared material. Clearing and grubbing shall be performed in advance of earthwork operation and in accordance with requirement of this specification. Areas requiring clearing and grubbing shall be determined by the Engineer. Removal of stumps and roots, and trimming of branches of trees extending above the roadway shall be considered incidental and included in the work. The rate quoted shall include the cost of cutting small vegetation, grass, trees and saplings up to a girth of 30 cms measured at a height of 1 m above ground level. The roots of trees shall be removed upto a minimum depth of 50 cms below ground level. All the rubbish removed from the area of construction shall be removed upto a distance of 20 mtrs and be stacked properly and removed from site and the area of construction unless otherwise specified. Removal of excavated materials includes separation of useful materials from the useless materials as decided by the Engineer or his representative. Removal of stumps left over after trees have been cut by any other agency, earth stacked by other agencies, shall also be included in the item of work. The work includes disposal of all the debris thus collected, loading on to tippers, trucks and transportation to dumping site within a lead of 3.00 km as directed by the Engineer. Work also includes rough leveling of the area with dozer and rolling with 8-10 ton rollers to achieve a compacted earth fill though out the dump site.

2. EARTHWORK , EXCAVATION, FILLING :

2.1 The Contractor shall make his own surveying arrangements for locating the coordinates and positions of all work and establishing the reduced levels (RL's) at these locations based on reference grid lines and bench mark. The Contractor has to provide at site all the required survey instruments, along with qualified surveyors,

to the satisfaction of the Engineer so that the work can be carried out accurately and according to the specification and drawings.

2.2 Excavation shall be done to the required level as indicated in the working drawing or to the depth indicated by the Engineer or his representative. Every time excavation is ready to the required dimension, the contractor shall intimate the Engineer or his representative for approval and for taking measurements. The quantity for excavation will be measured as a rectangle and any extra work due to the site slip etc. will not be paid. In case of excess depth of excavation below the required level, the additional depth shall be made good by the contractor with laterite rubble duly compacted at his own cost.

2.3 Excavated earth from the foundations shall generally be used for filling unless it is found unsuitable for the purpose by the Chief Engineer's representative. In such cases, the contractor shall stack the excavated material within a lead of 5 kms. neatly without any extra charges, unless otherwise specified in the schedule.

2.4 Excavation from the foundations shall be refilled only after the foundation masonry, concrete, etc. below the ground level are measured by the Engineer's representative. The excavated pits shall be cleared off all debris, organic matter, etc. and filled with excavated materials in layers not exceeding 20 cms. Being watered, rammed and consolidated before the next course is laid.

2.5 The Contractor shall remove all materials arising from excavations from the vicinity of the work either for direct filling, stacking for subsequent filling or for ultimate disposal (within & outside the plant area) as directed by the Engineer in charge. Material to be used for filling shall be kept separately. All these works have to be carried out as per the relevant BOQ item. Before start of excavation work, joint measurements of ground level shall be taken after clearing all grass, vegetation etc.

2.6 Rock excavation shall be done upto formation level or otherwise indicated in the drawing. In all cases the excavation operations shall be so carried out that at no point on cut formation the rock protrudes above the specified levels. Rocks and large boulders which are likely to cause differential settlement and also local drainage problems should be removed upto the formation level in the full formation width including drains. Slopes in rock cutting shall be finished to uniform lines corresponding to slope lines shown on the drawings or as directed by the Engineer

3. Measurements for Payment

3.1 Excavation shall be measured by taking cross sections at suitable intervals in the original position before the work starts and after its completion and computing the volumes in cubic metre by the method of average end areas for each class of material encountered. Where it is not feasible to compute volumes by this method because of erratic location of isolated deposits, the volume should be computed by other accepted methods.

3.2 At the option of the Engineer, the contractor shall leave depth indicators during excavations of such shape and size and in such positions as directed so as to indicate the original ground level as accurately as possible. The contractor shall see

that these remain intact till the final measurements are taken.

3.3 For rock excavation the overburden shall be removed first so that the necessary cross-sections could be taken for measurement. Where cross-sectional measurements could not be taken due to irregular configuration or where the rock is admixed with other classes of materials the volumes shall be computed on the basis of stacks of excavated rubble after making 35 % deduction therefrom. When volumes are calculated in this manner for excavated material other than rock, deduction will be to the extent of 16 % of stacked volumes.

4.0 SOLING

4.1 GENERAL : The work covered under this specification includes all type of soling work either by rubble stones laid under floors / hard core under foundations, hand packed, complete as per under mentioned specification and applicable drawings.

4.2 RUBBLE STONE SOLING : The rubble stone shall be of best variety of laterite stone other approved variety of stone available locally. The stone shall be hard, durable, free from defects and of required size and shall be approved by the Engineer in-charge before incorporation in the work.

4.3 Preparation of Surface & laying: The bed on which rubble soling is to be laid shall be cleared of all loose materials, levelled, watered and compacted and got approved by the Engineer In-charge before laying rubble soling. Cable or pipe trenches if shown in the drawing and as required by the Engineer in-charge shall be got done before the soling is started.

4.3.1 Over the prepared surface, the stone shall be set as closely as possible and well packed and firmly set. The stones shall be of full height and shall be laid so as to have their bases of the largest area resting on the sub-grade. Soling shall be laid in one layer of 230mm or 150mm or other specified thickness and no stones shall be less than 230mm or 150mm depth or specified thickness of soling with a tolerance of 25mm.

4.3.2 After packing the stones properly in position, the interstices between them shall be carefully filled with quarry spoils of stone chips of larger size possible to obtain a hard, compact surface. Spreading of loose spoils or stone chips is prohibited.

4.3.3 The entire surface shall be examined for any protrusions and the same shall be knocked off by a hammer and all interstices shall be filled with approved murrum. Excess murrum if any over the surfaces shall be removed. Unless otherwise specified, the murrum shall be supplied by the contractor at his own cost from the selected areas. The surfaces shall then be watered and consolidated with mechanical or sufficiently heavy wooden tampers and log rammers as approved by the Engineer in-charge to give the required slope or level and dense sub-base. After compaction, the surface shall present clean look. Adequate care shall be taken by the contractor while laying and compacting the rubble soling to see that concrete surfaces in contact with soling are not damaged.

4.3.4 If specified, soling shall be provided to the required thickness. The thickness mentioned shall be after rolling. The stone shall be hand packed to the entire width of formation unless otherwise specified. It shall be packed to the same camber as the Asphalted surface. It shall be rolled while the interstices are filled with stone chips, good gravel, or murrum as directed by the Engineer. The rolling shall be continued until a hard smooth surface is obtained.

4.3.5 All potholes, depressions, etc. shall be rectified by taking out all loose material, cleaning the area, filling with proper size stones, hand packing, watering with 8-10 tons power roller, etc. to bring the surface to the lines, levels and camber required to the satisfaction of Engineer or his representative.

5.0 WATER BOUND MACADAM

5.1 This work shall consist of clean, crush aggregates mechanically interlocked high rolling and bonding together with screening, binding material where necessary and water laid on a properly prepared subgrade/ sub base/base on existing pavement as the case may be and finished in accordance with the requirements of the specifications and enclosed conformity with the lines, grades, cross sections and thickness as per approved plans or as directed by the Engineer.

5.2 MATERIALS

5.2.1 COARSE AGGREGATES :

Coarse aggregates shall be either crushed or broken stone, or any other naturally occurring aggregates such as kankar and laterite of suitable quality, materials other than crushed or broken stone and crushed slag shall be used in sub base courses only. The aggregate shall conform to physical requirements given in table below. The type and size range of aggregates shall be as per IRC specifications.

5.2.2 Grading requirements of coarse aggregates : The coarse aggregate shall conform to one of the gradients as specified in the table given below;

Grading Requirements of Coarse Aggregates			
Grading No.	Size Range	IS Sieve designation	Percent by weight passing +
1.	63mm to 45mm	75mm	100
		63mm	90-100
		53mm	25-75
		45mm	0-15
		22.4mm	0-5

Note: The compacted thickness for layers with grading one shall be 75mm

5.3 Screening : Screenings to fill voids in the coarse aggregates shall generally consist of same material as the coarse aggregate. However, where permitted predominantly non-plastic material such as murrum or gravel (other than rounded river borne material) may be used for this purpose provided liquid limit and plasticity index of such material are below 20 and 6 respectively. And fraction passing 75 micron sieve does not exceed 10%. Screenings shall conform to grading set forth in the table below.

Gradings for screenings			
Grading classification	Size of screenings	IS Sieve Designation	Percent by weight passing the IS sieve
A	13.2mm	13.2mm	100
		11.2mm	95-100
		5.6mm	15-35
		180micron	0-10
B	11.2mm	11.2mm	100
		9.5mm	80-100
		5.6mm	50-70
		180micron	05-25

5.3.1 APPROXIMATE QUANTITIES OF COARSE AGGREGATES AND SCREENING REQUIRED FOR 75 MM COMPACTED THICKNESS OF WATER BOUND MACADAM (W&M) SUB-BASE/BASE COURSE FOR 10M2 AREA.

Classification	Size range	Compacted thickness	Loose quantity	Screenings			
				Stone screenings		Crushable type such as murrum or gravel	
				Grading classification & Size	For WBM	Grading classification & Size	Loose quantity
Grading 2	63mm to 45mm	75mm	0.91 to 1.07m3	Type A 13.2mm	0.12 to 0.15m3	Not uniform	0.22 to 0.24m3
Grading 2	63mm to 45mm	75mm	0.91 to 1.07m3	Type B 11.2mm	0.20 to 0.22m3	Not uniform	0.22 to 0.24m3

5.4 Binding Material : Binding a material to be used for water bound macadam as a filler material meant for preventing ravelling, shall comprise of a suitable material approved by the Engineer having a Plasticity Index(PI) value of less than 6 as determined in accordance with IS : 2720 (Part 5). The quantity of binding material where it is to be used will depend on the type of screenings. Generally, the quantity required for 75mm compacted thickness of water bound macadam will be 0.060 - 0.09 m3/10m2. Application of binding materials may not be necessary when the screenings used are of crushable type such as murrum or gravel.

5.5 Construction Operations: Preparation of base: The surface of the subgrade/subbase/base to receive the water bound macadam coarse shall be prepared to the specified line and coarse (camber) and made free of dust and other extraneous material. Any ruts or soft yielding places shall be corrected and

approved manner and rolled until firm surface is obtained if necessary by sprinkling water. Any sub/base/surface irregularities, where predominant, shall be made good by providing appropriate type of profile corrective course(levelling course) . As far as possible, laying water bound macadam course over an existing thick bituminous layer may be avoided since it will cause problems of internal drainage of the pavement at the interface of two courses. It is desirable to completely pick out the existing thin bituminous wearing course where water bound macadam is proposed to be laid over it.

5.6 Spreading coarse aggregates: The coarse aggregates shall be spread uniformly and evenly upon the prepared sub-grad/sub base/base to provide proper profile by using templates place across the road about 6m apart, in such quantities where the thickness of each compacted layer is not more than 100mm for grading 1 and 75mm for grading 2 & 3. Wherever possible, approved mechanical devices such as aggregate spreader shall be used to spread the aggregates uniformly so as to minimize the need for manual rectification afterwards. Aggregates placed at locations which are inaccessible to the spreading equipment, may be spread in one or more layers by any approved means so as to achieve the specified results.

5.7 The spreading shall be done from stockpiles along the side of the roadway or directly from vehicles. No segregation of large or fine aggregates shall be allowed and the coarse aggregate as spread shall be of uniform gradation with no pockets of fine materials. The surface of the aggregates spread shall be carefully checked with templates and all high or low spots remedied by removing or adding aggregates as may be required. The surface shall be checked frequently with a straight edge whilst spreading and rolling so as to ensure a finished surface as per approved drawings. The coarse aggregates shall not normally be spread more than 3 days in advance of the subsequent construction operations.

5.8.0 Rolling : Immediately following the spreading of the coarse aggregate rolling shall be started with 3 wheeled power rollers of 80-100KN capacity or tandem vibratory rollers of 80-100 KN static weight. The type of rollers to be used shall be approved by the Engineer based on trial run accept on super elevated portions where the rolling shall proceed from inner edge to the outer rolling shall begin from the edges gradually progressing towards the centre. First the edge/edges shall be compacted with roller running forward and backward. The roller shall then move inward parallel to the centre line of the road in successive passes uniformly lapping preceding tracks by at least one half width.

5.8.1: Rolling shall be discontinued when the aggregates are partially compacted with sufficient void space in them to permit application of screenings. However, where screenings are not to be applied as in the case of crushed aggregates like brick metal, laterite and kankar compaction shall be continued until the aggregate are thoroughly keyed. During rolling slight sprinkling of water may be done if necessary. Rolling shall not be done when the sub grade is soft or yielding or when it caused a wave like motion in the sub grade or sub base course.

5.8.2: The rolled surface shall be checked transversely and longitudinally, with templates and any irregularities corrected by loosening the surface adding and

removing necessary amount of aggregates and rerolling until the entire surface conforms to desired cross fall (Camber) and grade. In no case shall the use of screenings be permitted to make up depressions. Materials which gets crushed excessively during compaction or becomes segregated may be removed and replaced with suitable aggregates. It shall be ensured that shoulders are built up simultaneously along with macadam courses.

5.9.0 Application of Screenings: After the coarse aggregate has been rolled, screenings to completely fill the interstices shall be applied gradually over the surface. This shall not be damp or wet at the time of application. Dry rolling shall be done while the screenings are being spread so that vibration of the roller causes them to settle in the voids of the course aggregates. The screenings shall not be dumped in piles but be spread uniformly in successive thin layers either by spreading motions of hand, shovels or by mechanical spreaders, or directly from tipper with suitable grit spreading arrangement. Tipper operating for spreading the screenings shall be so driven as not to disturb the coarse aggregate.

5.9.1 The screening shall be applied at a slow and uniform rate (in 3 or more applications) so as to ensure filling of all voids. This shall be accompanied by dry rolling and brooming with mechanical brooms, hand brooms or both. In no case shall the screenings be applied as fast and thick as to form cakes or ridges on the surface in such a manner as to prevent filling of voids or prevent the direct bearing of the roller on the coarse aggregate. These operations shall continue until no more screenings can be forced into the voids of the coarse aggregates. The spreading, rolling and brooming of screenings shall be carried out in only such lengths of the road which could be completed within one day's operation.

5.10.0 Sprinkling of water and grouting: After the screenings have been applied, the surface shall be copiously sprinkled with water, swept and rolled. Hand brooms shall be used to sweep the wet screenings into voids and to distribute them evenly. The sprinkling, sweeping and rolling operation shall be continued with additional screenings applied as necessary until the coarse aggregate has been thoroughly filled, well bonded and firmly set in its full depth and a grout has been formed of screenings. Care shall be taken to see that the base or subgrade does not get damaged due to the addition of excessive quantities of water during construction.

5.11 Application of binding material: After the application of screenings in accordance with standard specifications, the binding material where it is required to be used shall be applied successively in two or more thin layers at a slow and uniform rate. After each application the surface shall be copiously sprinkled with water the resulting slurry shall be swept in with handbrooms, or mechanical brooms to fill the voids properly, and rolled during which water shall be applied to the wheels of the rollers if necessary to wash down the binding material sticking to them. These operations shall continue until the resulting slurry after filling of voids, forms a wave ahead of the wheels of the moving roller.

5.12.0 Setting and drying: After the final compaction of water bound macadam course the pavement shall be allowed to dry overnight. Next morning hungry spots shall be filled with screenings or binding material as directed lightly sprinkled with water if necessary and rolled no traffic shall be allowed on the road until the macadam is set. The Engineer shall have the discretion to stop hauling traffic from using the completed water macadam course if in his opinion it would cause excessive damage to the surface. The compacted water bound macadam course should be allowed to completely dry and set before the next pavement course is laid over it.

5.12.1 The work of water bound macadam shall be carried out as per the specifications laid down in the Indian Road Congress specifications No.IRC:19-1977, standard specification and code of practice for water bound macadam.

5.12.2 The approximate quantities of course aggregate and Screenings required to be used for the compacted thickness shall be as given in the amended Table V of Indian Road Congress specification No.IRC:19/1977, an extract of which is given below:

5.13.0 STACKING : The measurement of soling and water bound macadam shall be taken in two stages, viz., measurement of soling stone/metal aggregate in stack, measured net in compact stack prepared on level ground and measurement of the completed work. The former is to ensure that the required quantities of soling stone/metal aggregate have actually being collected and of the sizes etc. as specified. The volume of stack (calculated as per actual measurement) shall be reduced by percentage as shown below against each for voids in stacking to arrive at the net quantity. All the above said materials shall be stacked and measured without any extra charge.

I.	Soling stone	15% of stack measurement	
II.	Stone aggregate 20mm to 50 mm Size for water bound macadam	10%	-do-
III.	Stone aggregate 20mm, 12mm, 10mm & 6mm nominal size for laterite bound Macadam.	5%	-do-

The volume of stacks calculated as described above, however shall not absolve the contractor from the responsibility of confirming to the required specification, thickness, etc. and provision of more materials if necessary, to make up the thickness etc. indicated without extra charge to the Port Trust.

5.16 GENERAL REQUIREMENTS FOR TESTING

Water Bound Maccadam

- a) Aggregate impact value -- 1 test per 200 cbm of aggregate
- b) Grading -- 1 test per 100 cbm of aggregate
- c) Flakiness index -- 1 test per 200 cbm of aggregate
- d) Atterbergs limits -- 1 test per 25 cbm of binding material

6 R.C.C WORKS

6.1 MATERIALS

6.1.1 General: All the materials used in the manufacture of concrete shall be in accordance With the Technical Specification for Properties, Storage and Handling etc, Which shall be deemed to form a part of this specification.

10.1.2 The Engineer shall have the right to inspect the sources of materials, the layout and operation of procurement and storage of materials, the concrete batching and mixing equipments and the quality control system. Such an inspection shall be arranged by the contractor and the Engineer approval shall be obtained prior to starting of the work.

6.2 Aggregates : Aggregate in general designates both fine and coarse inert materials used in the manufacture of concrete. Coarse Aggregate is fraction retained on 4.75 mm IS sieve. Fine Aggregate is fraction which passes through 4.75 mm IS sieve.

6.2.1 Aggregate shall consist of naturally occurring river sand, crushed stone and gravel from a source known to produce satisfactory aggregate for concrete and shall be chemically inert, strong, hard, durable against weathering, of limited porosity and free from deleterious materials that may cause corrosion to the reinforcement or may impair the strength and / or durability of concrete. Aggregates shall conform to I.S. 383

6.2.2 Properties: Aggregates with a specific gravity below 2.6 shall not be used without special permission of the Chief Engineer.

10.2.3 The coarse aggregate and fine aggregate shall be tested from time to time as required by the Engineer to ascertain its suitability for use in construction and the charges for testing aggregate shall be born by the contractor as specified herein after. Sampling of the aggregates for mix design and determination of suitability shall be taken under the supervision of the Engineer and delivered to the laboratory, well in advance of the schedule placing of concrete. Records of tests which have been made on proposed aggregates and on concrete made from this source of aggregates shall be furnished to the Engineer in advance of the work for use, in determining suitability of the proposed aggregate.

6.2.4 The grading of aggregates shall be such as to produce a dense concrete of specified strength and consistency that will work readily into position without segregation and shall be based on the "mix design" and preliminary test on concrete specified herein-after.

6.3 Grading of Coarse Aggregate: Coarse aggregates shall be either in single or graded, in both the cases. The grading shall be within the following limits.

IS Sieve Designation	Percentage passing for single sized aggregates of nominal size						Percentage passing for graded aggregates of nominal size			
	63 mm	40 mm	20 mm	16 mm	12.5 mm	10 mm	40 mm	20 mm	16 mm	12.5 mm
75mm	100	-	-	-	-	-	-	-	-	-
63mm	85-100	100	-	-	-	-	100	-	-	-
37.5mm	0-30	85-100	100	-	-	-	95-100	100	-	-
19mm	0-5	0-20	85-100	100	-	-	30-70	95-100	100	100
16mm	-	-	-	85-100	100	-	-	-	90-100	-
11.2mm	-	-	-	-	85-100	100	-	-	-	90-100
9.5mm	-	0-5	0-20	0-30	0-45	85-100	10-35	25-55	30-70	40-85
4.75mm	-	0-5	0-5	0-10	0-20	0-20	0-5	0-10	0-10	0-10
2.36mm	-	-	-	-	0-5	0-5	-	-	-	-

6.4 Grading of fine aggregate shall be within the limits indicated hereunder:

IS Sieve Designation	Percentage Passing for			
	Grading Zone-I	Grading Zone-II	Grading Zone-III	Grading Zone-IV
10 mm	100	100	100	100
4.75 mm	90-100	90-100	90-100	95-100
2.36 mm	60-95	75-100	85-100	95-100
1.18 mm	30-70	55-90	75-100	90-100

600 micron	15-34	35-59	60-79	80-100
300 micron	5-20	8-30	8-30	20-65
150 micron	0-10	0-10	0-10	0-15

6.5 Fineness Modulus: The fine aggregate shall have a fineness modulus of not less than 2.2 or more than 3.2. The fineness modulus is determined by adding the cumulative percentages retained on the following I.S. sieve sizes (4.75 mm, 2.36 mm, 1.18 mm, 600 micron, 300 micron and 150 micron) and dividing the sum by 100.

6.6 Storage of aggregates: All coarse and fine aggregates shall be stacked separately in stock piles in the material yard near the work site in bins properly constructed to avoid inter mixing of different aggregates. Contamination with foreign materials and earth during storage and while heaping the materials shall be avoided. The aggregate must be of specified quality not only at the time of receiving at site but also at the time of loading into mixer. Rakers shall be used for lifting the coarse aggregate from bins or stock piles. Coarse aggregate shall be piled in layers not exceeding 1.00 metres in height to prevent conning or segregation. Each layer shall cover the entire area of the stock pile before succeeding layers are started. Aggregates that have become segregated shall be rejected. Rejected material after remixing may be accepted, if subsequent tests demonstrate conformity with required gradation.

6.7 CEMENT: Slag cement shall be used for all type of civil works below finished floor level.

10.7.1 Cement unless otherwise specified or called for by the Engineer shall be measured in 50 kg bags. Use of bulk cement will be permitted only with the approval of the Engineer. Changing of brands of type of cement within the same structure will not be permitted. Joint account of cement consumed at site for every day for items of work carried shall be maintained by the Contractor for verification to ensure effective control on quality of work.

6.7.2 A certified report attesting the conformity of the cement to IS: specifications by the cement manufacturer's chemist shall be furnished to the Consultant, if demanded. Should at any time the Engineer have reasons to consider that any cement is defective, then irrespective of its origin and / or manufacturers test certificate, such cement shall be tested immediately at a National Test Laboratory / Departmental Laboratory or such approved laboratory, and until the results of such tests are found satisfactory, it shall not be used in any work. Cement held in store for a period of ninety (90) days or longer shall be retested before use in work.

6.7.3 The contractor shall make his own arrangements for the storage of adequate quantity of cement. If supplies are arranged by the Department, cement will be issued in quantities to cover work requirements of one month or more, as deemed fit by the Engineer and it will be the responsibility of the contractor to ensure adequate and proper storage, which will provide complete protection from dampness, contamination and minimize caking and false set.

6.7.4 Cement bags shall be stored in a dry enclosed shed (storage under tarpaulins will not be permitted), well away from the outer walls and insulated from the floor to avoid contact with moisture from ground and so arranged as to provide ready access. Damaged or reclaimed or partly set cement will not be permitted to be used and shall be removed from the site. The storage arrangements shall be such that there is no dead storage. No more than 12 bags shall be stacked in any tier. The storage arrangement shall be got approved by the Consultant. Consignments in cement shall be stored as received and shall be consumed in the order of their delivery.

6.7.5 Cement used shall be of standard manufacturers like ACC, ULTRATECH, BHARATI, JK or equivalent. In case the same is not available in the market or in case of a change in trade name, equivalent makes / re-designated manufacturer shall be used with the approval of Consultant.

6.8 REINFORCEMENT

6.8.1 Steel reinforcement bars for concrete shall be High Corrosion Resistant TMT bars with strength requirements conforming to IS 1786 manufactured by SAIL, TATA, JINDAL or RNIL. The grade of steel shall be as shown in the drawings, or as mentioned in the schedule of items or as directed by Engineer.

6.8.2 Storage: Steel reinforcement shall be stored in such a manner that they are not in direct contact with ground but stacked on top of an arrangement of timbers sleepers or the like. Bars of different classifications and sizes shall be stored separately. In cases of long storage or in coastal areas, reinforcement shall be stacked above ground level by at least 15 cm, and a coat of cement wash shall be given to prevent scaling and rusting at no extra cost to the owner. Fabricated reinforcement shall be carefully stored to prevent, distortion, corrosion and deteriorations.

6.8.3 Contractor shall submit the manufacturers test certificate for steel. Random tests on steel supplied by contractor may be performed if the Engineer so desires as per relevant Indian Standards. All costs incidental to such tests shall be at contractor's expense. Steel not conforming to specifications shall be rejected.

6.9 WATER :

10.9.1 Water used for mixing and curing shall be clean and free from injurious amounts of oils, acids, alkalis, sugar, organic materials or other substances that may be deleterious to concrete or steel. Potable water is generally considered satisfactory for mixing concrete.

6.9.2 Average 28 days compressive strength of atleast three 150 mm concrete cubes prepared with water proposed to be used shall not be less than 90% of the average strength of three similar concrete cubes -prepared with distilled water. The cubes shall be prepared, cured and tested in accordance with IS: 456.

6.9.3 The initial setting time of a concrete test block made with the appropriate cement and the water proposed to be used shall not be less than 30 minutes and shall not differ by + 30 minutes from the initial setting time of control test block prepared with the same cement and distilled water. The test shall be carried out as per IS: 4031.

6.10 ADMIXTURES

10.10.1 Admixtures in concrete for promoting workability, entraining air for similar purposes may be used only after the written permission from the Engineer is obtained. These shall be free from injurious amount of chloride, etc. Addition of admixtures should not reduce the specified strength or durability of concrete and should not have detrimental effect on reinforcement. The admixtures shall conform to IS: 9103 and shall be of proven make and from a reputed manufacturer. Calcium chloride as accelerating admixture is not permitted to be used other than in mass concrete works. The Contractor shall produce latest test results carried out at approved Government Test Houses for the approval of the Engineer, before use.

6.12 GRADES OF CONCRETE

6.12.1 Concrete shall be in grades as tabulated below:

Grade Designation	Specified Characteristic compressive strength at 28 days (N/mm²)
M10	10
M15	15
M20	20
M25	25
M30	30
M35	35
M40	40

6.12.2 The characteristic strength is defined as the strength of material below which not more than 5% of the tests results are expected to fall.

6.12.3 In the designation of a concrete mix, latter M refers to the mix and the number to the specified characteristic compressive strength of 15 cm cubes at 28 days.

6.12.4 Minimum grades of concrete to be followed shall be as per guidelines of Table 5 of IS: 456 unless otherwise mentioned in the drawings / schedule of items. Concrete leaner than those given above may be used for lean concrete, mud mat, or for foundations of masonry walls.

6.12.5 Concrete mix proportioning

Concrete mix proportions shall be selected based on the requirements of workability, strength, and durability. The proportions of cement, aggregates and water shall be determined by designing the mix. Design mix concrete is designated as M20, M25, etc. The proportions referred to is by weight (mass) and not by volume. Use of

volumetric mix concrete shall not be permitted.

6.13 Workability of concrete

a) Workability of fresh concrete is mainly governed by placing conditions and compaction. The degree of workability necessary to allow the concrete to be well compacted and worked into the corners of formwork and around the reinforcement shall be as stipulated under clause no. 7.0 of IS: 456.

b) The workability of concrete shall be checked at frequent intervals. The workability of concrete measured in accordance with IS: 1199 for every sample taken for testing shall be recorded with the corresponding cube test result.

c) Notwithstanding the above, the slump to be maintained for work in progress shall be as per directions of the Engineer.

d) Engineer may permit use of plasticizers for improving workability. Use of certain other admixtures such as water proofing compounds also have an effect on workability and shall be considered during mix design.

6.14 Durability of concrete:

a) The durability of concrete is mainly governed by the permeability of concrete. Dense concrete is least permeable. In addition, cement content and water-cement ratio and compaction of concrete play a major role in producing impermeable concrete.

b) Durability requirements decided depending on the exposure conditions as stipulated in clause 8.2 of IS 456 are to be taken into account while designing the mix. For given aggregates, the cement content should be sufficient to make sufficiently low water cement ratio and table 5 of IS: 456-2000 shall be taken as guideline for durability considerations.

c) Stipulations of minimum cement content and limiting water cement ratio should be considered during design of mix.

6.15 Design Mix Concrete

a) Design Mix Concrete shall be used for all reinforced concrete works. The mix proportions shall be as per mix design, designed for each grade of concrete, workability and durability requirements. The characteristic strength shall not be less than the appropriate values given in Table-2 of IS: 456:2000.

b) In proportioning concrete, the quantity of both cement and aggregates shall be determined by mass. Water shall be either measured by volume in calibrated tanks or weighed. All measuring equipment at site shall be maintained in a clean and serviceable condition, and their accuracy shall be periodically checked.

c) To keep the water-cement ratio to the designed value, allowance shall be made for the moisture contents in both fine and coarse aggregates and determination of the same in accordance with IS: 2386 Part (III) shall be made as frequently as directed by the Engineer.

d) With the permission of the Consultant, for any of the above mentioned grades of concrete, if the water quantity has to be increased, proportionately cement quantity shall also be increased, to keep the ratio of water to Cement same as adopted in mix design for the corresponding grade of concrete. The extra cement required on account of this shall be at no extra cost to Owner.

6.16 Mix design: Mix design shall generally be done at any of the approved laboratory. The following is the guideline to be followed:

a) IS: 10262 shall be followed as general guidance for mix design. The minimum value of target strength of design mix of various grades of concrete shall be as per clause no. 9.2 of IS: 456. However, the Consultant may allow change in target strength values based on adequate numbers of works test results.

b) Minimum cement content from durability consideration for different exposures and sulphate attack shall be as given in Table-4 and 5 of IS: 456. In case higher value is obtained from strength consideration, same shall be provided. c) Preliminary tests/trial mix, as specified or as required by the Engineer, shall be carried out sufficiently ahead of the actual commencement of the work with different grades of concrete made from representative samples of aggregates and cement expected to be used on the works. These tests are to be conducted to arrive at the grading of aggregates, water-cement ratio, workability and the quantity of cement required to give Preliminary (target) compressive strengths as specified in clause 9.2 of IS 456.

c) At least four trial mixes are to be made and minimum six test cubes taken for each trial mix noting the slump for each type of mix. The cubes shall then be properly cured and three cubes for each mix shall be tested in a laboratory (approved by the Engineer) at 7 days and others at 28 days for obtaining the compressive strength. The test reports shall be submitted to the Engineer. The design mix particulars shall indicate, with the help of graphs and curves etc. the extent of variation in the grading of aggregates which can be allowed.

d) While designing mixes, over wet mixes shall be avoided. For the structures, where assessment of early strength is required the concrete cubes shall also be tested for early age strength at 1 day and 3 days for establishing the values.

e) The Contractor shall submit the test reports of mix design to the Engineer for his review, indicating design criteria, analysis and proportioning of materials, etc. On the basis of the above test reports, a mix proportion by mass and the water-cement ratio, shall be determined by the Contractor such that concrete prepared with this mix will yield the desired characteristic strength and shall have suitable workability. The mix design to be adopted on the works shall be subject to the approval of the Engineer. The proportions, once decided for different grades of concrete, shall be adhered to, during all concreting operations as long as the quality of the materials does not change. If, however, at any time, the quality of materials being used has changed from those for Preliminary mix design, or there is a change either in the required strength of concrete, or water-cement ratio or workability, the Contractor shall have to make similar trial mixes and Preliminary tests to ascertain the revised

mix proportions and water-cement ratio to be used for obtaining the desired strength and consistency.

f) The entire cost of all the trial mixes including all the preparatory works for trial mixes, preparation of test cubes and their testing shall be borne by the Contractor.

6.17 REINFORCEMENT PLACEMENT

6.17.1 All reinforcement for concrete works shall be provided as per the drawings or as indicated in the schedule of items. The Contractor shall prepare and furnish to the , bar bending schedules for all RCC works for his review and approval. No work shall commence without the approval of the bar bending schedules by the Engineer in writing.

6.17.2 The contractor shall plan the procurement of steel well in advance and complete the surface treatment, if specified in a planned manner. In case of non availability of certain diameters Consultant may permit substitution of bars. However such substitutions shall be the last resort and shall not be a reason for delay. The Contractor shall modify the bar bending schedule, and specific approvals of Engineer obtained.

6.17.3 All bars shall be thoroughly cleaned before being fabricated. Pitted and defective bars shall not be used. All steel for reinforcement shall be free from loose scales, rust coatings, oil, grease, paint or other harmful matters immediately before placing the concrete. To ensure this, reinforcements with rust coatings shall be cleaned thoroughly before bending/placement of the same.

6.18 Inspection & testing : Erected and secured reinforcement shall be inspected and approved by Consultant prior to placement of concrete. Sample bent bars shall be checked to ensure that they conform to the bar bending schedules. Reinforcement in position shall be checked for proper positioning, and rigidity, cover, spacing of bars, placement of chairs and spacers. etc. Also it shall be checked that all bars at crossings are properly tied.

6.18.1 Each batch of reinforcement procured shall be accompanied with manufacturer's test certificate. In addition, Consultant may direct the reinforcement to be tested independently. Reinforcement shall be tested in reputed testing laboratory, approved by Consultant. The frequency of testing shall be as stipulated by Consultant. The cost of testing shall be borne by the contractor.

6.19 MIXING OF CONCRETE : Concrete shall be mixed in a mechanical mixer conforming to IS: 1791. Water shall not be added into the drum of the mixer, until all the cement and aggregates constituting the batch are already in the drum and dry mixed for at least one minute and are uniformly distributed. Water shall then be added and mixing of each batch shall be continued until there is a uniform distribution of the materials and the mass but in no case shall mixing be done for less than one and half minutes and for at least 40 revolutions after all the water and materials are in the drum. When absorbent aggregates are used or when the mix is very dry, the mixing time shall be extended as directed by the Engineer. Mixers shall

not be loaded above their rated capacity as this prevents thorough mixing.

6.19.1 The entire contents of the drum shall be discharged before the ingredients for the next batch are fed into the drum. No partly set or remixed or excessively wet concrete shall be used and it shall be immediately removed from site. Each time if the work stops for more than 30 minutes, the mixer shall be thoroughly cleaned and when the next mixing commences, the first batch shall have 10% additional cement.

6.20 Batching of Concrete

6.20.1 Cement shall always be batched by weight. A separate weighing device shall be provided for weighing cement. Where the weight of cement is determined by accepting the weight per bag, number of bags shall be weighed separately to determine the average net weight of cement per bag and the same shall be checked regularly.

6.20.2 Aggregates shall always be batched by weight. A suitable weigh batching equipment with a valid calibration certificate duly approved by the consultant shall be used.

6.20.3 Where the aggregates are moist and volume batching is adopted, allowance shall be made for bulking in accordance with IS 2386 (Part-III). Suitable adjustments shall be made for the variation in the weight of aggregates due to variation in their moisture contents.

6.20.4 Water may be measured either by weight or by volume. When measured by volume, it shall be by well calibrated conical shaped jar or vessel or from a calibrated tank fitted to the mixer. It is very important to maintain the water cement ratio constant at its correct value. For the correct determination of amount of water to be added in the concrete mix, to maintain the water cement ratio constant, the amount of moisture content in both coarse and fine aggregates shall be taken into consideration, be as frequently as possible. The frequency for a given job being determined by the Consultant according to weather conditions.

6.20.5 Any solid admixture, to be added, shall be measured by weight, but liquid or semi-liquid admixture may be measured by weight or volume.

6.21 TRANSPORTATION OF CONCRETE

6.21.1 Concrete shall be handled and conveyed as rapidly as practicable, from the place of mixing to the place of final laying, by approved means, before the initial setting of the cement starts. Concrete shall be conveyed in such a way that there is no segregation or loss of any of the ingredients and maintaining the required workability. If segregation does occur during transport, the concrete shall be remixed. During very hot or cold weather, if directed by the Engineer, concrete shall be transported in deep containers which will reduce the rate of water loss by evaporation in hot weather and heat loss in cold weather, at no extra cost to Owner.

6.21.2 Conveying equipment for concrete shall be mortar tight, well maintained and thoroughly cleaned before commencement of concrete mixing. Such equipment shall

be kept free from set concrete. Chutes shall not be used for transport of concrete without the written permission of the Consultant. The chute in case permitted to be used shall be of such size and design as to ensure practically continuous flow. Slope of the chute shall be so adjusted that the concrete flow without the use of an excessive quantity of water and without segregation of its ingredients. The delivery end of the chute shall be as close as possible to the point of deposit.

6.21.3 Concrete may be conveyed and placed by mechanically operated equipment, e.g. pumps or pneumatic placers only with the written permission of the Consultant, who shall also review the entire scheme for which comprehensive details shall be furnished by the Contractor.

6.21.4 All equipment used for mixing, transporting and placing of concrete shall be maintained in clean condition. All pans, buckets, hoppers, chutes, pipe lines and other equipments shall be thoroughly cleaned after each period of placement.

6.22 CONCRETE PLACING :

Final inspection and approval prior to concrete placement:

6.22.1 Before the concrete is actually placed in position, the inside of the form work shall be inspected to see that they have been cleaned and oiled. Temporary openings shall be provided to facilitate inspection, especially at bottom of columns and wall forms, to permit removal of saw dust, wood shavings, binding wire, rubbish, dirt etc., Opening shall be placed or holes drilled so that these materials and water can be removed easily. Such openings / holes shall be later suitably plugged.

6.22.2 Prior to concrete placement, all works shall be inspected and approved by Consultant, and if found unsatisfactory, concrete shall not be poured until all defects have been corrected at contractors cost. Approval by Consultant of any and all materials and work as required herein shall not relieve contractor from his obligations to produce sound concrete in accordance with the drawings and specifications

6.22.3 Formwork and reinforcement shall be approved in writing by the Consultant before concrete is placed. Concrete shall be placed only after all preparations for casting have been approved by the Consultant and approval given to proceed with the casting in writing on pour card to be maintained by the Contractor for this purpose and to be submitted along with the Contractor's bills.

6.22.4 Placement

6.22.4.1 Concrete shall be placed and compacted in its final position before the cement reaches the initial set and normally concrete shall be compacted in its final position within 30 minutes of leaving the mixer.

6.22.4.2 Where direct placement is not possible, the Contractor shall provide suitable arrangements such as chutes, tremie, elephant trunks, etc. to confine the movement of concrete as directed by the Consultant. Concrete shall not be dropped from a height or handled in a manner which may cause segregation.

6.22.4.3 If concrete is placed by pumping, the consistency shall be the minimum

necessary for such conveyance of concrete. Before commencement of regular pumping, the pipeline shall be lubricated by cement mortar (1:2), and once pumping commences, stoppages shall be avoided.

6.22.4.4 The placing of concrete shall be a continuous operation with no interruption in excess of 30 minutes between the placing of continuous portions of concrete.

6.22.4.5 Concrete shall be placed in continuous horizontal layers of 150 mm or higher thickness as directed by the Consultant and thoroughly compacted before placing next layer. The thickness of each layer shall be such that it will be deposited before the previous layer has stiffened. When placing concrete through reinforcing steel, care shall be taken to prevent segregation of the coarse aggregates.

6.22.4.6 Slabs, beams and similar members shall normally be poured in one operation. In special circumstances, with the approval of the Consultant, these can be poured in horizontal layers, but it must be ensured that the under layer is not already hardened. Bleeding of under layer, if any, shall be effectively removed. Moulding, throating, drip course, etc. shall be poured as shown on the drawings or as desired by the Consultant.

6.22.4.7 Mass Concrete shall be poured in lifts not exceeding 1.0 m in height unless otherwise indicated on drawings or as directed by the Consultant. Horizontal lift shall not be more than 150 cm in thickness, according to provision of IS:456.

6.22.4.8 No concrete shall be placed in wet weather or on water covered surface. Any concrete that has been washed by heavy rain shall be entirely removed, if there is any sign of cement and sand having been washed away from the concrete mixture. To guard against damage which may be caused by rain, the works shall be covered with tarpaulins immediately after the concrete has been placed and compacted before leaving the work unattended. Any water accumulating on the surface of the newly placed concrete shall be removed by approved means and no further concrete shall be placed thereon until such water is removed. To avoid flow of water over / around freshly placed concrete, suitable drains and sumps shall be provided.

6.22.4.9 Concrete must be placed in its final position before it becomes too stiff to work. On no account water shall be added after the initial mixing. Concrete which has become stiff or has been contaminated with foreign materials and which has not been placed within half an hour of mixing water with cement shall be rejected.

6.22.4.10 For members involving vertical placing of concrete (eg. Columns, walls, etc.), each lift shall be deposited in horizontal layer extending the full width between shuttering and of such depth that each layer can be easily and effectively vibrated and incorporated with the layer before by means of compaction.

6.22.4.11 Should any unforeseen occurrence results in a stoppage of concreting for one hour or such other time as might allow the concrete, already placed, to begin to set before the next batches can be placed, the Contractor shall make at his own cost, suitable tongue, and groove construction joint, as approved by the Engineer.

Any additional reinforcement required as directed by the Engineer shall also be provided by the Contractor at his own cost. Before placement of new batches of concrete over that construction joint, the surface preparation according to this specification stipulated earlier, shall be done by the Contractor at his own cost.

6.23 COMPACTION

6.23.1 After the concrete has been placed, it shall be spaded and thoroughly compacted by approved mechanical vibrators to a maximum subsidence without segregation and thoroughly worked around reinforcement or other embedded fixtures into the correct form and shape. Care must be taken to ensure that the inserts, fixtures, reinforcement and formwork are not displaced or disturbed during placing of concrete.

6.23.2 Vibrators shall penetrate both the layer poured and the under layer to ensure good bond and homogeneity and to prevent the formation of cold joints. Immersion vibrators shall not be allowed to come in contact with steel reinforcement after start of initial set. Also, they shall not be allowed to come in contact with forms or finished surfaces. Immersion vibrators shall have a 'no load' frequency, amplitude and acceleration as per IS: 2505 depending upon the size of the vibrator. Immersion vibrators shall be operated by experienced men. These vibrators shall be immersed not more than 450 mm apart and withdrawn when air bubbles cease to come to the surface. Such vibrators shall in no case be used to push concrete inside the forms and vibrators shall be withdrawn slowly.

6.23.3 Whenever vibration has to be applied externally, the design of formwork and the disposition of vibrators shall receive special consideration to ensure efficient compaction and to avoid surface blemishes. Surface vibrators and form attached vibrator shall not be permitted under normal conditions. Their use shall require written approval of the Consultant.

6.24 PROTECTION AND CURING OF CONCRETE

6.24.1 Protection:

Newly placed concrete shall be protected by approved means from rain, sun and wind. Concrete placed below ground level, shall be protected from falling earth, during and after placing. Concrete placed in ground containing any deleterious substances, shall be kept free from contact with such ground or with water draining from such ground, during placing of concrete and for a period of at least three days or as otherwise instructed by the Engineer.

6.24.2 The ground water around newly poured concrete shall be kept down to an approved level by pumping or other approved means of drainage. Adequate steps shall be taken to prevent floatation or flooding. Steps, as approved by the Engineer, shall be taken to protect immature concrete from damage by debris, excessive loading, vibration, abrasion, mixing with earth or other deleterious materials, etc. that may impair the strength and durability of the concrete.

6.24.3 Curing:

As soon as the concrete has hardened sufficiently, it shall be kept in a damp or wet condition by ponding or by covering with a layer of sacking, canvas, hessian or similar materials and kept continuously wet for at least seven days after final setting. This period may be extended, at the discretion of the Engineer, upto fourteen days. Curing of horizontal surfaces exposed to drying winds shall begin immediately after the concrete has hardened. Concrete slabs and floors shall be cured for the periods mentioned above by flooding with water of minimum 25 mm depth. Quantity of water applied shall be such as to prevent erosion of freshly placed concrete.

6.24.4 Approved curing compounds may be used in lieu of moist-curing with the permission of the Engineer. However, such permission may be granted only in specific cases. Such compounds shall be applied to all exposed surfaces of the concrete, as soon as possible after the concrete has set. Curing compounds shall be liquid type while pigmented, conforming to U.S. Bureau of Reclamation Specification. No curing compound shall be used on surface where future blending with concrete, water or acid proof membrane or painting is specified.

6.25 CEMENT ADDITIVES/ADMIXTURES IN CONCRETE

6.25.1 The admixtures shall conform to IS:9103 and shall be of proven make and from a reputed manufacturer. In addition, for plasticizer-cum-water proofing compound, materials shall meet the permeability requirements as per IS:2645. Similarly for plasticizer-cum retarder admixture material shall satisfy the setting time requirements of retarder and other properties of plasticizer as per IS:9103.

6.25.2 Admixture may be used in concrete only with the approval of Engineer based upon evidence that, with the passage of time neither the compressive strength nor its durability reduced. When admixtures are used, the designed concrete mix shall be done with the admixture. Admixtures shall be used as per manufacturer's instructions and in the manner and with the control specified by Engineer.

6.25.3 Calcium Chloride: Calcium chloride shall not be used for accelerating set of the cement for any concrete containing reinforcement or embedded steel parts. When calcium chloride is permitted to be used, such as in mass concrete works, it shall be dissolved in water and added to the mixing water in an amount not to exceed 1.5 percent of the weight of cement in each batch of concrete.

6.25.4 Admixtures in concrete for promoting workability, improving strength, entraining air or for similar purposes may be used only after the written permission from the Engineer, is obtained. Addition of admixtures shall not reduce the specified strength or durability of concrete in any case.

6.25.5 The Contractor shall furnish all labour and equipment to place and mix water proofing cement additive and cement plasticiser in concrete of any grade and cement mortar. Thereafter, he shall carry out the work as specified earlier in relevant clauses of this specification for concrete and hence complete the work as indicated on the drawing and as per the specification listed hereunder.

6.26 Classification of admixtures:

6.26.1 Admixture can be classified as under:

a) Air Entraining Agents: Where specified and approved by Engineer, neutralized vinsol resin or any other approved air entraining agent may be used to produce the specified amount of air in the concrete mix and these agents shall conform to the requirements of ASTM standard 6.260. Air entraining admixtures for concrete. The recommended total air content of the concrete is 4% (+/-) 1%. The method of measuring air content shall be as per IS: 1199.

b) Retarding Admixtures: Where specified and approved by Engineers, retarding agents shall be added to the concrete mix in quantities specified by Engineer.

c) Water Reducing Admixtures: Where specified and approved by Engineer, water reducing lingo sulfonate mixture shall be added in quantities specified by Engineer. The admixtures shall be added in the form of solution.

d) Water Proofing Agents: Where specified and approved by Engineer, chloride and sulphate free water proofing agents shall be added in quantities specified by Consultant. Water proof cement additive shall conform to IS:2645 and shall be of proven make and from a reputed manufacturer.

e) Other Admixtures: Consultant may at his discretion, instruct contractor to use any other admixture in the concrete.

f) Admixtures/water proofing additive shall be used at the rate specified by the manufacturer or as indicated on the drawings and shall be mixed with water, as required by the Engineer.

6.27 SUB - BASE

6.27.1 The cement concrete pavement shall be laid over the sub-base constructed in accordance with the relevant drawings and Specifications. If the sub-base is found damaged at some places or it has cracks wider than 10mm, it shall be repaired with fine cement concrete or bituminous concrete laying separation layer. Prior to laying of concrete it shall be ensured that the separation membrane is placed in position and the same is clean of dirt or other extraneous materials and free from any damage.

10.28 Weather and Seasonal Limitations

10.28.1 **Concrete during monsoon months**: When concrete is being placed during monsoon months and when it may be expected to rain, sufficient supply of tarpaulin or other water proof cloth shall be provided along the line of the work. Any time when it rains, all freshly laid concrete which had not been covered for curing purposes shall be adequately protected. Any concrete damaged by rain shall be

removed and replaced. If the damage is limited to texture, it shall be retextured in accordance with the directives of the Engineer.

10.28.2 Concreting in hot weather: No concreting shall be done when the concrete temperature is above 30 degree centigrade. Besides, in adverse conditions like high temperature, low relative humidity, excessive wind velocity, imminence of rains etc., if so desired by the Engineer, tents on mobile trusses may be provided over the freshly laid concrete for a minimum period of 3 hours as directed by the Engineer. The temperature of the concrete mix on reaching the paving site shall not be more than 30°C. To bring down the temperature, if necessary, chilled water or ice flakes should be made use of. No concreting shall be done when the concrete temperature is below 5 degree Centigrade and the temperature is descending.

6.31 SAMPLING, TESTING AND QUALITY ASSURANCE

6.31.1 General

Concrete cubes for works tests shall be cured under laboratory conditions, except when in the opinion of the Consultant, extreme weather conditions prevail at which time, these may require curing under job conditions.

6.31.2 For the purposes of statistical analysis, any substandard cube result, which in the opinion of the Consultant, is due to improper sampling, moulding or testing shall be discarded and a dummy result shall be substituted. The value of a dummy result shall be equivalent to the average value of the cubes from the same grade of concrete tested immediately before and after the discarded result. The number of such substandard cubes shall not exceed 5%. If the 'strength' of the laboratory controlled cubes, for any portion of the concrete work, falls below the compressive strength specified, the Engineer shall have the right to order a change in the proportions or the water content for the remaining portion of the structure.

6.31.3 If the 'strength' of the works cured test cubes falls below the specified strength, the Engineer shall have the right to require provisions for temperature and moisture control during the period of curing as necessary to secure the required strength, and may require retests in accordance with the 'standard method of securing, preparing and testing specimens from hardened concrete for compressive and flexural strengths, or load tests to be made on the portion of the building so affected. All such tests shall be made at the Contractor's expense.

6.31.4 Unacceptable concrete work shall be dismantled by the Contractor and replaced by fresh work, meeting the specification requirements. In the course of dismantling, if any damage is done to the embedded items or adjacent structures, the same shall be made good, by the Contractor, to the satisfaction of the Engineer, at no extra cost.

6.31.5 Only as a very special case and that too in non-critical areas, the Engineer may accept concrete work which is marginally unacceptable as per the criteria laid down in IS:456. For such accepted work, payment shall be made at a reduced rate pro rata to the concrete cube strength obtained, against that stipulated.

6.31.6 If directed by Engineer, Ultrasonic tests on structures to ascertain the quality and grade of concreting shall be carried out. Contractor shall arrange for the specialised agency for conducting the test at his cost. The Contractor shall provide all the necessary facilities and arrangement for conducting the test at site in terms of access, scaffolding etc. In case of any defects, the Contractor shall rectify the same as directed by the Consultant. Rebound hammer test shall be carried out for ascertaining the quality of concrete work, as directed by the Engineer.

6.32 Optional Tests:

a) Engineer, if desires, may order for tests to be carried out on cement, sand, coarse aggregate, water etc., in accordance with the relevant Indian Standards.

b) Tests on cement will be carried out by a reputed and recognized institutions and shall include (i) fineness test, (ii) test for normal consistency, (iii) test for setting time, (iv) test for soundness (v) test for compressive strength, (vi) test for heat of hydration (by experiment and by calculations) in accordance with IS :269.

c) Tests on sand shall included (i) sieve test, (ii) test for organic impurities, (iii) decantation test for determining clay and silt content, (iv) specific gravity test, (v) test for unit weight and bulkage factor, (vi) test for sieve analysis and fineness modulus.

d) Tests on coarse aggregate shall include (i) sieve analysis, (ii) specific gravity and unit weight of dry, loose and rodded aggregate, (iii) soundness and alkali aggregate reactivity, (iv) petrography examination, (v) deleterious materials and organic impurities, (vi) test for aggregate crushing value.

6.33 Sampling of Concrete

Samples from fresh concrete shall be taken according to IS: 1199 and tested as per IS: 516. Normally only compressive test shall be performed but the Consultant may require other tests to be performed in accordance with IS: 516. Trial Mix & mix design: At least four trial mixes shall be made with minimum 6 test cubes for each mix.

6.34 Works Tests:

The minimum frequency of sampling of concrete of each grade shall be according to clause 15.2.2 of IS:456. However, after getting continuous satisfactory results and in the case of voluminous concrete works, the Consultant may at his discretion reduce the frequency of sampling as follows.

a) For each grade of concrete, and for each 8 hours (shift) of work or part thereof, at least one sample consisting of six specimens shall be taken from each 150 cum. of concrete or part thereof, 3 specimens shall be tested at 7 days and remaining 3 shall be tested at 28 days. However, in all cases, the 28 days compressive strength shall alone be the criterion for acceptance or rejection.

b) To control the consistency of concrete from every mixing, slump tests and compaction factor tests in accordance with IS: 1199 shall be carried out by the Contractor every two hours or as directed by the Consultant. Slumps corresponding to the test specimens shall be recorded for reference.

c) The strength of sample shall be the average of the strength of three specimens. The individual variation should not be more than $\pm 15\%$ of the average.

7 Pavement with Interlocking Paver Blocks

The Paver Block shall be made in factory with following minimum facilities:

7.1.1 Design Mix Concrete:

(a) All pavers designated by strength shall be treated as design mix concrete. The aggregate and cement shall be measured by weight in an approved weigh batching equipment. Mixing water shall be measured in graduated litre cans. One or more complete bags of cement shall be used for each batch of concrete.

(b) The contractor shall be responsible for designing mixes of the specified performance to suit the degree of workability and characteristic strength. The mix design shall be finalized before manufacturing of the paver considering a set of suppliers for cement, sand and aggregates. In case of any change of suppliers of cement, sand or aggregates, party should have design mix ready for alternate suppliers.

(c) The minimum cement content for compacted concrete of pavers shall not be less than 450 Kg / cum.

(d) The maximum water cement ratio for pavers concrete shall not be more than 0.40.

(e) The design mix proportions for each set of raw material suppliers shall be finalized and approved by the authorized lab for the required compressive strength and the lab report with proportions should be available with the vendor at all times for scrutiny and verification purpose.

7.1.2 Paver Block Making Machine:

The machine should be capable of producing high quality Paver Blocks by obtaining high level of compaction by application of hydraulic compaction and also by high intensity vibration to the moulds. The machine should have automatic control panel and shall apply a minimum pressure of 3000 psi and then there shall be automatic cut off of hydraulic circuit without any manual interference. In no case, pavers mould by manual force or by machine without auto cut off shall be accepted. All pavers shall have uniformity in strength.

7.1.3 Weigh Batching & Mixing Equipment:

(a) The proportioning of ingredients of concrete per batch of concrete shall be performed by an approved weigh batching machine. Water shall be fed into the

mixer from a tank provided with means for adjusting the flow of water so as to supply the quantity determined for concrete as per mix design. Due allowance shall be made for the weight of water carried by aggregates so that actual amount added at the mixer can be reduced as necessary. For this purpose the moisture content of coarse and fine aggregates shall be ascertained as and when required and at other times when alteration of the moisture content may be expected due to new deliverance of aggregates, inclement weather or other reasons.

(b) Volumetric batching of concrete may be allowed after the design mix is approved by lab after testing, by converting the proportion of concrete from weight to volumetric measurement subject to facilities being made available by the contractor for verifying and monitoring this.

(c) All necessary equipment such as measuring boxes, devices for determination of moisture and bulking in sand, slump cone, etc. shall be provided by the contractor. Concrete shall be machine mixed until there is a uniform distribution of materials and uniform colour and consistency is achieved and under no circumstances for less than two minutes. The concrete Mix Design should be followed for each batch of materials.

7.1.4 Curing :

The factory should have well designed curing area to ensure adequate (minimum 14 days) curing of paver blocks.

7.1.5 Laboratory

The factory should have the following:

- (i) Compression testing machine of capacity minimum 200 MT
- (ii) Other tools and equipment for testing raw materials and paver blocks.
- (iii) (1) Systematic record of test results of various paver blocks manufactured in the factory.
- (2) Concrete Mix Design for desired grade of concrete used for making of paver blocks.

7.2. Raw Materials.

7.2.1 CEMENT

The cement used in the manufacture of high quality precast concrete paving blocks shall be conforming to IS 12269 (53 grade ordinary Portland cement) or IS 8112 (43 grade ordinary Portland cement) or IS 1489 (Part 1) (Portland-pozzolana cement – fly ash based). The minimum cement content in concrete used for making paver blocks should be 380 kg/Cum.

7.2.2 AGGREGATES

The fine and coarse aggregates shall consist of naturally occurring crushed or uncrushed materials, which apart from the grading requirements comply with IS 383-1970. The fine aggregates used shall contain a minimum of 25% natural silicon sand. Lime stone aggregates shall not be used. Aggregates shall contain

no more than 3% by weight of clay & shall be free from deleterious salts and contaminants. Zone iv sand shall not be acceptable. Course aggregate shall be 10 mm and below.

7.2.3 WATER

The water shall be clean and free from any deleterious matter. It shall meet the requirements stipulated in IS: 456-2000.

7.2.4 OTHER MATERIALS

Any other materials / ingredients used in the concrete shall conform to I.S. specifications.

PIGMENT: The pigment shall be used only on wearing and top surface and through out the paver block. The pigment used shall not be more than 10% of weight of cement used in the wearing course layer. However, use of pigment shall in no way alter the required strength of the paver block. Pigment used for coloring paver blocks shall have durable color. It shall not contain matters detrimental to concrete. The pigment shall not contain Zinc compound. Lead pigment shall not be used.

7.3. Pavers Block Characteristics

The inter locking concrete paver tiles should conform to IS-15658: 2006. They shall be tested as per the code and have to qualify limits specified by us down below.

7.3.1 The paver tiles should be made of M-50 design mix concrete in approved size and shape. For acceptance the average of compressive strengths of 8 pavers shall be minimum 57.2 N/mm² (MPa). Any paver in the tested lot shall not have compressive strength less than 50.1 MPa. If needed, pavers shall be designed and manufactured on higher side to concrete grade M-50 to meet this requirement extra cost will be borne by the contractor. Testing shall be done as per relevant clauses of IS-15658:2006.

7.3.2 The concrete pavers should have perpendicularities after release from the mould and the same should be retained until the laying.

7.3.3 The surface should be of anti skid and anti glare type.

7.3.4 The paver should have uniform chamfers to facilitate easy drainage of surface run off.

7.3.5 The concrete mix design should be followed of each batch of materials separately and weigh batching plant is to be used to achieve uniformity in strength and quality.

7.3.6 The pavers shall be manufactured in single layer or more to ensure smooth surface on top and to remove all voids.

7.3.7 The pavers shall be of cement Grey colour without any pigment or colored with pigment or with chemically treated top surface as specified.

7.3.8 The pavers are to be skirted all round with kerbing or otherwise as per direction, using solid concrete blocks made of grade M50 concrete, The concrete used for kerbing shall be cured properly for 7 days minimum. The payment for kerb will be measured same as paver block area.

7.3.9 All paver blocks shall be sound and free of cracks or other visual defects, which will interfere with the proper paving of the unit or impair the strength or performance of the pavement constructed with the paver blocks.

3.10 The compressive strength requirement of concrete paver block shall be minimum 57.2 MPa (N/sqmm) for 28 days (Testing as per IS-15658) after applying the correction factor as per IS-15658:2006. (Please refer clause 7.3.1 also).

7.4. Paver Block Dimensions

Thickness 100mm, Shape Regular (Uniform shape with no Hollow or Cracks) Chamfer 5 mm to 7 mm along top edges Thickness of Wearing Layer Minimum 6 mm (The thickness of the wearing surface shall be measured at several points along the periphery of paver blocks. The arithmetic mean of the lowest two values shall be the minimum thickness of the wearing layer)

Plan Area Asp (Ref. Cl.B-3.3Annex B, IS-15658:2006) Maximum 0.03 m² Colour Natural cement Grey colour without use of any pigment OR colour as specified Dimensional Tolerance Tolerances as per IS-15658:2006

Note: All other visual/physical & dimensional acceptance on parameters like aspect ratio, squareness etc to be as per IS-15658:2006

7.5. Testing of Paver Blocks

1. 28 day Compressive Strength Minimum 57.2 MPa (N/Sqmm)
2. Abrasion Resistance Maximum 2 mm [i.e. 10 units of 1000 mm³ per 5000 mm² reported as per E-5 of Annex E of IS-15658:2000]
3. Water Absorption Avg. of 3 units - Maximum 6% by mass (restricted to 7% in individual test units)

Sampling and Testing Procedure strictly As Per IS – 15658; 2006.

7.6.1 BEDDING SAND COURSE

The bedding sand shall consist of naturally occurring, clean, well graded sand passing through 4.75mm sieve and suitable to concrete manufacture. The bedding should be from either a single source or blended to achieve the following grading.

IS SIEVE SIZE % PASSING

9.52mm	100
4.75mm	95-100
2.36mm	80-100

1.18mm 50-100
600 microns 25-60
300 microns 10-60
150 microns 5-15
75 microns 0-10

Contractor shall be responsible to ensure that single-sized, gap-graded sands or sands containing an excessive amount of fines or plastic fines are not used. The sand particles should preferably be sharp, not rounded. The sand used for bedding shall be free of any deleterious soluble salts or other contaminants likely to cause efflorescence.

The sand shall be of uniform moisture content, which shall be within 4% - 8%, at the time of spreading and shall be protected against rain when stockpiled prior to spreading. Saturated sand shall not be used.

The bedding sand shall be spread loose in a uniform layer as per drawing. The compacted uniform thickness shall be 50mm and within \pm 5mm. Thickness variation shall not be used to correct irregularities in the base course surface. The spread sand shall be carefully maintained in a loose dry condition and protected against pre-compaction both prior to and following spreading. Any pre-compacted sand left overnight shall be loosened before further laying of paver blocks takes place. Sand shall be slightly spread in a loose condition to the predetermined depth only slightly ahead of the laying of the paver block. Any depressions in the spread sand exceeding 5mm shall be loosened, raked and re spread before laying of paver block.

7.6.2 LAYING OF INTERLOCKING PAVER BLOCK:

Paver block shall be laid in pattern as specified under cl. 7 throughout the pavement. Once the laying pattern has been established, it shall continue without interruption over the entire pavement surface. Cutting of blocks, the use of infill concrete or discontinuities in laying pattern is not to be permitted in other than approved locations. Paving units shall be placed on the uncompacted sand bed to the nominated laying pattern, care shall be taken to maintain the specified bond throughout the job. The first row shall be located next to an edge restraint. Specially manufactured edge paving units are permitted or edge units may be cut using a power saw, a mechanical or hydraulic guillotine, bolster or other approved cutting machine. No haphazardly broken pavers shall be used. Paver block shall be placed with the help of spacers to achieve gaps nominally 2 to 3mm wide between adjacent paving joints. No joint shall be less than 2mm nor more than 4mm.

However it is mandatory to use 3.0mm wide spacer while laying paver tiles so as to ensure uniform 3.0mm gap between adjacent pavers.

Frequent use of string lines shall be used to check alignment. In this regard, the "laying face" shall be checked at least every two meter as the face proceeds. Should the face become out of alignment, it must be corrected prior to initial compaction and before further laying job is proceeded with. In each row, all full units shall be laid first. Closure units shall be cut and fitted subsequently. Such closure units shall consist of not less than 25% of a full unit.

7.6.3 INITIAL COMPACTION

After laying the paver block, they shall be compacted to achieve consolidation of the sand bedding and brought to design levels and profiles by not less than two (2) passes of a suitable plate compactor. The compactor shall be a high-frequency, low amplitude mechanical flat plate vibrator having plate area sufficient to cover a minimum of twelve paving units. Prior to compaction all debris shall be removed from the surface. Compaction shall proceed as closely as possible following laying and prior to any traffic. Compaction shall not, however, be attempted within one meter of the laying face. Compaction shall continue until lipping has been eliminated between adjoining units. Joints shall then be filled and recompactd as described in Clause 6.5 All work further than one meter from the laying face shall be left fully compacted at the completion of each day's laying. Any blocks that are structurally damaged prior to or during compaction shall be immediately removed and replaced. Sufficient plate compactors shall be available at the paving site for both bedding compaction and joint filling.

7.6.4 JOINT FILLING AND FINAL COMPACTION

As soon as practical after compaction and in any case prior to the termination of work on that day and prior to the acceptance of any traffic, sand for joint filling shall be spread over the pavement. Joint sand shall pass a 2.36mm (No. 8) sieve and shall be free of soluble salts or contaminants likely to cause efflorescence. The same shall comply with the following grading limits:

IS SIEVE SIZE % PASSING

2.36mm	100
1.8mm	90-100
600mm	60-90
300 microns	30-60
150 microns	15-30
75 microns	10-20

The Contractor shall supply a sample of the jointing sand to be used in the contract prior to delivering any such material to site for incorporation into the works. Certificates of test results issued by a recognised testing laboratory confirming that the sand sample conforms to the requirements of this specification shall be submitted prior to supply of total volume required. The jointing sand shall be broomed to fill the joints. Excess sand shall then be removed from the pavement surface and the jointing sand shall be compacted with not less than one (1) pass of the plate vibrator and joints refilled with sand to full depth. This procedure shall be repeated until all joints are completely filled with sand. No traffic shall be permitted to use the pavement until all joints have been completely filled with sand and compacted. Both the sand and paver block shall be dry when sand is spread and broomed into the joints to prevent premature setting of the sand. The difference in level (lipping) between adjacent units shall not exceed 3mm with not more than 1% in any 3m X 3m area exceeding 2mm. Pavement portions which are deformed beyond above limits after final compaction, shall be taken out and relaid to the satisfaction of the Engineer in charge.



MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT

TENDER No. CE/00/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

xi) PROFORMA OF PRE CONTRACT INTEGRITY PACT

General

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on _____ day of the month of _____ 2014, between, on one hand, the Board of Trustees of Mormugao Port Trust acting through Shri. _____, (Designation of the Officer), Mormugao Port Trust (hereinafter called the 'EMPLOYER', which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part and M/s. _____ represented by Shri. _____, Chief Executive Officer (hereinafter called the "BIDDER" which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the 'EMPLOYER' has invited bids for the project of "**Development of Storage Area for Containers at Mormugao Port, Goa**" (hereinafter referred to as the "**Project**") and the BIDDER is submitting his bid for the project and WHEREAS the BIDDER is a Private Limited company/Public Limited company/Government undertaking/registered partnership firm/ constituted in accordance with the relevant law in the matter and the 'EMPLOYER' is Mormugao Port Trust.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:-

Enabling the EMPLOYER to obtain the desired said stores/equipment/ services/works at a competitive price in conformity with the defined specifications by avoiding the

high cost and the distortionary impact of corruption on public procurement, and

Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the 'EMPLOYER' will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

Commitments of the 'EMPLOYER'

- 1.1 The 'EMPLOYER' undertakes that no official of the 'EMPLOYER', connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organisation or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.
- 1.2 The 'EMPLOYER' will, during the pre-contract stage, treat all BIDDERS alike and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERS.
- 1.3 All the officials of the 'EMPLOYER' will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
2. In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the 'EMPLOYER' with full and verifiable facts and the same is prima facie found to be correct by the 'EMPLOYER' necessary disciplinary

proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the 'EMPLOYER' and such a person shall be debarred from further dealings related-to the contract process. In such a case while an enquiry is being conducted by the 'EMPLOYER' the proceedings under the contract would not be stalled.

Commitments of BIDDERS

3.0 The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-

3.1 The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the 'EMPLOYER' connected directly or indirectly with the bidding process, or to any person, organisation or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.

3.2 The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the 'EMPLOYER' or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other contract with the Government.

3.3* BIDDERS shall disclose the name and address of agents and representatives and Indian BIDDERS shall disclose their foreign principals or associates.

- 3.4* BIDDERS shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.
- 3.5* The BIDDER further confirms and declares to the 'EMPLOYER' that the BIDDER has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the EMPLOYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.
- 3.6 The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the 'EMPLOYER' or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- 3.7 The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- 3.8 The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- 3.9 The BIDDER shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the 'EMPLOYER' as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- 3.10 The BIDDER commits to refrain from giving any complaint directly or through

any other manner without supporting it with full and verifiable facts.

3.11 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.

3.12 If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the 'EMPLOYER' or alternatively, if any relative of an officer of the 'EMPLOYER' has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of tender.

The term 'relative' for this purpose would be as defined in Section 6 of the Companies Act 1956.

3.13 The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the 'EMPLOYER'.

4. Previous Transgression

4.1 The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify bidder's exclusion from the tender process.

4.2 The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

5. Earnest Money (Security Deposit)

5.1 While submitting commercial bid, the BIDDER shall deposit an amount _____ (to be specified in Bid Document) as Earnest Money/Security Deposit, with

the 'EMPLOYER' through any of the following instruments:

- (i) Bank Draft or a Pay Order in favour of _____
- (ii) A confirmed guarantee by an Indian Nationalised Bank, promising payment of the guaranteed sum to the 'EMPLOYER' on demand within 3 working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the 'EMPLOYER' shall be treated as conclusive proof of payment.
- (iii) Any other mode or through any other instrument (to be specified in the Bid Document).

5.2 The Earnest Money/Security Deposit shall be valid upto a period of _____ months or the complete conclusion of the contractual obligations to the complete satisfaction of both the BIDDER and the EMPLOYER, including warranty period, whichever is later.

5.3 In case of the successful BIDDER, a clause would also be incorporated in the Article pertaining to Performance Security in the Project Contract that the provisions of Sanctions for Violation shall be applicable for forfeiture of Performance Security in case of a decision by the EMPLOYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

5.4 In case of the successful BIDDER a clause would also be incorporated in the Article pertaining to Performance Bond in the Purchase Contract that the provisions of Sanctions for violation shall be applicable for forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

5.5 No interest shall be payable by the 'EMPLOYER' to the BIDDER on Earnest Money/Security Deposit for the period of its currency.

6. Sanctions for Violations

6.1 Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the 'EMPLOYER' to take all or any one of the following actions, wherever required:-

(i) To immediately call off the pre contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.

(ii) The Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/Performance Bond (after the contract is signed) shall stand forfeited either fully or partially, as decided by the 'EMPLOYER' and the 'EMPLOYER' shall not be required to assign any reason therefore.

(iii) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.

(iv) To recover all sums already paid by the BUYER, and in case of an Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India, while in case of a BIDDER from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.

(v) To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the EMPLOYER, alongwith interest.

(vi) To cancel all or any other Contracts with the BIDDER. The BIDDER shall, be liable to pay compensation for any loss or damage to the 'EMPLOYER'

resulting from such cancellation/rescission and the 'EMPLOYER' shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.

(vii) To debar the BIDDER from participating in future bidding processes of the Government of India for a minimum period of five years, which may be further extended at the discretion of the 'EMPLOYER' or take action as per the procedure mentioned in the "Guidelines on Banning of Business dealings." Copy of the Guidelines on Banning of business dealings" is annexed and marked as Annexure.

(viii) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the EMPLOYER with the BIDDER, the same shall not be opened.

(ix) To recover all sums paid in violation of this Pact by BIDDER(s) to any middleman or agent or broker with a view to securing the contract.

(x) Forfeiture of Performance Guarantee in case of a decision by the 'EMPLOYER' to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

6.2 The 'EMPLOYER' will be entitled to take all or any of the actions mentioned at para 6.1(i) to (x) of this Pact also on the Commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in Chapter IX of the Indian Penal code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

6.3 The decision of the 'EMPLOYER' to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Independent Monitor(s) appointed for the purposes of this Pact.

7. Failure Clause

7.1 The BIDDER undertakes that it has not performed/is not performing similar project at a price lower than that offered in the present bid in respect of any other Ministry/Department of the Government of India or PSU and if it is found at any stage that similar project was performed by the BIDDER to any other Ministry/Department of the Government of India or a PSU at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the BIDDER to the 'EMPLOYER', if the contract has already been concluded.

8. Independent Monitors

8.1 The 'EMPLOYER' has appointed the following Independent Monitors (hereinafter referred to as Monitors) for this Pact in consultation with the Central Vigilance Commission.

-----,
-----,

8.2 The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

8.3 The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

8.4 Both the parties accept that the Monitors have the right to access all the documents relating to the project/bidding, including minutes of meetings.

8.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the EMPLOYER,

- 8.6 The BIDDER(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the EMPLOYER, including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/Subcontractor(s) with confidentiality.
- 8.7 The EMPLOYER, will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitor the option to participate in such meetings.
- 8.8 The Monitor will submit a written report to the designated Authority of EMPLOYER within 8 to 10 weeks from the date of reference or intimation to him by the EMPLOYER/ BIDDER and, should the occasion arise, submit proposals for correcting problematic situations.

6. Facilitation of Investigation

In case of any allegation of violation of any provisions of this pact or payment of commission, the EMPLOYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

10. Law and Place of Jurisdiction

This Pact is subject to Indian Law.' The place of performance and jurisdiction is the seat of the EMPLOYER

11. Other Legal Actions

The actions stipulated in this Integrity Pact are without prejudice to any other

legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

12. Validity

12.1 The validity of this Integrity Pact shall be from date of its signing and extend upto 5 years or the complete execution of the contract to the satisfaction of both the EMPLOYER and the BIDDER, including warranty period, whichever is later. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

12.2 Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

12.3 If the BIDDER is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

13. The parties hereby sign this Integrity Pact at _____ on _____

EMPLOYER

BIDDER.

Name of the Officer.

CHIEF EXECUTIVE OFFICER

Designation

Deptt./MINISTRY/PSU

Witness

Witness

1. _____

1. _____

2. _____

2. _____,

* Provisions of these clauses would need to be amended/ deleted in line with the policy of the EMPLOYER in regard to involvement of Indian agents of foreign bidders.



**MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT**

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

xii. CHECK LIST FOR SUBMISSION OF TENDER

Sr. No.	Particulars	Yes	No
1	Have you purchased / downloaded the tender document from internet for submission by your firm?		
2	Have you submitted cost of tender document in the form of DD or cash receipt, in case you have downloaded from internet?		
3	Have you submitted the tender in the Mormugao Port Trust's Form?		
4	Have you furnished full postal address, telephone number/Fax number, email?		
5	Have you kept your offer valid for 180 days as specified?		
6	Have you submitted Demand Draft pertaining to Earnest Money? i. DD No. _____ dated drawn on bank _____ payable at _____ amounting to Rs.14,18,000/-.		
7	Have you submitted documents pertaining to status/ contribution of the firm, partnership deed and power of attorney?		
8	Have you submitted Audited Statement of Accounts for last three (3) years ending 31.03.2015?		
9	Have you submitted Copy of current Income Tax Return Acknowledgment?		
10	Have you submitted document in support of the Technical System Qualifying Criteria (Eligibility Criteria)?		
11	Have you submitted list of works in progress along with copy of work orders?		
12	Have you submitted Bar Chart/CPM chart?		
13	Have you submitted Performa 1 to 4?		
14	Have you submitted signed copy of Integrity Pact and enclosed in Technical Bid (Cover No.1)?		
15	Have you submitted EPF Number issued by Provident Fund Department?		

Sr. No.	Particulars	Yes	No
16	Have you submitted ESI Number issued by Employees State Insurance Department?		
17	Have you submitted Permanent Account Number issued by Income Tax Department?		
18	Have you Signed and seal on every page of tender document submitted?		
19	Have you attested all the corrections?		
20	Have you submitted Price Bid in separate Cover?		

NOTE:

The above Checklist is not exhaustive. The tenderer must go through carefully the entire Booklet and submit the tender compliance of all the conditions/ provisions instructions mentioned therein irrespective of the fact that they have been highlighted in the Checklist or not.

Signature _____

Name of the Tenderer

Seal:

Date:



**MORMUGAO PORT TRUST
ENGINEERING (CIVIL) DEPARTMENT**

TENDER No. CE/39/2016

Name of Work: Development of Storage Area for Containers at Mormugao Port, Goa.

xiii. VENDOR REGISTRATION FORM

1. Name of the Organization : _____
2. Address (In Detail) : _____

3. Telephone Number : _____
4. E-Mail Id : _____
5. Permanent Account Number (PAN) : _____
6. Bank Name : _____
7. Bank Branch Address (In Detail) : _____

8. Bank Branch Code : _____
9. Bank Account Number : _____
10. Bank Account Type : _____
11. Magnetic Ink Character Recognizer (MICR) : _____
12. Tax Identification Number (TIN) : _____

-
- 13. Service Tax Registration Number : _____
 - 14. Service Tax Registration Code : _____
 - 15. CST Registration Number : _____
 - 16. Employee Provident Fund (EPF)
Registration Number : _____
 - 17. Employee State Insurance Scheme
(ESIS) Registration Number : _____
-
-
18. IFSC Code : _____