

MORMUGAO PORT AUTHORITY
ENGINEERING MECHANICAL DEPARTMENT
ELECTRICAL HARBOUR SECTION

NOTICE INVITING BUDGETORY OFFERS

Name of Work	Relocation of existing 3 no High Mast
Date of submission of budgetary quotation	On or before 23/01/2025 at 15:00 Hrs.
Budgetary Quotation No.	CME/XEN (E-HR)/2025/H1/B2
Address for communication:	Executive Engineer (E-HR), 2nd floor, Mechanical Engineering Department, Mormugao Port Authority, Admin. Building, Headland sada Vasco-de-Gama Goa - 403804
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EXECUTIVE ENGINEER (E-HR)
MORMUGAO PORT AUTHORITY

SCOPE OF WORK

1. GENERAL

MPA intends to relocate three existing High Mast (which have been already removed from their foundations) to new locations one near the Toll Plaza, one near berth no:8 and the other near the new Gate No. 1.

2. Scope of work

2.1 **Civil foundation:** The contractor shall be responsible for designing the foundations for three High Masts (not identical), considering the soil bearing capacity (SBC) at all the proposed locations. The SBC testing, which will be conducted at the contractor's own expense, must be carried out at all three site. The foundation design must be capable of withstanding a minimum wind speed of 180 km/h. The contractor is required to submit the civil foundation drawings for all 3 High Masts to MPA for approval. During construction, the contractor must ensure proper vertical and horizontal alignment of the foundation bolts by using an appropriate steel template. The contractor will also be solely responsible for installing the existing High Masts onto the completed foundations.

Note: The contractor is advised to inspect the site to familiarize themselves with the type of civil foundation required for erecting all 3 High Masts. The contractor's scope of work will also include measuring the PCD of the existing High Masts to verify its accuracy, as well as shifting of all three 30 meter High mast structure from their current location. Two of these High Masts are situated approximately 200 meters away, while one is about 1 kilometer from the proposed installation sites within the Port area.

2.2 **Protection Guard/Fencing** : Providing of Protection Guard/Fencing surrounding to all 3 High Mast with suitable size MS channel of not less than ISMC 150 vertically at four corners and 2 horizontal runs of MS angles ISA 75, 10 mm thickness. The height of guard shall not be less than 1.5 Mtr. from the ground level. The foundation of the channels shall be with cement concrete with muffing not less than 45 cm. above ground level. All the members of the guard shall be pre-treated and then painted with two coats of red oxide primer and two coats of yellow epoxy finish paint. The protected area surrounding the High Mast in no case shall be less than 2.5 Mtr. X 2.5 Mtr.

2.3 **Erection of High Mast:** The existing 30-meter high masts should be installed on the newly constructed foundation. The lantern carriage shall be installed, with all electrical fittings and distribution boxes attached to it, and the necessary wiring should be completed. Proper balancing of the lantern carriage shall be ensured. The contractor shall connect the control and power cables from the high mast to the junction box

control panel. This task also includes supplying and installing all required materials, such as glands, lugs, wires, etc. Connections from the top junction box to the individual luminaires will be made using 3-core, 2.5 sq. mm flexible PVC copper cables. The required junction boxes of IP 65 shall be supplied by the contractor. Crane required for erection of High mast has to be arranged by the contractor.

2.4 **Control Panel (Feeder panel)**

Design, Manufacture, Supply, Installation, testing and commissioning of stainless steel control panel with Rain Canopy. It shall be IP 65 compliant, dust, damp, vermin and weather proof fabricated from SS-316 grade Sheet of 2 mm. thick and shall be fabricated with the SS-316 angle & flat of suitable size as directed. It shall be provided with, single door type(Right side door hinge) with cam lock door sealing Gasket and Gland plate with required openings etc.,complete. The drawing of the Panels shall be got approved from Engineer-in-Charge prior to manufacture. The control Panel shall be spacious for easy maintenance and shall be provided with following components with control wiring with 10 Sq.mm copper wire and 4 Sq.mm copper wire for motor circuit and termination with suitable lugs. Work including supply & fixing of the components as per BOQ.

- | | |
|--|---------|
| i) MCCB, TPN, 100 A , 415 Volt, 25 KA, 50 Hz. | - 1Nos. |
| ii) 25A, SP, MCB for High Mast lighting control | - 3 Nos |
| iii) 16A , 3 pole MCB for Motor Control | -1 no |
| iv) 24Hrs Astronomical Timer switch | -1 no |
| v) Auto Manual selector switch to bypass timer | -1 no |
| vi) 3phase Air Break Contactor of 40 A capacity | - 1 no. |
| vii) forward and Reverse Contactors with push button control to raise/lower the lantern carriage for "fixed 3 phase, 415 V Winch Electric Motor of suitable rating" as per the recommendations of manufacturer | |
| viii) LED type indication Lamp, 220 V AC (Phase R, Y & B) | - 1 Set |

Suitable size and rating of electrolytic grade copper conductor/bus, phase to phase and Neutral with PVC sleeved color code shall be provided. Suitable size connectors -- shall be provided for termination of control and power cables.

All these components shall be mounted in the Control panel by means of anti-corrosive hardware. The control panel shall be complete in all respects with cable glands, lugs for incoming and outgoing cables including interconnection with PVC insulated cable single core, standard copper conductor of 650/1100V grade.

The Feeder Pillar shall be provided with 1 Nos. SS terminals for earthing.

2.5 **LUMINAIRES**

350 W LED FLOOD LIGHT FITTINGS suitable for 30 m High mast applications.

Necessary warranty certificate of manufacturer for 350 W LED Flood light fittings has to be submitted for acceptance

- 1) Rated voltage: 240 V AC, 50 HZ. Operating voltage: 120-270 V AC
- 2) System wattage: 350 w
- 3) P.F: ≥ 0.95
- 4) Lumen efficiency: $>120\text{L/W}$
- 5) CCT & CRI :- 5500K & >70
- 6) Driver efficiency: $>85\%$
- 7) Total lumens: ≥ 40000 (system efficiency)
- 8) Protection: O.C, SC, Surge protection of min 10 KV , SPD
- 9) Mounting: bracket
- 10) Main housing/ heat shrinks material: Aluminum extruded/ Aluminum PDC
- 11) Housing end caps & CG box: aluminum PDC
- 12) Front cover: clear toughened glass
- 13) LED lumens maintenance: 50000 hrs. @L70
- 14) Control gear: isolated, electronic, CC drive
- 15) Hardware: SS
- 16) IP:66
- 17) Impact resistance: 1K07
- 18) Name of the make: shall be engraved/embossed/printed on light fitting
- 19) Fitting shall have NABL certification

2.6 **Earthing**: The contractor shall provide earthing using a GI pipe with a diameter of 40 mm, a thickness of 2.9 mm, and a length of 2.5 meters, equipped with a GI funnel with mesh and a suitably sized reducer fixed at the top of the earth electrode. The funnel should be enclosed in a concrete chamber measuring 400 x 400 x 400 mm with a cast iron cover. The electrode shall feature staggered holes of 12 mm in diameter and should be surrounded by alternate layers of salt and charcoal, extending 150 mm from the bottom of the pipe to the base of the concrete chamber. The connection from the electrode will be established using GI flats (25 x 3 mm) with GI bolts and nuts. A total of three earthing connections are to be provided for each high mast, with two connected to the High Mast and one to the control panel.

2.7 **Power Cable: (supply and laying)**

- This work includes the supply of LT XLPE armoured cables (1.1KV Grade 4C x 35 sq.mm)
- For the High Mast near Gate No. 1, the cable shall be laid through the existing RCC trench after removing the slabs. Once the cables are laid, the trench shall be covered with the slabs, restoring it to its original condition.
- For High mast near berth no:8 the contractor shall excavate a trench to a depth of 1 meter and a width of 0.5 meters as needed and the 2 cable shall be laid in that by providing proper cushioning and protection for the cable. Additionally, a groove shall be cut into the concrete road to accommodate the placement of a 4-inch dia., GI pipe for cable laying, ensuring proper cushioning for the GI pipe. After the cable is laid, the trench must be backfilled and the concrete road repaired. The contractor shall supply class B GI pipe.
- This work includes all labour, tools tackles necessary for satisfactory completion of the work. A Single length of cable without any Joint shall be provided. (**Note: The cable for the high mast near the Toll Plaza already exists.**)

3. Other conditions:

- a. All allied Electrical works as per the Bill of Quantities have to be carried out by the Contractor in all respects invariably mentioned or not mentioned in the specification so as to complete the work in all respects.
- b. Necessary electrical power supply required for erecting High Mast will be provided by MPA free of cost at nearest possible point. However, water arrangement shall be in the scope of contractor.
- c. The materials required/intended for the work should be handled carefully and neatly installed/laid/commissioned, damages if any during installation shall be rectified immediately to its original condition at the cost and risk of contractor.
- d. Miscellaneous works have to be carried out invariably, whether clearly mentioned or not in the specifications and BOQ to complete the project in all respects.

4. GUARANTEE PERIOD:

The work shall be guaranteed for a period of five (5) years from the date of commissioning and satisfactory handover. The contractor shall be solely responsible for any defects that may arise during the guarantee period that may emerge in the work complete. The contractor shall rectify such defects at their own cost.

5. Qualification Criteria :

The Bidder shall have successfully carried out work of Supply, Installation, Testing and Commissioning of High Mast during last 7 (Seven) years ending last day of

month previous to the one in which quotations are invited for Central Govt. / State Govt. / Port Sector / PSU or any reputed organization.

6. **COMPLETION PERIOD:**

The entire work shall be completed within **60 days** from date of issue of Letter of Award (LOA) / PO.

PRICE SCHEDULE (BILL OF QUANTITIES – BOQ)

Name of work: " " Relocation of existing 3 no High Mast."

S.N	Item Description	UNIT	Qty	Rate Per Unit (Rs)		Applicable GST %	Amount (Rs.)
				In Fig	In words		
1	Design and casting of suitable foundation for the High Mast confirming to SBC results. The foundation Height of the High Mast shall be 500mm above the existing nearby ground level	no	3				
2	Design & construction of Protection Guard/Fencing surrounding the High Mast with suitable size MS channel and MS angles as per the Scope of work	no	3				
3	Design, fabrication, Supplying of Control panel (outdoor type suitable) as per Scope of work.	no.	3				
4	Providing RCC/Stone masonry foundation complete in all respect including plastering for the High Mast control Panel and the dimension .The gap between the pillars is 350 mm for cable connection to the control panel. The foundation starts 300mm below the ground after making 100mm stone soling and height of the foundation 750mm above the ground level and curing etc. and the panel should be stand on the well grouted Stainless steel bolts. The work shall be complete	no.	3				

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	in all respect.						
5	Installation and commissioning of the existing High Mast control panel, terminating the required cables such as Incomer, lighting and motor. Work also including supply and fixing of required materials such as glands, lugs, Junction boxes etc. complete in all respect.	no.	3				
6	Supply and fixing of LED flood light luminaries Fittings of capacity 350 Watts complete in all respect including wiring as per scope of work. (12 for each Highmast)	no.	36				
6	Erection, testing and commissioning of 30 mtrs High Mast complete in all respect with the help of suitable equipment's This work includes shifting of 30 meter High mast structure from existing location to the Proposed site as specified in scope of work.	no	3				
7	Supply and fixing of 5 core 4 sq mm copper trailing cable. The cable shall be EPR insulated and PCP sheathed to get flexibility and endurance with Rodent proof coating	mtr	120				
8	Supply of LT UG XLPE cable of size 4Cx35 Sq.mm having aluminium conductor PVC insulated, Galvanized, sheathed, 1.1 KV class	m	650				
9	Laying of 1.1KV 4Core x 35 sq.mm UG cable as specified in						

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	scope of work						
a	Through Existing trench	m	150				
b	Through Excavated trench	m	460				
c	Through GI pipes (2 runs in 1 pipe)	m	36				
10	Supply of Class B of GI pipe of diameter 4 inch	m	18				
11	Laying of 4 inch GI pipe of d by grove cutting on concrete road and repairing concrete after laying cable.	m	18				
12	Supply and making end terminations of cables of size 4Core x 35 sq.mm with suitable glands, crimping the lugs in the control panels with supply, fixing of all required hard wares complete	set	8				
13	Providing GI earthing as per scope of work	no	9				
Total							

(In Words Rupees _____ only)

NOTE:

1. The rates quoted shall be inclusive of duties, transportation, lodging and boarding, but excusive of GST. Applicable GST shall be paid extra as applicable.
2. The quantity specified in the BOQ is indicative, however, the payment will be made as per actuals.
3. The BOQ should be read in conjunction with Scope of work.