

# Corrigendum

## **In tender document Tender Enquiry No. 24/Electrical/242/2017-Rish (Admn)**

Dated: 06-07-2017

As per schedule, Pre- Bid meeting of "High Mast Light of 16 Meter Height 150 watt LED" was held on 06-07-2017 at 03.00 PM, in the tender opening room.

After consideration by Store Purchase Committee following modification (deletions/additions/replacements) additions for Tender Enquiry No. 24/Electrical/242/2017-Rish (Admn) has been made.

**Specification of High Mast Light of 16 Meter Height 150 watt LED is now read as: -**

### **MAST STRUCTURE**

The high Mast shall be of continuously tapered, polygonal cross section polygon type of 16 Mtrs. in height presenting good visual appearance and shall be based on proven design to given assured performance, reliability and service. The Mast shall have an approximate top diameter of say 150 mm to 200 mm and bottom diameter of 350mm to 450mm. The weight of the Mast shall not exceed more than 1600 kgs. excluding weight of Luminaire, to maintain good elasticity of slender structure.

### **MAST CONSTRUCTION:**

The Mast shall be fabricated from special steel plates of **BS EN 10025 grade**, cut and folded to form polygonal section and shall be telescopically jointed and fillet welded. The welding shall be in accordance with BS : 5135. The procedural weld geometry and the workmanship shall be exhaustively tested by the radiography on the completed welded and certificates submitted.

The Mast shall be delivered **in only 2 sections without any circumferential welding** at site, which shall be joined together by slip-stressed-fit method. The joining shall be with stressing equipment, thus forming the sleeve joint. No site welding or bolted joint will be accepted. The overlap distance shall have full penetration of longitudinal welds. The base plate of the mast shall be **atleast 25mm.** thick. An adequate door opening of **min. 1400 mm x 300 mm** shall be provided at the base of each Mast. The opening shall be such as to permit clear access to equipment like winches, cable pug and socket, etc. The opening shall be complete with a close fitting vandal resistant, weather- proof door provided with a heavy duty lock. For metal protection of the Mast, the entire fabricated Mast shall be not dip galvanised internally and externally, having minimum average thickness of 65 microns.

### **DYNAMIC LOADING:**

The Mast structure shall be designed for an assumed maximum reaction arising from the maximum wind speed (3 seconds gust) and measured at a height of 10 Mtrs. above ground level as per IS 875, Part III, 1987. The design life of the Mast shall be min. 25 years. Wind excited oscillation shall be damped by the method of constructions and adequate allowance made for the related stresses. The offered High Mast shall be a tested design

## **FOUNDATION:**

The tenderer shall see the site closely and minutely with regard to the nature of the soil, average depth of decomposed garbage and debris at proposed Mast locations and the other site conditions before working out the type of foundation and specifications for the proposed High Mast.

The tenderer shall be responsible for the design of the foundation and safe erection and installation of the High Mast in mechanically and structurally safe working condition for the design life of the Mast. The load bearing (safe) capacity of the soil shall be indicated by purchaser to decide the type of foundation and its specifications. The holding down bolts shall be at least 20 nos. of high tensile strength and shall be supplied complete with anchor plate of 6 mm thick for casting into the foundation. The precision made steel template with tube holes shall be provided to ensure correct verticality and horizontality of bolt alignment.

## **LANTERN CARRIAGE:**

The fabricated lantern carriages shall be provided for holding the floodlight fittings and control gear provided on each High Mast. The lantern carriage shall be of special design and of durable steel tube construction designed to act as electric conduit with cable holes fully protected by grommets. The diameter of the lantern Carriage shall be suitable so as to hold designed number of floodlight fittings, as specified in the tender design along with the control gear boxes and lantern.

The lantern carriage shall be fabricated in **three parts** joined by bolted flanges with SS bolts with nuts to enable easy removal from the erected mast for replacement/ maintenance purpose. The carriage shall be supported / suspended by **three wire ropes** for better stability. The lantern carriage Assembly shall not touch the lower surface of the Mast. The carriage design and fabrication shall be such that the lantern carriage will suit the lanterns and their control gear boxes to be used in the work.

The Lantern Carriage shall be so installed that it does not cause any damage to the surface of the Mast and is provided with protective buffer arrangement. The complete Lantern Carriage shall be hot dip galvanised after fabrication.

The weather – proof cast aluminum junction boxes (IP-55) shall be provided on the Lantern Carriage assembly from which the inter – connections will be made to the designed number of floodlight fittings and lanterns on the carriage.

## **MECHANICAL ARRANGMENT:**

For installation and maintenance purpose, it will become necessary to raise or lower the lantern carriage assembly. To enable this, a suitable winch arrangement shall be provided in the base of the Mast, complete with top pulley, winch stainless steel wire ropes and winch driving power tool.

### **A: WINCH:**

The winch shall be of completely self – sustaining type. The winches shall be of self – sustaining type by means of an oil bath and the lubrication shall be of recommended quality. Termination of the ropes of the winch shall be in such a way, that it does not involve distortion or twisting of the rope configuration. At least 6 turns of rope shall remain in tension on the drum even when the lantern carriage is fully lowered. The winch shall be

designed to be installed or removed from the door opening at the base of the mast. The winch drums shall be grooved to ensure mechanically strong, stable and tidy rope lay with no chances of rope slippage or skippage. The winch shall be capable of operation by hand or by means of external power tool. Integrated power tool with worm is not acceptable.

A test certificate shall be supplied along with each winch in support of the maximum load operated by the winch and for the safety of operation at the full load rotation. A handle shall also be provided for hand operation of the winches.

**B : TOP PULLEY ASSEMBLY :**

The top pulleys shall be of a diameter, appropriately large enough to accommodate the steel wire ropes and the multicore electric cable. The material of construction of the pulley blocks shall be non – corrosive and made of dia cast (LM - 6) aluminum alloy. The pulley assembly shall be complete with self lubricating bearing and stainless steel spindle.

**C : STAINLESS STEEL WIRE ROPES :**

Stainless steel wire ropes shall be of 7 / 19 construction of 6 mm diameter, having a breaking load of not less than 2400 kgs. Complete with stainless steel thimbles. The end for connection to the winch drum shall be fitted with thimbles and the thimbles shall be secured by copper compression splices.

**CABLE AND CABLE CONNECTIONS:**

The connections shall be made with flat core flexible round sheath power cables of appropriate rating as per the schedule. The base compartment of the High Mast shall have one terminal box for terminating the incomer cable. The maintenance cables equal to that within the Mast and fitted with a 5 core plug socket shall be provided to energise lanterns while in lowering position by hooking up at the base compartment socket supply.

Similarly, the provision shall be made for electric supply at the base compartment to enable operation of the external power tool for lowering or rising of the lantern carriage assembly. The trailing cables of the lantern carriage rings shall be terminated by means of metal cased plug and socket provided in the base compartment to enable flexibility.

**WINCH DRIVING POWER TOOL:**

The electric driven tool shall be single speed, (1.2 Mt./min.) reversible three phase & hand operated motor. The power tool shall be complete with very robust remote control switch such that the tool can be operated from safe distance of 5 Mtrs. There shall be an arrangement for self alignment of power tool which can be self supported during operation. Manual handle shall be provided for hand operation of the winches. The capacity rating and speed of the electric motor used in the power tool shall be specified by the tenderers.

**LIGHTNING FINIAL & AVIATION OBSTRUCTION LIGHTS:**

One number heavy duty hot dip galvanized lighting finial shall be provided for each mast. Suitable Aviation Obstruction Lights of reliable design and reputed manufacturer shall be provided on top of each mast.

### **Works to be carried out:**

The work to be carried out under the Contract shall, except as otherwise provided in these conditions, include all labour, materials, taxes tools, plant, equipment and transport which may be required in preparation of and for and in the full and entire execution and completion of the works.

### **Inspection of Site:**

The Contractor shall inspect and examine the Site and its surrounding and shall satisfy himself before submitting his tender as to the nature of the Site, the quantities and nature of works and material necessary for the completion of the Works and the means of access to the Site, the accommodation he may require and in general shall himself obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect this tender.

### **Sufficiency of Tender:**

The Contractor shall be deemed to have satisfied himself before tendering as to the Correctness and sufficiency of his tender for the works and of the rates and prices quoted in the Schedule of Quantities, which rates and prices shall except as otherwise provided, cover all his obligations under the contract and all matters and things necessary for the proper completion and maintenance of the Works.

### **Inspections and Approval:**

All work embracing more than process shall be subject to examination and approval at each stage thereof and the Contractor shall give due notice to the Engineer-in-Charge or his authorized representative when each stage is ready. The Engineer-in-Charge or his representative shall have powers at any time to inspect and examine any part of the Works and the contractor shall give such facilities as may be required for such inspection and examination, at manufacturers works if necessary.

### **General**

- The Mast, Foundation and electrical drawing should be approved before commencement of work
- All safety measures shall be adopted while execute (E & C) the work.
- The bidder must visit the site and access the quantity & material. Even if certain items are not included within the tender, but are essentially required for completion of the job, the bidder have to will do the same without any extra cost.

**TECHNICAL DATA SHEET FOR 16  
MTR HIGH MAST  
SUITABLE FOR 08 LUMINAIRES SYMMETRICAL**

**High Mast System**

Make	:	Bajaj/Havels/GE/Philips/CG.
Height of mast	:	<b>16 Meter,</b>
No. of sections	:	Two
Material construction	:	<b>S 355 grade as per BS-EN10 025</b>
Base dia. and top diameter (A/F)	:	Top : 150 mm, Bottom : 360 mm
Plate thickness	:	Top 3 mm Bottom : 4 mm
Cross section of Mast	:	20 side polygon.
Standard for of galvanisation	:	As per BS EN ISO 1461
Size of opening and door at base	:	1050 x 225 mm
Diameter of base plate	:	520 mm
Thickness of base plate	:	25 mm
Lightning protection finial	:	G.I single spike
Max.wind speed	:	As per IS : 875 (Part - III)
Number of foundation bolts	:	6 nos.
PCD of foundation bolts	:	445 mm
Type / diameter / length of foundation bolts	:	TS 600 / 24 mm dia / 850 mm long

**LUMINAIRES CARRIAGE**

Material of construction	:	40 NB ERW Class B - M. S. Pipe
Diameter of carriage ring (mm)	:	450 mm (ID)
Construction	:	8 Arm, Welded, 2 sections
Load carrying capacity	:	8 Luminaire

**TRAILING CABLE**

Conductor	:	Copper, 5 core, 4 sq mm
Insulation	:	PVC flexible
No. of circuits per mast	:	One no. cable per mast

**WINCH / POWER TOOL**

Type / SWL of winch	:	Double drum, SWL 350 Kg
Method of operation	:	Integral Motor and hand operate
Motor capacity	:	As per stander requirement
No of speeds	:	6 Pole, Single speed
Torque limiter	:	With mechanical tripping facility

**STAINLESS STEEL WIRE ROPE**

Grade / construction	:	AISI 304, 7/19 construction
Number of ropes	:	Two Continuous
Diameter (mm)	:	5 mm
Breaking Load capacity	:	1150 kg x 2

**LED LUMINAIRE DETAILS**

1	LED Fitting Make	Bajaj Electricals ltd /Havels/GE/Philips/CG
2	Model No	150 W LED
3	Wattage ( System )	150 W
4	Voltage - AC Input Voltage Range ( V )	140-300V
5	Operating Frequency Range ( Hz )	50 HZ
6	Total Harmonic Distortion (%)	<b>&lt;10%</b>
7	Lumen ( Luminous Flux )	14250 lm
8	Housing/ Body	<b>Pressure die cast housing</b>
9	Cooling System	<b>Unique heat sink for thermal management</b>
10	Protection Level	<b>IP 66</b>
11	Electrical insulation class	Class-1
12	Surge Protection differential level	<b>5 KV internal and 10 KV external</b>
13	Electrical Protection	Fuse / Short Circuit / Open load protection /High Voltage protection / Reverse Polarity
14	Front cover	Toughened Glass 4 mm thick
15	Ambient Temperature	0 deg C to 50 deg C
16	Protection against Mechanical shocks	<b>IK07</b>
17	Luminaire	Shall conform to LM-79 Test

**LED CHIP DETAILS**

1	Led Make	LM 80 certified LED chip (e.g CREE/Equivalent)
2	Type of LED	High Power
3	Co-related Colour Temperature	5700 K
4	Luminous Efficacy ( Lm/W )	<b>≥95</b>
5	Colour Appearance	Cool white
6	CRI	Typical 70
7	Optical assembly	Structured LED with secondary lens designed for optimum light Distribution
8	LED	Shall conform to LM - 80

**ELECTRONIC DRIVER DETAILS**

1	LED Driver	<b>Constant current LED driver</b>
2	Specification	140-300 V , internal surge protection of 5KV
3	LED Drive Current	700 mA +/- 3%
4	High voltage protection	<b>Auto Cut off 300 VAC</b>
5	Driver Efficiency	<b>≥ 85%</b>
6	Power Factor	<b>≥ 0.95</b>
7	THD	<b>&lt; 10%</b>

**OTHER DETAILS**

1	Driver	Shall compliance to safety requirements in IEC : 61347-2-13 and as per IEC : 62384
2	LED	Shall compliance to safety requirements in IEC : 62471 & ANSI Standard C78.377 A
3	Photo biological safety report	As per IEC 62471
4	Impact resistant	IK-07
5	Warranty	2 years from the date of take over by AIIMS
6	Acceptable brands	Bajaj Electricals ltd /Havels/GE/Philips/CG

# 16 MTR. HIGH MAST

S.No	DESCRIPTION OF EQUIPMENTS / ACTIVITIES	Unit	Quantity	Unit Rate all inclusive (in Rs.)
1	Supply of 16 Mtr High Mast Lighting system with 8 nos. LED light complete in all respect as per enclosed specifications	Nos	6	
2	Supply of square fencing of High Mast with locking arrangement complete with painting. Top covered square fencing of side 1500mm & with 1800 mm height made of 50X50X6 mm angle, 40X5 mm MS strip with wiremesh of 8 SWG (3X1") included gate frame grouted in the ground.	Nos	6	
3	<b>Feeder Pillar: IP 66</b>  Each mast shall be provided with a feeder pillar fabricated out of 14 SWG CRCA sheet and finished with two coats of red oxide primer and grey enamel paint. The feeder pillar shall comprise of incoming TPN Switch Fuse Unit with HRC fuses or MCCB of suitable current rating, incoming / outgoing terminals and control for the power motor. Feeder pillar shall be mounted near to the mast. Suitable digital timer of reputed make, with necessary contactors, wiring etc. For ON/OFF automatic / manual and photovoltaic cell/ automatic timer with all accessories for control of the lamps should be provided and connected in the circuit.	Nos	2	
4	Designing & Casting of following type of M25 grade RCC foundation for High Mast including excavation, disposal of surplus earth, curing, plastering of pedestal, restoring the High Mast site to its original state etc.	Nos	6	
a	Open Raft Shallow Footing			
b	Pile Foundation			
2	Erection, Testing & commissioning of 16 Mtr High Mast Lighting system complete with light fittings & wiring			
5	Supply, Erection & Commissioning of GI pipe earthing with 3 Mtr X 40 mm dia long GI pipe of class B with masonry earth pit enclosure on top cover having locking watering arrangement with funnel I/C provision of salt charcoal as per IS 3043. (Resistance should be less than 1 ohm) & connecting with 25X6 mm GI strip.	Nos	6	
6	Supply & Laying of 90 mm OD DWC pipe including excavation, refilling, removal of malba etc including laying of 4C X 25 sq mm aluminum armoured cable.	Mtr	1800	
7	Erection of square fencing including grouting of same in the ground.	Nos	6	

**Note:** Last date of submission of bids in respect of aforesaid tender is hereby extended till 12-08-2017 at 03:00 PM and Technical bid will be opened on same day at 03.30 PM.