Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)
Tiruchirappalli – 620014, TAMIL NADU, INDIA
CAPITAL EQUIPMENT/ MATERIALS MANAGEMENT

An ISO 9001 Company

ENQUIRY NOTICE INVITING TENDER	Phone: +91 431 257 76 53 Fax : +91 431 252 00 31 Email : skaruna@bheltry.co.in Web : www.bhel.com

TWO PART BID Tender to be submitted in two parts.	Enquiry Number: 2851400011	Enquiry Date: 20.01.2014	Due date for submission of quotation: 24.02.2014

You are requested to quote the Enquiry number date and due date in all your correspondence. This is only a request for quotation and not an order.
Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

Item	Description	Qty	Delivery Required	Delivery Terms Required
10	High Mast Lighting System	10 Nos.	30.06.2014	F.O.R, BHEL Stores, POWER EQUIPMENT FABRICATION PLANT, BHARAT HEAVY ELECTRICALS LIMITED, Mundipar- 441804, Sakoli Taluk, Bhandara District, Maharashtra State.
20	High Mast Lighting System	10 Nos.	31.12.2014	

as per the technical specification, general guidelines instructions & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)

Important points to be taken care during submission of offer

1. **The rate of EMD for this Tender will be (INR) – 1,50,000/-.**
2. **The offer shall be evaluated as Single Package basis consisting of the above two items (Sl. 10 & 20) i.e. overall L1. Hence the supplier has to quote for all the two items else the offer would not be considered for evaluation.**
3. **The Compliance Form for Commercial Terms & Conditions to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.**
4. **All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.**

BHEL's General guidelines / instructions (refer MM/CE/GENL/001-EMD) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from BHEL web site http://www.bhel.com or from the Government tender website http://tenders.gov.in (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference "2851400011".

Tenders should reach us before 14:00 hours on the due date. Tenders will be opened at 14:30 hours on the due date. Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present	Yours faithfully, For **BHARAT HEAVY ELECTRICALS LIMITED** Engineer / MM / Capital Equipment

	BHARAT HEAVY ELECTRICAL LIMITED **High Pressure Boiler Plant** **Tiruverumbur** **Tiruchirapalli-620 014** **TamilNadu, India**	**Enquiry No. :**	
		Due Date :	
		Supplier Qtn. No.:	
		Date :	

PART-A: QUALIFYING CONDITION: High Mast for BHEL PEFP BHANDARA

NOTE:-

Vendor should meet the Qualifying Condition mentioned below for consideration of their offer

NAME & ADDRESS OF THE SUPPLIER :	
TELEPHONE NOS.:	
FAX NOS.:	
E-MAIL ADDRESS :	

1.0	**QUALIFYING CONDITIONS :**				
1.1	Only those vendors who have supplied and commissioned similer or higher capacity high mast and working satisfactorily for at least one year after commissioning should quote.This is required from all the vendors for qualification of their offer. Information about the companies where similar High Mast have been supplied, at least one performance certificate about satisfactory work are to be submitted for qualification of the offer.	Vendor to confirm and furnish details			
1.2	Complete address of company / vendor indicating Name,Phone No, FAX No, email, etc.	Vendor to furnish details			

ANNEXURE B			
	Specification of High Mast for PEFP BHEL Bhandara Site, Total Nos of HM - 20 Nos		
Sl.No.	**Description**	**Vendor to confirm**	**Comment/Deviation**
1	The scope of this specification covers the manufacture, transport, installation, testing and commissioning of the complete lighting system, using Raising and Lowering type of High Mast Towers, including the Civil Foundation Works. BHEL will only provide the supply point at inlet of isolator switch. Isolator switch, feeder pillar & its connecting cable are in the scope of vendor. However, all items required for the safe and efficient operation and maintenance of the lighting system, including the high mast, whether explicity stated below or not, shall be included by the Vendor.		
2	Supply of 20 meters High Mast system with all accessories including but not restricted to the following. (a) Mast shaft in two section, hot dip galvanised and suitable for wind velocity as per IS 875 part 3. (b) Head frame, steel wire rope of min. 6 mm dia, double Drum winch (c) Galvanised Lantern carriage arrangement suitable for 12 nos. luminaries & its control gear boxes and lighting finial. (d) Integral power tool installed inside base compartment for its operation. (e) The 20 mtr. Himast lighting system should be of BAJAJ,PHILIPS,CROMPTON,GE or any reputed makes approved by BHEL is acceptable.		
3	Supply of foundation bolts manufactured from special steel along with nuts, washers, anchor plate and templates .		
4	Design, supply and casting of suitable shallow foundation with M-15 concrete for the High mast considering safe soil bearing capacity & wind pressure at PEFP, BHEL Bhandara/Maharasrta site. The Wind force and wind pressure for PEFP, Bhandara, Nagpur city can be taken from IS 875: part 3 (Wind load) and the soil bearing capacity for the shallow foundations are given in the attached **Annexure C.**		

5	Supply of 12 nos. Non - Integral 2 x 400 watts High Pressure Sodium vapour floodlight luminiaire with two nos. 400W HPSV lamps in each luminaires and required control gear boxes suitable for operation of 230V, 50 Hz, a.c. supply. Philips : Type RVP 301-2 X 400 SON T/HP 1-T 400 or Bajaj : Type BGENF 22 R or Crompton Greaves : Type FHD 1524 or G E Type : GELF 2 X 400 (N 1) makes only acceptable.		
6	Supply of twin dome aviation obstruction light with 2 nos. Red LED lamps & lightning arrester.		
7	Supply of 3 nos. of 50 mm dia.length of 2.5mts with Class "C" GI pipe earthing system confirming to I.S.3043 for high mast (1 no. for Mast,1 no for lightening arrestor, 1 no. for power control panel)).Inter connections of equipment to earth pit shall be made by using 50X6 mm Hot Dip GI flat.		
8.0	Supply of control panel housing suitable control circuit for the operation of the mast, precision digital timer for automatic ON / OFF control of lights and required controls for the power tool motor.(make of the timer EAPL /L&T/MDS/GE/SIEMENS)		
9.0	Erection / Installation and commissioning of the High Mast system comprising of foundation, mast and its accessories, aviation warning lamps, lightning arrester, trailing cable, earthing, luminaires, control panel etc. with the help of suitable equipments.		
10.0	3 sets of wiring / connection diagram, O&M manual to be supplied along with each high mast.Single copy of make,rating details,technical details and catalogue of all the bought out items used in the panel should be submitted along with the material.		

11.0	Technical leaflet giving the dimensions, features are to be attached with the offer. The fitting and control gear boxes offered should be suitable for outdoor application confirming to IP 65 or better. The lamp holders and fitting bracket fasteners and any other fasteners outside the fitting should be SS material. The gaskets sealing should be pasted around the fitting firmly to prevent rain water entry into the fitting. The glass door locking clips should be provided with rigid SS material. The glass door shall be hinged type for easy maintenance confirming to IP 65. The lamps should be independently connected and the plated brass gland position shall be at the bottom to prevent rain water entry. The connecting wires to the holders should be insulated with hi temp resistance material like FRLS/ glass wool only. The lamp fixing bracket on the tower shall be designed to hold all the fittings in the same axis.		
11.1	The electrical works should be carried out by a licensed electrical contractor.		
12.0	General Features		
12.1	Winch		
	The winch shall be of completely self sustaining type, without the need for brake shoe, springs or clutches. Each driving spindle of the winch shall be positively locked when not in use. Individual drum also should be operated for fine adjustment of lantern carriage. The capacity, operating speed, safe working load, recommended lubrication and serial number of the winch shall be clearly marked on each winch. The winch drums shall be grooved to ensure perfect seat for stable and tidy rope lay, with no chances of rope slippage. The rope termination in the winch shall be such that distortion or twisting is eleminated and at least 5 to 6 turns of rope remains on the drum even when the lantern carriage is fully lowered and rested on the rest pads. It should be possible to operate the winch manually by a suitable handle by an integral power tool.(winch should be standard reputed make)		
12.2	Head Frame		

	The head frame, which is to be designed as a capping unit of the mast, shall be welded steel construction, galvanised both internally and externally after assembly. The top pulley shall be of appropriate diameter, large enough to accommodate the stainless steel wire rope and the multi-core electric cable. The pulley block shall be made of non-corrodible material, and shall be of die cast Aluminium Alloy. Pulleys made of synthetic materials such as Plastic or PVC are not acceptable. Self-lubricating bearings and stainless steel shaft shall be provided to facilitate smooth and maintenance free operation for a long period. The pulley assembly shall be fully protected by a canopy galvanised internally and externally. Close fittings guides and sleeves shall be provided to ensure that the ropes and cables do not get dislodged from their respective positions in the grooves. The head frame shall be provided with guides and stops with PVC buffer for docking the lantern carriage.		
12.3	Stainless Steel Wire Ropes.		
	The suspension system shall essentially be without any intermediate joint and shall consist of only non-corrodible stainless of AISI 316 or better grade. The stainless steel wire ropes shall be of suitable size, the central core being of the same material. The overall diameter of the rope shall not be less than 6 mm. The thimbles shall be secured on ropes by compression splices. Two continuous lengths of stainless steel wire ropes shall be used in the system and no intermediate joints are acceptable in view of the required safety. No intermediate joints / terminations either bolted or else, shall be provided on the wire ropes between winch and lantern carriage.Certificate to this effect has to be obtained from the manufacture of this rope to confirm the above requirement.		
12.4	Electrical system, cable and cable connections.		

	A suitable terminal box shall be provided as part of the contract at the base compartment of the high mast for terminating the incoming cable. The electrical connections from the bottom to the top shall be made by special trailing cable(FRLS) and size of the cable shall be minimum 4 core 6 sq.mm. multistrand PVC flexible copper cable. At the top there shall be weather proof junction box to terminate the trailing cable. Connections from the top junction box to the individual luminaries shall be made by using 3 core 2.5 sq.mm. Copper flexible HR PVC cables of reputed make with ISI mark.The system shall have inbuilt facilities for testing the luminaries while in lowered poistion. Also suitable provision shall be made at the base compartment of the mast to facilitate the operation of internally mounted, electrically operated power tool for raising and lowering of the lantern carriage assembly. The trailing cables of the lantern carriage rings shall be terminated by means of metal clad, multipin plug and socket provided in the base compartment to enable easy disconnection whenever required.		
12.5	Power Tool for the Winch		
	A suitable high-powered, electrically driven, internally mounted power tool, with manual over ride shall be supplied for the raising and lowering of the lantern carriage for maintenance purposes. The speed of the power tool shall be to suit the system. The power tool shall be single speed, provided with a motor of the required rating. The power tool shall be supplied complete with suitable control. The capacity and speed of the electric motor used in the power tool shall be suitable for the lifting of the design load installed on the lantern carriage. The power tool mounting shall be so designed that it will be not only self-supporting but also aligns the power tool perfectly with respect to the winch spindle during the operations. Also, a handle for the manual operation of the winches in case of problems with the electrically operated tool shall be provided.The quality of the gear box to withstand minimum 500 operations to be ensured by supplier,Gears(worm gear with worm shaft) from good quality material ensure for durability.		
12.6	Lightning Finial		

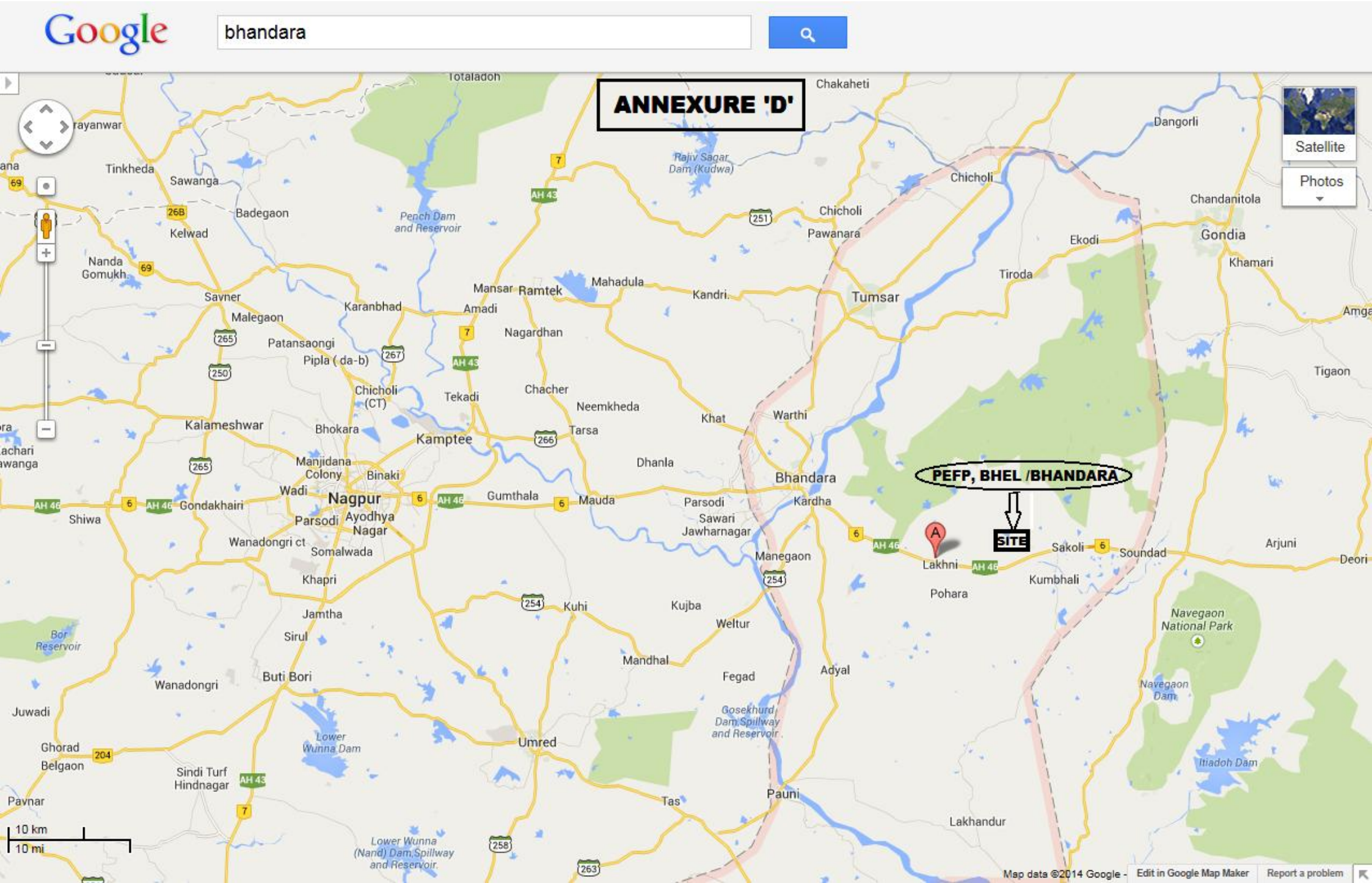
	One number heavy duty hot dip galvanised lightning finial shall be provided for each mast. The lightning finial shall be minimum 1.2 M in length and 12mm dia. shall be provided at the center of the head frame. It shall be bolted soildly to the head frame to get a direct conducting path to the earth through the mast.		
12.7	Aviation Obstruction Lights :		
	Suitable 2 Nos. 230 V, LED Aviation Obstruction Lights of reliable design and reputed manufacturer shall be provided on top of each mast		
12.8	Earthing Terminals :		
	Suitable earth terminal shall be provided at a convenient location on the base of the mast, for lighting and electrical earthing of the mast.		
12.9	Feeder Pillar		
	Each mast shall be provided with a feeder pillar and control box of size 750mm height 450mm breadth and 250mm depth fabricated with 14 SWG CRCA sheet with hinged doors and locking arrangement,out door type,stand mounting,dust and vermin proof as per IP55,panel will have powder coat finish to shade 631 of IS and stand black enamel paint. The feeder pillar control box to be fixed on the stand by 50mm X 50mm X5 mm MS angle and comprise of incoming as 4 pole 63amps 415 volt Legrand/Havells/siemens/L&T make TPN MCB. for incoming, one no.32amps TP MCB for outgoing, one no. 6amps TP MCB for motor control circuit. The 6sq.mm PVC multi strand copper cable for power circuit wiring with colour sleeve and ferrule and 1.5sq.mm PVC multi strand flexible copper cable for control circuit wiring with No. ferrules and insulated copper lug should be used. All the electrical aceessories should be fixed on the 2mm thick base plate with suitable size self threading holes and 3mm thick detachable cable entry bottom plate with suitable cutouts for cable entries. Din rail mounting type ELMEC make 63 amps strips for control circuit feeders pillar shall be mounted near to high mast. Suitable digital timer (as per the Point nos.8) for automatic on-off control with the siemens/L&T make 63amps contractor for incoming supply and 16 amps for motor control and ON-OFF control of the lamps should be provided and connected in the circuit.		

12.10	Each High Mast must be supplied with 1 No 63A SFU (Iron glad / Metal glad) as incomer to feeder piller along with 50mm x 50mm x 5mm Angle frame for fixing feeder piller box and 63 A SFU . The SFU should be provided with required canapy and suitable for mounting in outside . The grouting of frame and interconnecting with suitable cable are supplier scope.		
12.11	Power Cable.		
	The cable of size 3.5 core25 sq.mm. Aluminium conductor, Armoured cables to be used for power supply from the TPN swich disconnector to the feeder pillar by the supplier . The supply of 4 core 6sq.mm HR PVC flexible multi strand copper cable shall be taken from the base compartment of the high mast to the feed pillar control box through the cable entry hole made in the foundation by the supplier.		
	Note: Point by point confirmation is required from the supplier otherwise the offer will not be considered		
	The location of PEFP BHEL Bhandara /Maharashra site (attached Annexure 'D')		
	The location of High Mast at PEFP BHEL/ Bhandara Site (attached Annexure 'E')		

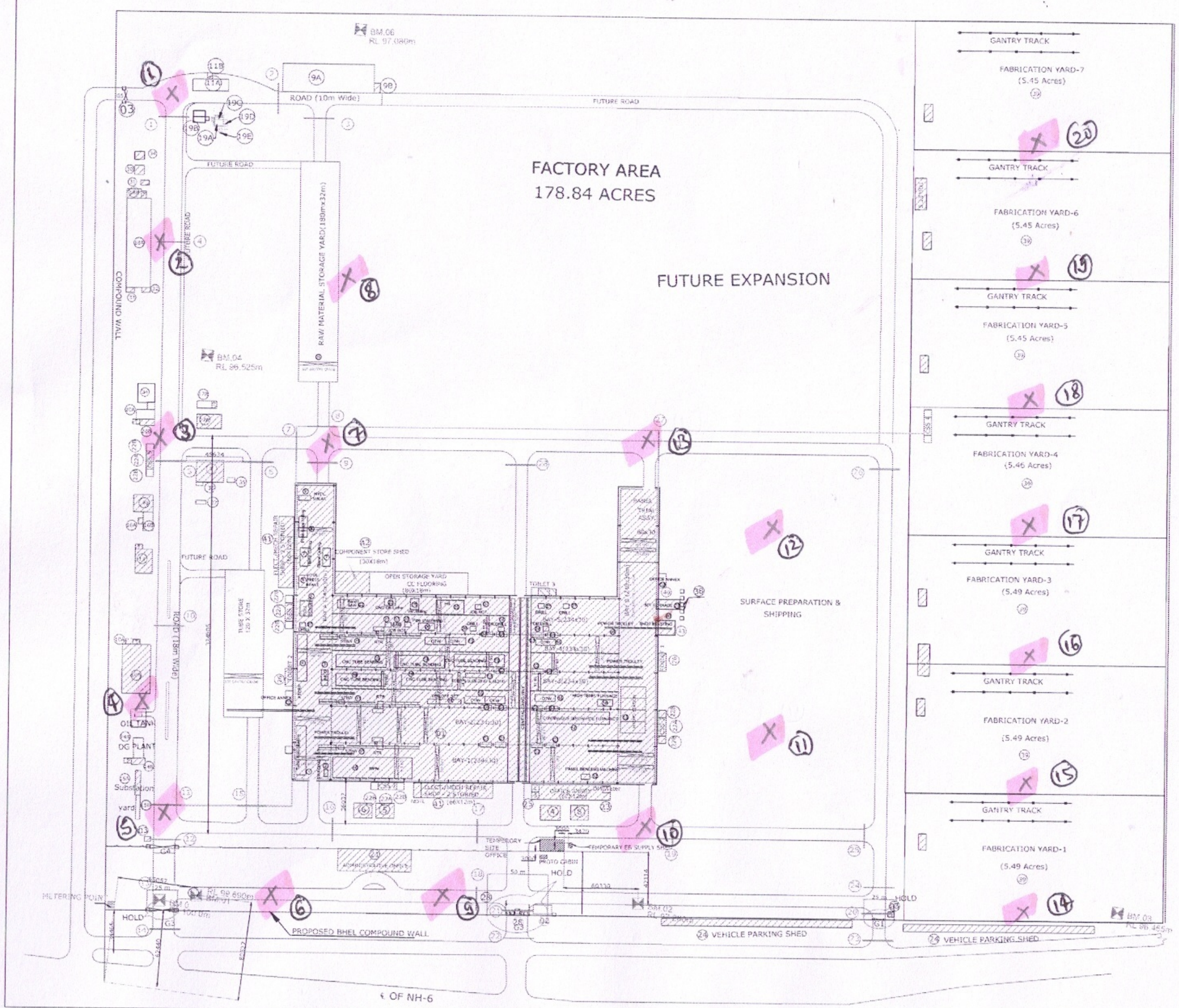
Annexure C

Soil bearing capacity at PEFP BHEL Bhandara Site		
DEPTH	FOUNDATION WIDTH	NET SAFE BEARING CAPACITY (T/m²)
1.5m	1m to 3m	15
	3m to 5m	7
	More then 5 m	13
2 m	1m to 3m	15
	3m to 5m	8
	More then 5 m	13
2.5 m	1m to 3m	17
	3m to 5m	7
	More then 5 m	13
3 m	1m to 3m	15
	3m to 5m	8

Table 8: Net Safe Bearing Capacity for Open Foundation (BH-02 to BH-10)


Google
bhandara
ANNEXURE 'D'
PEFP, BHEL /BHANDARA
SITE
A
Satellite
Photos
Totaladoh
Chakaheti
Dangorli
Rajiv Sagar Dam (Kudwa)
Tinkheda
Sawanga
Badegaon
Pench Dam and Reservoir
Chicholi
Chandanitola
Kelwad
Pawanara
Gondia
Ekodi
Nanda Gomukh
Khamari
Tiroda
Savner
Mansar
Ramtek
Mahadula
Kandri.
Tumsar
Malegaon
Karanbhad
Amadi
Nagardhan
Patansaongi
Pipla (da-b)
Tigaon
Chicholi (CT)
Tekadi
Chacher
Neemkheda
Khat
Warthi
Kalameshwar
Bhokara
Kamptee
Tarsa
Manjidana Colony
Binaki
Dhanla
Bhandara
Wadi
Nagpur
Gumthala
Mauda
Parsodi
Kardha
Gondakhairi
Shiwa
Parsodi
Ayodhya Nagar
Sawari
Jawharnagar
Wanadongri ct
Somalwada
Manegaon
Sakoli
Soundad
Arjuni
Lakhni
Kumbhali
Deori
Khapri
Pohara
Jamtha
Kuhi
Kujba
Navegaon National Park
Bor Reservoir
Sirul
Weltur
Mandhal
Fegad
Adyal
Wanadongri
Buti Bori
Navegaon Dam
Juwadi
Gosekhurd Dam Spillway and Reservoir
Lower Wunna Dam
Umred
Ghorad
Belgaon
Itiadoh Dam
Sindi Turf
Hindnagar
Pavnar
Tas
Pauni
Lakhandur
10 km
10 mi
Lower Wunna (Nand) Dam Spillway and Reservoir
Map data ©2014 Google -
Edit in Google Map Maker
Report a problem

Annexure-E
location of High Mast



Sl.No		DETAILS	SIZE	NO OF STOREY
1)		Production Shop	49500 Sqm	
2)		Security Office	15MX5M	2
3)		Security Booth(4Nos)	5MX4M	1
4)		Fire Station	15MX12M	1
5)		Material Testing Lab	15MX12M	1
6)		Factory Medical Center	16.5MX12M	1
7)		Canteen	24MX18M	2
8)		Transport garage	15MX12M	1
9)	A.	Scrap Disposal Yard	75MX24M	1
	B.	Office room	8MX5M	1
10)	A.	Stores office	15MX10M	1
	B.	Covered Stores shed	40MX24M	-
11)	A.	Weigh Bridge-60T	-	
	B.	Control room	5MX4M	1
12)		Water Tank-500 Cum-1	-	-
13)		Compressed Air Plant	20MX14M	1
14)	A.	Diesel generator plant	30MX12M	1
	B.	Control room	6MX4M	
15)	A.	Main Electrical Substation	20MX10M	2
	B.	Transformer yard	20MX8M	-
16)	A.	Liquid Oxygen Plant Control room	5MX4M	-
	B.	Liquid Oxygen Plant yard	6MX10M	-
17)	A.	Civil Office	20MX12M	-
	B.	Civil stores shed	12MX6M	
18)	A.	LPG storage yard & vapouriser	75MX20M	-
	B.	LPG Control room	12MX8M	1
19A)		Sewage Treatment plant aeration tank	7.5MX5M	-
19B)		Sewage Treatment plant collection sump	10MX10M	-
19C)		Sewage Treatment plant MBR tank	7.5MX1.5M	-
19D)		Sewage Treatment plant treated water tank	5MX2.5M	-
19E)		Sewage Treatment plant Holding tank & sludge drying bed	4.1MX1.8M	-
20)	A.	Inflammable Stores yard	15MX8M	-
	B.	Issue office	12MX5M	1
21)		Administrative block	60MX18M	2
22A)		Compact substation, 5 nos	15MX6M	1
22B)		Shed for compact sub station 10 nos	6MX6M	-
23)		Office Annexe	62MX12M	1
24)		Parking shed	156MX6M	1
25)		Ladies rest room- 1 no Sanitation crew- 1 no	6MX6M	1
26)		Toilet- 6nos	12MX6M	1
27)		Control panel shed 7 nos	3MX4M	---
28)		Maingate structure with security bunk		
29)		Oxygen Filling station	16MX14M	1
30)		Fire Fighting Equip. shed	8MX7.5M	
31)		Motor control center shed	7MX4M	
32)		Compr. shed in LPG yard	7MX4M	
33)		Vaporiser shed in LPG yard	10.5MX4M	
34)		Cylinder storage shed	6MX6M	
35)		Canteen LPG Manifold shed	6.3MX4M	
36)		Canteen Vesselwashing shed	6.3MX4M	
37)		Canteen boiler shop	9MX3M	
38)		LPG Manifolding Shed for shops - 5 Nos	3MX3M	
39)		Fabrication yard(7nos)	154914sqm	---
40)		Furnace shed	20MX8M	
41)		Electrical Mechanical repair shop-2 Nos	66M X12M	2
42)		Components stores shed	30MX 18M	---
43)		Shot blasting shed	15MX 10M	---

NOTES:
ALL DIMENSIONS ARE IN METERS
L-LADIES REST ROOM
T-TOILETS
S-SANITATION CREW
G1, G2, G3, G4, G5 - GATES

TOTAL FACTORY AREA -178.84 Acre (APPROX)

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: POWER EQUIPMENT FABRICATION PLANT AT SAKOLI, BHANDARA DIST

Bharat Heavy Electricals Ltd
UNIT: HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI - 620014

TITLE: LAYOUT OF PLANT

DRAWING NO.: 1-TP-CEG-01050 | REV: 00

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