

TENDER SPECIFICATION

No. BHE/PW/PUR/BHT-ENB/544

FOR

CONSTRUCTION OF SITE OFFICE, CLOSED STORAGE SHEDS, SEMI-CLOSED STORAGE SHEDS, ROADS, FENCING, DRAINAGE, INTERNAL & EXTERNAL ELECTRIFICATION OF OFFICE, STORES SHED AND STORAGE YARD FOR 2x500 MW BHUSAWAL THERMAL POWER STATION EXPANSION PROJECT UNIT Nos. 4 & 5

AT

**MAHARASHTRA STATE POWER GENERATION COMPANY LTD
BHUSAWAL THERMAL POWER STATION (EXPANSION PROJECT)**

DIST - JALGAON

P.O. - DEEPNAGAR

BHUSAWAL – 425 307

MAHARASHTRA

PART- II

PRICE BID SPECIFICATION



BHARAT HEAVY ELECTRICALS LIMITED

(A GOVERNMENT OF INDIA UNDERTAKING)

POWER SECTOR - WESTERN REGION

SHREEMOHINI COMPLEX

345-KINGSWAY, NAGPUR 440 001

BHARAT HEAVY ELECTRICALS LIMITED

(A GOVERNMENT OF INDIA UNDERTAKING)
POWER SECTOR - WESTERN REGION
SHREEMOHINI COMPLEX

345-KINGSWAY, NAGPUR 440 001

PH No. 0712-3048600-604; FAX: 0712-3048605, 698 & 699

Document Issue Details

TENDER SPECIFICATION No. BHE/PW/PUR/BHT-ENB/544

NAME OF THE WORK:

CONSTRUCTION OF SITE OFFICE, CLOSED STORAGE SHEDS, SEMI-CLOSED STORAGE SHEDS, ROADS, FENCING, DRAINAGE, INTERNAL & EXTERNAL ELECTRIFICATION OF OFFICE, STORES SHED AND STORAGE YARD FOR 2x500 MW BHUSAWAL THERMAL POWER STATION (EXPANSION PROJECT), MAHARASHTRA STATE POWER GENERATION COMPANY LTD, JALGAON, P.O. – DEEPNAGAR, BHUSAWAL, MAHARASHTRA

EARNEST MONEY DEPOSIT: RS 2.00 LAKHS, PLEASE REFER SECTION-15 OF SPECIAL CONDITIONS OF CONTRACT

Last date & time for offer submission:

Please see Notice Inviting Tender.

THESE TENDER SPECIFICATION DOCUMENTS CONTAINING PART-I AND PART- II ARE ISSUED TO:

M/s.

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PLEASE NOTE: THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

Sr. Manager (Purchase)

Place: Nagpur

Date:

Bharat Heavy Electricals Limited
Tender Specification No. BHE/PW/PUR/BHT-ENB/544 (Part-II : Price Bid Specification)
Schedule of Rates and Quantities (Page 1 of 35)

SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
SECTION–A: Construction of Site Office (10m x 54m x 3.2m) with Veranda 2x54 m, height 2.5 m to 3 m)					
A.1	EARTH WORK (Excavation)			As follows	As follows
A.1.1	Excavation from zero to 2 m depth in all kinds of soil (except hard rock and soft rock) for foundation columns, septic tank, soak pit, ramps etc. spreading the earth uniformly around the office/stores complex area as well as open storage yard for site development as directed by BHEL engineer and including disposal of surplus earth (if any) including dewatering with all T&P, labours, materials etc.	400	m ³		
A.2.2	Excavation from zero to 2 m depth in all kinds of soil including hard rock and soft rock (manually or mechanically without blasting) for foundation columns, septic tank, soak pit, ramps etc., spreading the earth uniformly around the office /store complex area as well as open storage yard for site development within the project boundary as directed by BHEL engineer and including disposal of surplus earth (if any) including dewatering with all T&P, labours, materials etc.	25	m ³		
A.2.3	Excavation in all kinds of soil including. Soft & hard rock (manually or mechanically without blasting) from 2 to 4m depth for foundations raft & columns etc. Complete including disposal of surplus earth (if any) including dewatering with all T&P, labours, materials etc.	3	m ³		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
A.2	EARTH WORK (Backfilling)			As follows	As follows
A.2.1	Backfilling the foundation and plinth with excavated soils in layers not exceeding 15 cm thickness including watering and consolidating etc complete as per standard specification and as instructed by BHEL engineer.	375	m ³		
A.2.2	Providing & filling in soak pit with brickbats 40-80mm including packing etc. complete as per standard specification and as instructed by BHEL engineer.	30	m ³		
A.2.3	Backfilling the foundation and plinth with river sand in layers not exceeding 15 cm thickness including watering and consolidating etc. Complete as per standard specification and as instructed by BHEL engineer.	200	m ³		
A.3	Providing and laying of plain cement concrete of mix 1:4:8 using 40mm & down size hard broken granite stone jelly for foundation, flooring, etc including shuttering, curing, consolidation etc as per standard specifications and as directed by BHEL engineer.	110	m ³		
A.4	Providing and laying RCC of mix 1:2:4 using 20mm down size hard broken granite stone aggregate including mechanical mixing, vibration, curing, form work and centring as per drawing and specification and as directed by BHEL engineer but excluding cost of reinforcements for flooring.	150	m ³		
A.5	Providing DPC with CC 1:2:4, 50 mm thick including bitumen coating as per standard practice and specifications.	55	m ²		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
A.6	Providing and fixing reinforcement steel including cutting, bending and fabrication of reinforcement using high tensile TOR steel as per drawing and specification and as directed by BHEL engineer including cost of all leads, lift and materials, labour and MS binding wire 18/20 gauge etc.	7	MT		
A.7	Providing brick work in cm 1:6 (1 cement & 6 coarse sand) using locally available bricks as per drawing for foundation, wall, septic tank etc. Including cost of all materials, labour, scaffolding, curing etc. complete and as directed by engineer at all elevations and levels including raking out joints, curing etc excluding plastering & painting.	300	m ³		
A.8	Providing half brick work partition wall in C.M. 1:4 and plastering in C.M. 1:6, 12 mm thick on both faces including cost of all materials, labour, scaffolding, curing as per drawing and as directed by BHEL engineer.	300	m ²		
A.9	Steel Work			As follows	As follows
A.9.1	Design, manufacture, supply and erection of tubular trusses, purlins spaced generally @ 1.4 m centre to centre to support roofing with AC sheets and wind ties to be provided above sheets and providing and fixing base plates with holding down bolts on RCC columns, gussets, ribs, pins, splices etc as required including transport, loading, unloading charges from fabrication shop to site etc. Drawing attached with tender specification is indicative only & design has to be obtained for truss before fabrication, duly approved by BHEL. Rate is including all steel sections, fixing in position, labour charges and cost of Red Oxide Zinc Chromate primer at factory and two coats of synthetic enamel paints (over primer coat of ROZC) of approved colour and quality at site.	12	MT		
A.9.2	-Do- for structural steel staging for placement of PVC overhead water tank, capacity 1000 litres	0.75	MT		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
A.10	Providing and fixing 6/7mm thick AC corrugated sheets with ridge caps for roofing including GI 'J' or 'I' hook bolts, GI and bituminous washers, GI hook/clamp bolts, nuts etc complete, all as per latest IS:459, IS:3307 and IS:730.	935	m ²		
A.11	A) providing and fixing false ceiling with 4 mm thick AC plain sheets of approved quality and design of size 600x600 mm panels with square edges supported by anodised aluminium frames of tees 35x23.5x1.5 mm thick as main member and 19x23.5x1.5 mm tees as cross supporting members and wall angles of 23.5 x 23.5 x 1.5 mm. The main runners shall be suspended from roof at 1200 mm centre to centre by means of ms rods with GI 'J' threaded hook for adjustments. The cross runners shall be fixed to main runner to form a grid pattern of 600x600 mm and providing 25 mm wide aluminium strip tees or moulded sections at all joints. The rate shall be inclusive of three coats of white washing on AC plain sheets etc.	600	m ²		
A.12.1	Manufacturing, supply and fixing of best quality country wood doors comprising of frame 95 x 70 mm and 38/40mm thick flush shutters of solid core type using commercial ply including hold fasts, wind appliances, handles, tower bolts and Aldrops, mortise or suitable locks etc as per the standard practice and applying two coats of synthetic enamel paint of approved shade over a coat of primer as directed by BHEL engineer.	33	m ²		
A.12.2	Supplying, erecting, assembling best quality PVC panelled doors of 'Sintex' make or approved equivalent for toilets including all fittings and fixtures etc complete as per drawings and specifications.	15	m ²		
A.13	Supply, manufacture and fixing in position of steel windows and ventilators including frames & iron barred (guard bar of square section @ 100 mm c/c) and glazed with 4 mm plain glass as per standard specifications, relevant IS code and instructions of BHEL engineer. The rate shall be inclusive of all accessories fittings, hold fasts, painting two coats of synthetic enamel paint of approved colour and quality over one coat of ROZC primer.			As follows	As follows

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
A.13.1	Steel Windows	45	m ²		
A.13.2	Steel Louvered Ventilators	2.5	m ²		
A.14.1	Providing & fixing partition of pre-laminated particle board 12 mm thick with anodised aluminium frames, bidding etc complete up to a height of 900 mm from finished floor level (i.e. below aluminium glazed partition)	120	m ²		
A.14.2	Providing & fixing anodized aluminium glazed partition with hollow extruded section of min. 3 mm thickness as manufactured by INDAL or equivalent with matching single door shutters & floor mounted hydraulic door closer (1 no.) including glazing of 5.5 mm thick flat transparent sheet glass, bidding, concealed screws, holdfast etc.	95	m ²		
A.15.1	Providing and fixing IPS flooring 25 mm thick with cement concrete 1:2:4 as per standard practice in panels of size not exceeding 2.0x2.0 m square by providing, fixing glass strips.	605	m ²		
A.15.2	Providing and laying 5 - 7 mm thick ceramic tiles of size 300x300 mm from reputed manufacturer like Johnson or equivalent etc complete as per standard practice and specification.	210	m ²		
A.15.3	Providing 3 mm thick neat cement finish over concrete base for flooring paving etc.	60	m ²		
A.15.4	Supplying and fixing white glazed tiles of sizes 150x150x8 mm for flooring and 150x150x6 mm for DADO up to 2.1 m elevations including preparation of base laying under bed, finishing and rounding corners and junctions, curing etc complete as per drawings and specifications.	103	m ²		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
A.16	Providing and plastering with cement mortar 1:6 over both internal and external faces of brickwork and concrete surfaces, partition walls etc of all heights including preparing the surface, raking joints, scaffolding, curing, cost of all materials, labour etc.			As follows	As follows
A.16.1	(i) External Plaster 18 mm thick	1275	m ²		
A.16.2	(ii) Internal Plaster 12 mm thick	1355	m ²		
A.17.1	Providing white or colour wash three coats on newly plastered surface using best shell lime to give an even shade including cleaning and brushing of walls and preparing surface in accordance with standard specification. Rate to include cost of all materials including colouring agent, approved adhesives, scaffolding, brush etc.	500	m ²		
A.17.2	Providing and applying painting three coats of cement paint ('Super Snowcem' or equivalent) of approved quality and shade on newly plastered surface to give an even shade including cleaning, preparing the surface and curing, scaffolding etc. Rate to include cost of all materials, labour, consumables etc.	1370	m ²		
A.17.3	Providing & applying to interior surfaces two or three coats of oil bound distemper of approved shade & make confirming to IS:428 to obtain a even finish and uniform colour over a coat of primer as per manufacture recommendation including cost of paint, surface preparation, scaffolding etc. Surface preparation shall be done by applying putty/ Plaster of Paris including cost of material, labour etc.	1780	m ²		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
A.18	Providing and fixing hydraulic door closer (heavy duty) of approved brand and as directed by BHEL engineer	8	No.		
A.19	Supplying and fixing in position of white glazed vitreous china wash basin of size 550x400 mm of approved make and quality with CI brackets painted with two coats of synthetic enamel paint, single 15 mm CP brass pillar tap and CP brass chain with rubber plug, 32mm CP brass waste coupling of standard pattern, 32mm dia MI or CP brass trap and unions 32 mm dia PVC waste pipe complete including cutting and making good the walls wherever required. Rate to include cost of all materials, labour for carrying, laying and fixing and all other incidental charges etc	5	No.		
A.20.1	Supplying at site of work, carrying, laying, jointing and fixing in position of Indian type white glazed vitreous china Water Closet pan of size 580 mm of approved make and quality ('Parryware' or equivalent) with suitable 'P' or 'S' trap and white glazed foot rests. Separate flushing cistern is not required. Suitable flushing device to be made through 50 mm dia GI piping with control valves directly connected to overhead tank as per the instruction of engineer-in-charge, cutting the wall and floor wherever required and making good all damages and finishing to match the existing work, cost of jointing materials, all other incidental charges etc. Payment towards Supply and Fixing of pipes & valves shall be made under the respective item/items of plumbing work	2	No.		
A.20.2	European type Water Closet conforming to IS:2556 with white glazed stone ware basin with plastic seats & cover and low level PVC cistern of 15 litre discharge capacity including valve-less fittings, flush bends, supply connections, siphon, integral 'S' or 'P' trap etc.	3	No.		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
A.21	Supplying at site of work, carrying, laying jointing and fixing in position of white glazed earthenware flat back/corner type lipped front urinals of 430 mm x 260 mm x 350 mm / 340x460x265 mm of approved make and quality with automatic flushing cistern with CI/MS brackets, standard size GI flush pipe and spreaders with brass unions, GI clamps (including painting of cisterns), teakwood plugs and screws, including supplying and fixing a pair of white glazed earthenware foot rests for each urinal, cutting of floors and walls and making good of all damages and finishing to match the existing work etc. Rate shall include cost of all materials and labour for carrying, laying, fixing and all other incidental charges.			As follows	As follows
A.21.1	Urinal basin with 5 litres CI automatic flushing cistern in store cum office shed.	5	No.		
A.22	Supplying at site of work and fixing in position of high class Belgian or superior make bevelled edge mirror of size 600mm x 450mm x 6mm mounted on 6 mm thick plywood or plastic folder sheet. Rate to include cost of all materials, labour for fixing the wooden plugs with CP brass screws and washers etc.	4	No.		
A.23	Supplying at site of work and fixing in position, the following sizes of gun metal (GM) wheel valves as per standard specification (leader make or equivalent).			As follows	As follows
A.23.1	15 mm nominal size GM wheel valve	15	No.		
A.24.1	Supplying at site of work and fixing in position 15 mm nominal size screw down type chromium plated brass bib cocks of approved make and quality ('Leader' make or equivalent) as per standard specification.	24	No.		
A.24.2	Supplying at site of work and fixing in position 25mm dia gate valve	5	No.		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
A.24.3	Supplying at site of work and fixing in position 40mm dia gate valve	2	No.		
A.25	Supplying at site of work and fixing in position of 15 mm nominal size CP brass stop cock of approved make and quality ('Leader' or 'Dripless' make) as per standard specifications. Rate to include cost of jointing materials, cost of stop cock, labour for carrying and fixing etc.	32	No.		
A.26	Supplying at site of work and fixing 100 mm x 50 mm HCI "Nahani" trap with HCI gratings as per standard specifications. Rate to be all inclusive.	8	No.		
A.27	Supplying at site of work and fixing 150mm stone ware gully trap with HCI gratings and CI cover of size 300x300 mm of approved make (weight 300mm x 300 mm of approved make (weight not less than 2 kg) and quality as per standard specifications. Rate to be all inclusive.	15	No.		
A.28	Supplying at site of work, trenching, carrying to trenches and lowering into trenches and on walls, floors etc, laying to proper alignment, grade, level and jointing with all necessary specials, tees, elbows, unions and appurtenances and including pressure testing of the following sizes of GI pipe lines including refilling of trenches with excavated earth in layers, watering and ramming and restoration of ground, all complete as per specifications. Rate to include earth work excavation in all soils, except hard rock requiring blasting, shoring, balling or pumping out of water wherever required, removal of slush etc. Removing and depositing surplus earth as directed by the BHEL engineer including all leads and lifts as per site conditions.			As follows	As follows
A.28.1	40 mm dia GI pipeline with all specials	125	RM		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
A.28.2	25 mm dia GI pipeline with all specials	255	RM		
A.28.3	15 mm dia GI pipeline with all specials	80	RM		
A.29	Supplying at site of work, carrying and lowering into trenches, laying to proper alignment, level and grade, jointing with CM (1:1) and testing of joints etc of the following size of salt glazed stoneware pipe inclusive of all necessary specials tarred hemp yarn and all jointing materials complete as per standard specifications including all lead and lift as per site conditions. Rate shall include cost of all materials, labour charges and incidental charges etc.			As follows	As follows
A.29.1	A) 100 mm dia stoneware pipeline	145	RM		
A.30	Supply and fixing in position PVC overhead water tank of 'Sintex' or any approved make of 1000 litre capacity with provision for overflow arrangement valves, inlet and outlet etc. Supporting structure for fixing the tank will be as per item rate given separately.	3	No.		
A.31	Construction of brick chamber of the following dimensions (inner dimension) with cement plaster inside with neat cement finish & top with CI cover for connecting the sewer lines. Rate shall be inclusive of all excavation, filling, PCC, B/K work, plaster, covers etc as per following sizes:			As follows	As follows
A.31.1	450x450x450 mm with CI cover	2	No.		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
A.31.2	600x600x600 mm with CI cover	15	No.		
A.32.1	Providing and fixing anodised aluminium (1m long) towel rods of good quality in toilet blocks & pantry	5	No.		
A.32.2	Providing & fixing liquid soap dispenser at all the wash basin location	4	No.		
A.33	Providing & fixing wooden frame of best country wood (2.5"x3.0") for installing portable 2 Ton air-conditioner on the wall opening (31"x22"), so as to make a frame of inside clear dimensions 26"x17" with complete finishing painting, hold fast etc.	15	No.		
A.34	Providing & fixing in position AC vent pipe of dia 100mm (ht. 3m) in septic tank	9	RM		
A.35	Providing & fixing 75 mm thick RCC pre-cast cover (600 mm x 600 mm) with 1:2:4 cement concrete for manhole chamber of septic tank & over the soak pit including all materials, curing, lifting hooks, labour etc.	15	No.		
A.36	Providing and fixing metallic decorative type heavy duty pelmet for doors and windows as approved by BHEL engineer	40	No.		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
A.37	Providing and fixing of 2 nos. UV Water Purifier 'Aquaguard' or equivalent, along with all fittings	2	No.		
A.38	Providing and fixing of 1 no. 18"x24" size stainless steel sink with all fittings like drain pipe, stop valve etc.	1	No.		
SECTION-B: Internal Electrification Work of BHEL Site Office & Security Cabin				As follows	As follows
B.1	Supplying & installing 3-phase electric meter and power distribution board complete with :	1	Set		
	(1) Incoming MCB TPN 100 amps -1 no.				
	(2) Outgoing DP RCCBs ,63 amps, 30 mA - 3nos.				
	(3) DP RCCB 25/20 amps, 30mA – 9 nos				
	(4) Outging DP MCB, 6 amps - 20 nos,				
	(5) Outgoing SP MCB, 6 amps - 12 nos				
	(6) Energymeter CT operated -1 no.				
	(7) Voltmeter with selector switch - 1no				
	(8) Ammeter with selector switch – 1 no				
All RCCBs, MCBs shall be MDS/INDO KOPP make; 3- phase electronic energy meter – BHEL/L&T/GEC make; ammeter, voltmeter, selector switches for both – AE/KAYCEE make, phase indication lamps, provision for doubly earthing the panel enclosure. Panel enclosure shall be made of sheet metal thickness not less than 1.6 mm and suitable for outdoor installation, modular construction preferably in 2 modules (1 for energy meter & 1 for distribution), hinged door with locking arrangement, base frame, should have slopped canopy, duly painted with first coat of primer and two coats of synthetic enamel paint (interior with white paint and exterior with light grey as per shade 5, IS 630) internal power distribution shall be with al bus bars or copper flexible single core PVC cables of 1.1 kV grade, control wiring with 1.5 sq. mm, suitable stool made out of ms structure of 1.2 meter high for mounting of panel with anchoring arrangement at foundation, suitable for bottom entry of cables					

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
B.2	Providing and installing wiring using 2.5 mm ² copper conductors through PVC conduit of required size with accessories and fixtures. Wiring shall be concealed type for computer room, office shed & for rest of sheds open in PVC conduit of required size.	140	Points		
B.3	Providing and installing wiring for using 4.0 mm ² copper conductors through PVC conduit of required size with accessories and fixtures. Wiring shall be concealed type for computer room, office shed & for rest of sheds open in PVC conduit of required size.	80	Points		
B.4	Providing and installing wiring for mains using 6.0 sq. mm copper conductor of ISI approved make, using concealed type wiring/PVC conduit of required size.	12	Points		
B.5	Providing and installing wiring for mains using 16 sq. mm copper conductor or ISI approved make using concealed type wiring/PVC conduit of required size.	4	Points		
B.6	Providing and installation of wiring for fans/coolers using 2.5 sq. mm copper conductor of ISI mark through PVC conduits with accessories and fixtures.	75	Points		
B.7	Providing and installation of plug point of 5A/15A socket ('Anchor' or equivalent) Outlet including wiring termination.	50	Points		
B.8	Providing and fixing ordinary tube light with frame of standard manufacturer like Philips or Bajaj or equivalent as approved by BHEL.	135	No.		
B.9	Providing and fixing exhaust fans 12" diameter with frame of standard manufacturer like 'Crompton Greaves' or equivalent make as approved by BHEL.	5	No.		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
B.10	Providing and fixing heavy duty plug point 15 amps ('Anchor' make or equivalent) with one switch for computer, one for AC connection with board etc.	75	No.		
B.11	Providing and fixing metal clad plug and MCB of 30 amps (Crompton / MDS make) for air conditioner with board etc.	3	No.		
B.12	Providing and fixing ceiling fan 48" diameter of approved company such as 'Crompton Greaves' or any other standard manufacturer as directed by BHEL.	50	No.		
B.13	Providing and fixing calling bells (with indicator light)	12	No.		
B.14	Providing earthing pits with 2" dia, 2 m long GI pipes with flange & GI wires with charcoal, salt and as per the standard practice for electrical connection. Rate shall be inclusive of all materials, labours etc.	7	No.		
	SECTION-C: CONSTRUCTION OF CLOSED STORAGE SHED (60 m x 15 m) 3 Nos.			As follows	As follows
C.1.1	Earth work - excavation from zero to 2 m depth in all kinds of soil (except hard rock and soft rock) for foundation columns, septic tank, soak pit, ramps etc., spreading the earth uniformly around the office /store complex area as well as open storage yard for site development within the project boundary as directed by BHEL engineer and including disposal of surplus earth (if any) including dewatering with all T&P, labours, materials etc.	700	m ³		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
C.1.2	Earth work - excavation from zero to 2 m depth in all kinds of soil including hard rock and soft rock for foundation columns, septic tank, soak pit, ramps etc., spreading the earth uniformly around the office /store complex area as well as open storage yard for site development within the project boundary as directed by BHEL engineer and including disposal of surplus earth (if any) including dewatering with all T&P, labours, materials etc.	900	m ³		
C.2.1	Backfilling the foundation and plinth with excavated soils in layers not exceeding 15 cm thickness including watering and consolidating etc complete as per standard specification and as instructed by BHEL engineer.	1200	m ³		
C.2.2	Back filling the foundation and plinth with moorum in layers not exceeding 15 cm thickness including watering and consolidating etc complete as per standard specification and as instructed by BHEL engineer.	400	m ³		
C.3	Providing and laying of plain cement concrete of mix 1:4:8 using 40 mm & down size hard broken granite stone jelly for foundation, flooring, etc including shuttering, curing, consolidation etc. Complete as per standard specifications and as directed by BHEL engineer.	500	m ³		
C.4.1	Providing and laying RCC of mix 1:2:4 using 20 mm down size hard broken granite stone aggregate including mechanical mixing, vibration, curing, form work and cantering as per drawing and specification and as directed by BHEL engineer but excluding cost of reinforcements for <u>foundation, columns, beams etc.</u> , at all elevations and levels.	260	m ³		
C.4.2	Providing and laying RCC of mix 1:2:4 using 20 mm down size hard broken granite stone aggregate including mechanical mixing, vibration, curing, form work and centring as per drawing and specification and as directed by BHEL engineer but excluding cost of reinforcements for <u>flooring, ramp etc.</u> , at all elevations and levels.	390	m ³		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
C.4.3	Providing DPC with cc 1:2:4, 50 mm thick including bitumen coating as per standard practice and specifications.	152	m ²		
C.5	Providing and fixing reinforcement including cutting, bending and fabrication of reinforcement using high tensile TORR steel as per drawing and specification and as directed by BHEL engineer including cost of all leads, lift and materials, labour and MS binding wire 18/20 gauge etc.	30	MT		
C.6	Providing brick work in CM 1:6 (1 cement & 6 coarse sand) using locally available bricks as per drawing for foundation, wall, septic tank etc. Including cost of all materials, labour, scaffolding, curing etc complete and as directed by engineer at all elevations and levels including raking out joints, curing etc complete excluding plastering & painting.	670	m ³		
C.7	Providing half-brick work partition wall in cm 1:4 and plastering in CM 1:6 12 mm thick on both faces including cost of all materials, labour, scaffolding, curing as per drawing and as directed by BHEL engineer	70	m ²		
C.8.1	Design, manufacture, supply and erection of tubular trusses, purlins (and side runners to support side sheeting in semi closed storage sheds) spaced generally @ 1.4 m centre to centre to support roofing with ac sheets and wind ties to be provided above sheets and providing and fixing base plates with holding down bolts on RCC columns, gussets, ribs, pins, splices etc as required including transport, loading, unloading charges from fabrication shop to site etc. Drawing attached with tender is indicative only & design has to be obtained for truss before fabrication, duly approved by BHEL. Rate is including all steel sections, fixing in position, labour charges and cost of red oxide primer at factory and two coats of synthetic enamel paints (over primer coat of red oxide) of approved colour and quality at site.	80	MT		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
C.8.2	Design, manufacture, supply and erection of structural columns providing and fixing base plates with holding down bolts on RCC pedestals, gussets, ribs, pins, splices etc. As required including transport, loading, unloading charges from fabrication shop to site etc. Drawing attached with tender is indicative only & design has to be obtained for columns before fabrication, duly approved by BHEL. Rate is including all steel sections, fixing in position, labour charges and cost of red oxide primer at fabrication yard and two coats of synthetic enamel paints (over primer coat of red oxide) of approved colour and quality at site.	13	MT		
C.9	Providing and fixing 6/7mm thick AC corrugated sheets with ridge caps for roofing including galvanised iron 'J' or 'I' hook bolts, GI iron and bituminous washers, GI cramp bolts, nuts etc complete, all as per latest IS:459, IS:3307 and IS:730.	3100	m ²		
C.10	Providing and fixing translucent RMP/FRP sheets 1.5mm thick of approved make including cost of GI hooks/ 'J' or 'I' bolts, nuts, washers, bitumen washers etc complete so as to match with AC corrugated sheets.	130	m ²		
C.11	Manufacturing, supply and fixing of best quality country wood doors comprising of frame 95 x 70mm and 38/40mm thick flush shutters of solid core type using commercial ply including hold fasts, wind appliances, handles, tower bolts and Aldrops, mortise or suitable locks etc as per the standard practice and applying two coats of synthetic enamel paint of approved shade over a coat of primer as directed by BHEL engineer.	30	m ²		
C.12	Manufacture, supply and fixing in position of steel windows and ventilators including frames & iron barred (guard bar of square section @ 100 mm c/c) and glazed with 4 mm plain glass as per standard specifications, relevant is code and instructions of BHEL engineer. The cost shall be inclusive of all accessories fittings, hold fasts, painting two coats of synthetic enamel paint of approved colour and quality over one coat of red oxide primer etc.			As follows	As follows

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
C.12.1	Steel windows	12	m ²		
C.12.2	Steel louvered ventilators :-	30	m ²		
C.13	Providing and plastering with cement mortar 1:6 over both internal and external faces of brickwork and concrete surfaces, partition walls etc of all heights including preparing the surface, raking joints, scaffolding, curing, cost of all materials, labour etc.			As follows	As follows
C.13.1	External plaster 18 mm thick	2970	m ²		
C.13.2	Internal plaster 12 mm thick	2670	m ²		
C.14	Providing white or colour wash three coats on newly plastered surface using best shell lime to give an even shade including cleaning and brushing of walls and preparing surface in accordance with standard specification. Rate to include cost of all materials including colouring agent, approved adhesive, scaffolding, brush etc.	4600	m ²		
C.15	Manufacture, supply and fixing of MS rolling shutters as per IS specifications, complete, mechanically operated from inside and outside both as instructed by BHEL engineer including two coats of synthetic enamel paint of approved colour and quality over one coat of red oxide primer.	73	m ²		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
	SECTION-D: Internal Electrification of Closed Storage Sheds 3 Nos.			As follows	As follows
D.1	Supplying & Installing Power Distribution Board complete with:	1	Set		
	1) Incoming MCB TPH 100 Amps. - 1 No.				
	2) Outgoing MCB TPH 32 Amps. - 4 Nos.				
	3) RCCB DP 25/20 Amps. - 3Nos.				
	4) Outgoing MCB SP 6 Amps - 6Nos.				
	All RCCBs, MCBs shall be MDS/INDO KOPP make				
	Distribution Boards shall be SIEMENS / MDS / INDO KOPP make with internal bus bars, internal wiring, 2 nos earthing terminals, earth connections, including Glands, Lugs				
D.2	Providing & Fixing Aluminium Dispersive Luminaries enamelled green and white with cast Aluminium flange and nipple suitable for use with GLS lamp, dome 12" diameter, with hanging bracket and 200W GLS lamp of Crompton Greaves or Bajaj or Philips make.	105	Nos.		
D.3	Wiring with 2.5 sq mm ISI mark copper wire for above in PVC conduit along with GI earth wire inclusive of all material, labour etc.	105	Points		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
D.4	Supplying & Fixing Wall Mounting type LIGHTING PANELS, each with:	4	Sets		
	(1) Incoming MCB TPN -32 Amps - 1No.				
	(2) RCCB DP 32 Amps - 3Nos (3) MCB SP 6 Amps - 30 Nos.				
	All MCBs and RCCBs shall be of MDS / INDO KOPP make				
	Lighting Panel shall be SIEMENS/MDS/INDO KOPP make with internal bus bars, 2 nos. earthing terminals, earth connections, including Glands, Lugs & wiring from main DB.				
D.5	Providing Earth Pits with 2" dia, 2.5 m long GI Pipes with flange and 8 SWG GI wire with Charcoal, Salt and as per IS:3043. Rate shall be inclusive of all material, labour etc. A brick wall chamber with CI cover for each earth pit shall be provided.	4	No.		
	SECTION-E: Construction of two Semi-closed Stores Sheds (60 m x 15 m)			As follows	As follows
E.1.1	Earth work - excavation from zero to 2 m depth in all kinds of soil (except hard rock and soft rock) for foundation columns, septic tank, soak pit, ramps etc., spreading the earth uniformly around the office /store complex area as well as open storage yard for site development within the project boundary as directed by BHEL engineer and including disposal of surplus earth (if any) including dewatering with all T&P, labours, materials etc.	400	m ³		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
E.1.2	Earth work - excavation from zero to 2 m depth in all kinds of soil including hard rock and soft rock for foundation columns, septic tank, soak pit, ramps etc., spreading the earth uniformly around the office /store complex area as well as open storage yard for site development within the project boundary as directed by BHEL engineer and including disposal of surplus earth (if any) including dewatering with all T&P, labours, materials etc.	800	m ³		
E.2.1	Backfilling the foundation and plinth with excavated soils in layers not exceeding 15 cm thickness including watering and consolidating etc complete as per standard specification and as instructed by BHEL engineer.	1200	m ³		
E.2.2	Back filling the foundation and plinth with moorum in layers not exceeding 15 cm thickness including watering and consolidating etc complete as per standard specification and as instructed by BHEL engineer.	600	m ³		
E.3	Providing and laying of plain cement concrete of mix 1:4:8 using 40mm & down size hard broken granite stone jelly for foundation, flooring, etc including shuttering, curing, consolidation etc. Complete as per standard specifications and as directed by BHEL engineer.	250	m ³		
E.4.1	Providing and laying RCC of mix 1:2:4 using 20mm down size hard broken granite stone aggregate including mechanical mixing, vibration, curing, form work and cantering as per drawing and specification and as directed by BHEL engineer but excluding cost of reinforcements for <u>foundation, columns, beams</u> etc., at all elevations and levels.	100	m ³		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
E.4.2	Providing and laying RCC of mix 1:2:4 using 20 mm down size hard broken granite stone aggregate including mechanical mixing, vibration, curing, form work and centring as per drawing and specification and as directed by BHEL engineer but excluding cost of reinforcements for <u>flooring, ramp</u> etc., at all elevations and levels.	250	m ³		
E.4.3	Providing DPC with CC 1:2:4, 50 mm thick including bitumen coating as per standard practice and specifications.	75	m ²		
E.5	Providing and fixing reinforcement including cutting, bending and fabrication of reinforcement using high tensile TORR steel as per drawing and specification and as directed by BHEL engineer including cost of all leads, lift and materials, labour and MS binding wire 18/20 gauge etc.	20	MT		
E.6	Providing brick work in CM 1:6 (1 cement & 6 coarse sand) using locally available bricks as per drawing for foundation, wall, septic tank etc. Including cost of all materials, labour, scaffolding, curing etc complete and as directed by engineer at all elevations and levels including raking out joints, curing etc complete excluding plastering & painting.	500	m ³		
E.7	Providing half-brick work partition wall in cm 1:4 and plastering in CM 1:6 12 mm thick on both faces including cost of all materials, labour, scaffolding, curing as per drawing and as directed by BHEL engineer	20	m ²		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
E.8.1	Design, manufacture, supply and erection of tubular trusses, purlins (and side runners to support side sheeting in semi closed storage sheds) spaced generally @ 1.4 m centre to centre to support roofing with ac sheets and wind ties to be provided above sheets and providing and fixing base plates with holding down bolts on RCC columns, gussets, ribs, pins, splices etc as required including transport, loading, unloading charges from fabrication shop to site etc. Drawing attached with tender is indicative only & design has to be obtained for truss before fabrication, duly approved by BHEL. Rate is including all steel sections, fixing in position, labour charges and cost of red oxide primer at factory and two coats of synthetic enamel paints (over primer coat of red oxide) of approved colour and quality at site.	50	MT		
E.8.2	Design, manufacture, supply and erection of structural columns providing and fixing base plates with holding down bolts on RCC pedestals, gussets, ribs, pins, splices etc. As required including transport, loading, unloading charges from fabrication shop to site etc. Drawing attached with tender is indicative only & design has to be obtained for columns before fabrication, duly approved by BHEL. Rate is including all steel sections, fixing in position, labour charges and cost of red oxide primer at fabrication yard and two coats of synthetic enamel paints (over primer coat of red oxide) of approved colour and quality at site.	13	MT		
E.9	Providing and fixing 6/7 mm thick AC corrugated sheets with ridge caps for roofing including galvanised iron 'J' or 'I' hook bolts, GI iron and bituminous washers, GI cramp bolts, nuts etc complete, all as per latest IS:459, IS:3307 and IS:730.	3000	m ²		
E.10	Providing and fixing translucent RMP/FRP sheets 1.5mm thick of approved make including cost of GI hooks/ 'J' or 'I' bolts, nuts, washers, bitumen washers etc complete so as to match with AC corrugated sheets.	130	m ²		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
E.11	Manufacturing, supply and fixing of best quality country wood doors comprising of frame 95x70 mm and 38/40mm thick flush shutters of solid core type using commercial ply including hold fasts, wind appliances, handles, tower bolts and Aldrops, mortise or suitable locks etc as per the standard practice and applying two coats of synthetic enamel paint of approved shade over a coat of primer as directed by BHEL engineer.	15	m ²		
E.12	Manufacture, supply and fixing in position of steel windows and ventilators including frames & iron barred (guard bar of square section @ 100 mm c/c) and glazed with 4 mm plain glass as per standard specifications, relevant is code and instructions of BHEL engineer. The cost shall be inclusive of all accessories fittings, hold fasts, painting two coats of synthetic enamel paint of approved colour and quality over one coat of red oxide primer etc.			As follows	As follows
E.12.1	Steel windows	12	m ²		
E.12.2	Steel louvered ventilators :-	30	m ²		
E.13	Providing and plastering with cement mortar 1:6 over both internal and external faces of brickwork and concrete surfaces, partition walls etc of all heights including preparing the surface, raking joints, scaffolding, curing, cost of all materials, labour etc.				
E.13.1	External plaster 18 mm thick	2970	m ²		
E.13.2	Internal plaster 12 mm thick	2670	m ²		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
E.14	Providing white or colour wash three coats on newly plastered surface using best shell lime to give an even shade including cleaning and brushing of walls and preparing surface in accordance with standard specification. Rate to include cost of all materials including colouring agent, approved adhesive, scaffolding, brush etc.	4600	m ²		
E.15	Manufacture, supply and fixing of MS rolling shutters as per IS specifications, complete, mechanically operated from in and outside both as instructed by BHEL engineer including two coats of synthetic enamel paint of approved colour and quality over one coat of red oxide primer (cost shall be inclusive of all the above complete).	50	m ²		
SECTION-F: Internal Electrification of Semi-Closed Storage Sheds 2 Nos.					
F.1	Supplying & Installing Power Distribution Board complete with:	1	Set		
	1) Incoming MCB TPH 100 Amps. - 1 No.				
	2) Outgoing MCB TPH 32 Amps. - 4 Nos.				
	3) RCCB DP 25/20 Amps. - 3Nos.				
	4) Outgoing MCB SP 6 Amps - 6Nos.				
	All RCCBs, MCBs shall be MDS/INDO KOPP make				
	Distribution Boards shall be SIEMENS / MDS / INDO KOPP make with internal bus bars, internal wiring, 2 nos earthing terminals, earth connections, including Glands, Lugs				

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
F.2	Providing & Fixing Aluminium Dispersive Luminaries enamelled green and white with cast Aluminium flange and nipple suitable for use with GLS lamp, dome 12" diameter, with hanging bracket and 200W GLS lamp of Crompton Greaves or Bajaj or Philips make.	105	Nos.		
F.3	Wiring with 2.5 sq mm ISI mark copper wire for above in PVC conduit along with GI earth wire inclusive of all material, labour etc.	105	Points		
F.4	Supplying & Fixing Wall Mounting type LIGHTING PANELS, each with:	4	Sets.		
	(1) Incoming MCB TPN -32 Amps - 1No.				
	(2) RCCB DP 32 Amps - 3Nos				
	(3) MCB SP 6Amps - 30 Nos.				
	All MCBs and RCCBs shall be of MDS / INDO KOPP make				
	Lighting Panel shall be SIEMENS/MDS/INDO KOPP make with internal bus bars, 2 nos. earthing terminals, earth connections, including Glands, Lugs & wiring from main DB.				
F.5	Providing Earth Pits with 2" dia, 2.5 m long GI Pipes with flange and 8 SWG GI wire with Charcoal, Salt and as per IS:3043. Rate shall be inclusive of all material, labour etc. A brick wall chamber with CI cover for each earth pit shall be provided.	4	No.		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
	SECTION-G: ROADS, FENCING, DRAINAGE OF OPEN STORAGE AREA			As follows	As follows
G.1	Excavation for roadway in all types of soils, sand, gravel or murrum including dressing section to the required grade, camber and side slopes (depth of excavation being 300 mm average) and spreading the excavated earth uniformly in the specified area for site levelling & development as directed by BHEL & consolidation of the surface by rolling the surface with 10 to 12 MT capacity road roller.	8000	m ³		
G.2	Excavation for side drains/drainage in all kinds of soils, to the specified section including spreading the excavated earth uniformly in the specified area for site levelling & development, disposing the surplus earth (if any) at the earmarked area (within 1 km distance) as directed by the BHEL engineer.	360	m ³		
G.3	Providing and laying soling 230 mm thick with 150 -200 mm thick boulder size and filling the voids with hand broken metal of size 40-60 mm spreading murrum and rolling and compaction including watering, with 10-12 MT capacity road roller.	3900	m ³		
G.4	Providing 150 mm thick water bound macadam (WBM) in two layers of each 75 mm, with 40 mm to 60 mm metal (stone aggregate) including supplying and spreading gravel/murrum over the soling/consolidated base, compacting the same with road roller including necessary labour, watering, materings etc, all as per relevant specifications and directions of BHEL engineer.	2700	m ³		
G.5	Providing and laying of plain cement concrete of mix 1:4:8 using 40mm & down size hard broken granite stone jelly for foundation, flooring, etc including shuttering, curing, consolidation etc complete as per standard specifications and as directed by BHEL engineer.	150	m ³		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
G.6	Providing brick work in CM 1:6 (1 cement & 6 coarse sand) using locally available bricks as per drawing for foundation, wall, septic tank etc including cost of all materials, labour, scaffolding, curing etc and as directed by BHEL engineer at all elevations and levels including raking out joints, curing etc excluding plastering & painting.	250	m ³		
G.7	Providing and plastering with cement mortar 1:6 (12 mm thick) over both internal and external faces of brickwork and concrete surfaces, partition walls etc of all heights including preparing the surface, raking joints, scaffolding, curing, cost of all materials, labour etc.	900	m ²		
G.8	Providing and fixing Barbed Wire fencing in locations as instructed by BHEL engineer, Fencing shall conform to specifications as in clause no. 4.5.1 of the Tender Specification (Part-I).	500	RM		
G.9	Providing and fixing Chain Linked wire fencing in locations as instructed by BHEL engineer, Fencing shall conform to specifications as in clause no. 4.5.2 of the Tender Specification (Part-I).	1600	RM		
G.10	Supplying & fixing in position RCC Hume pipe of 450 dia NP2 wherever drain crosses the roads including alignment, levelling etc as per the direction of BHEL engineer, including P.C. & collar joints, encasement with concrete 1:3:6 of 300 mm dia. Encasing shall be paid extra under respective items of concrete.	50	RM		
G.11	Supply fabrication, and fixing in position of MS gates with structural/tubular steel frames with galvanized chain link mesh of approved design including cost of foundation & posts, painting two coats by synthetic enamel paint of approved colour and quality over one coat of red oxide primer, cost of all materials, labour, transport etc.	3	MT		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
	SECTION-H: EXTERNAL ILLUMINATION OF OPEN STORAGE YARD			As follows	As follows
H.1	Supplying, installation & commissioning of sodium vapour lamp street light fitting 150 watt SSG-2315 IH of 'Crompton' or equivalent 'Philips' make, complete with one piece canopy, integral control gear comprising of copper wound choke, igniters, HPF capacitor, HPSV lamp and suitable for directly slipping over light mounting bracket made out of 40 mm OD pipe and suitable for lamps, control gear box cabling & termination of items supplied (to be mounted on 9 m high pole - item no. 2).	35	No.		
H.2	Supply and erecting steel tubular swaged poles 9 m long made of sheet steel having ultimate tensile strength 42 kg f/sq. mm confirming to BIS:2713 (Part-II) complete with 300x300x6 mm thick MS base plate for welding at site and size as per configuration given in BIS for 410 SP-28 (113 kg pole weight) with 1.5 m deep excavation, concreting in 1:4:8 ratio size 45 cm x 45 cm x 150 cm and pole plinth in 1:3:6 cement concreting having 300 mm height and 300 mm dia. Including double earthing of pole with suitable arrangement, duly painted with two coats of red oxide paint and one coat of aluminium paint to be applied after erection; the length of pole below ground to be painted with two coats of black bituminous paint. The pole shall be complete with JB, fuse and minor fabrication as following:	35	Set		
	i) Drilling 20 mm dia hole at about 2.5 m from ground level for wire leads from junction box to light fixture.				
	ii) Drilling 15 mm dia holes at about 0.7 and at 2.5 m from ground level and welding 12 mm nuts for using a 12 mm GI bolt for fastening earth conductors.				
	iii) Welding required holes for fixing pole cap of street light bracket				
	iv) welding 10 mm OD MS Round, 30 mm below pole top edge for clipping wire leads				

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
H.3	Supply of Steel Tubular Swaged Pole, 9 m long, type 410 SP-28 as per BIS:2713 (Part-II) complete with base MS plate size 300x 300 x 8 mm, suitable mounting arrangement for mounting two flood light luminaries of 'Crompton Greaves' make (FBD 1425/40- HPSV) or equivalent on each pole, including earthing of pole with suitable arrangement, duly painted with two coats of Red Oxide paint and one coat of Aluminium paint to be applied after erection, the length of pole below ground to be painted with two coats of black bituminous paint.	20	Nos.		
H.4	Erection of Steel Tubular Swaged Pole 9 m long type 410 SP-28 as per BIS:2713 (Part -II) complete with base MS plate size 300x300x8 mm, Providing cement concrete foundation including excavation of pit size 450 x 450 mm x depth 1.5 m in all types of soil, concreting with 1:3:6, concrete foundation all around the pole foundation and up to 200 mm above the ground level and tapered suitably into collar, height plinth duly plastered and necessary curing, finishing and backfilling etc.	20	Nos.		
H.5	Supply of weather proof flood light luminaries of 'Crompton Greaves' make (FBD 1425/40-with high pressure sodium vapour lamp 1x 400 watt along with non- integral type control gear box having adequate number of terminal connectors for terminating two cables of 3x10 sq. mm Al and suitable for outdoor application) or equivalent in 'Bajaj' or 'Phillips' make, including supply & fixing cables between the control gear box and light luminaries and mounting fixture with hardware for mounting of light luminaries and control gear box on pole type 410 SP-28.	40	Nos.		
H.6	Installation & commissioning of flood light luminaries, control gear box, cabling & termination for sr.no.01 (Items supplied above)	40	Nos.		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
H.7	Engineering, Supply and installation of lattice type structural Tower of height 15M .Tower shall be fabricated in three section of equal length of 5 Meter each. Preparation of fabrication drawing & its approval from BHEL. Brief details are as follows.	4	Nos.		
	Tower shall be adequately strong to withstand heavy wind. No stay/guy ropes shall be tied with it. At top of the tower adequate size of platform shall be provided with railing around the platform for mounting of lighting luminaries (tentatively twelve fitting on each tower) and maintenance purpose , floor of platform shall be covered with chequered plate. A ladder along with protective cage shall be provided along the height of tower. It should be painted with one coat red oxide primer and two coats of aluminium paint after installation. Each Tower shall be provided with power distribution box out door type and should have provision of terminating one number incoming and eight out going cables. Erecting at site including all civil works like excavation, casting of foundation of required size and depth with concrete of grade 1:2:4 with base plates, grouting of lattice structure, One earth pit as per BIS standard is to be made near the tower and earthing of the tower including supply of material etc.				
H.8	Supply of floodlight luminaries of 'Bajaj' make BGENF 22 OR equivalent in 'Crompton' or 'Phillips' make. Each luminary shall be with two number 400 watt HPSV lamps and control gear box integral/ non integral type including cables for interconnection. These fitting shall be mounted on lighting mast/ tower, on each tower 8 such fitting shall be mounted)	32	Nos.		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
H.9	Supply of Cables 3 ½ Core x 95 sq. mm. Aluminium armoured PVC Insulated Cable (Three and half core) Confirming to IS:1554 (Part-I)	1000	m		
H.10	Installation of Cables 3 ½ Core x 95 sq. mm. Aluminium armoured PVC Insulated Cable Confirming to IS:1554 (Part-I) including laying of cable below ground, excavation of trench of 600 mm depth in all kinds of soil, termination of cable cores with crimp type lugs, providing sand layer below & above cable, brick laying at both sides & above the cable, back- filling etc. Cables are to be laid from 415 Volt AC Distribution Board to Feeder Pillar board, Feeder Pillar Board to Lighting Mast / Tower.	1000	m		
H.11	Supply of Cables 2 Core x 10 sq. mm. Aluminium armoured PVC Insulated Cable Confirming to IS:1554 (Part -I)	3700	m		
H.12	Installation of Cables 2-Core x 10 sq. mm Aluminium armoured PVC Insulated Cable Confirming to IS:1554 (Part-I) including laying of cable below ground, excavation of trench of 600 mm depth in all kinds of soil, termination of cables cores with crimp type lugs, providing sand layer below & above the cable, brick laying at both sides & above the cable and back filling etc complete. Cables are to be laid from 415 Volt AC Power Feeder Pillar Board to Lighting poles & Pole to Pole	4125	m		

Date

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Bharat Heavy Electricals Limited
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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
H.13	Supply of Cables 3 ½ Core x 185 sq. mm Aluminium armoured PVC Insulated Cable conforming to IS:1554 (Part-I)	500	m		
H.14	Installation of Cables 3 ½ Core x 185 sq. mm Aluminium armoured PVC Insulated Cable conforming to IS:1554 (Part-I) including laying of cable below ground, excavation of trench of 600 mm depth in all kinds of soil, termination of cable cores with crimp type lugs, providing sand layer below & above the cable, brick laying at both sides & above the cable, backfilling etc. Cables are to be laid from Transformer Sub-station to 415 Volt AC Distribution Board	500	m		
H.15	Supply of Cables 3 ½ Core x 35 sq. mm. Aluminium armoured PVC Insulated Cable (Three and half core) Confirming to IS:1554 (Part-I)	370	m		
H.16	Installation of Cables 3 ½ Core x 35 sq. mm Aluminium armoured PVC Insulated Cable conforming to IS:1554 (Part-I) including laying of cable below ground, excavation of trench of 600 mm depth in all kinds of soil, termination of cable cores with crimp type lugs, providing sand layer below & above the cable, brick laying in both sides & above the cable, backfilling etc. Cables are to be laid from Transformer Sub-station to 415 Volt AC Distribution Board	500	m		

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
H.17	Supply & Installing 3-Phase Metering and Power Distribution Board complete with : (1) Incoming SFU TPN 400 AMPS - 1 No, (2) Outgoing SFU TPN 200 Amps - 2 Nos. (3) Outgoing SFU TPN 100 Amps - 2 Nos. (4) Outgoing SFU TPN 32 Amps - 2 Nos. 3 Phase Electronic Energy Meter - BHEL / L&T / GEC make Ammeter, Voltmeter and Selector switches for both - AE and Kaycee make. Phase Indication Lamps, HRC fuses for IC and OG feeders, Cable glands, Power Terminals for cables termination, cable lugs and provision for doubly earthing the panel enclosure. Panel enclosure shall be made of sheet metal thickness not less than 1.6 mm and suitable for out door installation, modular construction, hinged door with locking arrangement, base frame, should have slopped canopy, duly painted with first coat of primer and two coats of synthetic enamel paint (interior with white paint and exterior with light grey as per shade 5, IS:630) internal power distribution to devices shall be with Aluminium bus bars OR copper flexible single core PVC cables of 1.1 KV grade, control wiring with 1.5 sq. mm, suitable stool made out of MS structure of 1.2 m high for mounting of panel with anchoring arrangement at foundation, suitable for bottom entry of cables.	1	No.		

Date

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SN	Description (Item of Work)	QTY	UOM	Unit Rate (Rs.)	Amount (Rs.)
H.18	Providing suitable foundation for mounting AC Distribution Board as specified in SN 15, Installation & commissioning of panel	1	No.		
H.19	Supply of 415 volt AC, 3-phase and four-wire Power Feeder Pillar Board; Board shall comprise of three and one Aluminium Bus Bar for phase & neutral respectively. Bus bar rating shall be 200 Amps and shall be mounted on epoxy insulator of 1.1 KV grade, Each bus bar shall have drilled hole for connecting incoming / outgoing cables, provision for earthing the panel enclosure. Panel enclosure shall be made of sheet metal thickness not less than 1.6 mm and suitable for outdoor installation, hinged door with locking arrangement, base frame, should have slopped canopy, Duly painted with first coat with primer and two coats of synthetic enamel paint (interior with white paint and exterior with smoke grey as per IS), Suitable stool made out of MS structure of 1.2 m high for mounting of panel with anchoring arrangement at foundation.	2	No.		
H.20	Providing suitable foundation for mounting 415 volt AC Power Feeder Pillar Board as specified in Sl. No. 12, Installation & commissioning of panel	2	No.		
TOTAL OF ALL ABOVE ITEMS IN RS. (Figures)					
Total Amount (Words) Rupees ...					

Date

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