

**TENDER NO: PSER:SCT:NBN-C2068:20**

**VOLUME -III**

**PRICE SCHEDULE-REV-00**

**FOR**

**CONSTRUCTION OF 3 NOS 150M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE  
GLASS BLOCK LINING SYSTEM ON MS FLUE CAN (EXCLUDING PILE) AT 3X660 MW NPGCL  
NABINAGAR STPP FGD, BIHAR.**

**BHARAT HEAVY ELECTRICALS LIMITED**

**( A GOVT. OF INDIA UNDERTAKING )**

**POWER SECTOR – EASTERN REGION**

**PLOT NO. – 9 / 1, DJ – BLOCK,**

**SECTOR – II, KARUNAMOYEE,**

**SALT LAKE CITY,**

**KOLKATA – 700091.**

VOLUME-III PRICE SCHEDULE, REV-00	
JOB: CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN (EXCLUDING PILE) AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR.	
TENDER NO. PSER:SCT:NBN-C2068:20	
PREAMBLE	
SL NO	DESCRIPTION
1	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully before filling in rates for various items. Clauses under this preamble shall be read in conjunction with various volumes of tender and other tender sections as applicable and shall have precedence over any contrary statement mentioned anywhere in this document. The tenderer shall sign & stamp all the pages of the tender document as a token of their acceptance. Submission of unfilled formats with sign & stamp shall be construed as acceptance of the contents of the same.
2	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions. Drawings enclosed with the tender are only preliminary and for guidance/tender purposes giving some idea of the work involved. The work is to be executed as per terms & conditions of the tender and actual drawings/documents, which shall be furnished during execution.
3	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
4	Unless specifically mentioned otherwise in the tender document, the tenderer shall quote for the finished items and shall provide for the complete cost towards power, fuel, tools, tackles, equipment, constructional plants, temporary works, labour, dismantling of all temporary piping, structures, valves, pumps, tanks & other misc. equipment, strengthening of roads/culverts/bridges etc. including arranging all clearances etc. required for carrying out different activities & tests, materials, levies, transport, layout, repairs, rectification, maintenance till handing over, supervisions, colonies, shops, establishments, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work according to the complete tender document and this schedule.
5	The quantities of the various items mentioned in this schedule of items are approximate, based on very preliminary information and may vary to any extent or be deleted altogether. The quoted rates of each item will remain firm throughout the period of execution including extension, for reasons whatsoever, as long as variation in the total value of work executed under any part of this contract including extra items, if any but excluding any price variation remains, within plus minus fifteen percent ( $\pm 15\%$ ) of the awarded price as per LOI.
6	Prior written approval of BHEL shall be sought by the contractor in case quantity variation of any item crosses +50% (plus fifty percent) limit during execution and approval to be obtained before execution of further quantity for this item.
7	In case Sealed /Paper Price Bids are opened for finalisation of the tender, for any Item Rate/BOQ based service contract, possibility of variation of quantity/ addition/deletion of items can not be ruled out. Under such circumstances, after execution of work, if it is observed that standing as L-1 is changed based on actual quantity executed, the bidder shall give suitable rebate to maintain your standing as L-1. Since this aspect can be assessed at the end of execution, necessary adjustment will be effected at the end of execution in final bill. This condition shall not be applicable where the tender is finalised through Reverse Auction.
8	BHEL reserve the right to rationalize the rates, quoted by L-1 bidder against unit rate items and/ or other optional items with respect to item-wise lowest rates (amongst the participating bidders), before placement of order. The rates of unit rate/optional items shall remain valid till execution of the order, if the job/work is awarded to the bidder.
9	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing, clearing of old structures and leveling etc. including fixing of grid pillars, benchmarks etc. required for commencement of site activities. No separate payment will be made towards the same. However, if separate rate for such item is available in the rate schedule, the same shall be considered.
10	Rates shall be quoted in figures and in words in clear legible writing. No overwriting is allowed. All scoring and cancellations should be countersigned and in case of illegibility the interpretation of engineer shall be final. All entries shall be in English language.
11	All works item wise shall be measured upon completion and paid for at the rates quoted and accepted as per BHEL approved payment schedule/billing break-up.
12	The tender shall be deemed to have visited site and made himself aware of all the site conditions, studied the specifications and details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site before submission of his bid/offer. No claim whatsoever due to lack of knowledge of site conditions shall be entertained after award of the work.
13	No splitting of the job is envisaged unless the same is specifically indicated in the TCC/Vol-1F. Decision of BHEL in this regard shall be final and binding to the bidders.
14	Bidders are not allowed to alter the Price Schedule format including item description, quantity etc. and the offer is liable for rejection if the bidders submit their prices in Price Schedules modified by them. BHEL reserves the right to reject the offers of bidders who submit offers in Price Formats which are modified/altered by them. Also putting any comments instead of rates/price in the designated column of the rate schedule shall make the offer liable for rejection.
15	Bidders to note that for Civil & Structural packages, against a particular item against a ST No. appearing in more than one schedule of the BOQ, same rate must be quoted in all schedules for that particular items with same descriptions. If by error, different rates are quoted in different schedules for same ST No. (i.e. item with same description), then the higher of the rates shall be considered for evaluation but awarding shall be done with the lower rate, if the bidder becomes L-1. The same modality shall be applicable for other item rate service contracts where item with same description is repeated in different schedules.
16	For Lumpsum Service Contract : The items/components indicated in the tender is indicative and may vary to any extent. No compensation shall be payable in case of any variation in the items/components listed in the bill of quantities if the executed weight remains within the variation limit. However, in case of deletion of any item or addition of new items over and above the items listed or variation of existing quantity beyond variation limit specified, adjustment (i.e. Payment or recovery as the case may be) shall be done on pro-rata basis based on the Rate per MT worked out from the quoted lump-sum Price and the total weight of components listed /indicated in price schedule plus 15% weight variation limit.
17	Engineer's decision shall be final and binding on the contractor regarding clarification of items in the schedule with respect to the other sections/volumes of the contract.
18	In case of tender for Civil and/or Structural works, if the Non-schedule items are not quoted by the bidder, it will be treated at par with rate of corresponding item of CPWD/PWD/DSR schedule as prescribed in the tender/BOQ cum Rate Schedule. PVC/escalation is not payable for these Non-scheduled items.
19	No interest, whatsoever, shall be payable by BHEL on the security deposit, any bank guarantee submitted or any amount due to successful bidder/contractor. No idling charge whatsoever (either for labour or any other resources) is payable by BHEL for any reason whatsoever.
20	Size and weights of various items are mentioned in the attached BOQ cum rate/price schedule for reference purpose only & these shall not be taken into consideration for quoting/calculating amount in the rate schedule. These shall be utilised as per relevant sections of tender. Bidders shall quote for each item in the rate column, taking unit as mentioned in the quantity column. Rates shall be filled in both figures and words. Amount shall be calculated based upon these rates multiplied by the mentioned quantity for the respective items.
21	Bidder's Total price shall be considered for evaluation unless stated otherwise.
22	In case of BOP packages, if Bidder does not quote/indicate the price for freight charges against indicated rate schedule, the same shall be considered as 2% of basic price and adjusted with the total quoted price against each item keeping the total quoted price unaltered.

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TENDER NO. PSER:SCT:NBN-C2068:20			
SCHEDULE - 1 : TOTAL PRICE			
SL NO	DESCRIPTION	PRICE SCHEDULE REF	TOTAL PRICE (IN INR)
1.0	TOTAL PRICE FOR CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR (EXCLUDING PILE)	SCH 2 - PRICE BREAK UP	<u>IN FIGURES:-</u>  <u>IN WORDS:-</u>
2.0	NON-SCHEDULE ITEM For items not covered in Schedule 2, quote % above or % below or at par of the CPWD Schedule of rates 2018		
a)	Rate of complete item	_____ % above / _____ % below/ at par of CPWD Rate Schedule 2018	
b)	Rate of supply of material at site only	_____ % above / _____ % below/ at par of CPWD Rate Schedule 2018	
c)	Rate for execution complete excluding supply of materials.	_____ % above / _____ % below/ at par of CPWD Rate Schedule 2018	
<b>NOTE</b>			
1.0	Bidder shall quote total price for SCH-2- Part only at SI No. 1 above. All other amounts / rates of each item of works in respective schedules / parts will be derived based on allocated percentages. As such, any uncalled figure/ amount noted at any other place / schedule of Volume-III will not be reckoned & will stand null & void.		
2.0	Bidder to note that total price at SI No. 1 above shall be considered for evaluation & awarding. As such grand total price should be complete in all respect for the full scope defined and considering all terms and conditions.		
3.0	Bidder's quoted total price of SCH-2 at SI. No 1 above, shall be apportioned into amount of various items of works based on allocated percentages against respective item, in respective schedules / parts. As such, bidder shall not indicate / quote any amount / rate in these schedules / parts and any amount / rate quoted against any item shall not be taken into cognizance / account and offer may be liable for rejection.		
4.0	Based on the itemwise percentage allocations, the amount for the individual items of the Bill of Quantity shall be arrived at. The rates of individual items shall be derived from the amount against each items and its quantity after rounding off to upto 2 decimal places. However, RA bill payment shall be done after rounding off the gross amount to two decimal points. Any adjustment, if required, due to such methodology, will be effected / adjusted in final bill.		
5.0	Bidders to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per SI No.4 above.		
6.0	Any item as per scope of work, if not included in the price quoted above and shown separately will not be taken cognizance of and the offer shall be liable for rejection.		
7.0	Price format shall not be changed by bidder in any case and it may lead to cancellation of their offer.		
8.0	The quoted price shall be excluding GST including freight on FOR site basis.		
9.0	The quantity of items may vary during execution mainly due to actual requirement etc. The unit rates work out from the overall amount quoted & accepted by BHEL shall be considered and no separate unit rates shall be allowed. Unit rates shall be valid throughout the contract period.		
10.0	For payment of non schedule items, the rate shall be derived from CPWD Schedule - 2018.		

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SCHEDULE - 2 : BREAK UP OF TOTAL PRICE			
SL NO	DESCRIPTION	PRICE SCHEDULE REF	WEIGHTAGE
1.0	TOTAL PRICE FOR CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR (EXCLUDING PILE)		
a	SERVICE	SCH 3	0.76339314
b	SUPPLY	SCH 4	0.23660686
2.0	TOTAL		1.00000000

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SCHEDULE- 3 - SERVICE				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
<b>PART-1A</b>	<b>CIVIL WORKS</b>			
1	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting wherever required (but excluding Steel sheet piling), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead up to 1 km, spreading/levelling of disposed materials etc all complete for following depths below ground level. <b>[Measurement of excavation shall be paid as per actual quantity at site as per direction of Engineer in charge)</b>			
a	Depth from ground level but not exceeding 2 m	cum	<b>7800</b>	0.00154473
b	Depth exceeding 2 m but not exceeding 4 m	cum	<b>6600</b>	0.00163679
c	Depth exceeding 4 m but not exceeding 6 m	cum	<b>1500</b>	0.00046567
3	Breaking pile head up to cut off level and exposing pile reinforcement for embedment in pile cap etc including all material, labour, incidental etc. and transportation of concrete debries up to disposal yard complete as per specification, drawing and as directed by the engineer-in-charge for the following.			
a	Pile with 760 mm diameter	EACH	<b>465</b>	0.00162691
7	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm compacted thickness using/with selected materials from compulsorily excavated soil available within a lead upto 1 km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer- in-charge. <b>[Measurement of Backfilling shall be paid as per excavation quantity after deduction for concrete &amp; other buried items etc.]</b>			
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	cum	<b>3150</b>	0.00047209

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SCHEDULE- 3 - SERVICE				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
8	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm compacted thickness using/with selected materials directly from excavation and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer- in-charge. <b>[Measurement of Backfilling shall be paid as per excavation quantity after deduction for concrete &amp; other buried items etc.]</b>			
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	cum	<b>600</b>	0.00002676
9	Extra over item No. 1 and 3 to 7 for carriage of excavated earth/selected materials for every 500 m or part thereof beyond an initial lead of 1 km.	cum	<b>12600</b>	0.00015736
10	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm compacted thickness using/with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying borrowed soil, royalty (if any), watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer- in-charge. <b>[Measurement of Backfilling shall be paid as per excavation quantity after deduction for concrete &amp; other buried items etc.]</b>			
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	cum	<b>6000</b>	0.00248356
11	Supplying and filling sand upto any depth below grade slab, around foundations, etc. in layers not exceeding 300 mm compacted thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer- in-charge.	cum	<b>1950</b>	0.00653264
12	Supplying and laying (inside chimney in the space below the grade level slab) crushed rock range 63 mm to 45 mm in layers not exceeding 200 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	cum	<b>750</b>	0.00226076

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SCHEDULE- 3 - SERVICE				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
13	<b>Transportation from batching plant &amp; laying</b> Nominal Mix plain cement concrete (M 7.5) with graded aggregate (with maximum size of coarse aggregate not exceeding 40 mm) at all levels for all kinds of work like mass concrete, lean concrete, mudmat, filling etc. including labour, materials, equipment, handling, transporting, batching, curing, testing etc. all complete as per specifications, drawings and instructions of the Engineer. <b>[Ready mix concrete will be provided by BHEL free of cost at batching plant]</b>	cum	<b>405</b>	0.00068454
14	<b>Transportation from batching plant &amp; laying</b> design mix cement concrete with graded aggregate (maximum size of coarse aggregate not exceeding 20 mm) for reinforced concrete work at all levels for all kinds of work, including labour, materials, equipment, handling, transporting, batching, mixing, placing, levelling, compacting, curing, testing etc. and rendering or cleaning and finishing the exposed surface with cement mortar (1:3) to give smooth and even surface, all complete as per specifications, drawings and instructions of the Engineer, but excluding all formwork and reinforcing steel. <b>[Ready mix concrete will be provided by BHEL free of cost at batching plant]</b>			
i	For all works below ground level (except chimney shell)			
b	Grade M-30 (foundations, etc)	cum	<b>7275</b>	0.01395152
ii	For all other works			
a	Grade M-25 grade level slab, pit, trenches, drain etc.	cum	<b>195</b>	0.00037190
c	Grade M-35 for chimney shell, corbels and external platforms and other shell attachments.	cum	<b>60</b>	0.00017780
d	Grade M-25 for all other components of the super structure, roof slab, mini -shells, beams, columns wall etc.	cum	<b>30</b>	0.00008890
A14	Providing & laying design mix cement concrete with graded aggregate (maximum size of coarse aggregate not exceeding 20 mm) for reinforced concrete work at all levels for all kinds of work, including labour, materials, equipment, handling, transporting, batching, mixing, placing, levelling, compacting, curing, testing etc. and rendering or cleaning and finishing the exposed surface with cement mortar (1:3) to give smooth and even surface, all complete as per specifications, drawings and instructions of the Engineer, but excluding all formwork and reinforcing steel. <b>[Supply of Concrete is in the scope of Contractor]</b>			
i	For all works below ground level (except chimney shell)			
b	Grade M-30 (foundations, etc)	cum	<b>75</b>	0.00089948
ii	For all other works			
a	Grade M-25 grade level slab, pit, trenches, drain etc.	cum	<b>30</b>	0.00035366

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SCHEDULE- 3 - SERVICE				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
c	Grade M-35 for chimney shell, corbels and external platforms and other shell attachments.	cum	14040	0.20467893
d	Grade M-25 for all other components of the super structure, roof slab, mini -shells, beams, columns wall etc.	cum	30	0.00037922
B14	Extra over Sl. No. A14 for controlling of temperature of fresh concrete to less than 23 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	cum	5514	0.00334596
15	Providing and applying three coats of bitumen grade 85/25 as per IS 702 ( @ 1.7kg/sqm) with 1% antistripping compound conforming to IS 6241 in foundation, shell, pedestal etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	Sqm	3000	0.00152803
16	Providing and placing steel reinforcements of TMT steel of grade Fe-500 /Fe 500D confirming to IS:1786 and having minimum elongation 14.5% , for reinforced concrete work, at all levels, for all kinds of work, including transportation, cleaning, derusting, straightening, cutting, bending, binding in position with annealed wire and/or welding, providing concrete cover blocks, pins, separators, chairs, supports for reinforcement, etc. with all materials, labour, equipment, handling, testing, transportation to & from stores etc., preparation of bar bending schedules, all complete as per specifications, drawings and instructions of the Engineer.			
i	For all works below ground level (except chimney shell)			
a	High strength deformed bars <b>[Reinforcement bars will be issued by BHEL Free of cost]</b>	MT	807	0.01316844
ii	For all other works			
a	Mild steel reinforcement bars <b>[Mild steel reinforcement procurement in vendors scope]</b>	Mt	30	0.00346743
b	High strength deformed bars <b>[Reinforcement bars will be issued by BHEL Free of cost]</b>	Mt	1551	0.02908377
A17	Providing and fixing formwork of approved quality for cast-in-situ, plain or reinforced concrete works of any type and section for all works below ground level (except chimney shell) for all depths, including labour, materials, equipment, waste of forms, shoring, strutting, scaffolding, staging, tying, nailing, caulking, bolting etc. and removal of form work and staging etc. all complete as per specifications, drawings and instructions of the Engineer.	Sqm	2550	0.00311121



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SCHEDULE- 3 - SERVICE				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
B17	<p>Inner and outer faces of wind shield with slip form shuttering: Providing and fixing formwork using slipform (inner and outer faces) for concreting in chimney for cast in situ, reinforced concrete works of any type and section for all elevations, including labour, materials, equipment, waste of forms, scaffolding, staging, tying, nailing, caulking, bolting, maintenance, dismantling etc. all complete as per specifications, drawings and instructions of Engineer in charge. (Area of inner face and outer face shall be measured separately.)</p> <p><b>Mode of Measurement:- Total formwork quantity in chimney shell applicable to Slipform work as per specifications &amp; drawings shall be jointly measured and certified. Certified quantity(SQM) to be paid in line to the unit rate of B17a) i), B17a) ii) &amp; B17a) iii).</b> <b>(The slipform arrangement material shall be the property of contractor)</b></p>			
a	<p>Design, Engineering, Approval of Drawings, Supply &amp; Installation of Slipform system as per approved drawings duly reviewed &amp; vetted by approved Third Party/Engineering for chimney or silo or any other shell/structure work at site including all safety requirements/arrangements, installation of all supporting items like structural members, winch arrangement, wooden platforms, jacks(including testing by Third Party) &amp; jack-rods, lighting arrangements, panels, passenger cage, nuts/bolts, manpower, all other arrangements necessary for concreting &amp; material shifting, providing spares for smooth operation, dismantling, etc all complete.</p> <p><b>Quantity measured for B17a) i), B17a) ii) &amp; B17a) iii) shall be same and shall be restricted to the quantity measured in B17 a iii)</b></p>			
i)	For Mobilisation & Installation(Payment of the total certified quantity of the shell shall be made for mobilisation of slipform only after start of successful slipping as certified by Engineer in charge.)	Sqm	54000	0.04903683
ii)	For Dismantling of the Slipform System(Payment of the total certified quantity of the shell shall be made only after complete dismantling of slipform as certified by Engineer in charge.)	Sqm	54000	0.01225921
iii)	<p>Slipping/Providing formwork at inner and outer faces of wind shield with slip form shuttering with slipform arrangement.</p> <p>(Cost for design, mobilisation, installation &amp; dismantling of slipform shall be paid separately in Item No B17 i) &amp; B17 ii) and cost for slipping/providing &amp; maintenance of slipform work to be paid in this item)</p> <p>Measurement for payment to be done progressively as per actual slipping executed at site.</p>	Sqm	54000	0.06129604

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<b>SL No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity (3 Chimneys)</b>	<b>Weightage</b>
C17	Providing and fixing formwork of approved quality for cast-in-situ, plain or reinforced concrete works of any type and section for all other components of the superstructure like slabs, beams, columns, walls, enclosures, mini shells, external platforms, corbels, other shell attachments, chases/recesses in shell etc. including labour, materials, equipment, waste of forms, all complete as per specifications, drawings and instructions of the Engineer.	Sqm	1500	0.00393970
18	Providing and fixing formwork in shell openings and pockets (above 0.1 sq.m surface area) including cutting, formation of shapes and all other operations required for making the required shape and size, removal of formwork, all complete as per specifications, drawings and instructions of the Engineer.	Sqm	345	0.00078832
19	Providing and placing in position at all levels, building paper (kraft paper), as per IS:1397, between concrete surfaces including the cost of labour, material, etc. complete as per drawings and instruction of the Engineer.	Sqm	210	0.00003435
20	Providing and installing, at all levels, bitumen impregnated fibre boards, 12 mm thick, conforming to IS:1838, as joint filler at joints in concrete, including nailing, coating of both faces with coal tar pitch/bitumen, including the cost of all labour, material and equipments etc., complete as per drawings, specifications and instructions of the Engineer.	Sqm	90	0.00019321
21	Providing and filling, at all levels, bitumen sealing compound (hot applied type) conforming to IS:1834, for sealing gaps and joints in concrete, including cleaning, mixing, heating, pouring or injecting, application of primer, cost of all labour, material and equipments etc., complete as per drawings, specifications and instructions of the Engineer.	Kg	1425	0.00047111
22	Preparing detailed fabrication drawings and after approval by the Engineer, supplying, fabricating, erecting and installing miscellaneous steel parts to be embedded/cast in concrete (like staircase embedments, corbel face plates, etc) at all positions and levels including the cost of all labour, materials and equipments for setting materials in concrete, grouting, welding, bolts & bolting, expansion anchors, drilling, cutting, etc. complete as per drawings and specification.	MT	9	0.00168444

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TENDER NO. PSER:SCT:NBN-C2068:20				
SCHEDULE- 3 - SERVICE				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
B23	Transportation from Store( <b>Material supplied by contractor under item no. S B23 of SCHEDULE-4</b> ), erection and alignment of shop fabricated structural steel of grade E 250 in rolled/ built up section conforming to IS:2062, mild steel rounds in columns, beams, struts, monorails, stays, safety chains, ladders, MS gratings, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, wall beams, sheeting runners, brackets, stiffeners, stub columns, bracings, cleats, base plates, splice plates, gussets, end plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, decking and seal plates, galleries etc. with consumables, alignment, erection bolts & nuts (weight of erection bolts and nuts not payable), assembly, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), etc all complete.	MT	<b>690</b>	0.02788023
C23	<b>Extra over ST NO. B23</b> for blast cleaning of steel structures to near white metal surface conforming to Sa 2 ½ finish of ISO 8501-1 with surface profile 40-60 Micron and providing and applying two component moisture curing zinc (ethyl) silicate primer coat (having minimum 80% of metallic Zinc content in dry film, solid by volume minimum 60% ±2%) of minimum 70 micron DFT including the cost of all labour, material, equipments, protection of surface and cleaning, scaffolding, touch-up painting etc., complete as per drawings, specifications and instructions of the Engineer. Zinc dust composition and properties shall be Type-II as per ASTM D520-00. Primer coat shall be applied in Shop immediately after blast cleaning by airless spray technique.	MT (of steel)	<b>690</b>	0.00658048
D23	<b>Extra over ST NO. B23</b> for providing and applying (by airless spray technique) intermediate coat of two component polyamide cured epoxy with MIO Content (containing lamellar MIO minimum 30% on pigment, solid by volume minimum 80% ±2%) of minimum 100 micron DFT after an interval of minimum 24 hours (from the application of primer coat) and of approved make including the cost of all labour, material, equipments, protection and cleaning, scaffolding, touch-up painting etc. all complete as per drawing and specifications.	MT (of steel)	<b>870</b>	0.00715758

VOLUME-III PRICE SCHEDULE, REV-00				
JOB: CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN (EXCLUDING PILE) AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR.				
TENDER NO. PSER:SCT:NBN-C2068:20				
SCHEDULE- 3 - SERVICE				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
E23	Extra over ST NO. B23 for providing and applying Finish coat of two-pack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% $\pm$ 2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level 2 (after minimum 1000 hours exposure, Gloss loss less than 30 and colour change less than 2.0 $\Delta$ E) and minimum 70 micron DFT over steel sections already having intermediate coats, including the cost of all labour, material, equipments, protection and cleaning, scaffolding etc. all complete as per drawing and specifications. This coat shall be applied after an interval of minimum 24 hours (from the application of sealer coat) and within six (6) months (from the completion of Intermediate coat). Colour and shade of the coat shall be as approved by the Employer.	MT(of steel)	870	0.00715731
A24	Transportation from store, erection and alignment of factory made chequered plate ( <b>Material supplied by contractor under item no. S A24 of SCHEDULE-4</b> ) in platforms, staircases etc. including 1 coat of redoxide zinc-chromate primer after erection etc. all complete. ( <b>Cost on account of supply of factory made chequered plate is payable seperately under item no. S A24 of SCHEDULE-4</b> )	MT	180	0.00650767
25	Fixing in position of high strength structural bolts, nuts and washers (Material supplied by contractor under item no. S25 of SCHEDULE-4 SUPPLY) for structural steel work at all level etc. complete. ( <b>Cost on account of supply of bolts, nus &amp; washers is payable seperately under item no. S 25 of SCHEDULE-4</b> )	Quintal	300	0.00328301
26	Providing, fabricating and erecting at all levels, structural <b>steel flues</b> of grade E250 conforming to IS:2062 complete with all bends, flanges, stiffeners, all other flue attachments, support system, staying system, collars, access manholes and gas sampling ports alongwith gaskets,material and equipment, transporting from store, lifting to all heights, setting in place, cutting, grinding, drillings, bending, bolts and bolting, welding, preheating and post-heating for welding, testing, etc. and other required accessories, , including connection design & preparation of fabrication drgs and appointment of a seperate agency for review and approval of fabrication drgs in consultation with BHEL, all complete as per specifications and drawings. [ <b>Structural steel shall be issued by BHEL free of cost</b> ]	MT	1110	0.08361244

<b>VOLUME-III</b> <b>PRICE SCHEDULE, REV-00</b>				
<b>JOB: CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN (EXCLUDING PILE) AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR.</b>				
<b>TENDER NO. PSER:SCT:NBN-C2068:20</b>				
<b>SCHEDULE- 3 - SERVICE</b>				
<b>SL No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity (3 Chimneys)</b>	<b>Weightage</b>
26 (i)	Supply & application including blast cleaning of outer surface of steel flue to near white metal surface conforming to Sa 2 ½ finish of ISO 8501-1 with surface profile 40-60 Micron and providing and applying two component moisture curing zinc (ethyl) silicate primer coat (having minimum 80% of metallic Zinc content in dry film, solid by volume minimum 60% ±2%) of minimum 70 micron DFT including the cost of all labour, material, equipments, protection of surface and cleaning, scaffolding, touch-up painting etc., complete as per drawings, specifications and instructions of the Engineer. Zinc dust composition and properties shall be Type-II as per ASTM D520-00. Primer coat shall be applied immediately after blast cleaning by airless spray technique.	SqM	<b>8760</b>	0.00347970
26 (ii)	Providing and applying (by airless spray technique) on outer surface of steel flue liner, an intermediate coat of two component polyamide cured epoxy with MIO Content (containing lamellar MIO minimum 30% on pigment, solid by volume minimum 80% ±2%) of minimum 100 micron DFT after an interval of minimum 24 hours (from the application of primer coat) and of approved make including the cost of all labour, material, equipments, protection and cleaning, scaffolding, touch-up painting etc. all complete as per drawing and specifications.	SqM	<b>8760</b>	0.00300301
26 (iii)	Providing and applying on outer surface of steel flue liner, Finish coat of two-pack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% ±2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level 2 (after minimum 1000 hours exposure, Gloss loss less than 30 and colour change less than 2.0 ΔE) and minimum 70 micron DFT over steel sections already having intermediate coats, including the cost of all labour, material, equipments, protection and cleaning, scaffolding etc. all complete as per drawing and specifications. This coat shall be applied after an interval of minimum 24 hours (from the application of sealer coat) and within six (6) months (from the completion of Intermediate coat). Colour and shade of the coat shall be as approved by the Employer.	SqM	<b>8760</b>	0.00300301

VOLUME-III PRICE SCHEDULE, REV-00				
JOB: CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN (EXCLUDING PILE) AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR.				
TENDER NO. PSER:SCT:NBN-C2068:20				
SCHEDULE- 3 - SERVICE				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
A26	Transportation from store & installation of closed cell borosilicate glass block lining system at all elevations, on ground or in erected position, with minimum 38 mm thick borosilicate glass block, adhesive membrane having a minimum thickness of 3 mm including preparation, blast cleaning of internal surface of steel flue liner to near white metal surface finish conforming to Sa 2 ½ finish as per ISO 8501-1 and application of suitable primer, in supervision and as directed by and satisfaction of borosilicate glass block manufacturer, testing etc all complete as per specification, drawings and as directed by the glass block manufacturer & Engineer-in-charge including cost of skilled labour, material, tools & tackles, equipments, working platform etc all complete. Installation of borosilicate lining shall be done under controlled temperature and humidity conditions, as mentioned in specification, including providing all equipments required to create controlled temperature & humidity conditions inside chimney during installation, hot air blow cleaning of internal surface before application etc. all complete. <b>[borosilicate glass blocks, adhesive membrane with mixing machine, primer paint will be issued free of cost by BHEL]</b>	SqM	8760	0.09221178
26F	Fabricating and erecting C276 strips, plates, gutters/vanes/pipes, bends, fittings and any other appurtenances <b>(Material supplied by contractor under item no. S 26F of SCHEDULE-4 SUPPLY)</b> as required at all elevation in chimney for collection and withdrawal of condensate from inside of flue liner to outside based on the approved design in line with gas-flow-model study report, sealing, testing including surface preparation, TIG or any other type of specialised welding for C276 Strips etc all complete as per specification, drawing and as directed by the Engineer-in-charge. Measurement for payment shall be done for net weight of C276 strip only(weld thickness not to be considered). <b>(Cost on account of supply of material is payable seperately under item no. S 26F of SCHEDULE-4)</b>	Kg	5250	0.00464446
27	Providing, fabricating and installing at various locations and elevations of the chimney system the following miscellaneous mild steel items complete with the cost of all labour, material and equipment, transporting, lifting, setting in place, cutting, grinding, drilling, welding, bolts and bolting, anchor fasteners and anchoring, priming, painting, grouting etc. complete as per drawings and specifications:			
a	Mild steel ladders with cage, hood access hatch, louvers, bird screens, hood drain basin covers and other miscellaneous mild steel items not specifically mentioned.	MT	27	0.00620607
b	32/40 mm nominal bore medium class tubular hand railing for stair case and internal and external platforms.	MT	39	0.00926750
c	Providing minimum 275 gsm Hot dipped galvanisation on mild steel parts as per specification.	MT	15	0.00123256
d	Providing minimum 610 gsm Hot dipped galvanisation on mild steel parts as per specification.	MT	51	0.00523839

VOLUME-III PRICE SCHEDULE, REV-00				
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TENDER NO. PSER:SCT:NBN-C2068:20				
SCHEDULE- 3 - SERVICE				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
29A	Supplying, fabricating and installing gas sampling and gas opacity measurement ports made of C276 pipe in chimney liners, including bolts, non metallic gaskets, cover plates and any other accessories as required, painting etc, all complete as per specification, drawing and as directed by the engineer-in-charge.	kg	300	0.00122691
30AA	Transportation from store, fabricating and erecting titanium sheet <b>(Material supplied by contractor under item no. S 30AA of SCHEDULE-4 SUPPLY)</b> wrapped over insulation of chimney liner above roof level, including nuts, bolts, washers, screws and any other accessories as required for proper fixing, surface finishing, testing, preparation of detailed fabrication drawings etc all complete per specification, drawing and as directed by the Engineer-in-charge. <b>(Cost on account of supply of material is payable seperately under item no. S 30AA of SCHEDULE-4)</b>	kg	9000	0.00520901
31	Preparing detailed fabrication drawings and after approval by the Engineer, providing, fabricating and installing at all levels, stainless plates (including stainless steel screws and fasteners) of grade AISI 316L and lead sheets beams and over the mild steel in the platform beam bearing, flue supports bearings, flue restraints brackets/ buffers etc. including the cost of all labour material & equipment, transporting, lifting to all heights, setting in place, cutting, grinding, drilling, welding of stainless steel using compatible & approved stainless steel electrodes, testing & machining flat and polishing the contact surfaces of stainless steel, coating the polished surfaces with silicone grease, etc., complete as per drawings and specifications.			
a	Stainless steel components.	kg	360	0.00016984
b	Lead Sheets.	Kg	120	0.00012921
A32	Design, supply, fabrication and installation of expansion compensator joints, comprising of non-metallic material (elastomeric) suitable for wet stack operations and acid resistant to withstand acidic flue gas condensates arising out of flue gas parameters & operating conditions as per specification and shall also prevent dust accumulation, including nuts, bolts, washers, screws and any other accessories as required, preparation of detailed fabrication drawings etc all complete as per specification, drawing and as directed by the Engineer-in-charge. Design of expansion joint shall comply EPRI guideline to avoid contact of condensate with expansion joint material and to ensure drainage of condensate and the same shall be approved by BHEL/NTPC.	Sqm	75	0.00445032
37	Supplying, and placing in position (at the beam supports bearings) Neoperne pads between concrete surface and mild steel including the cost of all labour materials, cutting to shape, grinding, drilling etc., complete as per drawings and specifications.	Cum	3.0	0.00409733
43	Providing, and fixing asbestos ropes at expansion joints at all elevation for packing/sealing etc all complete as per specification, drawing and as directed by the Engineer-in-charge for the following.			

PAGE 14 OF 27

VOLUME-III PRICE SCHEDULE, REV-00				
JOB: CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN (EXCLUDING PILE) AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR.				
TENDER NO. PSER:SCT:NBN-C2068:20				
SCHEDULE- 3 - SERVICE				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
b	12 mm diameter	Rm	900	0.00036505
47	Supply and installation of resin bonded rock wool insulation having a density of not less than 100 kg/cu.m with an installed thickness of not less than 100 mm in two layers of each 50 mm thick including plated or galvanised accessories such as pins/studs/anchors/wire netting, speed washers, tying wires, etc, on the outer surface of steel flue liners/on the inside surface of concrete windshield/ inside surface of concrete minishells/ under the cast iron caps and wherever as required at all elevation, testing etc all complete as per specification, drawing and as directed by the Engineer-in-charge.	Sqm	600	0.00163833
49	Supply and packing/sealing of rock wool insulation with loose rock wool having a density not less than 100 kg/cu.m between the insulated minishells at expansion joints/ between the lining segments and wherever as required at all levels including filling, ramming, testing, etc. all complete as per specification, drawing and as directed by the Engineer-in-charge.	Cum	30	0.00071935
50	Providing and painting with acid and heat resisting black bituminous paint conforming to type I(i) of IS:158 in not less than 4 coats having a DFT of not less than 150 microns over inside surface of chimney shell/inside and outside surfaces of minishells/underside of roof slab/ other concrete components/surfaces of the existing chimney and wherever as required etc at all elevation including surface preparation, primer etc so as to give a good finish all complete as per specification, drawing and as directed by the Engineer-in-charge.	Sqm	300	0.00018509
56	Providing and painting, at all levels, the external surfaces of chimney shell and wherever as directed by the Engineer, with acid and heat resistant polyurethane paint in alternate bands of colours 'signal red' and 'pure/bright white including the cost of all labours, material and & equipment surface preparation, primer and finish painting, protecting, cleaning etc. complete as per drawings and specification.	Sqm	300	0.00029543



<p style="text-align: center;"><b>VOLUME-III</b> <b>PRICE SCHEDULE, REV-00</b></p>				
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<p style="text-align: center;"><b>TENDER NO. PSER:SCT:NBN-C2068:20</b></p>				
<p style="text-align: center;"><b>SCHEDULE- 3 - SERVICE</b></p>				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
57	Providing and painting, with epoxy phenolic coating system in three coats having 220 microns DFT over the external surfaces of chimney shell and wherever as required at all elevation in alternate bands of 'signal red' and 'bright white' colours including surface preparation, primer etc so as to give a good finish all complete as per drawing and specification. The coating system shall be as follows. All concrete surfaces shall be provided with two component transparent polyamide cured epoxy sealer coating (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT to be applied over cleaned surface in multiple coats. Surface to be coated shall be absolutely dry, clean and dust free. Sealer coat shall be followed with the application of Intermediate coat of epoxy phenolic coating (solid by volume minimum 63%) of minimum 100 micron DFT. This coat shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique. Intermediate coat shall be followed with the application of finish coat of two-pack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% ±2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level 2 (after minimum 1000 hours exposure, Gloss loss less than 30 and colour change less than 2.0 ΔE) and minimum 70 micron DFT. This coat shall be applied after an interval of minimum 10 hours and within six (6) months (from the completion of Intermediate coat), Colour and shade of the coat shall be as approved by the Engineer-in charge.	Sqm	<b>27750</b>	0.01212068
58	Providing and painting, with epoxy phenolic coating system in three coats having 220 microns DFT over the inside surface of chimney shell above roof/ horizontal surface of shell at top/underside of concrete roof slab and wherever as required at all elevation including surface preparation, primer etc so as to give a good finish all complete as per drawing and specification. The coating system shall be as follows. All concrete surfaces shall be provided with two component transparent polyamide cured epoxy sealer coating (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT to be applied over cleaned surface in multiple coats. Surface to be coated shall be absolutely dry, clean and dust free. Sealer coat shall be followed with the application of Intermediate coat of epoxy phenolic coating (solid by volume minimum 63%) of minimum 100 micron DFT. This coat shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique. Intermediate coat shall be followed with the application of finish coat of two-pack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% ±2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level 2 (after minimum 1000 hours exposure, Gloss loss less than 30 and colour change less than 2.0 ΔE) and minimum 70 micron DFT. This coat shall be applied after an interval of minimum 10 hours and within six (6) months (from the completion of Intermediate coat), Colour and shade of the coat shall be as approved by the Engineer-in charge.	Sqm	<b>1050</b>	0.00045864

<b>VOLUME-III</b> <b>PRICE SCHEDULE, REV-00</b>				
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<b>TENDER NO. PSER:SCT:NBN-C2068:20</b>				
<b>SCHEDULE- 3 - SERVICE</b>				
<b>SL No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity (3 Chimneys)</b>	<b>Weightage</b>
59	Proving and laying over the chimney roof, a composite acid and heat protection treatment including providing of slopes for roof drainage including the cost of all labour, material and equipment, etc., complete as required for preparing the roof concrete, laying under bed of plain cement concrete screed to slopes, preparation of screed surface for painting, painting the screed surface with black bituminous paint, applying bitumenmastic in layers, laying acid resisting(A/R) mortar bed and laying 75 mm thick acid resisting(A/R) bricks with A/R mortar, curing, pointing(with phenolic based A/R cement), protection and cleaning, finishing, etc., complete as per drawing and specifications.	Sqm	<b>570</b>	0.00478587
60	Providing, fitting& fixing, outlet and overflow, cast iron roof drain heads (with gratings) in chimney roof including sockets, adapters, brackets, hangers, supports, etc., casting-in and jointing to 150 mm nominal bore rainwater pipes, grouting, etc. including the cost of all labour material and equipment, transporting, lifting, setting in place, painting, etc. complete as per drawing and specifications.	Each	<b>24</b>	0.00046759
61	Providing, fitting and fixing rainwater pipes at all levels internally from the chimney roof to ground level upto the hood drain basin including shoes, bends, junctions, flanges,hoppers, sockets, adaptors, brackets, hangers, supports, anchor fasteners, spacers, pipe sleeve through shell, silicon or vulcanised butyl seaant, foam backing material, jointing, socketing, grouting, caulking, primer and finish painting etc. complete including the cost of all labour, material and equipment, complete as per drawing and specifications:			
a	150 mm nominal bore cast iron pipes.	Rm	<b>96</b>	0.00057351
b	150 mm nominal bore medium class galvanised mild steel pipes.	Rm	<b>900</b>	0.00465463
62	Providing and laying 50 mm thick cement concrete flooring (comprising of 12 mm thick mettalic concrete hardener topping over 38 mm thick under bed of concrete) over the grade level slab inside the chimney, including the cost of all labour, material and equipment, etc. complete as required for preparation of base, laying underbed and topping, finishing, rounding of edges, corners and junctions, curing, testing, etc. complete as per drawing and specifications.	Sqm	<b>1425</b>	0.00146439
63	Providing and installing an electrically operated semi grill type steel roll-up door (with the bottom one third of the curtain in solid type) at chimney base, in opening of approx size of 85 square m, with all hardware and mechanisms, fittings and fixtures, locking arrangements, frames, fasteners, gear handle arrangement for standby manual operation, all electrical accessories such as motors, control systems, cables, etc. including the cost of all labour, material and equipment, fixing in position, grouting primer and finish painting, testing, etc., complete as per drawing and specifications.	Each	<b>3</b>	0.00278716

<b>VOLUME-III</b> <b>PRICE SCHEDULE, REV-00</b>				
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<b>TENDER NO. PSER:SCT:NBN-C2068:20</b>				
<b>SCHEDULE- 3 - SERVICE</b>				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
64	Providing and installing at any level and location, mild steel, double plate, personnel access doors, in shell openings of size 1.1m by 2.15m, complete with all fittings and fixtures, locking arrangements, frames, fasteners including the cost all labour, material and equipment, lifting to all heights, setting in place, grouting primer and finish painting, etc., complete as per drawing and specifications.	Each	3	0.00011783
67	Supplying, fabricating and installing mild steel hatches at various locations in the chimney system complete with locking arrangements, frames, insulation, fittings and fixtures and all mechanisms and accessories reqd. for proper operation including all labour, painting etc. complete as per drawings and specifications.			
a	Hood Access Hatch	Each	3	0.00019486
68	Conducting load testing on girders for 1.25 times the full load, on ground , including provision of test bed and jacks, dial gauges and other supplies complete as per specification and drawings and approval of engineer in-charge.	Pair	3	0.00135698
70	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with Conbextra GP-1 or equivalent. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	Cum	3.0	0.00021635
71	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips ) using non shrink admixture. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	3.0	0.00009440
72	Erection of Elevator ( <b>supplied by contractor under item no. S 72 of SCHEDULE-4 SUPPLY</b> ) from ground upto top of chimney with landing at various platform level complete as per spec. and drawings. ( <b>Cost on account of supply of Elevator is payable seperately under item no. S 72 of SCHEDULE-4</b> )	Lumpsum	3	0.00705341
73	Supplying, fabricating and erecting FRP Pipes with all bends, flanges, stiffeners, all other flue attachments, including support system, collars, connection with C276 pipes and any other accessories as required outside chimney flue liner at all elevation based on the approved design in line with gas-flow-model study report, including surface finishing, sealing, lamination, moulding, testing, guarantee/warranty etc. complete as per drawings, specification, manufacturer's recommendations and relevant codes.	Kg	1350	0.00097841
<b>PART-1B</b>	<b>ELECTRICAL WORKS</b>			
	<b>Installation, testing &amp; commissioning of following items as per specification (Material as per SI No. SE1 to SE29 of SCH-4 SUPPLY).</b>			

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<p style="text-align: center;"><b>TENDER NO. PSER:SCT:NBN-C2068:20</b></p>				
<p style="text-align: center;"><b>SCHEDULE- 3 - SERVICE</b></p>				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
E1	415V, 200A, 50 KA for 1 sec, 4 wire AC Distribution Board with 1No. incomer (SFU) , 12 nos. of 100A SFU (TPN) outgoing alongwith 100KVA lighting transformer (415/433) V in Incomer, Dyn11, Z=4%, ±2x2.5% off ckt. Tap) complete in all respects	no.	3	0.00060264
E2	415V, 200A, 4 wire AC Emergency Lighting distribution board alongwith 50KVA lighting transformer (415/433 V, Dyn11, Z=4%, ±2x2.5% off ckt. Tap) with 2 nos. of SFU (TPN) incomers with auto changeover facility using contactors and 8 nos. 100A SFU (TPN) outgoing complete in all respects. In case load requirement of chimney can not be met by 50 kVA lighting transformer after considering loading, 100 kVA lighting transformer shall be provided alongwith suitably rated components without any commercial implications to the purchaser..	no.	3	0.00060462
E3	Normal AC lighting panel outdoor type with degree of protection IP 55 with one no. 100A SFU (TPN) Incomer , 20 outgoing (16A SP MCBs)	no.	6	0.00017613
E4	Emergency lighting panel outdoor type with degree of protection IP 55 with One no. of 100A SFU(TPN) incomer and 12 outgoing (16A, SP MCBs)	no.	6	0.00020314
E5	Aviation lighting panel outdoor type with degree of protection IP 55 with one no. 100A SFU (TPN) Incomer , 8 outgoing 32A SFU (TPN), photodetector and timer circuit along with 100A contactor to control aviation lighting system.	no.	3	0.00013313
E6	Aviation obstruction lights (mounted on door panel openable from interior) :			
	a. High intensity flashing light Type-A (LED type )as per ICAO standard having intensity of 20,0000 candles depending upon background illuminance & flashing frequency 20-60/min with all accessories, photocell, timer etc.	no.	36	0.00513112
E7	Aviation Distribution Board (ADB) with one 32A SFU (TPN) incomer and 8 nos. SP 20A MCB. Construction is same as Lighting Panel.	no.	3	0.00003360
E8	Flood light type 120W(approx) LED/HPSV luminaire with fitting (integrated /retrofitted LED/HPSV lamp ) having an integral driver.The luminaire efficacy shall not be less than 80 Lm/W.	no.	18	0.00014438
E9	Well glass type 30W(approx) LED/HPSV luminaire with fitting (integrated /retrofitted LED/HPSV lamp ) having an integral driver.The luminaire efficacy shall not be less than 80 Lm/W.	no.	192	0.00068291
E10	Well glass type 70W(approx) LED/HPSV luminaire with fitting (integrated /retrofitted LED/HPSV lamp ) having an integral driver.The luminaire efficacy shall not be less than 80 Lm/W.	no.	105	0.00063402
E11	Well glass type 50W(approx) LED/HPSV luminaire with fitting (integrated /retrofitted LED/HPSV lamp ) having an integral driver.The luminaire efficacy shall not be less than 80 Lm/W.	no.	60	0.00034617
E12	63Amp welding switch socket with plug & other Mounting accessories	no.	9	0.00004921
E13	3 pin, 1 ph, 240V, 20Amp. Industrial Power sockets complete with plug Switches etc.	no.	9	0.00000827
E14	Al conductor, HR PVC insulated, Armoured, PVC inner sheath,PVC outer sheath, FRLS type 1100V grade conforming to IS-1554 Part I.			

<b>VOLUME-III</b> <b>PRICE SCHEDULE, REV-00</b>				
<b>JOB: CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN (EXCLUDING PILE) AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR.</b>				
<b>TENDER NO. PSER:SCT:NBN-C2068:20</b>				
<b>SCHEDULE- 3 - SERVICE</b>				
<b>SL No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity (3 Chimneys)</b>	<b>Weightage</b>
a	3½ C x95mm2 Al for connection between ACDB/ELDB/ welding sockets	Mtrs.	4500	0.00092411
b	3½ Cx35mm2 Al for Lighting panel incoming supply	Mtrs.	3000	0.00038913
c	4C x16mm2 Al for connection between ALP/ADB/Aviation Lights	Mtrs.	750	0.00008917
b	4C x 2.5mm2 Cu Control cable for Aviation lighting system	Mtrs.	1500	0.00014393
E15	Cu conductor, HR-PVC insulated, PVC inner sheath,PVC outer sheathed and FRLS type 1100V grade conforming to IS-1554 Part I.			
a	2.5 mm2	Mtrs.	6000	0.00024054
b	4.0 mm2	Mtrs.	15000	0.00077451
E16	GI pipe conduit with minimum 25 mm dia with GI junction boxes, GI pull boxes (Size 200x200x100mm of 16 SWG sheet steel for junction & pull boxes) & accessories etc. complete in all respects.	Mtrs.	6000	0.00146541
E17	PVC coated Flexible steel conduit 25mm dia with accessories	Mtrs.	300	0.00001295
E18	Lightning protection Air terminal : Lead coated copper material of 20 mm dia & 3 metre long.	no.	18	0.00019001
E19	50x6 Lead Coated GI Strip for coronal band on flue and top platform	Mtrs.	450	0.00012106
E20	Electrical equipment earthing materials including down conductors 50x6 GI Strip	Mtrs.	2100	0.00049843
E21	Electrical equipment earthing materials including down conductors 25x3 GI Strip	Mtrs.	2100	0.00016606
E22	8 SWG GI wire for equipment earthing	Mtrs.	6000	0.00006487
E23	Test links for 50x6 down conductors enclosed in 200mm X 200mm X 100mm GI box of 16SWG sheet steel.	no.	12	0.00006329
E24	40mm dia MS rod for earthing of down conductor	Mtrs.	600	0.00021129
E25	Earthpit with earthing electrode including brick chamber with cover, accessories etc. complete in all respect.	no.	18	0.00014516
E26	Telephone socket with junction box etc. complete	no.	18	0.00004870
E27	Telephone handsets complete	no.	18	0.00004702
E28	Telephone cable of minimum 0.6 mm dia annealed high conductivity electro copper conductor, PVC insulated, twisted, PVC tape wrapped, screened, tip corded, PVC sheathed, confirming to relevant ITD (Indian Telephones department) specification			
a	24 pairs	Mtrs.	900	0.00016854
b	2 pairs	Mtrs.	300	0.00001347
E29	GS cable trays. Cable trays shall be of ladder type constructed of minimum 2 mm thick mild steel hot dip galvanise including cover, cabling material, accessories etc.			

VOLUME-III PRICE SCHEDULE, REV-00				
JOB: CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN (EXCLUDING PILE) AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR.				
TENDER NO. PSER:SCT:NBN-C2068:20				
SCHEDULE- 3 - SERVICE				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
a	150 mm wide	Mtrs.	1200	0.00038910
	<b>TOTAL</b>			<b>0.76339314</b>
NOTES :				
1	Schedule of Equipment has been indicated for reference only. All electrical items/accessories required for completeness of Chimney Electrical System shall be supplied by the contractor without any additional commercial implication during contract execution.			
2	Temporary warning lights will be installed during construction suitably located above the top most point of obstruction and will be shifted up as the construction progresses. These lights shall be installed free of cost to BHEL.			

VOLUME-III PRICE SCHEDULE, REV-00				
JOB: CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN (EXCLUDING PILE) AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR.				
TENDER NO. PSER:SCT:NBN-C2068:20				
SCHEDULE- 4 - SUPPLY				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
	<b>CIVIL WORKS</b>			
S B23	Supply and fabrication (shop fabricated in customer approved shop as per specification) of structural steel of grade E 250 in rolled/ built up section conforming to IS:2062, mild steel rounds in columns, beams, struts, monorails, stays, safety chains, ladders, MS gratings, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, wall beams, sheeting runners, brackets, stiffeners, stub columns, bracings, cleats, base plates, splice plates, gussets, end plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, decking and seal plates, galleries etc including blast cleaning, providing & applying primer, providing and applying intermediate, final and final finish coat of paint ( <b>blast cleaning, primer and paint shall be paid separately as per item no C23, D23 &amp; E23 of SCHEDULE-3</b> ), connection design, preparation of fabrication drgs and appointment of a separate agency for review and approval of fabrication drgs in consultation with BHEL, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, assembly, edge preparation, preheating / post heating if required, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, protection against damage in transit etc all complete. ( <b>Final measurement of total qty of this item shall be restricted to total quantity of Item no. B23 of SCHEDULE-3 admitted in final bill</b> ).	MT	690	0.08364068
S A24	Supplying factory made chequered plate with mild steel conforming to IS:2062 in platforms, staircases with edge binding strips and anti-skid nosing in treads etc. including 1 coat of redoxide zinc-chromate primer, fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. ( <b>Final measurement of total qty of this item shall be restricted to total quantity of Item no. A24 of SCHEDULE-3 admitted in final bill</b> ).	Mt	180	0.01836615

VOLUME-III PRICE SCHEDULE, REV-00				
JOB: CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN (EXCLUDING PILE) AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR.				
TENDER NO. PSER:SCT:NBN-C2068:20				
SCHEDULE- 4 - SUPPLY				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
S 25	Supplying of <u>high strength structural bolts</u> up to and inclusive of 39 mm diameter and upto 1500 mm long (of property class 8.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. for structural steel work etc all complete. <b>(Final measurement of total qty of this item shall be restricted to total quantity of Item no. 25 of SCHEDULE-3 admitted in final bill).</b>	Quintal	300	0.00766037
S 26F	Supplying C276 strips, plates, gutters/vanes/pipes, bends, fittings and any other appurtenances as required at all elevation in chimney for collection and withdrawal of condensate from inside of flue liner to outside based on the approved design in line with gas-flow-model study report all complete as per specification, drawing and as directed by the Engineer-in-charge. <b>(Final measurement of total qty of this item shall be restricted to total quantity of Item no. 26F of SCHEDULE-3 admitted in final bill).</b>	Kg	5250	0.01857763
S 30AA	Supplying titanium sheet (Grade 2 as per ASME B265) to be wrapped over insulation of chimney liner above roof level as per specification, drawing and as directed by the Engineer-in-charge. <b>(Final measurement of total qty of this item shall be restricted to total quantity of Item no. 30AA of SCHEDULE-3 admitted in final bill).</b>	kg	9000	0.02083605
S 33	Supply of fabricated ready to install expansion compensator in line with item no <b>A32 of SCHEDULE-3</b> as spare including nuts, bolts, washers, screws and any other accessories as required for successful installation.	Sqm	45	0.00207205
S 72	Design, engineering and supply after approval by Engineer a rack and pinion type Elevator of min 400 kg load carrying capacity for erection as per item no. <b>72 of SCHEDULE-3</b> , from ground upto top of chimney with landing at various platform level, including all fixtures and accessories complete as per spec. and drawings.	Lumpsum	3	0.03476194
	<b>ELECTRICAL WORKS</b>			



<b>VOLUME-III</b> <b>PRICE SCHEDULE, REV-00</b>				
<b>JOB: CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN (EXCLUDING PILE) AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR.</b>				
<b>TENDER NO. PSER:SCT:NBN-C2068:20</b>				
<b>SCHEDULE- 4 - SUPPLY</b>				
<b>SL No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity (3 Chimneys)</b>	<b>Weightage</b>
	Design, Engineering, Supply including testing of following items as per specification for items of works as per E1 to E29 under SCH-3			
S E1	415V, 200A, 50 KA for 1 sec, 4 wire AC Distribution Board with 1No. incomer (SFU) , 12 nos. of 100A SFU (TPN) outgoing alongwith 100KVA lighting transformer (415/433) V in Incomer, Dyn11, Z=4%, $\pm 2 \times 2.5\%$ off ckt. Tap) complete in all respects	no.	3	0.00241056
S E2	415V, 200A, 4 wire AC Emergency Lighting distribution board alongwith 50KVA lighting transformer (415/433 V, Dyn11, Z=4%, $\pm 2 \times 2.5\%$ off ckt. Tap) with 2 nos. of SFU (TPN) incomers with auto changeover facility using contactors and 8 nos. 100A SFU (TPN) outgoing complete in all respects. In case load requirement of chimney can not be met by 50 kVA lighting transformer after considering loading, 100 kVA lighting transformer shall be provided alongwith suitably rated components without any commercial implications to the purchaser..	no.	3	0.00241849
S E3	Normal AC lighting panel outdoor type with degree of protection IP 55 with one no. 100A SFU (TPN) Incomer , 20 outgoing (16A SP MCBs)	no.	6	0.00070453
S E4	Emergency lighting panel outdoor type with degree of protection IP 55 with One no. of 100A SFU(TPN) incomer and 12 outgoing (16A, SP MCBs)	no.	6	0.00081255
S E5	Aviation lighting panel outdoor type with degree of protection IP 55 with one no. 100A SFU (TPN) Incomer , 8 outgoing 32A SFU (TPN), photodetector and timer circuit along with 100A contactor to control aviation lighting system.	no.	3	0.00053254
S E6	Aviation obstruction lights (mounted on door panel openable from interior) :			
a	High intensity flashing light Type-A (LED type )as per ICAO standard having intensity of 20,0000 candles depending upon background illuminance & flashing frequency 20-60/min with all accessories, photocell, timer etc.	no.	36	0.02052448

<b>VOLUME-III</b> <b>PRICE SCHEDULE, REV-00</b>				
<b>JOB: CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN (EXCLUDING PILE) AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR.</b>				
<b>TENDER NO. PSER:SCT:NBN-C2068:20</b>				
<b>SCHEDULE- 4 - SUPPLY</b>				
<b>SL No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity (3 Chimneys)</b>	<b>Weightage</b>
S E7	Aviation Distribution Board (ADB) with one 32A SFU (TPN) incomer and 8 nos. SP 20A MCB. Construction is same as Lighting Panel.	no.	3	0.00013439
S E8	Flood light type 120W(approx) LED/HPSV luminaire with fitting (integrated /retrofitted LED/HPSV lamp ) having an integral driver.The luminaire efficacy shall not be less than 80 Lm/W.	no.	18	0.00057754
S E9	Well glass type 30W(approx) LED/HPSV luminaire with fitting (integrated /retrofitted LED/HPSV lamp ) having an integral driver.The luminaire efficacy shall not be less than 80 Lm/W.	no.	192	0.00159346
S E10	Well glass type 70W(approx) LED/HPSV luminaire with fitting (integrated /retrofitted LED/HPSV lamp ) having an integral driver.The luminaire efficacy shall not be less than 80 Lm/W.	no.	105	0.00147939
S E11	Well glass type 50W(approx) LED/HPSV luminaire with fitting (integrated /retrofitted LED/HPSV lamp ) having an integral driver.The luminaire efficacy shall not be less than 80 Lm/W.	no.	60	0.00080773
S E12	63Amp welding switch socket with plug & other Mounting accessories	no.	9	0.00019682
S E13	3 pin, 1 ph, 240V, 20Amp. Industrial Power sockets complete with plug Switches etc.	no.	9	0.00004826
S E14	Al conductor, HR PVC insulated, Armoured, PVC inner sheath,PVC outer sheath, FRLS type 1100V grade conforming to IS-1554 Part I.			
a	3½ C x95mm2 Al for connection between ACDB/ELDB/ welding sockets	Mtrs.	4500	0.00461355
b	3½ Cx35mm2 Al for Lighting panel incoming supply	Mtrs.	3000	0.00152541
c	4C x16mm2 Al for connection between ALP/ADB/Aviation Lights	Mtrs.	750	0.00059063
d	4C x 2.5mm2 Cu Control cable for Aviation lighting system	Mtrs.	1500	0.00033582

<b>VOLUME-III</b> <b>PRICE SCHEDULE, REV-00</b>				
<b>JOB: CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN (EXCLUDING PILE) AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR.</b>				
<b>TENDER NO. PSER:SCT:NBN-C2068:20</b>				
<b>SCHEDULE- 4 - SUPPLY</b>				
<b>SL No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity (3 Chimneys)</b>	<b>Weightage</b>
S E15	Cu conductor, HR-PVC insulated, PVC inner sheath,PVC outer sheathed and FRLS type 1100V grade conforming to IS-1554 Part I.			
a	2.5 mm <sup>2</sup>	Mtrs.	6000	0.00056137
b	4.0 mm <sup>2</sup>	Mtrs.	15000	0.00180727
S E16	GI pipe conduit with minimum 25 mm dia with GI junction boxes, GI pull boxes (Size 200x200x100mm of 16 SWG sheet steel for junction & pull boxes) & accessories etc. complete in all respects.	Mtrs.	6000	0.00341939
S E17	PVC coated Flexible steel conduit 25mm dia with accessories	Mtrs.	300	0.00003024
S E18	Lightning protection Air terminal : Lead coated copper material of 20 mm dia & 3 metre long.	no.	18	0.00044336
S E19	50x6 Lead Coated GI Strip for coronal band on flue and top platform	Mtrs.	450	0.00028246
S E20	Electrical equipment earthing materials including down conductors 50x6 GI Strip	Mtrs.	2100	0.00116299
S E21	Electrical equipment earthing materials including down conductors 25x3 GI Strip	Mtrs.	2100	0.00038741
S E22	8 SWG GI wire for equipment earthing	Mtrs.	6000	0.00016657
S E23	Test links for 50x6 down conductors enclosed in 200mm X 200mm X 100mm GI box of 16SWG sheet steel.	no.	12	0.00014767
S E24	40mm dia MS rod for earthing of down conductor	Mtrs.	600	0.0007395
S E25	Earthpit with earthing electrode including brick chamber with cover, accessories etc. complete in all respect.	no.	18	0.00033872

VOLUME-III PRICE SCHEDULE, REV-00				
JOB: CONSTRUCTION OF 3 NOS 150 M TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING SYSTEM ON MS FLUE CAN (EXCLUDING PILE) AT 3X660 MW NPGCL NABINAGAR STPP FGD, BIHAR.				
TENDER NO. PSER:SCT:NBN-C2068:20				
SCHEDULE- 4 - SUPPLY				
SL No.	Description	Unit	Quantity (3 Chimneys)	Weightage
S E26	Telephone socket with junction box etc. complete	no.	18	0.00011363
S E27	Telephone handsets complete	no.	18	0.00010971
S E28	Telephone cable of minimum 0.6 mm dia annealed high conductivity electro copper conductor, PVC insulated, twisted, PVC tape wrapped, screened, tip corded, PVC sheathed, confirming to relevant ITD (Indian Telephones department) specification			
a	24 pairs	Mtrs.	900	0.00039325
b	2 pairs	Mtrs.	300	0.00003142
S E29	GS cable trays. Cable trays shall be of ladder type constructed of minimum 2 mm thick mild steel hot dip galvanise including cover, cabling material, accessories etc.			
a	150 mm wide	Mtrs.	1200	0.00125088
<b>TOTAL</b>				<b>0.23660686</b>

**NOTES :**

1	Schedule of Equipment has been indicated for reference only. All electrical items/accessories required for completeness of Chimney Electrical System shall be supplied by the contractor without any additional commercial implication during contract execution.
2	Temporary warning lights will be installed during construction suitably located above the top most point of obstruction and will be shifted up as the construction progresses. These lights shall be installed free of cost to BHEL.