



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 03

Ref: PSER:SCT:MJA-C751:TCN-03

Date: 11-06-2007

Sub	Tender change notice (TCN) 03.	
Job	Civil, structural etc work of Power Block 1 covering power house including common control room bay, mill bay, aux buildings, misc civil works etc of unit # 1 for 2x500 MW unit # 1 & 2 Mejia-B TPS, West Bengal.	
Ref	1.0	Tender no PSER:SCT:MJA-C751:07.
	2.0	BHEL's NIT vide reference no PSER:SCT:MJA-C751:0900, dated 18-05-07.
	3.0	BHEL's TCN-01 vide reference no PSER:SCT:MJA-C751:TCN-01, dated 25-05-07.
	4.0	BHEL's TCN-02 vide reference no PSER:SCT:MJA-C751:TCN-02, dated 01-06-07.

With reference to above, following points, relevant to tender, may please be noted and complied with while submitting offer.

- 1.0 Clarifications on pre-bid discussion are enclosed in Annexure-A along with attachments (construction schedule and 7 no drawings).
- 2.0 Revised Volume-III A & IIIB, Price Schedule, Rev-1 are enclosed. Bidder shall quote as per the enclosed revised Price Schedule only.
- 3.0 No deviation certificate has been revised and the same is attached. Bidder shall submit 'No deviation certificate' as per attached format only.
- 4.0 All documents in support of pre-qualification criteria for the subject tender shall be submitted in a specific sealed envelope by the stipulated date, ie 18-06-2007.
- 5.0 All other terms & conditions shall remain unchanged.
- 6.0 Offer shall be submitted by the due date, ie 25-06-2007 (15-00 hrs).

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

DGM (SCT)

Encl

- 1.0 PBD clarification (Annexure-A) along with attachments.
- 2.0 Revised Volume-III A & IIIB, Price Schedule, Rev-1.
- 3.0 Revised format of 'No deviation certificate'.

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION, DJ-9/1, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960

फोन/Phone : बोर्ड/EPABX : 23211691

FORMAT FOR NO DEVIATION CERTIFICATE
(To be submitted in the bidder's letter head)

BHARAT HEAVY ELECTRICALS LIMITED,
 Power Sector - Eastern Region,
 Plot no 9/1, DJ Block, Sector – II, Salt Lake City,
Kolkata – 700 091

Sub	No Deviation Certificate.	
Job	Civil, structural etc work of Power Block 1 covering power house including common control room bay, mill bay, aux buildings, misc civil works etc of unit # 1 for 2x500 MW unit # 1 & 2 Mejia-B TPS, West Bengal.	
Ref	01	BHEL's NIT vide reference no PSER:SCT:MJA-C751:0900, dated 18-05-2007.
	02	Tender no PSER:SCT:MJA-C751:07.
	03	BHEL's TCN-01 vide reference no PSER:SCT:MJA-C751-TCN-01, dated 25-05-07.
	04	BHEL's TCN-02 vide reference no PSER:SCT:MJA-C751-TCN-02, dated 01-06-07.
	05	BHEL's TCN-03 vide reference no PSER:SCT:MJA-C751-TCN-03, dated 11-06-07.
	06	Other references (if any).

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website and in case of observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT and confirm our acceptance to reverse auctioning process and we hereby convey our unqualified acceptance to all terms and conditions as stipulated in the tender and NIT.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer strictly in accordance with tender instructions.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized
representative of the bidder)

CLARIFICATION ON QUERIES DURING PRE-BID DISCUSSION

CIVIL, STRUCTURAL WORK OF POWER BLOCK 1, POWER BLOC 2 AND AUXILIARY BUILDING AT MEJIA-B TPS

TENDER NO - PSER:SCT:MJA-C751:07, PSER:SCT:MJA-C752:07 AND PSER:SCT:MJA-C753:07

SL NO	TENDER NO	CLAUSE NO, VOLUME	QUERY/ POINT	CLARIFICATION BY BHEL
A. NIT				
A.1	751/ 752/ 753	Sl no 5.0 NIT	Minimum 15 days of extension is required to prepare the bid due to the magnitude of work involved in the tender.	Due date of submission of offer is extended to 25-06-2007 (15-00 hrs).
B. VOLUME-IB				
B.1	751/ 752/ 753	Cl no 38.2, Vol-ID & Cl no 7.4, Vol-IB	Ambiguities in these 2 clauses. In the SCC part Performance Bond is not applicable for this contract and in the GCC part it is applicable.	As per SCC, Volume-ID. Performance Bond (PB) is not applicable.
B.2	751/ 752/ 753	Cl no 6, Pg 18/52	Completion period may please be confirmed.	Refer SCC, Volume-ID.
B.3	751/ 752/ 753	Cl no 8, Pg no 18/52	Based on the construction schedule (L3) submitted by successful bidder, BHEL to provide GFC drawings prior to 30 days before commencing of individual activity.	Based on the construction schedule (L3) submitted by successful bidder & on BHEL's acceptance, BHEL shall provide RFC drawings 15 days before starting of each activities for civil work. Engineering drawing for structural work shall be released 30 days before fabrication work. Vendor shall develop detail fabrication drawings within fifteen days from the date of release of engineering drawing for structural work.
B.4	751/ 752/ 753	Cl no 20, Pg 29/52	When this is not an EPC contract why contractor will provide indemnity to BHEL?	As per customer's requirement, contractor shall submit affidavit and indemnity bond regarding statutory requirement prior to submission of 1st RA bill as per the prescribed format, to be obtained from BHEL site. Furthermore, contractor shall also submit document for PF compliance as per the instruction of BHEL site.
C. VOLUME-ID				
C.1	751/ 752/ 753	Cl no 6.4	Area is to be provided as required to meet the targets as planned. There should not be any restriction in allotting area for fabrication.	Shall be as per SCC, Volume-ID.
C.2	751/ 752/ 753	Cl no 7 & 8	If BHEL fail to supply the water & electricity, and if contractor has to arrange the same, whether the cost will be reimbursed to the contractor.	Shall be as per SCC, Volume-ID.
C.3	751/ 752/ 753	Cl no 8.3	Power supply is to be provided by BHEL free of cost. Offer is also will be made based on commercial condition is stipulated in the contract. In case if power supply is not provided or delay in supply of power supply or interruption of power supply may be recorded in the tenure of contract. Non availability of power may be recorded for the purpose of suitable compensation and for time extension.	Shall be as per SCC, Volume-ID.

SL NO	TENDER NO	CLAUSE NO, VOLUME	QUERY/ POINT	CLARIFICATION BY BHEL
C.4	751/ 752/ 753	Cl no 14.5.2	Passenger lift is not in the scope of contractor for structural steel work.	Passenger lift is not included in the scope of contractor.
C.5	751/ 752/ 753	Cl no 16.1	<u>Clause stipulates for free issue of 150MT crane on shared basis.</u> Please indicate the tentative period of allotment of the crane for the three packages. BHEL has specified that 150T crane shall be provided subject to availability. BHEL has envisaged deployment of 150T crane or above capacity crawler crane. In 500MW power plant 150T capacity crane is required for erection of main column. For erection of TP, trestle and conveyor gallery 150T capacity crane is not adequate and higher capacity crane is to be deployed. In the case of main column erection, mill foundation is not to be cast above ground level to facilitate erection of main column in boiler side. If mill foundation are cast, then higher capacity crane is required for erection of main column in boiler side also.	Cl no 16.1 of SCC, Volume-ID is revised as under. Contractor shall mobilise 100T crane for erection of the subject job as specified in SCC. However, wherever higher capacity (more than 100T) is required to erect structures considering its load, height, operating radius etc, BHEL shall provide higher capacity cranes (more than 100T), free of cost on sharing basis depending on availability. Since the cranes will be provided on sharing basis and to be used by others also, the contractor shall plan their activities accordingly in co-ordination with BHEL.
C.6	751/ 752/ 753	Cl no 16.4	Crane operator's overtime charge.	Overtime charge is excluded from the scope of contractor.
C.7	751/ 752/ 753	Cl no 16.5	<u>In case of exigency contractor to deploy operator for crane as mentioned</u> But the reimbursement of the operator's remuneration is not clarified.	This is exigency requirement. Please refer revised price schedule for provision of crane operator.
C.8	751/ 752/ 753	Cl 16.6	If BHEL crane is not available due to break down or major failure manpower and other resources mobilised render idle, suitable higher capacity crane can not be mobilised by the contractor for short period or during intermediate period. Non availability of crane provided by BHEL is to be suitably recorded for suitable compensation or to take care of delay in completion of work. Since BHEL has envisaged LD for delay in completion, all elements instrumental for delay is to be properly recorded during tenure of contract and suitably analysed at the end for commercial as well as time extension purpose.	No compensation is admissible by BHEL. This will be taken care while finalising delay analysis for contract extension, if required.
C.9	751/ 752/ 753	Cl 17.0	Whether contractor has to arrange CAR policy for the work?	As per SCC, Volume-ID.
C.10	751/ 752/ 753	Cl 18.13	Please indicate a minimum period for non-compensation. Compensation for time due to the above reason should be considered.	As per SCC, Volume-ID. No compensation is admissible by BHEL. The aspect will be taken care of in delay analysis for contract extension, if required.
C.11	751/ 752/ 753	Cl 18.13	Since supply of raw material is in the scope of BHEL, delay in supply of material is to be recorded properly for suitable compensation at the closing of contract or for time extension if any.	No compensation is admissible by BHEL. This will be taken care while finalising delay analysis for contract extension, if required.
C.12	751/ 752/ 753	Cl no 18.14	In case the clot is found in the materials immediately after issuance by BHEL, not due to improper stocking why contractor will be penalized?	Contractor to ensure to avoid this while receiving materials from BHEL. No consideration at later date is admissible by BHEL.
C.13	751/ 752/ 753	Cl no 19.0	<u>Clause stipulates issue of material indicates that the steel and structural steel shall be issued by weight basis and the consumption shall be on theoretical basis</u> The variation of weight/ rolling margin is not considered.	As per SCC, Volume-ID.

SL NO	TENDER NO	CLAUSE NO, VOLUME	QUERY/ POINT	CLARIFICATION BY BHEL
C.14	751/ 752/ 753	Cl no 19	Steel will be issued by weigment basis & payment will be made for tonnage callculated on sectional weight basis. Difference between weigment & sectional weight is not considered. Allowable wastage is 5%. Difference between weigment & sectional weight is normally 2 to 3% and accomadating this variation in allowable wastage of 5% is not possible. Suitable clause may be inserted in the specification for maintaining records regarding weigment & sectional weight. Variation on account of this shall be considered suitable for steel reconciliation purpose.	As per SCC, Volume-ID.
C.15	751/ 752/ 753	Cl 19.1.1	In case of difference between actual weight the different should be considered for reconciliation.	As per SCC, Volume-ID.
C.16	751/ 752/ 753	Cl no 19.2	Clause does accommodate any invisible loss for reinforcement steel.	As per SCC, Volume-ID.
C.17	751/ 752/ 753	Cl no 26.0	BHEL has specified that list of T&P mentioned in the contract is not exhaustive and may have to be enhansed. Major T&P like no of crane can not be enhanced. Additional deployment if required may have to be suitably compensated. Pre-poning of project schedule on account of nonavailability of engineering inputs, erection front and non availability of matching raw material may have to be suitably compensated. Suitable clause shall be inserted in the contract suitably.	Deployment of tools & plants shall be as per SCC, Volume-ID to meet the project requirement.
C.18	751/ 752/ 753	Cl no 28 & 29	Are there any interim milestone activities applicable for the construction period for the various buildings?	Construction schedule of major activities is attached.
C.19	751/ 752/ 753	Cl no 28 & 29	The zero date should consider not the date of issuing of LOI but the date of handing over the obstruction free site?	As per SCC, Volume-ID.
C.20	751/ 752/ 753	Cl no 28.0	Please provide construction schedule (L1/L2) enabling us to assess the milestones for different structures as per Scope of Work(CI. 3.1).	Construction schedule of major activities is attached.
C.21	751/ 752/ 753	Cl no 33	Is interest free mobilisation advance is possible. As the work involves lots of financial implication, its better to provide interest free mob. Advance.	As per SCC, Volume-ID.
C.22	751/ 752/ 753	Cl 35.0	We request for considering of over run charge when contractor is at no fault.	As per SCC, Volume-ID.
C.23	751/ 752/ 753	Cl no 36.0	Rate revision is to be applicable when the quantity is increased beyond 20% of BOQ as specified in the contract.	As per SCC, Volume-ID.
C.24	751/ 752/ 753	Cl no 37	Whether Price escalation is payable for coarse aggregate, fine aggregate, concrete admixture etc are included in the "other materials" percentage?	As per SCC, Volume-ID.
C.25	751/ 752/ 753	Cl no 37	The base date for payment of escalation is the date of LOI by BHEL. The base date for payment of escalation shall have to be date of submission of final price bid.	As per SCC, Volume-ID.

SL NO	TENDER NO	CLAUSE NO, VOLUME	QUERY/ POINT	CLARIFICATION BY BHEL
C.26	751/ 752/ 753	Cl no 40, Pg no 20/22	<u>Taxes, duties</u> Subsequent increase in the existing legislation must be borne by BHEL. It's not possible for the bidder to assume the implication towards subsequent legislation. The pricing for this is very difficult.	As per SCC.
C.27	751/ 752/ 753	Cl no 40.2	This work shall be awarded without cost of steel & cement. As per service tax rules if contract is without cost of material service tax on 100% billed amount is to be paid without availing any abatement. Please confirm.	Cl no 16.1 of SCC, Volume-ID is revised as under. Service Tax including Educational Cess on Service Tax (as applicable), shall be paid extra on submission of documentary evidences to the satisfaction of BHEL. As such, bidder's quoted rate shall be exclusive of service tax. Any changes in service tax rules (by Government) shall be complied with.
C.28	751/ 752/ 753	Cl no 40.4	Reimbursement has to be made on account of increase in rates of existing taxes, duties etc. as the future implication cannot be envisaged by any bidder and in the event of denial, ambiguous consideration by different bidders will attract uneven loading of price leading to uncompetitive bid. Please review & ammend provision.	As per SCC, Volume-ID.
C.29	751/ 752/ 753	Cl no 41.0	0.2% for rectification and 0.1% for erection approach may be deleted.	As per SCC, Volume-ID.
C.30	751/ 752/ 753	Cl no 41.0	Payment of RA bills shall be modified as under. (i) 50% of payable amount of RA Bills shall be made immediately on submission of RA bills and (ii) 50% of payable amount of RA bills shall be made in 15 days.	As per SCC, Volume-ID.
C.31	751/ 752/ 753	Cl no 43.0	We presume the rates shall be finalized before execution of the work and contractor may not take up the work if the rate decided is found unworkable, please confirm.	As per tender provision, the rate will be settled on mutual agreement.
C.32	751/ 752/ 753	Secured advance	Is there any scope of secured advance towards plants and material except those materials supplied by BHEL?	Not applicable.
C.33	751/ 752/ 753	Retention	Is there any retention clause applicable for the contract?	As per SCC, Volume-ID.
D. VOLUME-II				
D.1	751/ 752/ 753	Cl no 3.0 & 4.0, Sec-A	<u>Scope of work NIT refers volume II of tender documents. Volume II, clause 3 (scope of work) refers to Section A of the volume which is not available there, where as clause 4.00.00 (Main plant structure/ components) defines a vast nature of work i/c design.</u> We presume this tender is an item rate tender for 'Civil, structural & architectural works' without any design involvement. SCC clause 3.00 is also defining a separate scope of work, which is different from volume II. Please clarify scope of work.	For scope of work, SCC, Volume-ID shall be referred. 'Special technical requirement' under Volume-II covers common technical requirements of civil & structural work of various packages of the project.

SL NO	TENDER NO	CLAUSE NO, VOLUME	QUERY/ POINT	CLARIFICATION BY BHEL
D.2	751/ 752	Cl no 1.00.00	Structural Steel Design, sub-clause k, Connections. (i) Welded connection area as mentioned is in order. In case of HSFG connection only main column shall be bolted connection and all other connection like transverse frame beam, longitudinal tie beam, frame beam to column shall be welded connection. Bolted connection in BC and CD bay frame beams will have interface problem and consume more time.	Shall be as per specification.
D.3	751/ 752	Cl no 4.00.00	GIS Substation structure. Switch yard structure is not included in the scope of contractor. This may be clarified.	For scope of work, SCC, Volume-ID shall be referred. 'Special technical requirement' under Volume-II covers common technical requirements of civil & structural work of various packages of the project. However, depending on requirement of project, BHEL may carry out civil work for switch yard area also under the present scope of work and payment will be released as per respective items of Price Schedule.
D.4	751/ 752/ 753	Cl no 5.00.00	Pipe & cable rack structure. It is addressed in the above clause to keep reasonable margin for accomadating additional pipe/ cable rack structure. If approximate length of such requirement is specified, then the same shall be estimated properly. Please arrange to furnish approximate length and design of pipe/ cable rack structure.	The work shall be executed as per drawing, specification and as per instruction of BHEL. Payment will be made as per respetive items of Price Schedule.
D.5	751/ 752/ 753	Cl no 6.00.01	Other specific requirements. Item 2307 under rate schedule is for electro forged grating. As per cl 6.00.00, indoor gratings are electroforged grating and outdoor gratings are welded type gratings. Both indoor and outdoor shall be electroforged gratings. This can be modified accordingly.	The item is split into following 2 parts. Refer revised price Schedule. The job shall be executed as per drawing, specification as per direction of BHEL.
				GI electroforged grating.
				GI MS grating.
D.6	751/ 752/ 753	Cl no 4.00.00	For fabrication of crane girder, Submerged arc welding is suggested. Arc welding may be permitted for crane girder fabrication. Machining of bearing edges is not possible. After machining fitting and welding of bearing plates at the end may not be possible to achieve desired accuracy. Machining can be avoided.	Shall be as per specification.
D.7	751/ 752/ 753	Cl no 1.00	Volume-IIB, Section-D clause 1.00 specify supply of all raw material. Suply of raw material is in the scope of BHEL and this clause may be modified.	Materials will be supplied by BHEL as per SCC.
D.8	751/ 752/ 753	Cl no 2.5.1	Volume-IIB, Section-D, clause 2.5.1, each lot of 50T of raw material shall be tested at an approved laboratory. Since the supply of raw material is in the scope of BHEL, the testing of plate is also can be included in the scope of BHEL only.	Testing of raw materials, supplied by BHEL, is excuded from scope of bidder.
D.9	751/ 752/ 753	Cl no 2.5.2	Volume-IIB, Section-D, clause 2.5.2, IS 8500 structural steel is included. We have not considered in our estimate use of IS 8500 steel. Item 2301 specify only structural steel as per IS 2062 only. IS 8500 steel may be deleted from the specification. If the same is to be retained then approximate involvement of tonnage IS 8500 may please be indicated in the specification.	IS 8500 is not envisaged in the design

SL NO	TENDER NO	CLAUSE NO, VOLUME	QUERY/ POINT	CLARIFICATION BY BHEL
D.10	751/ 752/ 753	Cl no 2.5.6	Volume-IIB, Section-D, clause 2.5.6, in highly corrosive environment other type of primer such as epoxy resin based zinc rich primer such as blast steel EZ1 of Shalimar Paints Ltd may be necessary. This paint is not covered in bill of quantity. If so suitable optional item may be created in the BOQ so that proper estimate can be made.	Work to be carried out as per specification and drawing
D.11	751/ 752/ 753	Cl no 2.7.0	Volume-IIB, Section-D, clause 2.7.0, quality control for supply of raw material test report and test certificate is to be submitted. Since BHEL is supplying raw material all testing formalities are to be taken care by BHEL and not to be included in the scope of contractor.	Testing of raw materials, supplied by BHEL, is excuded from scope of bidder.
D.12	751/ 752/ 753	Cl no 4.2.2 & 4.2.3	Volume-IIB, Section-D, Clause 4.2.2 & 4.2.3 regarding testing of plates and sample test. This is not covered under the scope of contractor. Since BHEL is supplying all raw material, all testing for raw material shall be under the scope of BHEL.	Testing of raw materials, supplied by BHEL is excuded from scope of bidder.
D.13	751/ 752/ 753	Cl no 2.1.0	Volume-IIB, Section-D, clause 2.1.0 under work to be provided for by contractor. All approach both permanent and temporry nature are to be provided by BHEL.	Construction & maintenance of individual approach roads and drains required for scope of work shall be reponsibility of contrator as per SCC. However, BHEL shall provide main common approach roads & common drains.
D.14	751/ 752/ 753	Cl no 2.1iv	Volume-IIB, Section-D, clause 2.1.0iv, welding can be done in place of bolting whwrever it is not done or wrongly made. To avoid such type of rework it is suggested that welding connection is preferred in BC and CD bay over bolted connection. In BC and CD Bay moment connection by welding can be made in place of HSFG bolting.	Work to be carried out as per specification and drawing.
D.15	751/ 752/ 753	Cl no 2.6.2	Volume IIB, Section-D, clause 2.6.2, BHEL is envisaging fabrication yard in two places. All fabrication yard can be hardcrushed with suitable drainage arrangement. Developement of fabrication yard has to be in the scope of BHEL.	Development of fabrication yard is in the scope of contractor as per SCC.
D.16	751/ 752/ 753		Screed bar and packer plate for column are to be in the scope of BHEL.	Packer plate materail to be used from fabrication cut pieces only.
D.17	751/ 752/ 753	Cl no 3.5.0	Volume-IIB, Section-D, clause 3.5.0 stainless steel plate lining in bunker hopper, 3mm is mentioned in the specification. Whereas 4mm thich stainless steel plate is mentioned in the BOQ. This may be clarified.	SS plate for bumker shall be 4 mm thick as per ST no 2313 of Price schedule.
E. VOLUME-III				
E.1	751/ 752/ 753	ST NO 101 ii)	Please clarify the scope against provision of sensor to assess the impact of blast on the adjacent structures and name/ address of any specialised agency to carry out such activity.	Please revised BOQ R1
E.2	751/ 752/ 753	ST NO 102	As per Item description it is mentioned that Extra over item No. 101 for additional lifts beyond the initial lift of 2 mtr. (excluding excavation) ----- this term "excluding excavation" is not clear here. Please clarify.	Please revised BOQ R1

SL NO	TENDER NO	CLAUSE NO, VOLUME	QUERY/ POINT	CLARIFICATION BY BHEL
E.3	751/ 752/ 753	ST NO 103	We shall consider ordinary dewatering by deploying suitable capacity dewatering pump. Please confirm that no sophisticated system like well point/ deep well dewatering system is required to be deployed.	The item stands deleted. The scope of dewatering shall be in line with provision of SCC and are included under respective items of Price Schedule. Bidder's quoted rates shall be in consideration of required de-watering. Bidder shall have to deploy suitable capacity dewatering pumps as stipulated in SCC.
E.4	751/ 752/ 753	ST NO 104	Please clarify whether unit rate for sub-item no ii) & iii) will be cumulative of sub-item no.i)+ii) and i)+ii)+iii), respectively.	Please revised BOQ R1
E.5	751/ 752/ 753	ST NO 107 (i)	We request you that borrow area for soil may please be provided within the Plant premises.	Soil from from borrow areas to be arranged by bidder.
E.6	751/ 752/ 753	ST NO 108 & 2415	Please clarify the mode of measurement and payment of this item.	The measurement shall be in volume of final compacted filling.
E.7	751/ 752/ 753	ST NO 110	Please inform the maximum depth of grading.	Maximum depth of grading shall be 500 mm.
E.8	751/ 752/ 753	ST NO 203, 204, 205 & 206	Please confirm whether cost of plasticizer / super plasticizer is to be included in these items or it will be paid separately.	The quoted rates shall be inclusive of plasticizer/ super plasticizer, other associated T&Ps, like batching plant, concrete pump, transit mixer, etc, as per direction of BHEL.
E.9	751/ 752/ 753	ST NO 207& 208	Please clarify which item will be operated for TG Deck Foundation and any UPV/NDT testing required for such concrete.	Refer revised Price Schedule.
E.10	751/ 752/ 753	ST NO 212(i)	There should be separate item for providing with minimum two coats of bituminous painting of grade 85/25 @ 1.7 Kg/sqm for water/damp proofing conforming to IS 702 on soil face with unit of measurement as Sqm. as per standard practice. Cost implication for composite item cannot be assessed. Please modify the item description accordingly. also please clarify whether waterproofing cement will be paid separately under item no. 504.	ST NO 212(i) is split into two items. Refer revised Price Schedule.
E.11	751/ 752/ 753	ST NO 214 & 216	This activity appears in both the items. Please clarify.	Refer revised Price Schedule.
E.12	751/ 752/ 753	ST NO 215	Chipping activity cannot be in CUM and it should be in SQM. Please make a separate item for chipping with maximum depth to be specified-unit SQM and modify this item description as dismantling of concrete	Refer revised Price Schedule.
E.13	751/ 752/ 753	ST NO 216	Please confirm.	Item stands deleted. Refer revised Price Schedule.
E.14	751/ 752/ 753	ST NO 306	Please clarify "below 0.1 sqm contact surface area with concrete".	Refer revised Price Schedule.
E.15	751/ 752/ 753	ST NO 401, 402, 403 & 404	In item description it is mentioned - "including cost of reinforcement" which will be deleted since reinforcement steel will be supplied by BHEL free of cost. Please confirm.	Reinforcement steel shall be supplied by BHEL free of cost as per SCC. Refer revised Price Schedule.

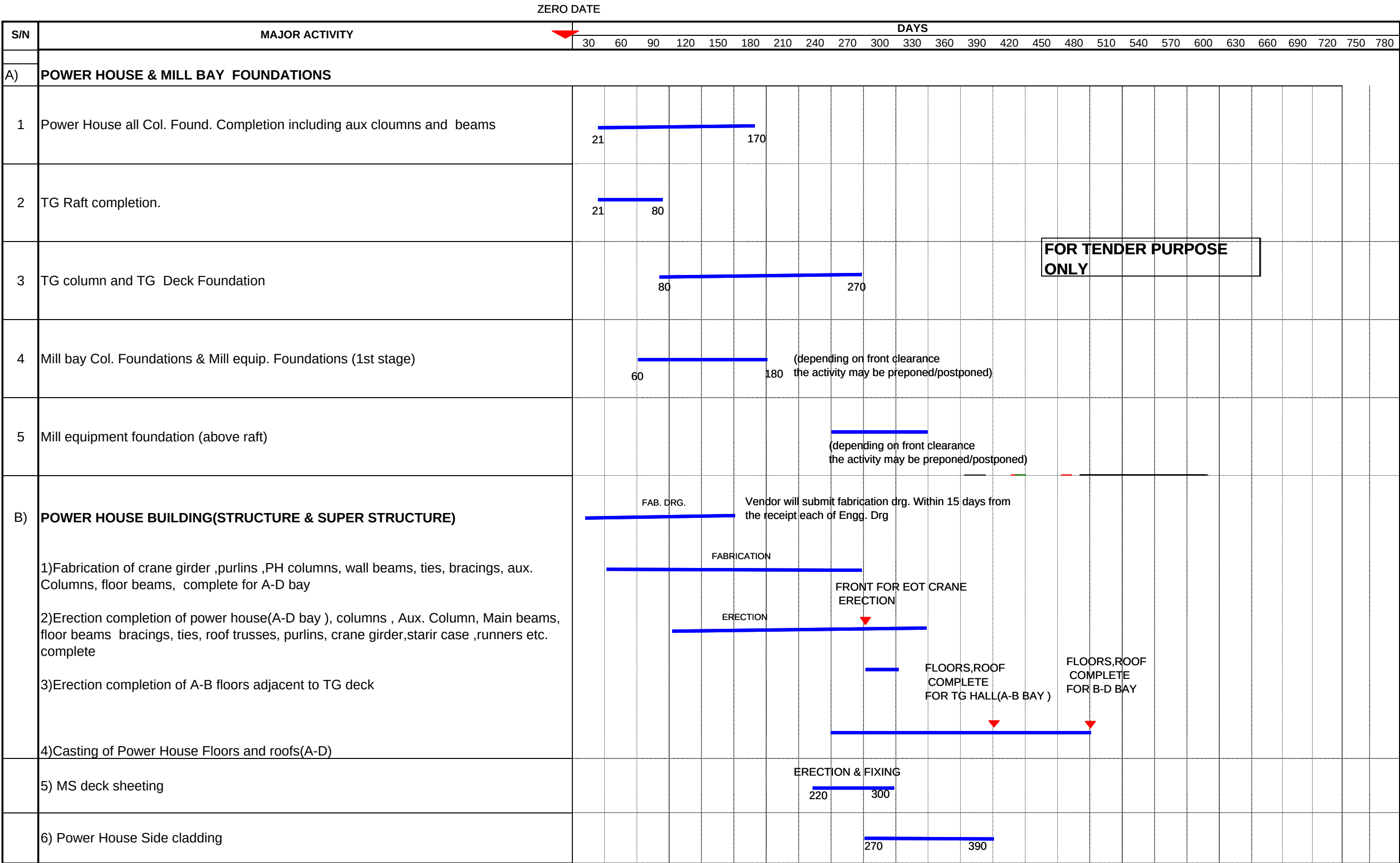
SL NO	TENDER NO	CLAUSE NO, VOLUME	QUERY/ POINT	CLARIFICATION BY BHEL
E.16	751/ 752/ 753	ST NO 500	The guarantee shall be provided for 10 Years instead of 20 years as per standard practice. Please confirm.	No change, refer revised Price Schedule.
E.17	751/ 752/ 753	ST NO 501	There is no item for wearing course of minimum 25mm thick PCC(1:1.5:3) and sealant filling in gaps of pannels over elastomeric membrane in the BOQ as per requirement of technical specification (Cl. no. 2.7.3). Please comfirm whether these are deleted from scope or to be paid separately as extra item.	Refer revised Price Schedule.
E.18	751/ 752/ 753	ST NO 503	Standard size of precast concrete tiles available is 300x300m / 250 x 250 mm. Hence, size as mentioned in the item 600 x 600 mm may please be reviewed. Please confirm.	Refer revised Price Schedule.
E.19	751/ 752/ 753	ST NO 603	It should be in RM.	No change.
E.20	751/ 752	ST NO 705	Locking & releasing of VIS may be deleted as the same have to be done by manufacturers technician	VIS to be provided by BHEL free of cost but placing, locking and releaseing to be done by bidder under the supervision of engineer from M/s GERB. Accordingly BOQ is ammended as below - Placing, locking & releasing of vibration isolation spring modules over foundations at all elevations including transportation from stores, leveling, alignment all complete, under the supervision of supplier, as per drg & instructions of engineer in charge.
E.21	751/ 752/ 753	ST NO 801	It should be either in KG or in bags.	No change.
E.22	751/ 752/ 753	ST NO 902	Qty. as per BOQ appears not correct. This may please be corrected.	Quantity modified. Refer revised Price Schedule.
E.23	751/ 752/ 753	ST NO 904	Qty. as per BOQ appears not correct. This may please be corrected.	Quantity modified. Refer revised Price Schedule.
E.24	751/ 752/ 753	ST NO 906	As informed by our specialised vendor, steel fire doors shall be tested and certified by CBRI, Roorkee as per IS 3614 Part-II, BS 476 Part 20& 22 and accordingly, TAC requirements are no longer applicable. As such, please ammend this provision of the item.	Refer revised Price Schedule.
E.25	751/ 752/ 753	ST NO 911, 912 & 913	All three items are 'with push & pull operation', which is ambiguous.Please modify the item description.	Description modified, refer revised Price Schedule.
E.26	751/ 752/ 753	ST NO 917	Please elaborate the scope / technical specification of this item.	Aluminium strips with fibers as per direction of BHEL. Refer revised Price Schedule.
E.27	751/ 752/ 753	ST NO 1000	Whether fly ash bricks will be supplied by BHEL at free of cost?	Supply of all type of bricks including fly ask brick is in the scope of contractor.

SL NO	TENDER NO	CLAUSE NO, VOLUME	QUERY/ POINT	CLARIFICATION BY BHEL
E.28	751/ 752/ 753	ST NO 1001 (i), (ii), (iii), (iv), 1002, 1003, 1004	<u>Fly ash lime bricks, clay ash bricks, ordinary bricks & locally available first class bricks shall have to be used.</u> As fly ash bricks are only to be used in and around TPS. We propose to manufacture and use fly ash bricks with crushing strength of 75KG/ cm ² and size of bricks shall be 200x100x100. Please confirm whether dry fly ash from ESP and cement shall be supplied for manufacturing of bricks or not.	The fly ash bricks shall conform to IS 12894:2002. The minimum thickness of wall as per customer specification is 250 mm (including plaster) therefore min 220 mm length of brick is required.
E.29	751/ 752/ 753	ST NO 1006	Please provide the maximum thickness of brick partition wall.	Maximum thickness of brick wall shall be 127 mm. Refer revised Price Schedule.
E.30	751/ 752/ 753	ST NO 1007	Please provide the type of brick and the mix proportion of cement mortar. Also confirm that wire mesh shall be paid separately under item no. 1009.	The items is split into two parts. Refer revised Price Schedule. Brick masonry work with brick of class designation 75 and quoted rates shall be inclusive of cost of wire mesh. Mix cement mortar of 1:4 by volume and quoted rates shall be inclusive of cost of wire mesh.
E.31	751/ 752/ 753	ST NO 1206 & 1209	Please provide the mix proportion of cement mortar.	Cement mortar shall be 1:4 by volume. Refer revised Price Schedule.
E.32	751/ 752/ 753	ST NO 1207 A & 1207 B	Please clarify whether these two items are alternate item or to be applied one over another or at different locations. Moreover Birla white as specified in item is white cement only. Please clarify.	Shall remain unchanged. Refer revised Price Schedule.
E.33	751/ 752/ 753	ST NO 1417	Grade of concrete for Interlocking pavers not mentioned. Please provide the same.	The concrete shall be minimum M25 grade. Refer revised Price Schedule.
E.34	751/ 752/ 753	ST NO 1418	Thickness of self leveling epoxy flooring has not been mentioned. Please provide the same.	Minimum thickness of epoxy shall be 1 mm. Refer revised Price Schedule.
E.35	751/ 752/ 753	ST NO 1422	Minimum height of flooring has not been mentioned. Please provide the same.	Item modified to three subitems having finished height of flooring , i) upto 600 mm, ii) above 600 to 800 mm, iii) above 800 to 1000 mm) Refer revised Price Schedule.
E.36	751/ 752/ 753	ST NO 1426	Technical specification and name and address of vendors may please be provided.	Refer revised Price Schedule.
E.37	751/ 752/ 753	ST NO 1509	Technical specification and name and address of vendors may please be provided.	Refer revised Price Schedule.
E.38	752/ 753	ST NO 1809	Name and address of vendors may please be provided.	Bidder to arrange.
E.39	751/ 752/ 753	ST NO 1820	Name and address of vendors may please be provided.	Refer revised Price Schedule.
E.40	751/ 752/ 753	ST NO 2201 & 2205	Please confirm whether these items will be for coloured or white sanitary wares.	these items shall be for white or light color sanitary wares. Refer revised Price Schedule.

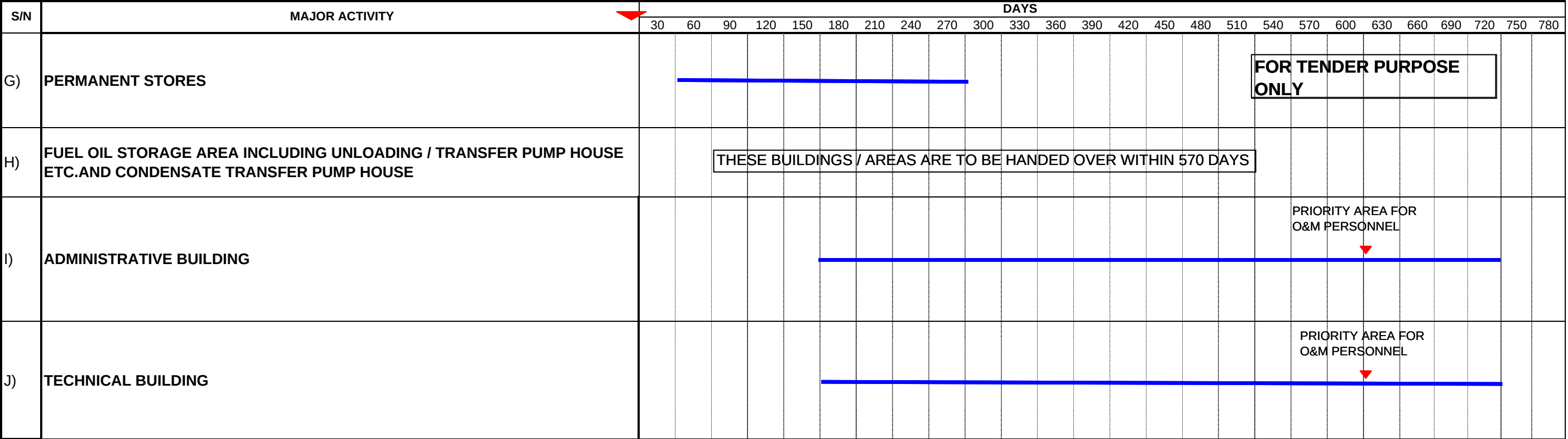
SL NO	TENDER NO	CLAUSE NO, VOLUME	QUERY/ POINT	CLARIFICATION BY BHEL
E.41	751/ 752/ 753	ST NO 2211	Please confirm whether manhole cover is of Heavy Duty or medium duty type.	Manhole covers shall be of heavy duty type. Refer revised Price Schedule.
E.42	751/ 752/ 753	ST NO 2301	<u>Space/ land shall be provided by BHEL for stacking / fabrication for steel fabrication work</u> Adequate space for fabrication yard preferably with the facility for transportation of fabricated material through railway track system to erection point shall be required. Please confirm whether such suitable adequate space for fabrication yard shall be provided or not	Land shall be provided as per SCC. Transportation of fabricated materials is in the scope of vendor. No railway line envisaged for transportation of fabricated material.
E.43	751/ 752/ 753	ST NO 2301	As per item 2301 fabrication and erection quantity is 9459MT, whereas painting quantity is only 6317MT(Item2304-3028MT+item2306-3289MT).Balance quantity unpainted is 9459-6317MT=3142MT.This may be clarified.	Bidder to quote as per Price Schedule. Refer revised Price Schedule.
E.44	751/ 752/ 753	ST NO 2301	In item 2301 decking and seal plate is mentioned for fabrication and erection.Deck plate is not envisaged in structural package.	Deck & seal plate are covered under this item as per the description. However, colour coated galvanised MS troughed metal sheet deck plate is included under ST NO 1501 and shall be paid accordingly. Bidder to quote as per Price Schedule. Refer revised Price Schedule.
E.45	751/ 752/ 753	ST NO 2301	A separate agency is to be appointed for preparation of fabrication drawing and joint design calculation. Whether Fabrication drawing will be approved by BHEL PEM or a Consultancy firm appointed by BHEL PS ER.	Bidder may associate agency or do of their own for detail fabrication drawing and engage separate agency for review of detail fabrication drawing for submission to BHEL for approval. Both the agencies responsible for detail drawing and review of the same shall be engaged on prior approval of BHEL.
F. Additional clarifications on tenders				
F.1	752/ 753	Cl 3.0, Vol-ID	Scope of CW duct is in Power Block 2 package, which was inadvertently mentioned in the 'Auxiliary Building' pkg. The same is deleted from the scope of 'Auxiliary Building' pkg.and included in Power Block -2 Package In 'Auxiliary Building' package, In addition to civil work for "CW piping from CW Pump house to transformer yard" , civil work for CW piping from transformer yard to cooling tower is also covered in the scope. Aux building also covers Gate House+Time & Security Office; Security Kioast etc. Any other aux building not specifically mentioned in tender, but required at a later date within the plant, is also covered under the scope. CW piping from transformer yard to P/H (both inlet and outlet) is covered in respective 'Power Block' packages.	
F.2	752	Cl 3.1 Vol-ID	Scope of work mentions 'Power Block 1'. It should be read as 'Power Block 2'.	
F.3	752	General	Brief scope/ title, wherever applicable, shall be as under. Civil, Structural etc. work of Power Block 2 covering Power house including mill bay, Aux. building in Power Block 2 , CW Pump House & CW duct ,Misc. Civil works etc. of Unit#1 for 2x500 MW unit#1&2 Mejia-B TPS, West Bengal	
F.4	751/ 752	Cl 26.7 (new clause), Vol-ID	Contractor shall install 1 number gantry crane of adequate capacity alongwith all necessary fixing arrangement, in fabrication yard within 60 days from the placement of LOI.	

SL NO	TENDER NO	CLAUSE NO, VOLUME	QUERY/ POINT	CLARIFICATION BY BHEL
F.5	751/ 752	General	1 set of engineering drawing for power house structure is ready as on date. So, it is envisaged that contractor shall start fabrication work with 1 month of LOI. Contractor should be ready with all necessary tie-up (agency for preparation of fabrication drgs and agency for review of the drawings). Accordingly, contractor shall mobilise requisite T&P (like, 18/20 T crane, hydra, welding machines etc) and consummables (like, electrode etc) and manpower within 30 days of LOI to start fabrication work.	
F.6	751/ 752/ 753	Cl 26.3, Vol-ID	<u>The clause stands modified as under</u> In the event of any failure of the part of the contractor, BHEL may at his discretion also terminate the contract on this ground and take out any or whole amount of the contract from the scope of the contractor. In the event of failure of contractor to deploy necessary and sufficient T&P/ IMTEs, BHEL will be at liberty to arrange the same at the risk & cost of contractor including transportation cost of same from any of BHEL site/ other agency & charges as applicable shall be deducted from contractor's RA bill. BHEL also reserve the right to effect recoveries for non mobilisation of such T&P as per prevailing market rates.	
F.7	General		Following drawings (for tendering purpose only) have been handed over to participating bidders in PBD by BHEL. Other interested bidders may download the drawings from web sites/ collect copy of drawings from BHEL office. i) Drg no PE-DG-270-611-C027, REV-0 (POWER HOUSE BUILDING - ELEVATION ON 'A' ROW). ii) Drg no PE-DG-270-612-C001, REV-0 (GENERAL NOTES & STANDARD DETAILS FOR STRUCTURAL STEEL WORKS). iii) Drg no PE-DG-270-100-M001, REV-0 (PLOT PLAN). iv) Drg no PE-DG-270-100-M010, REV-0 (TG BUILDING CROSS SECTION). v) Drg no PE-DG-270-611-C001, REV-0 (GENERAL NOTES & STANDARD DETAILS FOR RCC WORKS). vi) Drg no PE-DG-270-611-C002, REV-0 (POWER HOUSE BUILDING EXCAVATION PLAN). vii) Drg no PE-DG-270-612-C009, REV-0 (POWER HOUSE BUILDING - DETAIL OF COLUMNS, AXIS A, B & C).	
F.8	751/ 752/ 753	Cl 19.1, Vol-ID	Cement (OPC & PSC) as received from the manufacturer/ stockiest will be issued free of cost to the contractor. The theoretical weight of each bag of cement for issued purposes will be considered as 50 kg, the contractor shall be accountable for the cement issued to him on this notional weight only. No claim whatsoever will be entertained because of difference between theoretical and actual weight of the bags of cement. Bidder shall provide cement of any other class/ categories as per requirement of respective items of Price Schedule and bidder's quoted rates shall be inclusive of this consideration.	
F.9	General		Bidder to note that in case successful bidder of any one tenders (751, 752 or 753) are already working at Mejia project, they have to deploy resources, like manpower including supervisory staff, T&P etc separately. In case, they want to share resources of existing contract, prior approval of BHEL site shall have to be obtained before use of such existing resources during execution.	
F.10	General		Bidder to note that BHEL/ DVC have reservation in sourcing electroforged grating from Indiana Gratings Pvt Ltd and side cladding, false flooring & false ceiling materials from Lloyds Insulations Ltd. As such, bidders are advised to arrange such materials from alternate equivalent sources.	
F.11	General		Under normal circumstances, BHEL do not contemplate to provide accommodation to contractors' staff. However, as per availability of quarter from DVC within the township & acceptance of DVC, BHEL may provide accommodation on chargeable basis depending on requirement and on specific request from contractor. The charge for quarter rent along with electricity etc shall be recovered from contractor's RA bill as per the charge levied by DVC on BHEL.	
F.12	General		Bidder to note while submitting offer to submit signed copies of all TCNs and un-priced bid bids as per latest revised Volume-III formats in techno-commercial offer and 2 separate price bids as per latest revised Volume-III formats.	
Enclosures				
1.0	Construction schedule (common schedule for all 3 tenders is attached. Bidder to note the specific part applicable for respective tender).			
2.0	7 number drawings as per above.			

TENTATIVE CONSTRUCTION SCHEDULE (KEY AREAS) - 2X500 MW MEJIA PH-II PROJECT (FOR TENDERING PURPOSE ONLY)



S/N	MAJOR ACTIVITY	DAYS																											
		30	60	90	120	150	180	210	240	270	300	330	360	390	420	450	480	510	540	570	600	630	660	690	720	750	780		
	7) Control room readiness including brick work, POP, wall painting, false ceiling, under deck incl., Aluminium doors & wooden partition etc. complete																												
C)	<u>MILL BAY STRUCTURE AND SUPER STRUCTURE</u> 1) Mill bay structural all columns, beams, bracings, ties,tiper floor & its roof ,feeder floor , bunker girder,hoppers including SS liner etc str completion complete																												
	2) Mill feeder floor ,tipper floor ,roof and) ,ground floor casting																												
D)	<u>CW PUMP HOUSE WITH FEED POOL AND ELECTRICAL ANNEXE</u>																												
1)	Excavation for CW Pump House and Feed Pool & Electrical Annex																												
2)	Completion of Raft and wall of CWPH																												
3)	Completion of feed pool raft.																												
4)	Completion of feed pool wall upto GL.																												
5)	Completion of RCC Pump operating floor of CWPH																												
6)	Super structure column ,side wall with roof completion.																												
E)	CW DUCT																												
F)	COMPRESSOR HOUSE, ESP CONTROL BUILDING, ACW / AIR WASHER BUILDING	THESE BUILDINGS ARE TO BE HANDED OVER FOR EQUIP. ERECTION WITHIN 550 DAYS																											



ABOVE CONSTRUCTION SCHEDULE IS TENTATIVE AND FOR GENERAL GUIDANCE ONLY. CONTRACTOR HAS TO PLAN HIS WORK IN A MANNER SO AS TO MEET THE PROJECT MILESTONE SCHEDULE WHICH IS AS UNDER. CONTRACTOR IS TO SUBMIT L2/L3 SCHEDULE FOR BHEL APPROVAL WITHIN 30 DAYS OF LOI.

FOR UNIT#1

- 1) CONDENSER ERECTION START
- 31/07/08
- 2) TURBINE ERECTION START
- 30/09/08
- 3) BOILER LIGHT UP
- 31/07/09
- 4) SYNCHRONISATION WITH COAL
- 31/10/09
- 5) COMMERCIAL OPERATION DECLARATION
- 31/12/09

UNIT#2 SHALL HAVE PHASE LAG OF 03 MONTHS FROM THAT OF THE UNIT#1.

TENDER NO	PSER:SCT:MJA-C751:07	
VOLUME	IIIA	PRICE SCHEDULE, REV-1 (ABSOLUTE VALUES)

JOB	CIVIL, STRUCTURAL ETC WORK OF POWER BLOCK 1 COVERING POWER HOUSE INCLUDING COMMON CONTROL ROOM BAY, MILL BAY, AUX BUILDINGS, MISCELLANEOUS CIVIL WORKS ETC OF UNIT # 1.
CAPACITY	2 x 500 MW UNIT # 1 & 2
PROJECT	MEJIA-B THERMAL POWER STATION, WEST BENGAL

BHARAT HEAVY ELECTRICALS LIMITED
(A Govt Of India Undertaking)
POWER SECTOR – EASTERN REGION
PLOT – DJ 9/1, SECTOR II, SALT LAKE
KOLKATA – 700 091

VOLUME-III A PRICE SCHEDULE, REV-1	
Civil, structural etc work of Power Block 1 covering power house including common control room bay, mill bay, aux buildings, misc civil works etc of unit # 1 for 2x500 MW unit # 1 & 2 Mejia-B TPS, West Bengal.	
TENDER NO - PSER:SCT:MJA-C751:07	
PREAMBLE	
1.0	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully in rates for various items. Clauses under this preamble shall be read in conjunction with other volumes of tender as applicable.
2.0	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions.
3.0	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
4.0	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, taxes, 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 tender document and this schedule.
5.0	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 thirty percent ($\pm 30\%$) of the contract price.
6.0	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing 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.
7.0	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.
8.0	All works item wise shall be measured upon completion and paid for at the rates quoted and accepted.
9.0	The tender shall be deemed to have studied the specifications, details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
10.0	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.

VOLUME-III A						
PRICE SCHEDULE, REV-1						
Civil, structural etc work of Power Block 1 covering power house including common control room bay, mill bay, aux buildings, misc civil works etc of unit # 1 for 2x500 MW, Mejia-B TPS, West Bengal.						
TENDER NO - PSER:SCT:MJA-C751:07						
SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
1.0	100	EARTH WORK IN EXCAVATION, BACKFILLING & DISPOSAL AS PER SPECIFICATION & DRAWINGS				
1.1	101A	Earth work in excavation upto 2m depth below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including setting out, clearing & grubbing, removal of debris, dewatering if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and ramming the bottom, stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for all types of soils including ash, laterite, morrum, weathered rock, decomposed rock, soft rock etc which can be excavated by means of crow bar, pick axe and other mechanical means etc but does not require chiselling or blasting.	46,000	CUM		
1.2	101B	Earth work in excavation upto 2m depth below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including setting out, clearing & grubbing, removal of debris, dewatering, if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for hard rock requiring blasting/ controlled blasting and/or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by engineer.				
1.2.1	a	By means of controlled blasting including provision of sensor to assess the impact of blast on the adjacent structures.	200	CUM		
1.2.2	b	By means of controlled blasting excluding provision of sensor.	1,105	CUM		
1.2.3	c	In hard rock (blasting Prohibited) by means of chiselling, wedging etc.	172	CUM		
1.3	101C	Earth work in excavation for depth exceeding 2.0m but not exceeding 4.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and ramming the bottom, stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for all types of soils including ash, laterite, morrum, weathered rock, decomposed rock, soft rock etc which can be excavated by means of crow bar, pick axe and other mechanical means etc but does not require chiselling or blasting.	11,908	CUM		
1.4	101D	Earth work in excavation for depth exceeding 2.0m but not exceeding 4.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for hard rock requiring blasting / controlled blasting and/ or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by engineer.				
1.4.1	a	By means of controlled blasting including provision of sensor to assess the impact of blast on the adjacent structures.	300	CUM		
1.4.2	b	By means of controlled blasting excluding provision of sensor.	15,716	CUM		
1.4.3	c	In hard rock (blasting Prohibited) by means of chiselling, wedging etc.	400	CUM		

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
1.5	101E	Earth work in excavation for depth exceeding 4.0m but not exceeding 7.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and ramming the bottom, stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for all types of soils including ash, laterite, morrum, weathered rock, decomposed rock, soft rock etc which can be excavated by means of crow bar, pick axe and other mechanical means etc but does not require chiselling or blasting.	1,605	CUM		
1.6	101F	Earth work in excavation for depth exceeding 4.0m but not exceeding 7.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for hard rock requiring blasting/ controlled blasting and/ or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by engineer.				
1.6.1	a	By means of controlled blasting including provision of sensor to assess the impact of blast on the adjacent structures.	100	CUM		
1.6.2	b	By means of controlled blasting excluding provision of sensor.	16,000	CUM		
1.6.3	c	In hard rock (blasting prohibited) by means of chiselling, wedging etc.	400	CUM		
1.7	101G	Earth work in excavation for depth exceeding 7.0m but not exceeding 10.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and ramming the bottom, stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for all types of soils including ash, laterite, morrum, weathered rock, decomposed rock, soft rock etc which can be excavated by means of crow bar, pick axe and other mechanical means etc but does not require chiselling or blasting.	70	CUM		
1.8	101H	Earth work in excavation for depth exceeding 7.0m but not exceeding 10.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for hard rock requiring blasting/ controlled blasting and/ or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by engineer.				
1.8.1	a	By means of controlled blasting including provision of sensor to assess the impact of blast on the adjacent structures.	50	CUM		
1.8.2	b	By means of controlled blasting excluding provision of sensor.	250	CUM		
1.8.3	c	In hard rock (blasting prohibited) by means of chiselling, wedging etc.	150	CUM		

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
1.9	101J	Earth work in excavation for depth exceeding 10.0m but not exceeding 15.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and ramming the bottom, stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for all types of soils including ash, laterite, morrum , weathered rock, decomposed rock, soft rock etc which can be excavated by means of crow bar, pick axe and other mechanical means etc but does not require chiselling or blasting.	30	CUM		
1.10	101K	Earth work in excavation for depth exceeding 10.0m but not exceeding 15.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, Ducts, roads, embankment etc including dewatering if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for hard rock requiring blasting /controlled blasting and/or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by Engineer.				
1.10.1	a	By means of controlled blasting including provision of sensor to assess the impact of blast on the adjacent structures.	50	CUM		
1.10.2	b	By means of controlled blasting excluding provision of sensor.	100	CUM		
1.10.3	c	In hard rock (blasting prohibited) by means of chiselling, wedging etc.	50	CUM		
1.11	101 L	Earth work in excavation for depth exceeding 15.0m but not exceeding 20.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for hard rock requiring blasting/ controlled blasting and/ or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by engineer.				
1.11.1	a	By means of controlled blasting including provision of sensor to assess the impact of blast on the adjacent structures.	20	CUM		
1.11.2	b	By means of controlled blasting excluding provision of sensor.	60	CUM		
1.11.3	c	In hard rock (blasting prohibited) by means of chiselling, wedging etc.	20	CUM		
1.12	104	Extra over item 101A to 101L above respectively for carriage of all types of excavated materials beyond the initial lead of 1.0 km dumping, levelling the dumped soil/ materials and levelling the area from where the material is transported, complete with all lifts as specified and directed by engineer for the following leads.				
1.12.1	i)	Carriage beyond 1.0 km and not exceeding 2.0 km.	40781	CUM		
1.12.2	ii)	Carriage beyond 2.0 km and not exceeding 5.0 km.	44271	CUM		
1.12.3	iii)	Carriage beyond 5.0 km and not exceeding 10.0 km.	2750	CUM		
1.13	105	Filling using selected excavated materials in trenches, plinths, sides of foundations and other underground structures, pipes, area levelling etc in layers not exceeding 250 mm thickness including lead upto 5 KM and all lifts and including loading from stock pile, carting, unloading, filling, watering and compacting/ ramming each layer, all complete as per specifications, drawings and as directed by engineer to achieve the following densities.				
1.13.1	i)	Ordinary manual compaction.	2151	CUM		
1.13.2	ii)	90% Standard Proctor density.	38573	CUM		

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
1.13.3	iii)	95% Standard Proctor density.	22161	CUM		
1.14	106	Filling using selected excavated materials directly from excavation area in trenches, plinths, sides of foundations & other underground structures, pipes, area levelling etc in layers not exceeding 250 mm thickness including all lifts, filling, watering & compacting/ ramming each layer, all complete as per specification, drawings and as directed by engineer to achieve the following densities.				
1.14.1	i)	Ordinary manual compaction.	296	CUM		
1.14.2	ii)	90% Standard Proctor density.	4479	CUM		
1.14.3	iii)	95% Standard Proctor density.	305	CUM		
1.15	107	Filling using selected materials in trenches, plinths, sides of foundations, in the space below the grade level slab and other under ground structures, pipes etc in layers not exceeding 250 mm in thickness including all lifts and including excavating, loading, unloading, carting, filling, watering and compacting/ ramming each layer, all complete as per specifications, drawings and as directed by engineer for the following works.				
1.15.1	i)	With selected soil brought from borrow areas arranged by contractor, including royalties, fees etc for all leads and compacted to following densities.				
1.15.1.1	a	90% Standard Proctor density.	786	CUM		
1.15.1.2	b	95% Standard Proctor density.	60	CUM		
1.15.2	ii)	With selected sand brought from quarries/ river bed arranged by contractor, and compacting to 80% relative density etc for all leads.	305	CUM		
1.16	108	Filling in trenches, plinths, area paving and other underground structures with stone (63 mm down graded), in layers not exceeding 200 mm thickness including breaking of boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts all complete as per instructions of engineer.	8040	CUM		
1.17	109	Filling in transformer pits etc, with clean 40 mm nominal size stone aggregate including all labour, materials, royalties, equipments etc complete as per instructions of engineer.	57	CUM		
1.18	110	Buldozing earth for grading (maximum depth 500 mm) of ground including removable of vegetation complete including disposal of debris upto 5 km.	5200	SQM		
1.19	111	Cutting of trees, including transportation, stacking at storage yard and disposal of unused material as per direction of engineer.				
1.19.1	i)	300 mm upto 600 mm girth.	2	NO		
1.19.2	ii)	601 mm upto 900 mm girth.	3	NO		
2.0	200	PROVIDING AND PLACING CONCRETE WORK INCLUDING COST OF LABOUR, MATERIALS AND EQUIPMENT FOR HANDLING, TRANSPORTATION, BATCHING, MIXING, PLACING, VIBRATING AND CURING, (EXCLUDING COST OF CENTERING, SHUTTERING AND REINFORCEMENT) COMPLETE AS PER DRAWING AND SPECIFICATIONS UNLESS SPECIFIED OTHERWISE FOR THE FOLLOWING (CEMENT SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER SCC).				
2.1	201	Plain cement concrete of proportion (1 part cement:4 part sand:8 part graded aggregates by volume) as filling course at any level below finished floor level, with 40 mm nominal size graded aggregate.	1317	CUM		
2.2	202	Plain cement concrete of of proportion (1 part cement:3 part sand:6 part graded aggregates by volume) as lean concrete, levelling course, mud mat under and around foundations/ floors etc with 20 mm nominal size graded aggregate.	5117	CUM		

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
2.3	203	Design mix concrete of grade M20 in under floors, paving, pipe encasing etc complete with 20 mm nominal size graded aggregate, plasticiser etc complete.	3703	CUM		
2.4	204	Design mix concrete of grade M15 as under bed to floors including plasticiser etc complete.	398	CUM		
2.5	205	Design mix concrete of grade M25 in underground structures like foundations, columns below finish floor level, plinth beams, slab-on-grade, drains etc complete with 20 mm nominal size graded aggregate, plasticiser etc complete.	17706	CUM		
2.6	206	Design mix concrete of grade M25 in superstructure from finished floor level complete at all heights with 20 mm nominal size graded aggregate, plasticiser etc complete.	6898	CUM		
2.7	207	Design mix concrete of grade M-25 in TG block, column and machine foundations at all heights from finished floor level except mill foundation, top deck supported over vibration isolation system including addition of suitable plasticizer conforming to IS 9103-latest to achieve a slump more than 125 mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate.				
2.7.1	a)	M25 (with 20mm nominal size graded stone aggregate), with Ultrasonic Pulse Velocity testing (Ultrasonic Pulse Velocity testing to be conducted for TG column and machine foundations through reputed agency/ institution as per approval of engineer. Payment terms - a. After casting 80%; b. After receipt of ultrasonic test report - 20%.	350	CUM		
2.7.2	b)	M25 (with 20mm nominal size graded stone aggregate), without Ultrasonic Pulse Velocity testing.	3170	CUM		
2.8	208	Providing & laying design mix cement concrete for reinforced concrete works using graded aggregate in mill fdn, top decks of machine fdns supported on vibration isolation system (VIS) (excluding supply & installation of VIS) at all levels including addition of suitable plastisizers conforming to IS9103 to achieve a slump more than 125 mm in concrete as per manufacturers recommendation, preperation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning & rendering the exposed surface with cement sand mortar to give a smooth & even surface, maintaining & submitting records of concreting, petrographic examination & potential reactivity of aggregate etc all complete as per spec, drawing & instructions of engineer, including UPV testing as directed by engineer, rectification of the defects in concreting observed by ultra-sonic pulse velocity (UPV) testing by cement/ epoxy grout etc, but excluding formwork, staging, reinforcement, embeddments and temperature control of concrete.				
2.8.1	i)	M30 (with 20 mm nominal size graded stone aggregate), without Ultrasonic Pulse Velocity testing.	720	CUM		
2.8.2	ii)	M35 (with 20 mm nominal size graded stone aggregate), without Ultrasonic Pulse Velocity testing.	13	CUM		
2.8.3	iii)	M30 (with 20 mm nominal size graded stone aggregate), with Ultrasonic Pulse Velocity testing for machine foundations.Ultrasonic pulse velocity testing to be conducted through reputed agency/ institution as per approval of engineer. Payment terms - a. After casting 80%; b. After receipt of Ultrasonic test report - 20%.	550	CUM		
2.8.4	iv)	M35 (with 20 mm nominal size graded stone aggregate), with Ultrasonic Pulse Velocity testing for TG deck and machine foundations (Ultrasonic Pulse Velocity testing to be conducted through reputed agency/ institution as per approval of engineer. Payment terms - a. After casting 80%; b. After receipt of ultrasonic test report - 20%.	850	CUM		
2.9	209	Extra over ST NO 208 above, for controlling of temperature of freshly laid concrete to less than 25 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.	1210	CUM		

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
2.10	210 A	Screed concrete 1:2:4 conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/ 6 mm nominal size on the roof or various floors at any level or thickness, drains etc complete.	386	CUM		
2.11	210 B	Screed concrete 1:1.5:3 conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5 mm/ 6 mm nominal size on the roof or various floors at any level or thickness, drains etc complete.	350	CUM		
2.12	211	Design mix concrete of grade M25 in precast works like beams, columns, wall panels, facias etc at all levels in all kinds of work including formwork/ moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjusant precast units with M30 concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc complete with graded aggregate (20/12.5/10 mm).	190	CUM		
2.13	212 A	Design mix concrete of grade M25 in water retaining/ conveying structures including addition of suitable plastisizer cum waterproofing cement additives confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and subsequent reduction in cement content upto a maximum 10% complete and conforming to limits of permeability as per IS 2545 as per specification with 20 mm nominal size graded aggregate.				
2.13.1	i)	Below ground level.	845	CUM		
2.13.2	ii)	Above ground level.	26	CUM		
2.14	212 B	Providing with minimum two coats of bituminous painting of grade 85/25 @ 1.7 kg/ sqm for water/ damp proofing conforming to IS 702 on foundation/ structure/ wall surfaces in contact with soil.	4500	SQMM		
2.15	213	Concrete of grade M15 in plinth protection, pipe encasing etc complete with 20 mm nominal size graded aggregate.	81	CUM		
2.16	214	Dismantling concrete work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.				
2.16.1	i)	Plain cement concrete of all grades.	28	CUM		
2.16.2	ii)	Reinforced cement concrete of all grades alongwith cutting of reinforcements etc complete.	68	CUM		
2.17	215	Cutting of masonry/ PCC/ RCC work for making openings/ pockets at any floors/ walls of all levels and according to shapes and sizes as per drawing by using power cutting tool (DD2E of Hilti make or equivalent), disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, making good broken edges/ surfaces with cement mortar (1:3) etc complete as per instructions of BHEL. (measurement shall be paid as per cutting surface area of masonry/ concrete and reinforcement).	60	SQM		
2.18	216	Chipping manually (wherever machine cutting is not possible) of masonry/ PCC/ RCC work for making pockets, openings at any floors/ foundations of all levels and according to shapes and sizes as per drawing, including making good broken edges/ surface with cement mortar (1:3), disposal of waste materials upto a lead of 2 km as directed by engineer (measurement shall be paid as per cutting surface area of masonry/ concrete and reinforcement).	15	SQM		
3.0	300	SUPPLYING, FIXING AND REMOVING FORMWORK AT AS PER SPECIFICATIONS AND INCLUDING ALL LABOUR MATERIAL, SCAFFOLDINGS AND CENTEREING COMPLETE INCLUDING POCKETS ETC. FOR THE FOLLOWING.				
3.1	301	Ordinary form work below finished ground floor level for foundations, footings, bases of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	21288	SQM		

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
3.2	302	Fairface form work below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc for exposed concrete works.	5586	SQM		
3.3	303	Ordinary form work above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc for all heights.	22745	SQM		
3.4	304	Fairface form work above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc. for all heights.	17040	SQM		
3.5	305	Formwork for TG superstructure-fairface. (above TG raft level)	2720	SQM		
3.6	306	Providing, fixing and removing formwork in block-outs/ pockets and openings at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer.				
3.6.1	i)	Upto 300 mm depth.	40	NO		
3.6.2	ii)	From 301 mm upto 600 mm depth,	42	NO		
3.6.3	iii)	From 601 mm upto 1000 mm depth.	24	NO		
3.6.4	iv)	From 1001 mm upto 1500 mm depth.	24	NO		
4.0	400	REINFORCEMENTS (REINFORCEMENT STEEL SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER SCC)				
4.1	401	Transporting, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements in concrete including cost of binding wire, labour etc complete all as per specifications & drawings.	25	MT		
4.2	402	Transporting, straightening, cutting, bending, placing at any level, binding in position high yield strength steel reinforcements in concrete including cost of binding wire, labour etc complete all as per specifications & drawings.	3144	MT		
4.3	403	Transporting, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements in brickwork/ concrete encasing work including cost of binding wire, labour etc complete all as per specifications & drawings.	2	MT		
4.4	404	Transporting, straightening, cutting, bending, placing at any level, binding in position high yield strength steel reinforcements in brickwork/ concrete encasing work including cost of binding wire, labour etc complete all as per specifications & drawings.	15	MT		
5.0	500	WATER PROOFING AS PER SPECIFICATIONS (CONTRACTOR HAS TO FURNISH A GUARANTEE FOR MATERIAL AND WORKMANSHIP FOR A MINIMUM PERIOD OF 20 YEARS) (CEMENT SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER SCC).				
5.1	501	Providing, laying and fixing roof water proofing treatment using two successive liquid coatings of high solid content urethane pre-polymers to form elastomeric membrane having overall dry film thickness of minimum 1.5 mm subject to minimum 750 gm/ sqm/ coat application rate including primer coat consisting of polyurethane or any other equivalent material, finishing coats and surface finish complete laid over cement plaster (1:6) grading on screed concrete (1:1.5:3) (cement plaster and screed concrete to be paid seperately) mix all complete including all labour, material, equipment, handling, scaffolding, transporting, testing and cost of wire mesh if any etc complete as per drawing, specification & instructions of engineer.	11593	SQM		
5.2	502	Providing and laying foam concrete block insulation over roofs including minimum 15 mm cement sand plaster finished smooth over foam concrete and providing of expansion joints at intervals as per the recommendation of manufacturer. Thermal conductivity of the foam concrete shall not exceed 0.125 KCL/ sqmh degree C & weight shall be from 0.3 to 0.5 gm/cu cm, all complete with fillets as per specification.				

SL NO	ST NO	DESCRIPTION	QUANTITY	UNIT RATE (Rs)	AMOUNT (Rs)
5.2.1	i)	75 thick.	3115	SQM	
5.2.2	ii)	100 thick.	7280	SQM	
5.3	503	Providing & laying pressed precast concrete tiles over water proofing of minimum size 600x600 and min thickness 20 mm conforming to IS 13801 including 15 mm thick cement mortar (1:4) bedding inclusive of provision for thermal expansion for each roofing tile filled with polysulfide joint sealant (water proofing paid else where).	10395	SQM	
5.4	504	Providing and mixing approved water proofing compound in concrete or cement mortar for works wherever specified or directed as per specification/manufacturer's instructions, testing of samples for water proofing etc complete.	578	KG	
6.0	600	SUPPLYING & INSTALLATION OF JOINT FILLER AND SEALING COMPOUND.			
6.1	601	Supplying & installation of bitumin impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/ bitumin, labour, material, equipments etc all complete at all levels as per specification, drawings and instruction of engineer.			
6.1.1	i)	12mm thick joints.	4	SQM	
6.1.2	ii)	20mm thick joints.	14	SQM	
6.1.3	iii)	25mm thick joints.	287	SQM	
6.1.4	iv)	50mm thick joints.	1360	SQM	
6.2	602	Supplying and filling in position hot applied bitumin sealing compound (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/ injecting sealing compound in gaps in joints at all levels including application of primer, labour, material, equipments etc all complete as per specification/ drawing, instruction of engineer in charge.	1063	KG	
6.3	603	Providing and filling polysulphide base sealant as per IS 12118 for 25 mm thick expansion joint over pre-moulded board	1	CUM	
7.0	700	MS EMBEDMENTS			
7.1	701	Fabricating and fixing of embedments, MS inserts made of angle pieces, plates, channels and ISMBs of dimensions as required including cost of all labour, materials and equipment, transportation, loading, unloading, handling, welding, cutting, drilling, scaffolding and setting as per specifications and drawings. (structural steel shall be supplied by BHEL free of cost as per SCC).	305	MT	
7.2	702	Supply, fabrication and fixing of embedments, MS inserts, sleeves, rails, guide rails, angle, channel, plates, beams of various diameters, plates of dimensions as required including cost of all labour, materials and equipment for fixing in position, scaffolding and setting in position, transportation from stores within the plant boundary to work spot, loading, unloading etc complete as per specifications and drawings. (vendor to supply all material). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	114	MT	
7.3	703	Supply, fabricating, transporting, erecting and installing at all elevations miscellaneous steel/ PVC pipes, expansion fasteners in concrete/ brickwall, for all kind of works, including the cost of labour, material and equipment, setting material in concrete, layout, scaffolding, handling at site, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc all complete as per drawings and specifications and instructions of engineer (vendor to supply all material). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.			
7.3.1	i	MS pipes of all diameters.	49	QTL	
7.3.2	ii	PVC conduits of all sizes.	16	QTL	

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
7.3.3	iii	Expansion fasteners (galvanised) of HILTI make or equivalent of safe tension capacity as specified below.				
7.3.3.1		250 kg.	1300	NO		
7.3.3.2		500 kg.	910	NO		
7.3.3.3		750 kg.	325	NO		
7.4	704	Supply, fabrication, transportation, delivery at site, erection, installation & alignment of MS foundation/ anchor bolt (Grade-1 of IS:432 & IS:2062) assembly in concrete along with nuts, lock nuts (IS:1363, IS:1364 & IS:3138), anchor plates, stiffner plates, protective tape etc. upto and including 80 mm dia, 3000 mm long including furnishing of labour, materials, equipments, welding, cutting, grinding, threading, drilling, pipe sleeves etc all complete as per spec, drawing and instruction of the engineer (vendor to supply all material). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	81	MT		
7.5	705	Placing, locking and releasing of vibration isolation spring modules over foundations at all elevations including transportation from stores, leveling, alignment all complete under the supervision of supplier, as per drawing and instructions of engineer in charge (VIS to be supplied by BHEL free of cost).	155	NO		
8.0	800	GROUTING AS PER SPECIFICATION FOR THE FOLLOWING.				
8.1	801	Providing & grouting cement slurry mix at any elevation/ depth with pressure pump for water retaining concrete structures, including fixing nozzles, cost of approved cement, admixture, curing, etc all complete as per specification & as directed by engineer (cement shall be supplied by BHEL free of cost as per SCC)	26	SQM		
8.2	802	Providing & grouting of pocket holes, pipe sleeves of any shape & size under base plate after erection, and alignment if necessary, of heavy machinery at any elevations including roughening surface, cleaning, ramming, curing, etc with ConbextraGPX-2 of 'Fosroc' or equivalent all complete as per spec (cost of all material & cleaning the pocket by compressed air shall be in contractor's scope).	30	CUM		
8.3	803	Providing & grouting of pocket holes, pipe sleeves of any shape and size under base plate after erection, and alignment if necessary, of main structural steel work at any elevations including roughening surface, cleaning, ramming, curing, etc with ConbextraGP-1 or equivalent all complete as per spec (cost of all material & cleaning the pocket by compressed air shall be in contractor's scope).	57	CUM		
8.4	804	Providing & grouting of pocket holes, pipe sleeves of any shape and size under base plate after erection and alignment if necessary, of secondary structures, machinery & pipe supporting structures at any elevations including roughening surface, cleaning, ramming, curing, etc with 1:1:2 cement - sand - 6 mm down stonechips all complete as per spec (cost of all material and cleaning the pocket by compressed air shall be contractor's scope and cement shall be supplied by BHEL free of cost as per SCC).	15	CUM		
9.0	900	DOORS, WINDOWS, VENTILATORS, LOUVERS, ROOF VENTILATORS, ROLLING SHUTTERS, PARTIONS ETC COMPLETE AT ALL ELEVATION INCLUDING FRAMING, KICK PLATES, STOPPERS AS PER SPECIFICATION & DRAWINGS (ALL STEEL DOORS, WINDOWS AND ROLLING SHUTTERS ETC.SHAL BE BLAST CLEANED TO NEAR WHITE METAL SURFACE (SA 2 1/2), PAINTED WITH TWO COAT OF RED OXIDE ZINC PRIMER AND FINISHED WITH TWO COATS OF SYNTHETIC ENAMEL PAINT CONFIRMING TO IS2074). ALL MATERIALS TO BE SUPPLIED BY VENDOR.				

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
9.1	901	Providing, fitting and fixing solid core flush door shutter as per IS 2202 part II, 35 mm thick homogeneous particle board bonded with BWR type phenol formaldehyde synthetic resin, particle board core conforming to IS 3087 type I, 35X12 mm thick teak wood beading all around including preparation of working drawings, butt hinges, tower bolt, sliding bolt handles, knobs, door stoppers (all fitting shall be anodised aluminium color dyed), final synthetic paint over primer, screws etc complete as per drawing, specification and instructions of engineer in charge.	141	SQM		
9.2	902	Providing and fixing wooden frame conforming to IS 4021 made of best quality seasoned CP teakwood free from large or loose knots, cracks or other defects inclusive of sand paper smoothening, hold fasts, beading, primer including final synthetic painting etc. complete as per specifications with proper wood joinery, accurately set to required lines or levels and rigidly secured in place.	12.943	CUM		
9.3	903	Providing, fitting and fixing panel door shutter as per IS 1003, with (35 mm thick, 150 mm wide vertical rail & 125 mm wide horizontal rail) teakwood shutter frame and (12 mm thick) interlocked panels of teakwood including beading, preparation of working drawings, butt hinges, tower bolt, sliding bolt handles, knobs, door stoppers (all fitting shall be anodised aluminium color dyed), final synthetic paint over primer, screws etc complete as per drawing, specification and instructions of engineer in charge with proper wood joinery.	58	SQM		
9.4	904	Providing and fixing hard wood frame conforming to IS 4021 made of approved quality seasoned wood free from large or loose knots, cracks or other defects inclusive of sand paper smoothening, hold fasts, beading, primer including final synthetic painting etc. complete as per specifications with proper wood joinery, accurately set to required lines or levels and rigidly secured in place.	3.61	CUM		
9.5	905	Providing and fixing steel single or double door shutters. Shutters shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm c/c. Side, top, bottom edges of shutter shall be of pressed steel channels of 1.2mm thk voids to be filled with mineral wool (48 kg/cum density) including all fittings like tower bolts, handles, stoppers, aldrops etc. and painting with minimum 2 coats of synthetic enamel paint on primer complete. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	157	SQM		
9.6	906	Providing and fixing fire proof steel doors (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	157	SQM		

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
9.7	907	Providing & fixing anodised aluminium work of Indal, Hindalco or other equivalent approved make for doors, windows, ventilators, partitions, railing etc with extruded standard tubular & other sections including all fittings & fixtures & accessories of approved make conforming to IS733 & IS1285, anodised & electrocolor dyed to required shade according to IS 1868 (min anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom & sides with required PVC/ neoprene felt for bi-metallc protection etc including preperation of working drgs, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings & fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc), CP brass/ SS screws, providing & fixing hinges/ pivots & making provision for fixing of fitting wherever required including cost of PVC/ neoprene gasket, all complete as per drg, spec & instructions of engineer (glazing & panelling shall be paid seperately). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	35114	KG		
9.8	908	Providing and fixing of over head heavy duty hydraulic door closers Yale make or equivalent quality as directed by Engineer.	151	NO		
9.9	909	Providing and fixing floor mounted heavy duty Hydraulic door closer of approved make & best quality as directed by engineer.	165	NO		
9.10	910	Providing & fixing pressed steel frames fabricated from 1.6 mm thk gauge MS sheet mortised, reinforced strikes, hold fasts, adjustable floor anchors, floor tiles/ weather bars, painting with min 2 coats of synthetic enamel paint on primer etc complete as per specifications.	1870	KG		
9.11	911	Providing & fixing in position rolling shutters of approved make as per IS 6248, made of 75x1.2mm hot rolled double dipped galvanized steel laths interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside & outside locking including wire springs top cover, 3 coats of approved enamel paint etc, all complete as per specification, mechanically operated . Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	59	SQM		
9.12	912	Providing & fixing in position rolling shutters of approved make as per IS 6248, made of 75x1.2mm hot rolled double dipped galvanized steel laths interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside & outside locking with push & pull operation including wire springs top cover, 3coats of approved enamel paint etc, all complete as per specification, hand operated . Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	19	SQM		
9.13	913	Providing & fixing in position rolling shutters of approved make as per IS 6248, made of 75x1.2mm hot rolled double dipped galvanized steel laths interlocked together through their entire length & jointed together at the end by & locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside & outside locking including wire springs top cover, 3 coats of approved enamel paint etc, all complete as per specification, electrically operated . Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	176	SQM		
9.14	914	Providing, fitting and fixing of glazing (including poly carbonate sheet) of superior (selected) quality, first grade class, at various elevations, where required, cleaning after fixing, gaskets, clips, hardware, with all labour and material etc. complete as per specification, drawing and instructions of engineer.				
9.14.1	i)	4 mm clear sheet glass.	82	SQM		
9.14.2	ii)	4 mm clear float glass.	493	SQM		

SL NO	ST NO	DESCRIPTION	QUANTITY	UNIT RATE (Rs)	AMOUNT (Rs)
9.14.3	iii)	6 mm clear float glass.	501 SQM		
9.14.4	iv)	6 mm wired glass.	705 SQM		
9.14.5	v)	6 mm thick polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	65 SQM		
9.14.6	vi)	4 mm ground glass.	80 SQM		
9.14.7	vii)	Two nos. 6 mm thick clear toughened float glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).	98 SQM		
9.14.8	viii)	Two nos. 6 mm thick tinted toughened float glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).	95 SQM		
9.14.9	ix)	6 mm thick toughened float glass.	130 SQM		
9.14.10	x)	One outer 6mm thick tinted heat-reflecting type float glass and one inner 6mm thick plain float glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).	520 SQM		
9.14.11	xi)	6 mm thick laminated glass.	450 SQM		
9.15	915	Providing, fitting and fixing heavy duty minimum six lever mortised lock of godrej or equivalent make with handles or knobs to single and double leaf door (wooden/steel/aluminium) with duplicate set of keys and masterkeyed locks, openable from one side by the key and from the other side by the handle etc. all complete as per drawing, specification and instruction of engineer in charge.	106 NO		
9.16	916	Providing and fixing PVC doors of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	178 SQM		
9.17	917	Supplying & fixing weather stripping of approved make & quality consisting of Aluminium strips with fibre to doors as per instructions of engineer and spec complete.	52 RM		
10.0	1000	BRICKWORK MASONRY INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR ETC COMPLETE, AS PER SPECIFICATION (CEMENT SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER SCC).			
10.1	1001	Providing brick work in cement mortar 1:6 (1 part cement foundations, pits etc in varying thickness, at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.			
10.1.1	i)	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2.	10 CUM		
10.1.2	ii)	Using clay ash bricks shall be as per IS 13757 with crushing strength of 75 kg/cm2 and minimum percentage of fly ash shall be 25%.	16 CUM		
10.1.3	iii)	Using ordinary bricks of class designation 75 of nominal dimension.	602 CUM		
10.1.4	iv)	Using locally available first class bricks of required crushing strength of nominal dimension approved by engineer in charge/customer.	9 CUM		
10.2	1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc in thickness 250mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.			
10.2.1	i)	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2.	71 CUM		
10.2.2	ii)	Using clay ash bricks shall be as per IS 13757 with crushing strength of 75 kg/cm2 & minimum percentage of fly ash shall be 25%.	142 CUM		
10.2.3	iii)	Using ordinary bricks of class designation 75 of nominal dimension.	4581 CUM		
10.2.4	iv)	Using locally available first class bricks of required crushing strength of nominal dimension approved by engineer in charge/customer.	71 CUM		

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
10.3	1003	Ruled pointing in masonry in CM 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc complete.	98	SQM		
10.4	1004	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc in thickness 127 mm at all heights, places & position above or below plinth/graded level including providing HB wetting at every third layer, raking out joints, curing, scaffolding etc complete using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2 and clay ash bricks shall be as per IS 13757, minimum percentage of fly ash shall be 25%, excluding plastering and painting as per specification.				
10.4.1	i)	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2.	12	SQM		
10.4.2	ii)	Using clay ash bricks shall be as per IS 13757 with crushing strength of 75 kg/cm2 and min percentage of fly ash shall be 25%.	22	SQM		
10.4.3	iii)	Using ordinary bricks of class designation 75 of nominal dimension.	3468	SQM		
10.4.4	iv)	Using locally available first class bricks of required crushing strength of nominal dimension approved by engineer in charge/ customer.	11	SQM		
10.5	1005	Breaking of existing brick work at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	20	CUM		
10.7	1007 A	Providing and encasing of structural steel member with masonry work with cement mortar (1:3) around flanges, webs etc and filling the gap between steel and masonry by minimum 12mm thick mortar. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc complete as per specification.	40	CUM		
10.8	1007 B	Providing and encasing of structural steel member with RCC grade M-25 around flanges, webs etc and filling the gap including concreting, placing/ welding reinforcement/ steel wire, shuttering, scaffolding, etc complete as directed by BHEL (reinforcement/ steel wire shall be measured and paid separately as per ST item 403/404/1009).	40	CUM		
10.9	1009	Supply and placing in position mild steel wire fabric of square mesh 25 mm size and wire diameter of 2 mm for encasing of steel sections in concrete including cutting, bending, fixing etc complete.	1227	SQM		
10.10	1010	Providing and filling brick bats in soak pits, below plinth protection etc complete.	18	CUM		
11.0	1100	DAMP PROOF COURSE INCLUDING ALL MATERIALS LABOUR, SHUTTERING, CENTERING, CURING ETC, COMPLETE WITH THICKNESS AS SPECIFIED/SHOWN ON DRAWINGS.				
11.1	1101	Damp proof course 40mm thk 1:1.5:3 concrete (10mm down aggregate) with 2% of approved admixture of water proofing compound. Hot bitumen @ 1.7 kg/ sqm shall be applied before & after the DPC as per specification (cement shall be supplied by BHEL free of cost as per SCC).	149	SQM		
12.0	1200	CEMENT MORTOR PLASTER INCLUDING ALL MATERIALS SCAFFOLDING, CURING ETC COMPLETE AS PER SPECIFICATION (CEMENT SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER SCC)				
12.1	1201	Providing 12 mm thick plaster in cement mortar 1:6 on walls, floors, roof etc. finished to a smooth finish as per specification.	21669	SQM		
12.2	1202	Providing 12 mm thick plaster in cement mortar 1:6 on walls, with a rough finish as per specification.	4394	SQM		
12.3	1203	Providing 12 mm thick plaster in cement mortar 1:6 on walls with a paste of neat cement @1kg/sqm and rubbed smooth with trowel as per specification.	1189	SQM		
12.4	1204	Providing 18 mm thick plaster in two layers in cement mortar 1:6 on walls, floors, roof etc. f finished to a wooden float/smooth/rough finish as per spec.	19605	SQM		
12.5	1205	Providing 6mm thick plaster in cement mortar 1:4 on ceilings finished to a smooth finish as per specification.	15097	SQM		

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
12.6	1206	Providing and making decorative cement plaster (1:4) over existing plastered surface of all types and design on walls, ceilings, arcs, columns with various thickness upto 20 mm including finishing all complete.	627	SQM		
12.7	1207 A	Providing Plaster of Paris (birla white or equivalent) 2 mm thick punning over finished plaster surface and finished with smooth surface as per specification.	8253	SQM		
12.8	1207 B	Providing Plaster of white putty (birla white or equivalent) 2 mm thick punning over finished plaster surface and finished with smooth surface as per specification.	8253	SQM		
12.9	1208	Providing screed/grading plaster of average 20 mm thickness in ratio 1:6 nominal by volume including finishing smooth and even etc. all complete at all levels above or below grade level.	10380	SQM		
12.10	1209	Providing and making decorative interior cement plaster (1:4) of heritage finish over existing plastered surface of all types and design on walls, ceilings, arcs, columns including finishing all complete.	195	SQM		
12.11	1210	Forming groove of uniform size from 12x12 mm upto 20x15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battons, repair of the edges of plaster panel and finishing the groove etc complete as per specification, drawing and the instructions of engineer.	130	RM		
12.12	1211	Providing drip coarse on plastered surface at all elevations for all type of work such as chajjas, parapet, projections etc. including scaffolding, finishing etc. complete with all labour, tools and plants as per specification, drawing and instructions of engineer.	477	RM		
12.13	1212	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over galvanised hexagonal chicken wire of 0.9 mm wire diameter and 19 mm mesh size as per IS3150 including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of enginner (rate shall include the cost of GI chicken wire mesh).	2139	SQM		
13.0	1300	FINISHES, PAINTING TO CONCRETE, PLASTERED SURFACE, SURFACE PREPARATION INCLUDING ALL MATERIALS, LABOUR, REPUTED MANUFACTURER LIKE ICI/ BURGER/ ASIAN PAINTS OR EQUIVALENT).				
13.1	1301	Providing and applying two or more coats of oil bound destemper as per IS 428 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline including plaster of paris punning minimum 2 mm.	945	SQM		
13.2	1302	Providing and applying two or more coats of acrylic destemper as per IS 428 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface or plaster of paris punning as per manufacturers guideline.	16121	SQM		
13.3	1303	Two or more coats of cement paint (for internal use) of approved brand and manufacture to give an even shade including priming coat complete.	712	SQM		
13.4	1304	Providing & applying 2 or more coats of acid/alkali resistant paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer conforming to IS 158 complete all as per manufacturer's recommendations & as approved by engineer, at all heights above or below grade level, complete as per spec.	1578	SQM		
13.5	1305	Two or more coats of oil resistant paints epoxy based and ammine cured, 150 micron over primer of approved grade and manufacture to give an even shade.	481	SQM		

SL NO	ST NO	DESCRIPTION	QUANTITY	UNIT RATE (Rs)	AMOUNT (Rs)
13.6	1306	Providing and applying two or more coats of acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface or plaster of paris punning in walls, ceiling etc as per manufacturers guideline.	17407	SQM	
13.7	1307	Providing and applying resin bonded granular textured finish, for external applications shall consist of granular textured paint/ Synthetic plaster composed of synthetic fibre and petroleum based chemical similar to RENOVO or equivalent and of approved natural color/shade applied on cured and dried plaster surface. The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	3745	SQM	
13.8	1308	Providing and applying 2 or more coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc complete as per specification.	1841	SQM	
13.9	1309	Providing and applying 2 or more coats of weather paint of Asian make or approved equivalent make and color on exterior surface at all heights including material, labour, scaffolding, curing etc complete as per specification.	2185	SQM	
14.0	1400	FLOORING AND SKIRTING INCLUDING ALL MATERIALS, LABOUR, CURING, POLISHING, FINISHING, EXPANSION JOINTS, GROOVES, ETC COMPLETE IN ALL RESPECTS AS SHOWN ON DRAWINGS AND DESCRIBED IN SPECIFICATIONS (CEMENT SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER SCC)			
14.1	1401	Providing and laying 40 mm thick heavy duty cement concrete flooring with metallic hardener pigmented topping of 12 mm thick uniform graded treated iron particles over underbed of 1 part cement, 1.5 part sand and 3 parts chips (10 mm down, well graded) by volume (only sufficient water added to give workable consistency) in flooring complete as per specification.	22913	SQM	
14.2	1402	Providing and laying 25 mm thick heavy duty cement concrete flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado over underbed of 1 part cement, 1.5 part sand and 3 parts chips (10 mm down, well graded) by volume complete as per specification.	718	SQM	
14.3	1403	Providing & fixing chemical resistant (Acid & Alkali) Tiles as per IS 4457 of minimum thickness 20 mm thick in flooring/Dado. The tiles shall be abrasion resistant and durable. The potassium silicate as per IS 4832, 6 mm thick mortar used for setting or for under bed shall be durable strong and chemical resistant epoxy mortar including pointing etc. after laying bitumen primer as per IS 158 and 12 mm thick bitumastic complete as per IS 9510 and IS 412 and as per specification.	367	SQM	
14.4	1403A	Providing & fixing chemical resistant (Acid & Alkali) bricks (75 mm thk) as per IS 4860 in the floor of neutralization pit. Surface on which lining has to be applied shall be prepared in accordance with IS 2395. Bitumen primer as per IS 158 followed by 18 mm thk Bituminastic followed by 6 mm thk potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS 4832, Part II. Seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End ceiling shall be done with bitumastic. A.R. bricks shall be laid with 6 mm wide and 20 mm deep pointing (epoxy/furane/CNSL) and acid curing shall be done complete as per specification.	15	SQM	

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
14.5	1403B	Providing & fixing chemical resistant (Acid & Alkali) bricks (115 mm thk) as per IS 4860 in the walls of neutralization pit. Surface on which lining has to be applied shall be prepared in accordance with IS 2395. Bitumen primer as per IS 158 followed by 18 mm thk Bituminastic followed by 6 mm thk potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar confirming to IS 4832, Part II. Seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End ceiling shall be done with bitumastic. A.R. bricks shall be laid with 6 mm wide and 20 mm deep pointing (epoxy/furane/CNSL) and acid curing shall be done complete as per specification.	100	SQM		
14.6	1404	Providing epoxy coating 150 micron over epoxy primer over MS Grating/Chequered plate/any other steel structure complete as per engineer in charge.	2	SQM		
14.7	1405	Providing and laying polished Kota stone 16 mm thk in flooring, staircase over minimum 20 mm thick underbed of cement mortar (1 cement :3 sand). The kota stone slabs laid over under-bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, making corners, granite polishing etc. complete.	457	SQM		
14.8	1406	Providing and laying polished Kota stone 16 mm thk in flooring laid in pattern with white marble strip 16 mm thick as per approved floor design over minimum 20 mm thick cement mortar (1 cement :3 sand) as underbedded coarse. The kota stone/ marble slabs laid over under-bed, pressed and tapped wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc complete.	3834	SQM		
14.9	1407	Providing polished Kota stone 16 mm thk in skirting projecting 6mm from adjacent plaster all complete .	131	SQM		
14.10	1408	Providing and laying polished Granite stone of approved color and texture minimum 16 mm thk in flooring over under bed of cement mortar (1 cement : 3 sand) 20mm thick. The granite stone slabs/ tiles laid over pressed and tapped down cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc complete .	225	SQM		
14.11	1409	Providing and laying polished Granite stone 16 thk in skirting over under bed of cement mortar (1 cement : 3 sand) 10mm thick, facia and dado including pigments, curing, grinding, granite polishing etc complete.	158	SQM		
14.12	1410	Providing & laying polished granite slab 12 thk in skirting, facia and dado including pigments, cement plaster 1:3, curing, grinding, granite polishing etc complete.	49	SQM		
14.13	1411	Providing and laying 10 mm thk non-skid fully vitrified tiles of make 'MARBONITE' or 'FERRASTONE of BOSS Profile limited' or equivalent over 30 mm thick underbed of 1 part cement and 3 parts coarse sand by weight mixed with sufficient water, complete as per specification laid in pattern of following sizes.				
14.13.1	i)	400x400 mm.	655	SQM		
14.13.2	ii)	600x600 mm.	3946	SQM		
14.14	1412	Providing and laying glazed ceramic tiles of approved color and design in dado of approved size of reputed manufacturer topped with 50 mm wide matching ceramic trims, with cement mortar 1:3, complete as per specification including all material, labour etc.				
14.14.1	i)	5 mm thick.	305	SQM		
14.14.2	ii)	7 mm thick.	318	SQM		
14.15	1413	Providing and laying granite stone slab of 16 mm thickness single piece for wash basin slab, wall of black or approved colour with making corners, cutting and opening complete.	34	SQM		

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
14.16	1414 A	Providing and laying of PVC flooring & skirting of minimum thickness 2 mm anti static flexible tiles as per IS 3462 and IS 5318.	65	SQM		
14.17	1414 B	Providing and laying of PVC flooring & skirting of minimum thickness 3 mm anti static flexible tiles as per IS 3462 and IS 5318.	65	SQM		
14.18	1415	Providing and laying 12 mm thick cast in situ terrazzo finish consisting of marble chips of size 1 mm to 12 mm nominal size laid in white/grey cement or mixture of both in proportion 1:1.5 (1 part cement, 1.5 parts chips) with marble powder 3:1 (3 parts cement, 1 part marble powder) in proportion mix dry in cement including pigments, rubbing, grinding, polishing etc in floors, skirtings, treads, risers & landings complete.	20	SQM		
14.19	1416	Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer.				
14.19.1	i)	Glass strips 40 mm wide and minimum 6 mm thick.	3660	RM		
14.19.2	ii)	Aluminium strips 40 mm wide and minimum 3 mm thick.	2386	RM		
14.19.3	iii)	Brass strips 20 mm wide and minimum 4 mm thick.	45	RM		
14.20	1417	Providing and laying 50 mm thick anti skid precast interlocking concrete (minimum M25 grade) pavers of approved shape as per the approval of engineer in charge and specifications complete including minimum 40 mm thick sand underbed.	500	SQM		
14.21	1418	Providing and laying 40 mm thick heavy duty cement concrete flooring with metallic hardener pigmented topping of 12 mm thick uniform graded treated iron particles including non-skid self leveling epoxy (1 mm) in flooring complete as per specification.	1040	SQM		
14.22	1419	Providing and laying polished Marble slabs (Aranga white) 20/25 mm thk of size 1500X600 mm in flooring over minimum 20 mm thick underbed of cement mortar (1 cement :3 sand). The marble slabs shall be laid over under-bed, pressed finished including pigments, curing, grinding, granite polishing etc complete.	488	SQM		
14.23	1420	Providing polished marble 20 mm thk in skirting projecting 6 mm from adjacent plaster, cement mortar 1:3 all complete .	16	SQM		
14.24	1421A	Providing and laying polished Marble slabs (Aranga white) 20 mm thk in staircase landing/skirting and corridors over minimum 20 mm thick underbed of cement mortar (1 cement :3 sand). The marble slabs shall be laid over under-bed, pressed and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, making corners, granite polishing etc complete.	65	SQM		
14.25	1421B	Providing & laying heavy duty dust pressed ceramic tiles in floors of size 300x300x7mm thick of reputed manufacturer over 20 mm thick cement plaster 1:3 bed mortar, of approved finish shade and colour.	10	SQM		
14.26	1422	Providing & fixing removable type flooring system consisting of fire resistant particle board of size 600x600x35mm with 0.05 mm thick aluminium foil lining at bottom & with 2mm thick anti static PVC topping including proprietary floor supporting system complete as per spec.				
14.26.1	a	Upto 600 mm high.	80	SQM		
14.26.2	b	From 601 mm to 800 mm high.	24	SQM		
14.26.3	c	from 801 mm to 1000 mm high.	20	SQM		
14.27	1426	Providing and laying non-woven type carpet (unitex or equivalent) which shall be laid as manufacturers recommendations in matching grains including anti fungus and anti termite treatment complete.	50	SQM		

SL NO	ST NO	DESCRIPTION	QUANTITY	UNIT RATE (Rs)	AMOUNT (Rs)
15.0	1500	PROVIDING AND ERECTING ROOFING/ SIDE CLADDING INCLUDING FLASHINGS (NO SEPERATE PAYMENT SHALL BE PAID FOR FLASHINGS), LAPS, SCAFFOLDING HOOKS, WASHERS, CORNER PIECES, ETC COST OF ALL MATERIAL, LABOUR, EQUIPMENT, CLEATS, SHEETING RUNNER, RAILS MILD STEEL WIND TIES (HORIZONTAL/VERTICAL) AND ANY OTHER STEEL WORKS ETC COMPLETE FOR THE FOLLOWING.			
15.1	1501	Designing, providing & fixing permanently color coated galvanised MS troughed metal sheet decking plate as per IS:513 over roof purlins as per relevant IS code & spec. Thickness of deck plate shall be min 0.8mm (base metal excluding coating), with min trough depth of 44 mm, with min yeild strength of 240Mpa and shall serve as permanent shuttering to the cast-in-situ roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete, imposed loads & construction loads over a span of around 1800mm between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc complete as per engineers approval & spec. Sheet shall be permanently coated with silicon modified polyster paint of min 20 micron DFT on exposed surface (facing operating floor) and min 7 micron on other face over epoxy primer applied over hot dipped galvanising as per IS:277 at the rate of 275 gm/ sqm including fixing of sheet to purlin with self tapping self drilling white zinc plated heat treated high carbon steel screws of min 5.5 mm dia @ 260mm c/c in the trough & stich screwss between two adjacent sheets & sealing with epoxy sealant (height of trough required as per design should be included in the cost). Measurement shall be of the plan area of roof covered by MS trough metal decking. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	7159	SQM	
15.2	1502	Designing, providing and fixing permanently color coated galvanized M.S. trough metal sheet roofing of approved profile and color over roof purlins as per IS 14246. Thickness of deck plate shall be minimum 0.6 mm and minimum trough depth of 38 mm and minimum yield strength of 250 Mpa. Silicon modified polyester paint shall be used for coating over galvanized surface with minimum rate of galvanization 275 gm/sqm. Outer side should have permanent color coating of minimum DFT 20 microns over primer and inner side shall be coated with silicon polyester paint of minimum DFT 12 microns. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	504	SQM	
15.3	1502 A	Providing and fixing self tapping self drilling shear connectors of 16mm dia and minimum 75 mm projected length above purlin of mild steel studs passing through metal decking as per relevant IS codes and specification.	16	QTL	
15.4	1503	Design, supply & erection of permanent colour coated thermally insulated double skin sandwiched metal cladding of approved color for external walls comprising of profiled external sheet of 0.55 mm TCT (total coated thickness) permanently color coated zincalume steel (150 gsm Zinc - aluminium alloy coating) having 300 Mpa yield strength with color coating of SMP/ super polyster XRW. The inner sheeting of 0.6 mm TCT of SMP/ super polyster XRW coated sincalume steel 150 gsm having 550 Mpa yield strength or 180 gsm galvanised of 240 Mpa including color coating of 20 microns finish coat over a 5 micron primer coat on the exposed side & a back coat of 5 micron over a primer coat of 5 micron on reverse side (on both external & internal sheet). External sheethaving 500 mm cover width, 47 mm high crests at 250 mm c/c with special male/ female side laps & siphoning feature to prevent leakage & inner sheet having 980 mm cover width, 28 mm high crest at 195 mm c/c with special male/ female side laps & siphoning feature to prevent leakage including fixing of inner sheet to the structure by self drilling fasteners & concealed clips	6116	SQM	

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
		(including sub-girts of size 50x50x50 mm manufactured out of 16G GI 'Z' shape) to connect external sheet (without penetrating the external sheet) & including an insulation of 50 mm thick rockwool (Rockloyd-300 or equivalent) of density 48 KG/cum conforming to IS 8183 between the two sheets including flashings complete as per spec (structural steel required for internal bracings, ties & strengthening of claddings will be supplied by BHEL as per SCC and payment to be made as per item-2301). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.				
15.5	1504	Design, supply & erection of permanent colour coated single skin metal cladding (external sheet) of approved color for external walls comprising of profiled sheet of 0.55 mm TCT (Total Coated Thickness) permanently color coated zincalume steel (150 gsm Zinc - aluminium alloy coating) having 300 Mpa yield strength with color coating of SMP/super polyester XRW including color coating of 20 microns finish coat over a 5 micron primer coat on the exposed side and a back coat of 5 micron over a primer coat of 5 micron on the reverse side. The sheet having 500 mm cover width, 47 mm high crests at 250 mm c/c with special male/female side laps and siphoning feature to prevent leakage including fixing of sheet by concealed clips (including sub-girts of size 50X50X50 mm manufactured out of 16G GI 'Z' shape, without penetrating the external sheet) complete including flashings as per specification. (Structural Steel required for internal bracings, ties and strengthening of claddings will be supplied by BHEL as per SCC and payment to be made as per item-2301). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	9299	SQM		
15.6	1505	Design, supply & erection of permanent colour coated single skin metal cladding (internal sheet) of approved color comprising of 0.6 mm TCT of SMP/super polyester XRW coated zincalume steel 150 gsm having 550 Mpa yield strength or 180 gsm galvanised of 240 Mpa including color coating of 20 microns finish coat over a 5 micron primer coat on the exposed side and a back coat of 5 micron over a primer coat of 5 micron on the reverse side. The sheet having 980 mm cover width, 28 mm high crest at 195 mm c/c with special male/female side laps and siphoning feature to prevent leakage including fixing of sheet to the structure by self drilling fasteners complete including flashings as per specification. (Structural Steel required for internal bracings, ties and strengthening of claddings will be supplied by BHEL as per SCC and payment to be made as per item-2301). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	1527	SQM		
15.7	1506	Providing & fixing 50 mm thick insulation of rockwool (rockloyd-300 or equivalent) of density 48 KG/cum conforming to IS 8183 including wrapping in black polythene black supported over weld mesh 75x75x1.6mm dia to hold in position as per manufacturers recommendations, all labour, material, scaffolding, equipment etc all complete as per spec, drg & instructions of engineer in charge. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	1527	SQM		
15.8	1507	Providing and fixing insulation of resin bonded mineral wool of specified thickness (25/50 mm nominal) conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for under deck insulation including application of glue and tying with lacing wire, for glass/rock wool as per manufacturers recommendations, all labour, material, scaffolding, equipment etc all complete as per specification, drawing and instructions of engineer in charge. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	120	CUM		

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
15.9	1508	Providing and installing under deck insulation using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.56 mm dia and 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips, all labour, material, scaffolding, equipment etc (but excluding cost of insulation) all complete as per specification, drawing and instructions of engineer in charge. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	2146	SQM		
15.10	1509	Providing and fixing non metal opaque PVC sheet heavy duty similar to ONDEX roofing or equivalent including all fixing accessories, labour material, scaffolding etc all complete as per specification, drawing and instructions of engineer in charge.	150	SQM		
16.0	1600	PROVIDING AND FIXING FALSE CEILING INCLUDING SUPPLY OF CEILING MATERIAL, WORKING LAYOUT DRAWINGS AND DETAILS, SUSPENSION SYSTEM AND ALL OTHER MATERIALS REQUIRED FOR THE WORK INCLUDING MAKING RECESS FOR LIGHT FIXTURES, ALUMINIUM DIFUSERS, FIRE ALARMS ETC, POLISHING/PAINTINGS, LABOUR ETC, ALL COMPLETE AS PER SPECIFICATION.				
16.1	1601	Providing and fixing glass reinforced gypsum (GRG) ceiling system consisting of supporting grid system forming panels of specified size, suspended from RCC slab/structural steel or catwalkway grid above with 4 mm (minimum) galvanised wires (rods) with special height adjustment clips, including preparation of working drawing, providing openings for AC ducts, return air grills, light fixtures etc (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer.				
16.1.1	i)	12 mm thick GRG board with galvanised light gauge steel load bearing supporting GI frame & finished flat.	61	SQM		
16.1.2	ii)	12 mm thick GRG board in profile (dome etc.) with galvanised light gauge steel load bearing supporting GI frame and finished flat.	31	SQM		
16.1.3	iii)	12 mm thick GRG board in tile of 600 mmx600 mm with double web design, galvanised steel with prepainted steel capping of approved shade and color, supporting tee frame (24 mmx38 mm).	27	SQM		
16.2	1602	Providing, fixing and laying permanently colour coated aluminium false ceiling of approved colour with stove enamel finish and Luxalon of Hunter Douglas make or equivalent with corrosion resistance aluminium alloys panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation (as per IS:8183) bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. AC ducts etc suitable M.S. channel (minimum MC 75) grid 1200 c/c maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (suitable structural platform grid made up of MS channel/ beam/ angle shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance) (materials for structural platform grid made up of MS channels/ beams/ angles shall be supplied by BHEL and shall be paid under ST NO 2301). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	4101	SQM		

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
16.3	1603	Providing, fixing and laying anodised natural colour matt finished aluminium false ceiling of Indal make or equivalent with corrosion resistance aluminium alloys panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation (as per IS:8183) bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. AC ducts etc suitable MS channel (minimum MC 75) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc (suitable structural platform grid made up of MS channel/ beam/ angle shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance (materials for structural platform grid made up of MS channels/ beams/ angles shall be supplied by BHEL and shall be paid under ST NO 2301).	33	SQM		
16.4	1604	Special purpose partition manufactured by Anutone Acoustic Ltd or equivalent having rigid framework consisting of GI studs of adequate size @600mm c/c and floor ceiling and intermediate channels to provide a wall system capable of supporting wall hung CCTV at different locations. The framing system shall be integrated with independent floor supported structural framework of digital display board. The front side of the frame shall have Excelsior Acoustical Panels-Elega finish-2400/1200X600X19 mm thick FABRICO Sound Soak- Plane Texture of approved colour. The rear side of the partition shall have Excelsior Acoustical Panels-Elega finish-specially Sound Smart-Burl of size 2400/1200x600x19 mm thick smooth finished with gypsum plaster and finished with acrylic paint. The entire wall to have Class-I fire rating as per BS code. The entire partition wall to have concealed framing system and to have monolithic fabric finish of approved colour or composition of two different colour as per approved design to entire exposed surface including door panels on control room side. The work to be complete as per specifications.	96	SQM		
17.0	1700	PROVIDING AND FIXING RAIN WATER DOWN TAKE PIPES INCLUDING 2 COATS OF APPROVED PAINT OVER A PRIMARY COAT, ALL SPECIALS AND ACCESSORIES ETC COMPLETE AS PER SPECIFICATION.				
17.1	1701	GI down take pipes conforming to IS1239/IS3589 as per specification of following dia. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.				
17.1.1	i)	100 mm dia.	147	RM		
17.1.2	ii)	150 mm dia.	1679	RM		
17.1.3	iii)	200 mm dia.	840	RM		
18.0	1800	MISCELLANEOUS 1.				
18.1	1801	Providing and fixing PVC water stops 225mm wide, 6 mm thick.	163	RM		
18.2	1802	Supplying and installation of 25mm thick vibration damping, resilient pads RESISTOFLEX or equivalent around foundation of vibrating equipment and other locations as directed by engineer including cost of all materials labour equipment etc complete as per drawing and specifications.	33	SQM		
18.3	1803	Providing 50mm thick premix carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm and down broken stone chips mixed with 80/ 100 grade bitumen @ 52 kg/ cum including compaction and cost of all material, labour all complete as per specification and as directed by engineer.	50	SQM		
18.4	1804	Providing 50mm thick anticorrosive layer laid to slope consisting of compacted crushed stone screenings, fine gravel, clean sand or similar material as directed by the Engineer, mixed in hot asphalt 10% by volume and rolled or compacted complete as per drawings and specifications, below fuel oil tanks and at such other places as per specifications and as directed by engineer.	50	SQM		

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
18.5	1805	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including aluminium screws, rawl plugs all complete as per specification.	33	RM		
18.6	1806	Providing, laying and fixing transformer rails including guide rails in concrete including joining of rails. Anchoring lugs etc. complete as per specification. (Vendor to supply all materials). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	41	MT		
18.7	1807	Providing & fixing weep holes in drains consisting of 100 mm dia LDPE pipe sleeves along with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq opening along with 300x300 mm sq, 300 mm deep, 40 mm aggregates to cover fabric mesh mouth complete as directed by engineer.	200	NO		
18.8	1808	Laying of earthing mats/rods including transportation from yard stores, loading, unloading, cutting to length, welding etc. complete as per specification and as directed by Engineer-in-charge. (Earthing MS Round shall be supplied by BHEL free of cost as per SCC)	61	MT		
18.9	1811	Providing and fixing GI rungs in concrete/brick walls at all elevations including zinc coating of minimum 900 g/sqm all complete.	366	KG		
18.10	1813	Providing and fixing LDPE pipes in cable duct banks, openings in RCC work at all elevations of following sizes including cutting, fixing and levelling in position as per drawings, specifications all complete.				
18.10.1	i)	100 mm dia.	120	RM		
18.10.2	ii)	150 mm dia.	90	RM		
18.10.3	iii)	200 mm dia.	90	RM		
18.11	1814	Providing & laying Bentonite Powder (Sodium base) mixed with water in electronic earthing pit as per drawing & direction below ground level including all materials, transportation, labour, incidental etc all complete as per specification.	80	CUM		
19.0	2000	FENCING AND GATES.				
19.1	2001	Supplying and erecting in position 2.4 m high PVC coated galvanised chain linked fencing of minimum 8 gauge (including PVC coating) of mesh size 75 mm and galvanised concertina. The diameter of the steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. GI barbed wire fencing conforming to IS 298 at top of chain link fencing shall be provided with 4 stands of height of 600 mm including all accessories as per specification all complete. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	526	SQM		
19.2	2002	Supplying and fixing 1.8 m high fencing with angle iron 50x50x6 mm / 65x65x8 mm angle post placed at every 2 meter / 2.5 meter centre to centre, embedded in cement concrete blocks (1part cement:2 part sand:4 part 20mm graded stone aggregates), provided with horizontal lines and two diagonals interwoven with horizontal wires, of G.I. barbed wire 9.38 Kg per 100 meter (minimum) between the two post fitted and fixed with GI staples, turn buckles etc. complete. {payment of structural item viz.angle post and struts etc. (as per item ST no. 2301) , earthwork , concrete work, filling work will be paid separately as per respective BOQ item}. {payment for this item shall be made as per total running meter length of GI barbed wire provided in the works}.	16448	MTR		
19.3	2003	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, ball bearing arrangements, castor wheels, anti corrosive synthetic enamel painting over two coats of primer etc. all complete as per drawing, specification and as directed by Engineer-in-charge with 600mm high GI barbed wire fencing at top all complete (all steel to be supplied by vendor)	2	MT		

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
20.0	2100	WATER SUPPLY				
20.1	2101	Providing & fixing in position tested heavy duty type chromium plated brass long neck bib cocks including sockets, union, nut etc. complete 15mm nominal bore.	100	NO		
20.2	2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc. complete as directed by Engineer 15mm nominal bore.	47	NO		
20.3	2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality 25mm nominal bore.	17	NO		
20.4	2104	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality 50mm nominal bore.	10	NO		
20.5	2105	Providing & fixing GI pipes of class B-Medium complete with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc complete (internal work) 15 mm nominal bore.	237	RM		
20.6	2106	Providing & fixing GI pipes of class B-Medium complete with GI fittings a clamps including cutting and making good the walls etc. complete (internal work) 20 mm nominal bore.	190	RM		
20.7	2107	Providing and fixing GI pipes of class B-Medium complete with GI sockets, unions, elbows, tees, nipples etc. and clamps including cutting and making good the walls etc.complete (internal work) 25 mm nominal bore (N.B).	190	RM		
20.8	2108	Providing and fixing GI pipes of class B-Medium complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc. complete (external work) 15mm nominal bore (N.B).	115	RM		
20.9	2109	Providing & fixing GI pipes of class B-Medium complete with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling anti-corrosive paint etc complete (external work) 20mm nominal bore (NB).	115	RM		
20.10	2110	Providing & fixing GI pipes of class B-Medium complete with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling anti-corrosive paint etc complete (external work) 25mm nominal bore (NB).	115	RM		
20.11	2111	Providing and fixing GI pipes of class B-Medium complete with etc including trenching & refilling anti-corrosive paint etc complete (external work) 50mm nominal bore (N.B).	115	RM		
20.12	2112	Providing and fixing 610mmx453mmx6mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets etc. complete with CP screws as per specification.	102	NO		
20.13	2113	Providing & fixing 610mmx127mmx6mm thk clearglass with CP guard rails and mounted on CP brackets etc complete as per spec.	102	NO		
20.14	2114	Providing & fixing 20mm dia chromium plated MS pipes wall mounted towel rod with CP brackets etc all complete as per spec.	27	NO		
20.15	2115	Providing and fixing C.P. soap holder mounted with C.P. screws etc.complete as per specification.	102	NO		
20.16	2116	Providing and fixing C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc.complete as per specification.	102	NO		
20.17	2117	Providing & fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc complete as per specification	51	NO		
20.18	2118	Providing and fixing chromium plated brass shower rose with 15 or 20 mm inlet all complete.	19	NO		
20.19	2119	Providing & fixing P.V.C. water tank (Syntex or equivalent) in position. The work to including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc. all complete as per specification at all heights and levels				
20.19.1	i)	2000 Litre capacity.	3	NO		

SL NO	ST NO	DESCRIPTION	QUANTITY	UNIT RATE (Rs)	AMOUNT (Rs)
20.19.2	ii)	5000 Litre capacity.	2	NO	
20.20	2120	Providing & fixing approved stainless steel sink with integrated drainboard complete including painting the fittings, cutting and making good the wall where required as per specification. The work to be complete as per specifications, drawings and direction of engineer.	3	NO	
21.0	2200	SANITARY WORKS.			
21.1	2201	Supply and fixing vitreous china wash basin (white / light coloured) size 600x450 with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, cutting and making good the walls where required etc. complete as per specifications.	70	NO	
21.2	2202	Providing and fixing approved vitreous china acid/alkali resistant laboratory sink of size 600x450x200mm with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, CP brass waste and 40mm CP brass bottle trap with necessary union complete including painting the fittings, cutting and making good the wall where required as per specification.	3	NO	
21.3	2203	Providing and fixing colour European type water closet (white / light coloured) with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre glazed stone water flushing cistern with valveless fittings, necessary C.P connections etc. complete as per specification.	11	NO	
21.4	2204	Providing and fixing glazed vitreous china pan (white / light coloured) with foot rests and high level 12.5 litre C.I flushing cistern with valveless fittings, necessary C.P connections, foot rests shall be made of white glazed vitreous china with chequered surface all complete with cistern painting, C.I brackets etc. as per specification.	43	NO	
21.5	2205	Providing and fixing wall type glazed vitreous china sensor type (white / light coloured) urinals with flush pipes, sensors, lead pipes, gratings, CP bottle traps and necessary C.P fittings all complete as per specifications.	45	NO	
21.6	2206	Supply, laying and jointing 75mm dia heavy duty cast iron pipes including bends, branches and all other necessary fittings, lead cocking, a coat of bitumenous paint, MS holder bats/ clamps, cutting and making good the walls and floors, jointing, testing etc all complete and as per specifications.	145	RM	
21.7	2207	Supply, laying and jointing 100mm dia heavy duty cast iron pipes including bends, branches and all other necessary fittings, lead caulking, a coat of bitumenous paint, MS holder bats/ clamps, cutting and making good the walls and floors, jointing, testing etc all complete and as per specifications.	145	RM	
21.8	2208	Supply, laying and jointing 150mm dia heavy duty cast iron pipes including bends, branches and all other necessary fittings, a coat of bitumenous paint, M.S holder bats/ clam lead caulking, a coat of bitumenous paint, MS holder bats/ clamps, cutting and making good the walls and floors, jointing, testing etc all complete and as per specifications.	72	RM	
21.9	2209	Providing, laying cement mortar 1:2 including testing of joints etc as per specifications for dia.			
21.9.1	i)	300mm.	10	RM	
21.9.2	ii)	400mm.	16	RM	
21.9.3	iii)	600mm.	20	RM	
21.9.4	iv)	800mm.	20	RM	
21.9.5	iv)	1000mm.	20	RM	
21.10	2210	Providing, laying light duty non pressure NP2 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. as per specifications for dia.			

SL NO	ST NO	DESCRIPTION	QUANTITY	UNIT RATE (Rs)	AMOUNT (Rs)
21.10.1	i)	150mm.	65 RM		
21.10.2	ii)	250mm.	65 RM		
21.10.3	iii)	300mm.	33 RM		
21.10.4	iv)	400mm.	13 RM		
21.10.5	v)	500mm.	10 RM		
21.10.6	vi)	600mm.	10 RM		
21.10.7	vii)	750mm.	10 RM		
21.11	2210 A	Providing, laying light duty non pressure NP4 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc as per specifications for dia.			
21.11.1	i)	300mm.	10 RM		
21.11.2	ii)	500mm.	10 RM		
21.11.3	iii)	600mm.	10 RM		
21.11.4	iv)	900mm.	10 RM		
21.12	2211	Providing and fixing CI Heavy duty Manhole cover of size 600mmx450mm including frame from reputed manufacture all complete as per specifications.	7 NO		
21.13	2212	Providing and fixing circular heavy duty man hole cover of 600mm dia with frame all complete as per specification.	1 NO		
21.14	2213	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size 100x100mm P or S Type.	7 NO		
21.15	2214	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size 150x100mm P or S Type.	3 NO		
21.16	2215	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size 150x150mm P or S Type.	8 NO		
21.17	2216	Providing and fixing C.I. floor traps with C.P jalli complete as per specification.	82 NO		
21.18	2217	Providing and installing approved brand single tap water cooler of 80 L cooling capacity complete in all respect.	8 NO		
21.19	2218	Providing & installing approved brand single tap water cooler of 150 L cooling capacity complete in all respect.	5 NO		
21.20	2219	Providing and fixing white vitreous urinal partitions all complete as per specification.	34 NO		
22.0	2300	STRUCTURAL STEEL WORKS (STRUCTURAL STEEL, GI/MS PIPES for HAND RAIL, CHEQUERED PLATES, STAIN LESS STEEL LINER SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER SCC)			

SL NO	ST NO	DESCRIPTION	QUANTITY	UNIT RATE (Rs)	AMOUNT (Rs)
22.1	2301	Fabrication, erection, alignment, welding, primer painting (primer coat consisting of 2 coats of redoxide zinc-chromate as per IS:2074 & IS:1477 (Parts I & II). One coat to be applied at shop and the other after erection of structural steel made from mild steel conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052 and mild steel rounds, at all elevations involving rolled sections (including mild steel rounds), built up sections fabricated out of plates, rolled sections & combination of plates & rolled sections, in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, gratings, portals, laced purlins, space frames, shear connectors, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking & seal plates, diaphragm, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails (GI & MS), toeplates, MS rungs, insert plates, edge angles, embedments, lugs, posts, stays, louvers, lacings, gusset plates etc, collection of steel from stores, transportation, straightening, making cutting plan, cutting, bending, rolling, grinding, drilling, bolting, erection bolts & nuts (weight erection bolts & nuts not payable, Supply of permanent bolt of grade C mild steel bolts & nuts to be paid separately under ST NO. 2309 (i)), assembly, edge preparation, preheating(minimum preheat and interpass temperature of 66 degrees centigrade for welding over 40 mm and upto 63 mm & 110 degrees centigrade for thickness over 63 mm) & use of low hydrogen/ radiogenic electrodes as per specification, post heating, testing of welders, inspection of welds, visual inspection, non destructive & special testing, rectification & correction of defective welding works, production test plate, inspection & testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures (scaffolding, access ladders, working platforms etc), setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, dismantling and removal of all temporary structures (weight of temporary structures not payable) complete with all labour, material, electrodes and other consumables, equipment, testing (mechanical and non- destructive), preparation of fabrication drawings, joint design calculations and all other general and special requirements including appointment of a seperate agency, approved by BHEL, for review and approval of fabrication drawings, in consultation with BHEL, prepared by the bidder and all other activities required for completion of the work including return of surplus/ waste steel materials to store etc. as per specification, drawings and instructions of the Engineer. Approval of fabrication drawings does not relieve the bidder from the responsibility of its correctness and accuracy. (Steel as per SCC will be supplied by BHEL free of cost). Payments terms - a. Fabrication - 65%; b. Erection - 25%; c. Alignment - 10%.	13079	MT	
22.2	2302	Extra over ST NO 2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2) and applying epoxy based zinc phosphate primer in coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection, instead of primer coat of red oxide zinc-chromate, including touch-up painting etc complete as per specification.	20	MT	
22.3	2303	Extra over ST NO 2301 for providing and application of two coats of primer consisting of chemical resistant epoxy resin and hardener (Minimum 1 Kg of primer mix shall be consumed for priming of 4 to 5 m2 area of surface) instead of primer coat of red oxide zinc-chromate, including touch up painting as per specification and instruction of the Engineer.	20	MT	

SL NO	ST NO	DESCRIPTION	QUANTITY	UNIT RATE (Rs)	AMOUNT (Rs)
22.4	2304	Providing & application of synthetic enamel paint of Berger or approved equivalent make and colour in two coats of minimum 50 micron total thickness (DFT) already having primer coats (as per ST NO. 2301) at all elevations to achieve an even shade with all materials, labour, equipment, handling, including protection and cleaning, scaffolding etc. complete as per specification, drawings and instructions of the Engineer.(Total thickness (DFT) including primer shall not be less than 110 micron).	8105	MT	
22.5	2305	Providing & application of epoxy based colour finish paint in two coats with minimum 50 micron total thickness (DFT) of approved make and shade over steel sections already having primer coats (as per ST NO. 2302) at all elevations to achieve an even shade with all materials, labour, equipment, handling including protection and cleaning, scaffolding etc. complete as per specification, drawings and instruction of the Engineer.(Total thickness (DFT) including primer shall not be less than 100 micron).	20	MT	
22.6	2306	Providing & application of anti corrosive synthetic enamel paint of Berger or approved equivalent make and colour in two coats of minimum 50 micron total thickness (DFT) already having primer coats (as per ST NO. 2301) at all elevations to achieve an even shade with all materials, labour, equipment, handling, including protection and cleaning, scaffolding etc complete as per specification, drawings and instructions of engineer (total thickness (DFT) including primer shall not be less than 110 micron).	3379	MT	
22.7	2307A	Supplying, fabrication , transportation, erection and alignment of factory made electroforged galvanised gratings of steel (having minimum galvanisation of 610 g/sqm) conforming to IS:2062 at all elevations including preparation of design drawings and fabrication drawings in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads, fixing clamps etc. complete with other fittings and fixtures including all taxes, duties, transportation, packing, grinding, drilling, bolting (supply of permanent grade `C' mild steel bolts and nuts to be paid separately under ST NO. 2309 (i), all welding, edge preparation, blast cleaning of steel surfaces to near white metal surface (Sa 2 1/2), testing, complete as per specifications, drawings and instructions of engineer (Vendor to supply all materials). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	178	MT	
22.8	2307B	Supplying, fabrication , transportation, erection and alignment of galvanised gratings of steel (having minimum galvanisation of 610 g/sqm) conforming to IS:2062 at all elevations including preparation of design drawings and fabrication drawings in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads, fixing clamps etc. complete with other fittings and fixtures including all taxes, duties, transportation, packing, grinding, drilling, bolting (supply of permanent grade `C' mild steel bolts and nuts to be paid separately under ST NO. 2309 (i), all welding, edge preparation, blast cleaning of steel surfaces to near white metal surface (Sa 2 1/2), testing, complete as per specifications, drawings and instructions of the Engineer. (Vendor to supply all materials). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	45	MT	
22.9	2309A	Supplying and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work complete as per specification, drawings and instructions of the Engineer. (Vendor to supply all materials). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	10	QTL	

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
22.10	2309B	Supply and fixing in positing of high strength structural bolts (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. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work complete as per specification, drawings and instructions of the Engineer. (Vendor to supply all materials). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	271	QTL		
22.11	2310	Dismantling of steel structure at any elevation, lowering of material and carriage of the dismantled material up to field fabrication shop, or, return to projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions, (weight of such adjacent members and temporarily dismantled members not payable) including scaffolding, staging, tools & tackles, gas cutting, welding, consumables, etc complete as per specification, drawings and instructions of the Engineer.	54	MT		
22.12	2311	Addition to, alterations in and/or modification of "Erection Marks" either in erected position or in the shop including cutting of parts, gouging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members, (weight of such temporarily dismantled and adjacent members not payable), complete as per specifications, drawings and instructions of the Engineer.				
22.12.1	i)	In erected position.	9	MT		
22.12.2	ii)	In fabrication yard.	18	MT		
22.13	2312	Re-erection of dismantled fabricated structural steel members requiring additions, modification, (dismantling and additions to, alterations in and/or modification to be paid separately under ST NO. 2310 and 2311 respectively) including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required posiion, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, rewelding, supporting and restoring to the correct position of all temporarily dismnatled members, re-alignment of adjacent connected members, (weight of such temporarily dismantled members and adjacent membersnot payable) including scaffolding, staging, tools & tackles, gas cutting, welding, consumables, etc complete as per the specifications, drawings and instructions of the Engineer.	12	MT		
22.14	2313	Fabrication and erection of 4 mm thick stainless steel liner of grade AISI-304; Finish Grade 2B (Cold rolled, Annealed & Pickled and Skin passed) on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers as directed by the Engineer including fixing with stainless steel studs, bolting (including countersunk), welding etc. complete as per specifications and IS standards. Electrode classification shall be E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. complete as per specifications, drawings and instructions of engineer (stainless steel liner plate shall be supplied by BHEL free of cost as per SCC).	84	MT		
22.15	2314	Supply, fabrication and delivery at site, transportation, loading/unloading of various sizes, seamless 40 dia stainless steel hand railing of approved shape/design including Stainless steel posts, fixing as per specification, labour and material complete for heavy duty class. (All Steel to be supplied by Vendor). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	650	KG		

SL NO	ST NO	DESCRIPTION	QUANTITY	UNIT RATE (Rs)	AMOUNT (Rs)
22.16	2315	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of (+ or -) 50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc complete as per specification, drawing and instruction of the engineer.			
22.16.1	i)	Vertical Load of 20 Tons.	13	NO	
22.16.2	ii)	Vertical Load of 25 Tons.	10	NO	
22.16.3	iii)	Vertical Load of 40 Tons.	5	NO	
22.16.4	iv)	Vertical Load of 50 Tons.	3	NO	
22.16.5	v)	Vertical Load of 60 Tons.	4	NO	
22.17	2316	Providing and fixing flexible open ended bellow strap of neoprene of minimum thickness of 2mm and minimum width 200 mm with aluminium strip edges as sealing below top of bunker and bottom of tripper floor to avoid coal dust nuisance.	254	RM	
22.18	2317	Conducting radiography test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per specifications complete (over and above the work already specified in the specifications).	79	RM	
22.19	2318	Conducting ultasonic test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials & labour as per spec complete (over & above the work already specified in specification).	53	RM	
22.20	2319	Conducting magnetic particle test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per spec complete (over & above the work already specified in specifications).	53	RM	
22.21	2320	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials & labour as per spec complete (over & above the work already specified in specifications).	53	RM	
22.22	2321	Conducting ultasonic test on steel plates as per ASTM-A435 or equivalent wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per specifications complete (over and above the work already specified in the specifications).	175	SQM	
23.0	2400	ROAD WORK INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR, MACHINERY ETC ALL COMPLETE AS PER SPEC, DRAWING, RELEVANT IRC & IS CODES AND AS DIRECTED BY THE ENGINEER-IN-CHARGE FOR FOLLOWING.			
23.1	2414	Concrete of grade M-30 in roads etc complete with 20 mm nominal size graded aggregate, plasticiser, etc. complete as per specification (cement shall be supplied by BHEL free of cost as per SCC)	5528	CUM	
23.2	2415	Filling below concrete roads with stone (63 mm down graded), in layers not exceeding 200 mm thickness including breaking of boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts all complete as per instructions of engineer.	3949	CUM	
24.0	2500	MISCELLANEOUS 2.			
24.1	2501	Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items).	100	NO	

SL NO	ST NO	DESCRIPTION	QUANTITY		UNIT RATE (Rs)	AMOUNT (Rs)
24.2	2502	Construction of below ground earthing system test links as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items).	24	NO		
24.3	2503	Construction of below ground earthing system earth electrodes as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items.)	350	NO		
24.4	2504	Construction of below ground earthing system - Earth connection and riser pig tails as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items.)	1300	NO		
24.5	2505	Providing services of draftsman (with 2 years experience of AUTOCAD) exclusively to work in BHEL-PEM, Noida.	36	MAN-MTH		
24.6	2506	Sprinkling of water by water tanker fitted with perforated GI Pipe (portable tanker minimum 3000 litre capacity) for roads and miscellaneous area within plant boundary, for dust suppression and reduction of suspended material at site for day to day work, as directed by BHEL Site Engineer (water for this purpose shall be provided by BHEL free of cost and utilisation of machine will be in terms of Tank-hour put in actual use for water sprinkling.	7440	TANK-HR		
24.7	2507	Providing services of crane operator for operation of BHEL crane.	300	MAN-HOUR		
TOTAL						
25.0	For items not covered above, quote % above or below the CPWD schedule (DSR-2002).					
25.1	Rate of complete item					
25.2	Rate of supply of materials at site only.					
25.3	Rate for execution complete excluding supply of materials.					

TENDER NO	PSER:SCT:MJA-C751:07	
VOLUME	IIIB	PRICE SCHEDULE, REV-1 (PERCENTAGE VALUES)

JOB	CIVIL, STRUCTURAL ETC WORK OF POWER BLOCK 1 COVERING POWER HOUSE INCLUDING COMMON CONTROL ROOM BAY, MILL BAY, AUX BUILDINGS, MISCELLANEOUS CIVIL WORKS ETC OF UNIT # 1.
CAPACITY	2 x 500 MW UNIT # 1 & 2
PROJECT	MEJIA-B THERMAL POWER STATION, WEST BENGAL

BHARAT HEAVY ELECTRICALS LIMITED
(A Govt Of India Undertaking)
POWER SECTOR – EASTERN REGION
PLOT – DJ 9/1, SECTOR II, SALT LAKE
KOLKATA – 700 091

VOLUME-III B PRICE SCHEDULE, REV-1	
Civil, structural etc work of Power Block 1 covering power house including common control room bay, mill bay, aux buildings, misc civil works etc of unit # 1 for 2x500 MW unit # 1 & 2 Mejia-B TPS, West Bengal.	
TENDER NO - PSER:SCT:MJA-C751:07	
PREAMBLE	
1.0	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully in rates for various items. Clauses under this preamble shall be read in conjunction with other volumes of tender as applicable.
2.0	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions.
3.0	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
4.0	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, taxes, 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 tender document and this schedule.
5.0	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 thirty percent ($\pm 30\%$) of the contract price.
6.0	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing 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.
7.0	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.
8.0	All works item wise shall be measured upon completion and paid for at the rates quoted and accepted.
9.0	The tender shall be deemed to have studied the specifications, details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
10.0	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.

VOLUME-III B					
PRICE SCHEDULE, REV-1					
Civil, structural etc work of Power Block 1 covering power house including common control room bay, mill bay, aux buildings, misc civil works etc of unit # 1 for 2x500 MW, Mejia-B TPS, West Bengal.					
TENDER NO - PSER:SCT:MJA-C751:07					
SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
1.0	100	EARTH WORK IN EXCAVATION, BACKFILLING & DISPOSAL AS PER SPECIFICATION & DRAWINGS			
1.1	101A	Earth work in excavation upto 2m depth below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including setting out, clearing & grubbing, removal of debris, dewatering if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and ramming the bottom, stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for all types of soils including ash, laterite, morrum, weathered rock, decomposed rock, soft rock etc which can be excavated by means of crow bar, pick axe and other mechanical means etc but does not require chiselling or blasting.	46,000	CUM	
1.2	101B	Earth work in excavation upto 2m depth below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including setting out, clearing & grubbing, removal of debris, dewatering, if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for hard rock requiring blasting/ controlled blasting and/or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by engineer.			
1.2.1	a	By means of controlled blasting including provision of sensor to assess the impact of blast on the adjacent structures.	200	CUM	
1.2.2	b	By means of controlled blasting excluding provision of sensor.	1,105	CUM	
1.2.3	c	In hard rock (blasting Prohibited) by means of chiselling, wedging etc.	172	CUM	
1.3	101C	Earth work in excavation for depth exceeding 2.0m but not exceeding 4.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and ramming the bottom, stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for all types of soils including ash, laterite, morrum, weathered rock, decomposed rock, soft rock etc which can be excavated by means of crow bar, pick axe and other mechanical means etc but does not require chiselling or blasting.	11,908	CUM	
1.4	101D	Earth work in excavation for depth exceeding 2.0m but not exceeding 4.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for hard rock requiring blasting / controlled blasting and/ or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by engineer.			

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
1.4.1	a	By means of controlled blasting including provision of sensor to assess the impact of blast on the adjacent structures.	300	CUM	
1.4.2	b	By means of controlled blasting excluding provision of sensor.	15,716	CUM	
1.4.3	c	In hard rock (blasting Prohibited) by means of chiselling, wedging etc.	400	CUM	
1.5	101E	Earth work in excavation for depth exceeding 4.0m but not exceeding 7.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and ramming the bottom, stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for all types of soils including ash, laterite, morrum, weathered rock, decomposed rock, soft rock etc which can be excavated by means of crow bar, pick axe and other mechanical means etc but does not require chiselling or blasting.	1,605	CUM	
1.6	101F	Earth work in excavation for depth exceeding 4.0m but not exceeding 7.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for hard rock requiring blasting/ controlled blasting and/ or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by engineer.			
1.6.1	a	By means of controlled blasting including provision of sensor to assess the impact of blast on the adjacent structures.	100	CUM	
1.6.2	b	By means of controlled blasting excluding provision of sensor.	16,000	CUM	
1.6.3	c	In hard rock (blasting prohibited) by means of chiselling, wedging etc.	400	CUM	
1.7	101G	Earth work in excavation for depth exceeding 7.0m but not exceeding 10.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and ramming the bottom, stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for all types of soils including ash, laterite, morrum, weathered rock, decomposed rock, soft rock etc which can be excavated by means of crow bar, pick axe and other mechanical means etc but does not require chiselling or blasting.	70	CUM	
1.8	101H	Earth work in excavation for depth exceeding 7.0m but not exceeding 10.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for hard rock requiring blasting/ controlled blasting and/ or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by engineer.			
1.8.1	a	By means of controlled blasting including provision of sensor to assess the impact of blast on the adjacent structures.	50	CUM	
1.8.2	b	By means of controlled blasting excluding provision of sensor.	250	CUM	
1.8.3	c	In hard rock (blasting prohibited) by means of chiselling, wedging etc.	150	CUM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
1.9	101J	Earth work in excavation for depth exceeding 10.0m but not exceeding 15.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and ramming the bottom, stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for all types of soils including ash, laterite, morrum , weathered rock, decomposed rock, soft rock etc which can be excavated by means of crow bar, pick axe and other mechanical means etc but does not require chiselling or blasting.	30	CUM	
1.10	101K	Earth work in excavation for depth exceeding 10.0m but not exceeding 15.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, Ducts, roads, embankment etc including dewatering if required, strutting, shoring/sheet piling if required, dressing the sides, levelling to grade and stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for hard rock requiring blasting /controlled blasting and/or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by Engineer.			
1.10.1	a	By means of controlled blasting including provision of sensor to assess the impact of blast on the adjacent structures.	50	CUM	
1.10.2	b	By means of controlled blasting excluding provision of sensor.	100	CUM	
1.10.3	c	In hard rock (blasting prohibited) by means of chiselling, wedging etc.	50	CUM	
1.11	101 L	Earth work in excavation for depth exceeding 15.0m but not exceeding 20.0m below ground level for foundation, trenches, pipe lines, storm water drains, RCC wall, ducts, roads, embankment etc including dewatering if required, strutting, shoring/ sheet piling if required, dressing the sides, levelling to grade and stacking/ disposal of surplus excavated material within a lead of 1.0 km etc complete for hard rock requiring blasting/ controlled blasting and/ or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by engineer.			
1.11.1	a	By means of controlled blasting including provision of sensor to assess the impact of blast on the adjacent structures.	20	CUM	
1.11.2	b	By means of controlled blasting excluding provision of sensor.	60	CUM	
1.11.3	c	In hard rock (blasting prohibited) by means of chiselling, wedging etc.	20	CUM	
1.12	104	Extra over item 101A to 101L above respectively for carriage of all types of excavated materials beyond the initial lead of 1.0 km dumping, levelling the dumped soil/ materials and levelling the area from where the material is transported, complete with all lifts as specified and directed by engineer for the following leads.			
1.12.1	i)	Carriage beyond 1.0 km and not exceeding 2.0 km.	40781	CUM	
1.12.2	ii)	Carriage beyond 2.0 km and not exceeding 5.0 km.	44271	CUM	
1.12.3	iii)	Carriage beyond 5.0 km and not exceeding 10.0 km.	2750	CUM	
1.13	105	Filling using selected excavated materials in trenches, plinths, sides of foundations and other underground structures, pipes, area levelling etc in layers not exceeding 250 mm thickness including lead upto 5 KM and all lifts and including loading from stock pile, carting, unloading, filling, watering and compacting/ ramming each layer, all complete as per specifications, drawings and as directed by engineer to achieve the following densities.			

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
1.13.1	i)	Ordinary manual compaction.	2151	CUM	
1.13.2	ii)	90% Standard Proctor density.	38573	CUM	
1.13.3	iii)	95% Standard Proctor density.	22161	CUM	
1.14	106	Filling using selected excavated materials directly from excavation area in trenches, plinths, sides of foundations & other underground structures, pipes, area levelling etc in layers not exceeding 250 mm thickness including all lifts, filling, watering & compacting/ ramming each layer, all complete as per specification, drawings and as directed by engineer to achieve the following densities.			
1.14.1	i)	Ordinary manual compaction.	296	CUM	
1.14.2	ii)	90% Standard Proctor density.	4479	CUM	
1.14.3	iii)	95% Standard Proctor density.	305	CUM	
1.15	107	Filling using selected materials in trenches, plinths, sides of foundations, in the space below the grade level slab and other under ground structures, pipes etc in layers not exceeding 250 mm in thickness including all lifts and including excavating, loading, unloading, carting, filling, watering and compacting/ ramming each layer, all complete as per specifications, drawings and as directed by engineer for the following works.			
1.15.1	i)	With selected soil brought from borrow areas arranged by contractor, including royalties, fees etc for all leads and compacted to following densities.			
1.15.1.1	a	90% Standard Proctor density.	786	CUM	
1.15.1.2	b	95% Standard Proctor density.	60	CUM	
1.15.2	ii)	With selected sand brought from quarries/ river bed arranged by contractor, and compacting to 80% relative density etc for all leads.	305	CUM	
1.16	108	Filling in trenches, plinths, area paving and other underground structures with stone (63 mm down graded), in layers not exceeding 200 mm thickness including breaking of boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts all complete as per instructions of engineer.	8040	CUM	
1.17	109	Filling in transformer pits etc, with clean 40 mm nominal size stone aggregate including all labour, materials, royalties, equipments etc complete as per instructions of engineer.	57	CUM	
1.18	110	Buldozing earth for grading (maximum depth 500 mm) of ground including removable of vegetation complete including disposal of debris upto 5 km.	5200	SQM	
1.19	111	Cutting of trees, including transportation, stacking at storage yard and disposal of unused material as per direction of engineer.			
1.19.1	i)	300 mm upto 600 mm girth.	2	NO	
1.19.2	ii)	601 mm upto 900 mm girth.	3	NO	
2.0	200	PROVIDING AND PLACING CONCRETE WORK INCLUDING COST OF LABOUR, MATERIALS AND EQUIPMENT FOR HANDLING, TRANSPORTATION, BATCHING, MIXING, PLACING, VIBRATING AND CURING, (EXCLUDING COST OF CENTERING, SHUTTERING AND REINFORCEMENT) COMPLETE AS PER DRAWING AND SPECIFICATIONS UNLESS SPECIFIED OTHERWISE FOR THE FOLLOWING (CEMENT SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER SCC).			
2.1	201	Plain cement concrete of proportion (1 part cement:4 part sand:8 part graded aggregates by volume) as filling course at any level below finished floor level, with 40 mm nominal size graded aggregate.	1317	CUM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
2.2	202	Plain cement concrete of of proportion (1 part cement:3 part sand:6 part graded aggregates by volume) as lean concrete, levelling course, mud mat under and around foundations/ floors etc with 20 mm nominal size graded aggregate.	5117	CUM	
2.3	203	Design mix concrete of grade M20 in under floors, paving, pipe encasing etc complete with 20 mm nominal size graded aggregate, plasticiser etc complete.	3703	CUM	
2.4	204	Design mix concrete of grade M15 as under bed to floors including plasticiser etc complete.	398	CUM	
2.5	205	Design mix concrete of grade M25 in underground structures like foundations, columns below finish floor level, plinth beams, slab-on-grade, drains etc complete with 20 mm nominal size graded aggregate, plasticiser etc complete.	17706	CUM	
2.6	206	Design mix concrete of grade M25 in superstructure from finished floor level complete at all heights with 20 mm nominal size graded aggregate, plasticiser etc complete.	6898	CUM	
2.7	207	Design mix concrete of grade M-25 in TG block, column and machine foundations at all heights from finished floor level except mill foundation, top deck supported over vibration isolation system including addition of suitable plasticizer conforming to IS 9103-latest to achieve a slump more than 125 mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate.			
2.7.1	a)	M25 (with 20mm nominal size graded stone aggregate), with Ultrasonic Pulse Velocity testing (Ultrasonic Pulse Velocity testing to be conducted for TG column and machine foundations through reputed agency/ institution as per approval of engineer. Payment terms - a. After casting 80%; b. After receipt of ultrasonic test report - 20%.	350	CUM	
2.7.2	b)	M25 (with 20mm nominal size graded stone aggregate), without Ultrasonic Pulse Velocity testing.	3170	CUM	
2.8	208	Providing & laying design mix cement concrete for reinforced concrete works using graded aggregate in mill fdn, top decks of machine fdns supported on vibration isolation system (VIS) (excluding supply & installation of VIS) at all levels including addition of suitable plastisizers conforming to IS9103 to achieve a slump more than 125 mm in concrete as per manufacturers recomendation, preperation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning & rendering the exposed surface with cement sand mortar to give a smooth & even surface, maintaining & submitting records of concreting, petrographic examination & potential reactivity of aggregate etc all complete as per spec, drawing & instructions of engineer, including UPV testing as directed by engineer, rectification of the defects in concreting observed by ultra-sonic pulse velocity (UPV) testing by cement/ epoxy grout etc, but excluding formwork, staging, reinforcement, embeddments and temperature control of concrete.			
2.8.1	i)	M30 (with 20 mm nominal size graded stone aggregate), without Ultrasonic Pulse Velocity testing.	720	CUM	
2.8.2	ii)	M35 (with 20 mm nominal size graded stone aggregate), without Ultrasonic Pulse Velocity testing.	13	CUM	
2.8.3	iii)	M30 (with 20 mm nominal size graded stone aggregate), with Ultrasonic Pulse Velocity testing for machine foundations.Ultrasonic pulse velocity testing to be conducted through reputed agency/ institution as per approval of engineer. Payment terms - a. After casting 80%; b. After receipt of Ultrasonic test report - 20%.	550	CUM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
2.8.4	iv)	M35 (with 20 mm nominal size graded stone aggregate), with Ultrasonic Pulse Velocity testing for TG deck and machine foundations (Ultrasonic Pulse Velocity testing to be conducted through reputed agency/ institution as per approval of engineer. Payment terms - a. After casting 80%; b. After receipt of ultrasonic test report - 20%.	850	CUM	
2.9	209	Extra over ST NO 208 above, for controlling of temperature of freshly laid concrete to less than 25 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.	1210	CUM	
2.10	210 A	Screed concrete 1:2:4 conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/ 6 mm nominal size on the roof or various floors at any level or thickness, drains etc complete.	386	CUM	
2.11	210 B	Screed concrete 1:1.5:3 conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5 mm/ 6 mm nominal size on the roof or various floors at any level or thickness, drains etc complete.	350	CUM	
2.12	211	Design mix concrete of grade M25 in precast works like beams, columns, wall panels, facias etc at all levels in all kinds of work including formwork/ moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjusant precast units with M30 concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc complete with graded aggregate (20/12.5/10 mm).	190	CUM	
2.13	212 A	Design mix concrete of grade M25 in water retaining/ conveying structures including addition of suitable plastisizer cum waterproofing cement additives conforming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and subsequent reduction in cement content upto a maximum 10% complete and conforming to limits of permeability as per IS 2545 as per specification with 20 mm nominal size graded aggregate.			
2.13.1	i)	Below ground level.	845	CUM	
2.13.2	ii)	Above ground level.	26	CUM	
2.14	212 B	Providing with minimum two coats of bituminous painting of grade 85/25 @ 1.7 kg/ sqm for water/ damp proofing conforming to IS 702 on foundation/ structure/ wall surfaces in contact with soil.	4500	SQMM	
2.15	213	Concrete of grade M15 in plinth protection, pipe encasing etc complete with 20 mm nominal size graded aggregate.	81	CUM	
2.16	214	Dismantling concrete work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.			
2.16.1	i)	Plain cement concrete of all grades.	28	CUM	
2.16.2	ii)	Reinforced cement concrete of all grades alongwith cutting of reinforcements etc complete.	68	CUM	
2.17	215	Cutting of masonry/ PCC/ RCC work for making openings/ pockets at any floors/ walls of all levels and according to shapes and sizes as per drawing by using power cutting tool (DD2E of Hilti make or equivalent), disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, making good broken edges/ surfaces with cement mortar (1:3) etc complete as per instructions of BHEL. (measurement shall be paid as per cutting surface area of masonry/ concrete and reinforcement).	60	SQM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
2.18	216	Chipping manually (wherever machine cutting is not possible) of masonry/ PCC/ RCC work for making pockets, openings at any floors/ foundations of all levels and according to shapes and sizes as per drawing, including making good broken edges/ surface with cement mortar (1:3), disposal of waste materials upto a lead of 2 km as directed by engineer (measurement shall be paid as per cutting surface area of masonry/ concrete and reinforcement).	15	SQM	
3.0	300	SUPPLYING, FIXING AND REMOVING FORMWORK AT AS PER SPECIFICATIONS AND INCLUDING ALL LABOUR MATERIAL, SCAFFOLDINGS AND CENTERING COMPLETE INCLUDING POCKETS ETC. FOR THE FOLLOWING.			
3.1	301	Ordinary form work below finished ground floor level for foundations, footings, bases of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	21288	SQM	
3.2	302	Fairface form work below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc for exposed concrete works.	5586	SQM	
3.3	303	Ordinary form work above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc for all heights.	22745	SQM	
3.4	304	Fairface form work above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc. for all heights.	17040	SQM	
3.5	305	Formwork for TG superstructure-fairface. (above TG raft level)	2720	SQM	
3.6	306	Providing, fixing and removing formwork in block-outs/ pockets and openings at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer.			
3.6.1	i)	Upto 300 mm depth.	40	NO	
3.6.2	ii)	From 301 mm upto 600 mm depth,	42	NO	
3.6.3	iii)	From 601 mm upto 1000 mm depth.	24	NO	
3.6.4	iv)	From 1001 mm upto 1500 mm depth.	24	NO	
4.0	400	REINFORCEMENTS (REINFORCEMENT STEEL SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER SCC)			
4.1	401	Transporting, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements in concrete including cost of binding wire, labour etc complete all as per specifications & drawings.	25	MT	
4.2	402	Transporting, straightening, cutting, bending, placing at any level, binding in position high yield strength steel reinforcements in concrete including cost of binding wire, labour etc complete all as per specifications & drawings.	3144	MT	
4.3	403	Transporting, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements in brickwork/ concrete encasing work including cost of binding wire, labour etc complete all as per specifications & drawings.	2	MT	
4.4	404	Transporting, straightening, cutting, bending, placing at any level, binding in position high yield strength steel reinforcements in brickwork/ concrete encasing work including cost of binding wire, labour etc complete all as per specifications & drawings.	15	MT	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
5.0	500	WATER PROOFING AS PER SPECIFICATIONS (CONTRACTOR HAS TO FURNISH A GUARANTEE FOR MATERIAL AND WORKMANSHIP FOR A MINIMUM PERIOD OF 20 YEARS) (CEMENT SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER SCC).			
5.1	501	Providing, laying and fixing roof water proofing treatment using two successive liquid coatings of high solid content urethane pre-polymers to form elastomeric membrane having overall dry film thickness of minimum 1.5 mm subject to minimum 750 gm/ sqm/ coat application rate including primer coat consisting of polyurethane or any other equivalent material, finishing coats and surface finish complete laid over cement plaster (1:6) grading on screed concrete (1:1.5:3) (cement plaster and screed concrete to be paid seperately) mix all complete including all labour, material, equipment, handling, scaffolding, transporting, testing and cost of wire mesh if any etc complete as per drawing, specification & instructions of engineer.	11593	SQM	
5.2	502	Providing and laying foam concrete block insulation over roofs including minimum 15 mm cement sand plaster finished smooth over foam concrete and providing of expansion joints at intervals as per the recommendation of manufacturer. Thermal conductivity of the foam concrete shall not exceed 0.125 KCL/ sqmh degree C & weight shall be from 0.3 to 0.5 gm/cu cm, all complete with fillets as per specification.			
5.2.1	i)	75 thick.	3115	SQM	
5.2.2	ii)	100 thick.	7280	SQM	
5.3	503	Providing & laying pressed precast concrete tiles over water proofing of minimum size 600x600 and min thickness 20 mm conforming to IS 13801 including 15 mm thick cement mortar (1:4) bedding inclusive of provision for thermal expansion for each roofing tile filled with polysulfide joint sealant (water proofing paid else where).	10395	SQM	
5.4	504	Providing and mixing approved water proofing compound in concrete or cement mortar for works wherever specified or directed as per specification/manufacturer's instructions, testing of samples for water proofing etc complete.	578	KG	
6.0	600	SUPPLYING & INSTALLATION OF JOINT FILLER AND SEALING COMPOUND.			
6.1	601	Supplying & installation of bitumin impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/ bitumin, labour, material, equipments etc all complete at all levels as per specification, drawings and instruction of engineer.			
6.1.1	i)	12mm thick joints.	4	SQM	
6.1.2	ii)	20mm thick joints.	14	SQM	
6.1.3	iii)	25mm thick joints.	287	SQM	
6.1.4	iv)	50mm thick joints.	1360	SQM	
6.2	602	Supplying and filling in position hot applied bitumin sealing compound (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/ injecting sealing compound in gaps in joints at all levels including application of primer, labour, material, equipments etc all complete as per specification/ drawing, instruction of engineer in charge.	1063	KG	
6.3	603	Providing and filling polysulphide base sealant as per IS 12118 for 25 mm thick expansion joint over pre-moulded board	1	CUM	
7.0	700	MS EMBEDMENTS			

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
7.1	701	Fabricating and fixing of embedments, MS inserts made of angle pieces, plates, channels and ISMBs of dimensions as required including cost of all labour, materials and equipment, transportation, loading, unloading, handling, welding, cutting, drilling, scaffolding and setting as per specifications and drawings. (structural steel shall be supplied by BHEL free of cost as per SCC).	305	MT	
7.2	702	Supply, fabrication and fixing of embedments, MS inserts, sleeves, rails, guide rails, angle, channel, plates, beams of various diameters, plates of dimensions as required including cost of all labour, materials and equipment for fixing in position, scaffolding and setting in position, transportation from stores within the plant boundary to work spot, loading, unloading etc complete as per specifications and drawings. (vendor to supply all material). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	114	MT	
7.3	703	Supply, fabricating, transporting, erecting and installing at all elevations miscellaneous steel/ PVC pipes, expansion fasteners in concrete/ brickwall, for all kind of works, including the cost of labour, material and equipment, setting material in concrete, layout, scaffolding, handling at site, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc all complete as per drawings and specifications and instructions of engineer (vendor to supply all material). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.			
7.3.1	i	MS pipes of all diameters.	49	QTL	
7.3.2	ii	PVC conduits of all sizes.	16	QTL	
7.3.3	iii	Expansion fasteners (galvanised) of HILTI make or equivalent of safe tension capacity as specified below.			
7.3.3.1		250 kg.	1300	NO	
7.3.3.2		500 kg.	910	NO	
7.3.3.3		750 kg.	325	NO	
7.4	704	Supply, fabrication, transportation, delivery at site, erection, installation & alignment of MS foundation/ anchor bolt (Grade-1 of IS:432 & IS:2062) assembly in concrete along with nuts, lock nuts (IS:1363, IS:1364 & IS:3138), anchor plates, stiffner plates, protective tape etc. upto and including 80 mm dia, 3000 mm long including furnishing of labour, materials, equipments, welding, cutting, grinding, threading, drilling, pipe sleeves etc all complete as per spec, drawing and instruction of the engineer (vendor to supply all material). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	81	MT	
7.5	705	Placing, locking and releasing of vibration isolation spring modules over foundations at all elevations including transportation from stores, leveling, alignment all complete under the supervision of supplier, as per drawing and instructions of engineer in charge (VIS to be supplied by BHEL free of cost).	155	NO	
8.0	800	GROUTING AS PER SPECIFICATION FOR THE FOLLOWING.			
8.1	801	Providing & grouting cement slurry mix at any elevation/ depth with pressure pump for water retaining concrete structures, including fixing nozzles, cost of approved cement, admixture, curing, etc all complete as per specification & as directed by engineer (cement shall be supplied by BHEL free of cost as per SCC)	26	SQM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
8.2	802	Providing & grouting of pocket holes, pipe sleeves of any shape & size under base plate after erection, and alignment if necessary, of heavy machinery at any elevations including roughening surface, cleaning, ramming, curing, etc with ConbextraGPX-2 of 'Fosroc' or equivalent all complete as per spec (cost of all material & cleaning the pocket by compressed air shall be in contractor's scope).	30	CUM	
8.3	803	Providing & grouting of pocket holes, pipe sleeves of any shape and size under base plate after erection, and alignment if necessary, of main structural steel work at any elevations including roughening surface, cleaning, ramming, curing, etc with ConbextraGP-1 or equivalent all complete as per spec (cost of all material & cleaning the pocket by compressed air shall be in contractor's scope).	57	CUM	
8.4	804	Providing & grouting of pocket holes, pipe sleeves of any shape and size under base plate after erection and alignment if necessary, of secondary structures, machinery & pipe supporting structures at any elevations including roughening surface, cleaning, ramming, curing, etc with 1:1:2 cement - sand - 6 mm down stonechips all complete as per spec (cost of all material and cleaning the pocket by compressed air shall be contractor's scope and cement shall be supplied by BHEL free of cost as per SCC).	15	CUM	
9.0	900	DOORS, WINDOWS, VENTILATORS, LOUVERS, ROOF VENTILATORS, ROLLING SHUTTERS, PARTIONS ETC COMPLETE AT ALL ELEVATION INCLUDING FRAMING, KICK PLATES, STOPPERS AS PER SPECIFICATION & DRAWINGS (ALL STEEL DOORS, WINDOWS AND ROLLING SHUTTERS ETC. SHALL BE BLAST CLEANED TO NEAR WHITE METAL SURFACE (SA 2 1/2), PAINTED WITH TWO COAT OF RED OXIDE ZINC PRIMER AND FINISHED WITH TWO COATS OF SYNTHETIC ENAMEL PAINT CONFIRMING TO IS2074). ALL MATERIALS TO BE SUPPLIED BY VENDOR.			
9.1	901	Providing, fitting and fixing solid core flush door shutter as per IS 2202 part II, 35 mm thick homogeneous particle board bonded with BWR type phenol formaldehyde synthetic resin, particle board core conforming to IS 3087 type I, 35X12 mm thick teak wood beading all around including preparation of working drawings, butt hinges, tower bolt, sliding bolt handles, knobs, door stoppers (all fitting shall be anodised aluminium color dyed), final synthetic paint over primer, screws etc complete as per drawing, specification and instructions of engineer in charge.	141	SQM	
9.2	902	Providing and fixing wooden frame conforming to IS 4021 made of best quality seasoned CP teakwood free from large or loose knots, cracks or other defects inclusive of sand paper smoothening, hold fasts, beading, primer including final synthetic painting etc. complete as per specifications with proper wood joinery, accurately set to required lines or levels and rigidly secured in place.	12.943	CUM	
9.3	903	Providing, fitting and fixing panel door shutter as per IS 1003, with (35 mm thick, 150 mm wide vertical rail & 125 mm wide horizontal rail) teakwood shutter frame and (12 mm thick) interlocked panels of teakwood including beading, preparation of working drawings, butt hinges, tower bolt, sliding bolt handles, knobs, door stoppers (all fitting shall be anodised aluminium color dyed), final synthetic paint over primer, screws etc complete as per drawing, specification and instructions of engineer in charge with proper wood joinery.	58	SQM	
9.4	904	Providing and fixing hard wood frame conforming to IS 4021 made of approved quality seasoned wood free from large or loose knots, cracks or other defects inclusive of sand paper smoothening, hold fasts, beading, primer including final synthetic painting etc. complete as per specifications with proper wood joinery, accurately set to required lines or levels and rigidly secured in place.	3.61	CUM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
9.5	905	Providing and fixing steel single or double door shutters. Shutters shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm c/c. Side, top, bottom edges of shutter shall be of pressed steel channels of 1.2mm thk voids to be filled with mineral wool (48 kg/cum density) including all fittings like tower bolts, handles, stoppers, aldrops etc. and painting with minimum 2 coats of synthetic enamel paint on primer complete. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	157	SQM	
9.6	906	Providing and fixing fire proof steel doors (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	157	SQM	
9.7	907	Providing & fixing anodised aluminium work of Indal, Hindalco or other equivalent approved make for doors, windows, ventilators, partitions, railing etc with extruded standard tubular & other sections including all fittings & fixtures & accessories of approved make conforming to IS733 & IS1285, anodised & electrocolor dyed to required shade according to IS 1868 (min anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom & sides with required PVC/ neoprene felt for bi-mettalic protection etc including preparation of working drgs, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings & fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc), CP brass/ SS screws, providing & fixing hinges/ pivots & making provision for fixing of fitting wherever required including cost of PVC/ neoprene gasket, all complete as per drg, spec & instructions of engineer (glazing & panelling shall be paid seperately). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	35114	KG	
9.8	908	Providing and fixing of over head heavy duty hydraulic door closers Yale make or equivalent quality as directed by Engineer.	151	NO	
9.9	909	Providing and fixing floor mounted heavy duty Hydraulic door closer of approved make & best quality as directed by engineer.	165	NO	
9.10	910	Providing & fixing pressed steel frames fabricated from 1.6 mm thk gauge MS sheet mortised, reinforced strikes, hold fasts, adjustable floor anchors, floor tiles/ weather bars, painting with min 2 coats of synthetic enamel paint on primer etc complete as per specifications.	1870	KG	
9.11	911	Providing & fixing in position rolling shutters of approved make as per IS 6248, made of 75x1.2mm hot rolled double dipped galvanized steel laths interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside & outside locking including wire springs top cover, 3 coats of approved enamel paint etc, all complete as per specification, mechanically operated . Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	59	SQM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
9.12	912	Providing & fixing in position rolling shutters of approved make as per IS 6248, made of 75x1.2mm hot rolled double dipped galvanized steel laths interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside & outside locking with push & pull operation including wire springs top cover, 3coats of approved enamel paint etc, all complete as per specification, hand operated . Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	19	SQM	
9.13	913	Providing & fixing in position rolling shutters of approved make as per IS 6248, made of 75x1.2mm hot rolled double dipped galvanized steel laths interlocked together through their entire length & jointed together at the end by & locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside & outside locking including wire springs top cover, 3 coats of approved enamel paint etc, all complete as per specification, electrically operated . Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	176	SQM	
9.14	914	Providing, fitting and fixing of glazing (including poly carbonate sheet) of superior (selected) quality, first grade class, at various elevations, where required, cleaning after fixing, gaskets, clips, hardware, with all labour and material etc. complete as per specification, drawing and instructions of engineer.			
9.14.1	i)	4 mm clear sheet glass.	82	SQM	
9.14.2	ii)	4 mm clear float glass.	493	SQM	
9.14.3	iii)	6 mm clear float glass.	501	SQM	
9.14.4	iv)	6 mm wired glass.	705	SQM	
9.14.5	v)	6 mm thick polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	65	SQM	
9.14.6	vi)	4 mm ground glass.	80	SQM	
9.14.7	vii)	Two nos. 6 mm thick clear toughened float glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).	98	SQM	
9.14.8	viii)	Two nos. 6 mm thick tinted toughened float glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).	95	SQM	
9.14.9	ix)	6 mm thick toughened float glass.	130	SQM	
9.14.10	x)	One outer 6mm thick tinted heat-reflecting type float glass and one inner 6mm thick plain float glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).	520	SQM	
9.14.11	xi)	6 mm thick laminated glass.	450	SQM	
9.15	915	Providing, fitting and fixing heavy duty minimum six lever mortised lock of godrej or equivalent make with handles or knobs to single and double leaf door (wooden/steel/aluminium) with duplicate set of keys and masterkeyed locks, openable from one side by the key and from the other side by the handle etc. all complete as per drawing, specification and instruction of engineer in charge.	106	NO	
9.16	916	Providing and fixing PVC doors of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	178	SQM	
9.17	917	Supplying & fixing weather stripping of approved make & quality consisting of Aluminium strips with fibre to doors as per instructions of engineer and spec complete.	52	RM	

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10.0	1000	BRICKWORK MASONRY INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR ETC COMPLETE, AS PER SPECIFICATION (CEMENT SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER SCC).			
10.1	1001	Providing brick work in cement mortar 1:6 (1 part cement foundations, pits etc in varying thickness, at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.			
10.1.1	i)	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2.	10	CUM	
10.1.2	ii)	Using clay ash bricks shall be as per IS 13757 with crushing strength of 75 kg/cm2 and minimum percentage of fly ash shall be 25%.	16	CUM	
10.1.3	iii)	Using ordinary bricks of class designation 75 of nominal dimension.	602	CUM	
10.1.4	iv)	Using locally available first class bricks of required crushing strength of nominal dimension approved by engineer in charge/customer.	9	CUM	
10.2	1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc in thickness 250mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.			
10.2.1	i)	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2.	71	CUM	
10.2.2	ii)	Using clay ash bricks shall be as per IS 13757 with crushing strength of 75 kg/cm2 & minimum percentage of fly ash shall be 25%.	142	CUM	
10.2.3	iii)	Using ordinary bricks of class designation 75 of nominal dimension.	4581	CUM	
10.2.4	iv)	Using locally available first class bricks of required crushing strength of nominal dimension approved by engineer in charge/customer.	71	CUM	
10.3	1003	Ruled pointing in masonry in CM 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc complete.	98	SQM	
10.4	1004	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc in thickness 127 mm at all heights, places & position above or below plinth/graded level including providing HB wetting at every third layer, raking out joints, curing, scaffolding etc complete using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2 and clay ash bricks shall be as per IS 13757, minimum percentage of fly ash shall be 25%, excluding plastering and painting as per specification.			
10.4.1	i)	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2.	12	SQM	
10.4.2	ii)	Using clay ash bricks shall be as per IS 13757 with crushing strength of 75 kg/cm2 and min percentage of fly ash shall be 25%.	22	SQM	
10.4.3	iii)	Using ordinary bricks of class designation 75 of nominal dimension.	3468	SQM	
10.4.4	iv)	Using locally available first class bricks of required crushing strength of nominal dimension approved by engineer in charge/ customer.	11	SQM	
10.5	1005	Breaking of existing brick work at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	20	CUM	
10.7	1007 A	Providing and encasing of structural steel member with masonry work with cement mortar (1:3) around flanges, webs etc and filling the gap between steel and masonry by minimum 12mm thick mortar. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc complete as per specification.	40	CUM	

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10.8	1007 B	Providing and encasing of structural steel member with RCC grade M-25 around flanges, webs etc and filling the gap including concreting, placing/ welding reinforcement/ steel wire, shuttering, scaffolding, etc complete as directed by BHEL (reinforcement/ steel wire shall be measured and paid separately as per ST item 403/404/1009).	40	CUM	
10.9	1009	Supply and placing in position mild steel wire fabric of square mesh 25 mm size and wire diameter of 2 mm for encasing of steel sections in concrete including cutting, bending, fixing etc complete.	1227	SQM	
10.10	1010	Providing and filling brick bats in soak pits, below plinth protection etc complete.	18	CUM	
11.0	1100	DAMP PROOF COURSE INCLUDING ALL MATERIALS LABOUR, SHUTTERING, CENTERING, CURING ETC, COMPLETE WITH THICKNESS AS SPECIFIED/SHOWN ON DRAWINGS.			
11.1	1101	Damp proof course 40mm thk 1:1.5:3 concrete (10mm down aggregate) with 2% of approved admixture of water proofing compound. Hot bitumen @ 1.7 kg/ sqm shall be applied before & after the DPC as per specification (cement shall be supplied by BHEL free of cost as per SCC).	149	SQM	
12.0	1200	CEMENT MORTOR PLASTER INCLUDING ALL MATERIALS SCAFFOLDING, CURING ETC COMPLETE AS PER SPECIFICATION (CEMENT SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER SCC)			
12.1	1201	Providing 12 mm thick plaster in cement mortar 1:6 on walls, floors, roof etc. finished to a smooth finish as per specification.	21669	SQM	
12.2	1202	Providing 12 mm thick plaster in cement mortar 1:6 on walls, with a rough finish as per specification.	4394	SQM	
12.3	1203	Providing 12 mm thick plaster in cement mortar 1:6 on walls with a paste of neat cement @1kg/sqm and rubbed smooth with trowel as per specification.	1189	SQM	
12.4	1204	Providing 18 mm thick plaster in two layers in cement mortar 1:6 on walls, floors, roof etc. f finished to a wooden float/smooth/rough finish as per spec.	19605	SQM	
12.5	1205	Providing 6mm thick plaster in cement mortar 1:4 on ceilings finished to a smooth finish as per specification.	15097	SQM	
12.6	1206	Providing and making decorative cement plaster (1:4) over existing plastered surface of all types and design on walls, ceilings, arcs, columns with various thickness upto 20 mm including finishing all complete.	627	SQM	
12.7	1207 A	Providing Plaster of Paris (birla white or equivalent) 2 mm thick punning over finished plaster surface and finished with smooth surface as per specification.	8253	SQM	
12.8	1207 B	Providing Plaster of white putty (birla white or equivalent) 2 mm thick punning over finished plaster surface and finished with smooth surface as per specification.	8253	SQM	
12.9	1208	Providing screed/grading plaster of average 20 mm thickness in ratio 1:6 nominal by volume including finishing smooth and even etc. all complete at all levels above or below grade level.	10380	SQM	
12.10	1209	Providing and making decorative interior cement plaster (1:4) of heritage finish over existing plastered surface of all types and design on walls, ceilings, arcs, columns including finishing all complete.	195	SQM	
12.11	1210	Forming groove of uniform size from 12x12 mm upto 20x15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battons, repair of the edges of plaster panel and finishing the groove etc complete as per specification, drawing and the instructions of engineer.	130	RM	

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12.12	1211	Providing drip coarse on plastered surface at all elevations for all type of work such as chajjas, parapet, projections etc. including scaffolding, finishing etc. complete with all labour, tools and plants as per specification, drawing and instructions of engineer.	477	RM	
12.13	1212	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over galvanised hexagonal chicken wire of 0.9 mm wire diameter and 19 mm mesh size as per IS3150 including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of enginner (rate shall include the cost of GI chicken wire mesh).	2139	SQM	
13.0	1300	FINISHES, PAINTING TO CONCRETE, PLASTERED SURFACE, SURFACE PREPARATION INCLUDING ALL MATERIALS, LABOUR, REPUTED MANUFACTURER LIKE ICI/ BURGER/ ASIAN PAINTS OR EQUIVALENT).			
13.1	1301	Providing and applying two or more coats of oil bound destemper as per IS 428 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline including plaster of paris punning minimum 2 mm.	945	SQM	
13.2	1302	Providing and applying two or more coats of acrylic destemper as per IS 428 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface or plaster of paris punning as per manufacturers guideline.	16121	SQM	
13.3	1303	Two or more coats of cement paint (for internal use) of approved brand and manufacture to give an even shade including priming coat complete.	712	SQM	
13.4	1304	Providing & applying 2 or more coats of acid/alkali resistant paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer conforming to IS 158 complete all as per manufacturer's recommendations & as approved by engineer, at all heights above or below grade level, complete as per spec.	1578	SQM	
13.5	1305	Two or more coats of oil resistant paints epoxy based and ammine cured, 150 micron over primer of approved grade and manufacture to give an even shade.	481	SQM	
13.6	1306	Providing and applying two or more coats of acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface or plaster of paris punning in walls, ceiling etc as per manufacturers guideline.	17407	SQM	
13.7	1307	Providing and applying resin bonded granular textured finish, for external applications shall consist of granular textured paint/ Synthetic plaster composed of synthetic fibre and petroleum based chemical similar to RENOVO or equivalent and of approved natural color/shade applied on cured and dried plaster surface. The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	3745	SQM	
13.8	1308	Providing and applying 2 or more coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc complete as per specification.	1841	SQM	
13.9	1309	Providing and applying 2 or more coats of weather paint of Asian make or approved equilent make and color on exterior surface at all heights including material, labour, scaffolding, curing etc complete as per specification.	2185	SQM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
14.0	1400	FLOORING AND SKIRTING INCLUDING ALL MATERIALS, LABOUR, CURING, POLISHING, FINISHING, EXPANSION JOINTS, GROOVES, ETC COMPLETE IN ALL RESPECTS AS SHOWN ON DRAWINGS AND DESCRIBED IN SPECIFICATIONS (CEMENT SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER SCC)			
14.1	1401	Providing and laying 40 mm thick heavy duty cement concrete flooring with metallic hardener pigmented topping of 12 mm thick uniform graded treated iron particles over underbed of 1 part cement, 1.5 part sand and 3 parts chips (10 mm down, well graded) by volume (only sufficient water added to give workable consistency) in flooring complete as per specification.	22913	SQM	
14.2	1402	Providing and laying 25 mm thick heavy duty cement concrete flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado over underbed of 1 part cement, 1.5 part sand and 3 parts chips (10 mm down, well graded) by volume complete as per specification.	718	SQM	
14.3	1403	Providing & fixing chemical resistant (Acid & Alkali) Tiles as per IS 4457 of minimum thickness 20 mm thick in flooring/Dado. The tiles shall be abrasion resistant and durable. The potassium silicate as per IS 4832, 6 mm thick mortar used for setting or for under bed shall be durable strong and chemical resistant epoxy mortar including pointing etc. after laying bitumen primer as per IS 158 and 12 mm thick bitumastic complete as per IS 9510 and IS 412 and as per specification.	367	SQM	
14.4	1403A	Providing & fixing chemical resistant (Acid & Alkali) bricks (75 mm thk) as per IS 4860 in the floor of neutralization pit. Surface on which lining has to be applied shall be prepared in accordance with IS 2395. Bitumen primer as per IS 158 followed by 18 mm thk Bituminastic followed by 6 mm thk potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar confirming to IS 4832, Part II. Seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End ceiling shall be done with bitumastic. A.R. bricks shall be laid with 6 mm wide and 20 mm deep pointing (epoxy/furane/CNSL) and acid curing shall be done complete as per specification.	15	SQM	
14.5	1403B	Providing & fixing chemical resistant (Acid & Alkali) bricks (115 mm thk) as per IS 4860 in the walls of neutralization pit. Surface on which lining has to be applied shall be prepared in accordance with IS 2395. Bitumen primer as per IS 158 followed by 18 mm thk Bituminastic followed by 6 mm thk potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar confirming to IS 4832, Part II. Seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End ceiling shall be done with bitumastic. A.R. bricks shall be laid with 6 mm wide and 20 mm deep pointing (epoxy/furane/CNSL) and acid curing shall be done complete as per specification.	100	SQM	
14.6	1404	Providing epoxy coating 150 micron over epoxy primer over MS Grating/Chequered plate/any other steel structure complete as per engineer in charge.	2	SQM	
14.7	1405	Providing and laying polished Kota stone 16 mm thk in flooring, staircase over minimum 20 mm thick underbed of cement mortar (1 cement :3 sand). The kota stone slabs laid over under-bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, making corners, granite polishing etc. complete.	457	SQM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
14.8	1406	Providing and laying polished Kota stone 16 mm thk in flooring laid in pattern with white marble strip 16 mm thick as per approved floor design over minimum 20 mm thick cement mortar (1 cement :3 sand) as underbedded coarse. The kota stone/ marble slabs laid over under-bed, pressed and tapped wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc complete.	3834	SQM	
14.9	1407	Providing polished Kota stone 16 mm thk in skirting projecting 6mm from adjacent plaster all complete .	131	SQM	
14.10	1408	Providing and laying polished Granite stone of approved color and texture minimum 16 mm thk in flooring over under bed of cement mortar (1 cement : 3 sand) 20mm thick. The granite stone slabs/ tiles laid over pressed and tapped down cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc complete .	225	SQM	
14.11	1409	Providing and laying polished Granite stone 16 thk in skirting over under bed of cement mortar (1 cement : 3 sand) 10mm thick, facia and dado including pigments, curing, grinding, granite polishing etc complete.	158	SQM	
14.12	1410	Providing & laying polished granite slab 12 thk in skirting, facia and dado including pigments, cement plaster 1:3, curing, grinding, granite polishing etc complete.	49	SQM	
14.13	1411	Providing and laying 10 mm thk non-skid fully vitrified tiles of make 'MARBONITE' or 'FERRASTONE of BOSS Profile limited' or equivalent over 30 mm thick underbed of 1 part cement and 3 parts coarse sand by weight mixed with sufficient water, complete as per specification laid in pattern of following sizes.			
14.13.1	i)	400x400 mm.	655	SQM	
14.13.2	ii)	600x600 mm.	3946	SQM	
14.14	1412	Providing and laying glazed ceramic tiles of approved color and design in dado of approved size of reputed manufacturer topped with 50 mm wide matching ceramic trims, with cement mortar 1:3, complete as per specification including all material, labour etc.			
14.14.1	i)	5 mm thick.	305	SQM	
14.14.2	ii)	7 mm thick.	318	SQM	
14.15	1413	Providing and laying granite stone slab of 16 mm thickness single piece for wash basin slab, wall of black or approved colour with making corners, cutting and opening complete.	34	SQM	
14.16	1414 A	Providing and laying of PVC flooring & skirting of minimum thickness 2 mm anti static flexible tiles as per IS 3462 and IS 5318.	65	SQM	
14.17	1414 B	Providing and laying of PVC flooring & skirting of minimum thickness 3 mm anti static flexible tiles as per IS 3462 and IS 5318.	65	SQM	
14.18	1415	Providing and laying 12 mm thick cast in situ terrazzo finish consisting of marble chips of size 1 mm to 12 mm nominal size laid in white/grey cement or mixture of both in propotion 1:1.5 (1 part cement, 1.5 parts chips) with marble powder 3:1 (3 parts cement, 1 part marble powder) in propotion mix dry in cement including pigments, rubbing, grinding, polishing etc in floors, skirtings, treads, risers & landings complete.	20	SQM	
14.19	1416	Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer.			
14.19.1	i)	Glass strips 40 mm wide and minimum 6 mm thick.	3660	RM	
14.19.2	ii)	Aluminium strips 40 mm wide and minimum 3 mm thick.	2386	RM	
14.19.3	iii)	Brass strips 20 mm wide and minimum 4 mm thick.	45	RM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
14.20	1417	Providing and laying 50 mm thick anti skid precast interlocking concrete (minimum M25 grade) pavers of approved shape as per the approval of engineer in charge and specifications complete including minimum 40 mm thick sand underbed.	500	SQM	
14.21	1418	Providing and laying 40 mm thick heavy duty cement concrete flooring with metallic hardener pigmented topping of 12 mm thick uniform graded treated iron particles including non-skid self leveling epoxy (1 mm) in flooring complete as per specification.	1040	SQM	
14.22	1419	Providing and laying polished Marble slabs (Aranga white) 20/25 mm thk of size 1500X600 mm in flooring over minimum 20 mm thick underbed of cement mortar (1 cement :3 sand). The marble slabs shall be laid over under-bed, pressed finished including pigments, curing, grinding, granite polishing etc complete.	488	SQM	
14.23	1420	Providing polished marble 20 mm thk in skirting projecting 6 mm from adjacent plaster, cement mortar 1:3 all complete .	16	SQM	
14.24	1421A	Providing and laying polished Marble slabs (Aranga white) 20 mm thk in staircase landing/skirting and corridors over minimum 20 mm thick underbed of cement mortar (1 cement :3 sand). The marble slabs shall be laid over under-bed, pressed and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, making corners, granite polishing etc complete.	65	SQM	
14.25	1421B	Providing & laying heavy duty dust pressed ceramic tiles in floors of size 300x300x7mm thick of reputed manufacturer over 20 mm thick cement plaster 1:3 bed mortar, of approved finish shade and colour.	10	SQM	
14.26	1422	Providing & fixing removable type flooring system consisting of fire resistant particle board of size 600x600x35mm with 0.05 mm thick aluminium foil lining at bottom & with 2mm thick anti static PVC topping including proprietary floor supporting system complete as per spec.			
14.26.1	a	Upto 600 mm high.	80	SQM	
14.26.2	b	From 601 mm to 800 mm high.	24	SQM	
14.26.3	c	from 801 mm to 1000 mm high.	20	SQM	
14.27	1426	Providing and laying non-woven type carpet (unitex or equivalent) which shall be laid as manufacturers recommendations in matching grains including anti fungus and anti termite treatment complete.	50	SQM	
15.0	1500	PROVIDING AND ERECTING ROOFING/ SIDE CLADDING INCLUDING FLASHINGS (NO SEPERATE PAYMENT SHALL BE PAID FOR FLASHINGS), LAPS, SCAFFOLDING HOOKS, WASHERS, CORNER PIECES, ETC COST OF ALL MATERIAL, LABOUR, EQUIPMENT, CLEATS, SHEETING RUNNER, RAILS MILD STEEL WIND TIES (HORIZONTAL/VERTICAL) AND ANY OTHER STEEL WORKS ETC COMPLETE FOR THE FOLLOWING.			

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
15.1	1501	Designing, providing & fixing permanently color coated galvanised MS troughed metal sheet decking plate as per IS:513 over roof purlins as per relevant IS code & spec. Thickness of deck plate shall be min 0.8mm (base metal excluding coating), with min trough depth of 44 mm, with min yeild strength of 240Mpa and shall serve as permanent shuttering to the cast-in-situ roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete, imposed loads & construction loads over a span of around 1800mm between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc complete as per engineers approval & spec. Sheet shall be permanently coated with silicon modified polyster paint of min 20 micron DFT on exposed surface (facing operating floor) and min 7 micron on other face over epoxy primer applied over hot dipped galvanising as per IS:277 at the rate of 275 gm/ sqm including fixing of sheet to purlin with self tapping self drilling white zinc plated heat treated high carbon steel screws of min 5.5 mm dia @ 260mm c/c in the trough & stich screwss between two adjacent sheets & sealing with epoxy sealant (height of trough required as per design should be included in the cost). Measurement shall be of the plan area of roof covered by MS trough metal decking. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	7159	SQM	
15.2	1502	Designing, providing and fixing permanently color coated galvanized M.S. trough metal sheet roofing of approved profile and color over roof purlins as per IS 14246. Thickness of deck plate shall be minimum 0.6 mm and minimum trough depth of 38 mm and minimum yield strength of 250 Mpa. Silicon modified polyester paint shall be used for coating over galvanized surface with minimum rate of galvanization 275 gm/sqm. Outer side should have permanent color coating of minimum DFT 20 microns over primer and inner side shall be coated with silicon polyester paint of minimum DFT 12 microns. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	504	SQM	
15.3	1502 A	Providing and fixing self tapping self drilling shear connectors of 16mm dia and minimum 75 mm projected length above purlin of mild steel studs passing through metal decking as per relevant IS codes and specification.	16	QTL	
15.4	1503	Design, supply & erection of permanent colour coated thermally insulated double skin sandwiched metal cladding of approved color for external walls comprising of profiled external sheet of 0.55 mm TCT (total coated thickness) permanently color coated zincalume steel (150 gsm Zinc - aluminium alloy coating) having 300 Mpa yield strength with color coating of SMP/ super polyster XRW. The inner sheeting of 0.6 mm TCT of SMP/ super polyster XRW coated sincalume steel 150 gsm having 550 Mpa yield strength or 180 gsm galvanised of 240 Mpa including color coating of 20 microns finish coat over a 5 micron primer coat on the exposed side & a back coat of 5 micron over a primer coat of 5 micron on reverse side (on both external & internal sheet). External sheethaving 500 mm cover width, 47 mm high crests at 250 mm c/c with special male/ female side laps & siphoning feature to prevent leakage & inner sheet having 980 mm cover width, 28 mm high crest at 195 mm c/c with special male/ female side laps & siphoning feature to prevent leakage including fixing of inner sheet to the structure by self drilling fasteners & concealed clips	6116	SQM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
		(including sub-girts of size 50x50x50 mm manufactured out of 16G GI 'Z' shape) to connect external sheet (without penetrating the external sheet) & including an insulation of 50 mm thick rockwool (Rockloyd-300 or equivalent) of density 48 KG/cum conforming to IS 8183 between the two sheets including flashings complete as per spec (structural steel required for internal bracings, ties & strengthening of claddings will be supplied by BHEL as per SCC and payment to be made as per item-2301). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.			
15.5	1504	Design, supply & erection of permanent colour coated single skin metal cladding (external sheet) of approved color for external walls comprising of profiled sheet of 0.55 mm TCT (Total Coated Thickness) permanently color coated zincalume steel (150 gsm Zinc - aluminium alloy coating) having 300 Mpa yield strength with color coating of SMP/super polyester XRW including color coating of 20 microns finish coat over a 5 micron primer coat on the exposed side and a back coat of 5 micron over a primer coat of 5 micron on the reverse side. The sheet having 500 mm cover width, 47 mm high crests at 250 mm c/c with special male/female side laps and siphoning feature to prevent leakage including fixing of sheet by concealed clips (including sub-girts of size 50X50X50 mm manufactured out of 16G GI 'Z' shape, without penetrating the external sheet) complete including flashings as per specification. (Structural Steel required for internal bracings, ties and strengthening of claddings will be supplied by BHEL as per SCC and payment to be made as per item-2301). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	9299	SQM	
15.6	1505	Design, supply & erection of permanent colour coated single skin metal cladding (internal sheet) of approved color comprising of 0.6 mm TCT of SMP/super polyester XRW coated zincalume steel 150 gsm having 550 Mpa yield strength or 180 gsm galvanised of 240 Mpa including color coating of 20 microns finish coat over a 5 micron primer coat on the exposed side and a back coat of 5 micron over a primer coat of 5 micron on the reverse side. The sheet having 980 mm cover width, 28 mm high crest at 195 mm c/c with special male/female side laps and siphoning feature to prevent leakage including fixing of sheet to the structure by self drilling fasteners complete including flashings as per specification. (Structural Steel required for internal bracings, ties and strengthening of claddings will be supplied by BHEL as per SCC and payment to be made as per item-2301). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	1527	SQM	
15.7	1506	Providing & fixing 50 mm thick insulation of rockwool (rockloyd-300 or equivalent) of density 48 KG/cum conforming to IS 8183 including wrapping in black polythene black supported over weld mesh 75x75x1.6mm dia to hold in position as per manufacturers recommendations, all labour, material, scaffolding, equipment etc all complete as per spec, drg & instructions of engineer in charge. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	1527	SQM	
15.8	1507	Providing and fixing insulation of resin bonded mineral wool of specified thickness (25/50 mm nominal) conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for under deck insulation including application of glue and tying with lacing wire, for glass/rock wool as per manufacturers recommendations, all labour, material, scaffolding, equipment etc all complete as per specification, drawing and instructions of engineer in charge. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	120	CUM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
15.9	1508	Providing and installing under deck insulation using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.56 mm dia and 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips, all labour, material, scaffolding, equipment etc (but excluding cost of insulation) all complete as per specification, drawing and instructions of engineer in charge. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	2146	SQM	
15.10	1509	Providing and fixing non metal opaque PVC sheet heavy duty similar to ONDEX roofing or equivalent including all fixing accessories, labour material, scaffolding etc all complete as per specification, drawing and instructions of engineer in charge.	150	SQM	
16.0	1600	PROVIDING AND FIXING FALSE CEILING INCLUDING SUPPLY OF CEILING MATERIAL, WORKING LAYOUT DRAWINGS AND DETAILS, SUSPENSION SYSTEM AND ALL OTHER MATERIALS REQUIRED FOR THE WORK INCLUDING MAKING RECESS FOR LIGHT FIXTURES, ALUMINIUM DIFFUSERS, FIRE ALARMS ETC, POLISHING/PAINTINGS, LABOUR ETC, ALL COMPLETE AS PER SPECIFICATION.			
16.1	1601	Providing and fixing glass reinforced gypsum (GRG) ceiling system consisting of supporting grid system forming panels of specified size, suspended from RCC slab/structural steel or catwalkway grid above with 4 mm (minimum) galvanised wires (rods) with special height adjustment clips, including preparation of working drawing, providing openings for AC ducts, return air grills, light fixtures etc (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer.			
16.1.1	i)	12 mm thick GRG board with galvanised light gauge steel load bearing supporting GI frame & finished flat.	61	SQM	
16.1.2	ii)	12 mm thick GRG board in profile (dome etc.) with galvanised light gauge steel load bearing supporting GI frame and finished flat.	31	SQM	
16.1.3	iii)	12 mm thick GRG board in tile of 600 mmx600 mm with double web design, galvanised steel with prepainted steel capping of approved shade and color, supporting tee frame (24 mmx38 mm).	27	SQM	
16.2	1602	Providing, fixing and laying permanently colour coated aluminium false ceiling of approved colour with stove enamel finish and Luxalon of Hunter Douglas make or equivalent with corrosion resistance aluminium alloys panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation (as per IS:8183) bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. AC ducts etc suitable M.S. channel (minimum MC 75) grid 1200 c/c maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (suitable structural platform grid made up of MS channel/ beam/ angle shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance) (materials for structural platform grid made up of MS channels/ beams/ angles shall be supplied by BHEL and shall be paid under ST NO 2301). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	4101	SQM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
16.3	1603	Providing, fixing and laying anodised natural colour matt finished aluminium false ceiling of Indal make or equivalent with corrosion resistance aluminium alloys panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation (as per IS:8183) bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. AC ducts etc suitable MS channel (minimum MC 75) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc (suitable structural platform grid made up of MS channel/ beam/ angle shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance (materials for structural platform grid made up of MS channels/ beams/ angles shall be supplied by BHEL and shall be paid under ST NO 2301).	33	SQM	
16.4	1604	Special purpose partition manufactured by Anutone Acoustic Ltd or equivalent having rigid framework consisting of GI studs of adequate size @600mm c/c and floor ceiling and intermediate channels to provide a wall system capable of supporting wall hung CCTV at different locations. The framing system shall be integrated with independent floor supported structural framework of digital display board. The front side of the frame shall have Excelsior Accoustcal Panels-Elega finish-2400/1200X600X19 mm thick FABRICO Sound Soak- Plane Texture of approved colour. The rear side of the partition shall have Excelsior Acoustical Panels-Elega finish-specially Sound Smart-Burl of size 2400/1200x600x19 mm thick smooth finished with gypsum plaster and finished with acrylic paint. The entire wall to have Class-I fire rating as per BS code. The entire partition wall to have concealed framing system and to have monolithic fabric finish of approved colour or composition of two different colour as per approved design to entire exposed surface including door panels on control room side. The work to be complete as per specifications.	96	SQM	
17.0	1700	PROVIDING AND FIXING RAIN WATER DOWN TAKE PIPES INCLUDING 2 COATS OF APPROVED PAINT OVER A PRIMARY COAT, ALL SPECIALS AND ACCESSORIES ETC COMPLETE AS PER SPECIFICATION.			
17.1	1701	GI down take pipes conforming to IS1239/IS3589 as per specification of following dia. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.			
17.1.1	i)	100 mm dia.	147	RM	
17.1.2	ii)	150 mm dia.	1679	RM	
17.1.3	iii)	200 mm dia.	840	RM	
18.0	1800	MISCELLANEOUS 1.			
18.1	1801	Providing and fixing PVC water stops 225mm wide, 6 mm thick.	163	RM	
18.2	1802	Supplying and installation of 25mm thick vibration damping, resilient pads RESISTOFLEX or equivalent around foundation of vibrating equipment and other locations as directed by engineer including cost of all materials labour equipment etc complete as per drawing and specifications.	33	SQM	
18.3	1803	Providing 50mm thick premix carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm and down broken stone chips mixed with 80/ 100 grade bitumen @ 52 kg/ cum including compaction and cost of all material, labour all complete as per specification and as directed by engineer.	50	SQM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
18.4	1804	Providing 50mm thick anticorrosive layer laid to slope consisting of compacted crushed stone screenings, fine gravel, clean sand or similar material as directed by the Engineer, mixed in hot asphalt 10% by volume and rolled or compacted complete as per drawings and specifications, below fuel oil tanks and at such other places as per specifications and as directed by engineer.	50	SQM	
18.5	1805	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including aluminium screws, rawl plugs all complete as per specification.	33	RM	
18.6	1806	Providing, laying and fixing transformer rails including guide rails in concrete including joining of rails. Anchoring lugs etc. complete as per specification. (Vendor to supply all materials). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	41	MT	
18.7	1807	Providing & fixing weep holes in drains consisting of 100 mm dia LDPE pipe sleeves along with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq opening along with 300x300 mm sq, 300 mm deep, 40 mm aggregates to cover fabric mesh mouth complete as directed by engineer.	200	NO	
18.8	1808	Laying of earthing mats/rods including transportation from yard stores, loading, unloading, cutting to length, welding etc. complete as per specification and as directed by Engineer-in-charge. (Earthing MS Round shall be supplied by BHEL free of cost as per SCC)	61	MT	
18.9	1811	Providing and fixing GI rungs in concrete/brick walls at all elevations including zinc coating of minimum 900 g/ sqm all complete.	366	KG	
18.10	1813	Providing and fixing LDPE pipes in cable duct banks, openings in RCC work at all elevations of following sizes including cutting, fixing and levelling in position as per drawings, specifications all complete.			
18.10.1	i)	100 mm dia.	120	RM	
18.10.2	ii)	150 mm dia.	90	RM	
18.10.3	iii)	200 mm dia.	90	RM	
18.11	1814	Providing & laying Bentonite Powder (Sodium base) mixed with water in electronic earthing pit as per drawing & direction below ground level including all materials, transportation, labour, incidental etc all complete as per specification.	80	CUM	
19.0	2000	FENCING AND GATES.			
19.1	2001	Supplying and erecting in position 2.4 m high PVC coated gavanised chain linked fencing of minimum 8 gauge (including PVC coating) of mesh size 75 mm and galvanised concertina. The diameter of the steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. GI barbed wire fencing confirming to IS 298 at top of chain link fencing shall be provided with 4 stands of height of 600 mm including all accesories as per specification all complete. Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	526	SQM	
19.2	2002	Supplying and fixing 1.8 m high fencing with angle iron 50x50x6 mm / 65x65x8 mm angle post placed at every 2 meter / 2.5 meter centre to centre, embedded in cement concrete blocks (1part cement:2 part sand:4 part 20mm graded stone aggregates), provided with horizontal lines and two diagonals interwoven with horizontal wires, of G.I. barbed wire 9.38 Kg per 100 meter (minimum) between the two post fitted and fixed with GI staples, turn buckles etc. complete. {payment of structural item viz.angle post and struts etc. (as per item ST no. 2301) , earthwork , concrete work, filling work will be paid separately as per respective BOQ item}. {payment for this item shall be made as per total running meter length of GI barbed wire provided in the works}.	16448	MTR	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
19.3	2003	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, ball bearing arrangements, castor wheels, anti corrosive synthetic enamel painting over two coats of primer etc. all complete as per drawing, specification and as directed by Engineer-in-charge with 600mm high GI barbed wire fencing at top all complete (all steel to be supplied by vendor)	2	MT	
20.0	2100	WATER SUPPLY			
20.1	2101	Providing & fixing in position tested heavy duty type chromium plated brass long neck bib cocks including sockets, union, nut etc. complete 15mm nominal bore.	100	NO	
20.2	2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc. complete as directed by Engineer 15mm nominal bore.	47	NO	
20.3	2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality 25mm nominal bore.	17	NO	
20.4	2104	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality 50mm nominal bore.	10	NO	
20.5	2105	Providing & fixing GI pipes of class B-Medium complete with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc complete (internal work) 15 mm nominal bore.	237	RM	
20.6	2106	Providing & fixing GI pipes of class B-Medium complete with GI fittings a clamps including cutting and making good the walls etc. complete (internal work) 20 mm nominal bore.	190	RM	
20.7	2107	Providing and fixing GI pipes of class B-Medium complete with GI sockets, unions, elbows, tees, nipples etc. and clamps including cutting and making good the walls etc.complete (internal work) 25 mm nominal bore (N.B).	190	RM	
20.8	2108	Providing and fixing GI pipes of class B-Medium complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc. complete (external work) 15mm nominal bore (N.B).	115	RM	
20.9	2109	Providing & fixing GI pipes of class B-Medium complete with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling anti-corrosive paint etc complete (external work) 20mm nominal bore (NB).	115	RM	
20.10	2110	Providing & fixing GI pipes of class B-Medium complete with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling anti-corrosive paint etc complete (external work) 25mm nominal bore (NB).	115	RM	
20.11	2111	Providing and fixing GI pipes of class B-Medium complete with etc including trenching & refilling anti-corrosive paint etc complete (external work) 50mm nominal bore (N.B).	115	RM	
20.12	2112	Providing and fixing 610mmx453mmx6mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets etc. complete with CP screws as per specification.	102	NO	
20.13	2113	Providing & fixing 610mmx127mmx6mm thk clearglass with CP guard rails and mounted on CP brackets etc complete as per spec.	102	NO	
20.14	2114	Providing & fixing 20mm dia chromium plated MS pipes wall mounted towel rod with CP brackets etc all complete as per spec.	27	NO	
20.15	2115	Providing and fixing C.P. soap holder mounted with C.P. screws etc.complete as per specification.	102	NO	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
20.16	2116	Providing and fixing C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc. complete as per specification.	102	NO	
20.17	2117	Providing & fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc complete as per specification	51	NO	
20.18	2118	Providing and fixing chromium plated brass shower rose with 15 or 20 mm inlet all complete.	19	NO	
20.19	2119	Providing & fixing P.V.C. water tank (Syntex or equivalent) in position. The work to including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc. all complete as per specification at all heights and levels			
20.19.1	i)	2000 Litre capacity.	3	NO	
20.19.2	ii)	5000 Litre capacity.	2	NO	
20.20	2120	Providing & fixing approved stainless steel sink with integrated drainboard complete including painting the fittings, cutting and making good the wall where required as per specification. The work to be complete as per specifications, drawings and direction of engineer.	3	NO	
21.0	2200	SANITARY WORKS.			
21.1	2201	Supply and fixing vitreous china wash basin (white / light coloured) size 600x450 with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, cutting and making good the walls where required etc. complete as per specifications.	70	NO	
21.2	2202	Providing and fixing approved vitreous china acid/alkali resistant laboratory sink of size 600x450x200mm with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, CP brass waste and 40mm CP brass bottle trap with necessary union complete including painting the fittings, cutting and making good the wall where required as per specification.	3	NO	
21.3	2203	Providing and fixing colour European type water closet (white / light coloured) with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre glazed stone water flushing cistern with valveless fittings, necessary C.P connections etc. complete as per specification.	11	NO	
21.4	2204	Providing and fixing glazed vitreous china pan (white / light coloured) with foot rests and high level 12.5 litre C.I flushing cistern with valveless fittings, necessary C.P connections, foot rests shall be made of white glazed vitreous china with chequered surface all complete with cistern painting, C.I brackets etc. as per specification.	43	NO	
21.5	2205	Providing and fixing wall type glazed vitreous china sensor type (white / light coloured) urinals with flush pipes, sensors, lead pipes, gratings, CP bottle traps and necessary C.P fittings all complete as per specifications.	45	NO	
21.6	2206	Supply, laying and jointing 75mm dia heavy duty cast iron pipes including bends, branches and all other necessary fittings, lead cocking, a coat of bitumenous paint, MS holder bats/ clamps, cutting and making good the walls and floors, jointing, testing etc all complete and as per specifications.	145	RM	
21.7	2207	Supply, laying and jointing 100mm dia heavy duty cast iron pipes including bends, branches and all other necessary fittings, lead caulking, a coat of bitumenous paint, MS holder bats/ clamps, cutting and making good the walls and floors, jointing, testing etc all complete and as per specifications.	145	RM	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
21.8	2208	Supply, laying and jointing 150mm dia heavy duty cast iron pipes including bends, branches and all other necessary fittings, a coat of bitumenous paint, M.S holder bats/ clam lead caulking, a coat of bitumenous paint, MS holder bats/ clamps, cutting and making good the walls and floors, jointing, testing etc all complete and as per specifications.	72	RM	
21.9	2209	Providing, laying cement mortar 1:2 including testing of joints etc as per specifications for dia.			
21.9.1	i)	300mm.	10	RM	
21.9.2	ii)	400mm.	16	RM	
21.9.3	iii)	600mm.	20	RM	
21.9.4	iv)	800mm.	20	RM	
21.9.5	iv)	1000mm.	20	RM	
21.10	2210	Providing, laying light duty non pressure NP2 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. as per specifications for dia.			
21.10.1	i)	150mm.	65	RM	
21.10.2	ii)	250mm.	65	RM	
21.10.3	iii)	300mm.	33	RM	
21.10.4	iv)	400mm.	13	RM	
21.10.5	v)	500mm.	10	RM	
21.10.6	vi)	600mm.	10	RM	
21.10.7	vii)	750mm.	10	RM	
21.11	2210 A	Providing, laying light duty non pressure NP4 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc as per specifications for dia.			
21.11.1	i)	300mm.	10	RM	
21.11.2	ii)	500mm.	10	RM	
21.11.3	iii)	600mm.	10	RM	
21.11.4	iv)	900mm.	10	RM	
21.12	2211	Providing and fixing CI Heavy duty Manhole cover of size 600mmx450mm including frame from reputed manufacture all complete as per specifications.	7	NO	
21.13	2212	Providing and fixing circular heavy duty man hole cover of 600mm dia with frame all complete as per specification.	1	NO	
21.14	2213	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size 100x100mm P or S Type.	7	NO	
21.15	2214	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size 150x100mm P or S Type.	3	NO	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
21.16	2215	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size 150x150mm P or S Type.	8	NO	
21.17	2216	Providing and fixing C.I. floor traps with C.P jalli complete as per specification.	82	NO	
21.18	2217	Providing and installing approved brand single tap water cooler of 80 L cooling capacity complete in all respect.	8	NO	
21.19	2218	Providing & installing approved brand single tap water cooler of 150 L cooling capacity complete in all respect.	5	NO	
21.20	2219	Providing and fixing white vitreous urinal partitions all complete as per specification.	34	NO	
22.0	2300	STRUCTURAL STEEL WORKS (STRUCTURAL STEEL, GI/MS PIPES for HAND RAIL, CHEQUERED PLATES, STAIN LESS STEEL LINER SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER SCC)			
22.1	2301	Fabrication, erection, alignment, welding, primer painting (primer coat consisting of 2 coats of redoxide zinc-chromate as per IS:2074 & IS:1477 (Parts I & II). One coat to be applied at shop and the other after erection of structural steel made from mild steel conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052 and mild steel rounds, at all elevations involving rolled sections (including mild steel rounds), built up sections fabricated out of plates, rolled sections & combination of plates & rolled sections, in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, gratings, portals, laced purlins, space frames, shear connectors, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking & seal plates, diaphragm, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails (GI & MS), toeplates, MS rungs, insert plates, edge angles, embedments, lugs, posts, stays, louvers, lacings, gusset plates etc, collection of steel from stores, transportation, straightening, making cutting plan, cutting, bending, rolling, grinding, drilling, bolting, erection bolts & nuts (weight erection bolts & nuts not payable, Supply of permanent bolt of grade C mild steel bolts & nuts to be paid separately under ST NO. 2309 (i)), assembly, edge preparation, preheating(minimum preheat and interpass temperature of 66 degrees centigrade for welding over 40 mm and upto 63 mm & 110 degrees centigrade for thickness over 63 mm) & use of low hydrogen/ radiogenic electrodes as per specification, post heating, testing of welders, inspection of welds, visual inspection, non destructive & special testing, rectification & correction of defective welding works, production test plate, inspection & testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures (scaffolding, access ladders, working platforms etc), setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, dismantling and removal of all temporary structures	13079	MT	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
		(weight of temporary structures not payable) complete with all labour, material, electrodes and other consumables, equipment, testing (mechanical and non- destructive), preparation of fabrication drawings, joint design calculations and all other general and special requirements including appointment of a seperate agency, approved by BHEL, for review and approval of fabrication drawings, in consultation with BHEL, prepared by the bidder and all other activities required for completion of the work including return of surplus/ waste steel materials to store etc. as per specification, drawings and instructions of the Engineer. Approval of fabrication drawings does not relieve the bidder from the responsibility of its correctness and accuracy. (Steel as per SCC will be supplied by BHEL free of cost). Payments terms - a. Fabrication - 65%; b. Erection - 25%; c. Alignment - 10%.			
22.2	2302	Extra over ST NO 2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2) and applying epoxy based zinc phosphate primer in coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection, instead of primer coat of red oxide zinc-chromate, including touch-up painting etc complete as per specification.	20	MT	
22.3	2303	Extra over ST NO 2301 for providing and application of two coats of primer consisting of chemical resistant epoxy resin and hardener (Minimum 1 Kg of primer mix shall be consumed for priming of 4 to 5 m2 area of surface) instead of primer coat of red oxide zinc-chromate, including touch up painting as per specification and instruction of the Engineer.	20	MT	
22.4	2304	Providing & application of synthetic enamel paint of Berger or approved equivalent make and colour in two coats of minimum 50 micron total thickness (DFT) already having primer coats (as per ST NO. 2301) at all elevations to achieve an even shade with all materials, labour, equipment, handling, including protection and cleaning, scaffolding etc. complete as per specification, drawings and instructions of the Engineer.(Total thickness (DFT) including primer shall not be less than 110 micron).	8105	MT	
22.5	2305	Providing & application of epoxy based colour finish paint in two coats with minimum 50 micron total thickness (DFT) of approved make and shade over steel sections already having primer coats (as per ST NO. 2302) at all elevations to achieve an even shade with all materials, labour, equipment, handling including protection and cleaning, scaffolding etc. complete as per specification, drawings and instruction of the Engineer.(Total thickness (DFT) including primer shall not be less than 100 micron).	20	MT	
22.6	2306	Providing & application of anti corrosive synthetic enamel paint of Berger or approved equivalent make and colour in two coats of minimum 50 micron total thickness (DFT) already having primer coats (as per ST NO. 2301) at all elevations to achieve an even shade with all materials, labour, equipment, handling, including protection and cleaning, scaffolding etc complete as per specification, drawings and instructions of engineer (total thickness (DFT) including primer shall not be less than 110 micron).	3379	MT	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
22.7	2307A	Supplying, fabrication , transportation, erection and alignment of factory made electroforged galvanised gratings of steel (having minimum galvanisation of 610 g/sqm) conforming to IS:2062 at all elevations including preparation of design drawings and fabrication drawings in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads, fixing clamps etc. complete with other fittings and fixtures including all taxes, duties, transportation, packing, grinding, drilling, bolting (supply of permanent grade `C' mild steel bolts and nuts to be paid separately under ST NO. 2309 (i), all welding, edge preparation, blast cleaning of steel surfaces to near white metal surface (Sa 2 1/2), testing, complete as per specifications, drawings and instructions of engineer (Vendor to supply all materials). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	178	MT	
22.8	2307B	Supplying, fabrication , transportation, erection and alignment of galvanised gratings of steel (having minimum galvanisation of 610 g/sqm) conforming to IS:2062 at all elevations including preparation of design drawings and fabrication drawings in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads, fixing clamps etc. complete with other fittings and fixtures including all taxes, duties, transportation, packing, grinding, drilling, bolting (supply of permanent grade `C' mild steel bolts and nuts to be paid separately under ST NO. 2309 (i), all welding, edge preparation, blast cleaning of steel surfaces to near white metal surface (Sa 2 1/2), testing, complete as per specifications, drawings and instructions of the Engineer. (Vendor to supply all materials). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	45	MT	
22.9	2309A	Supplying and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work complete as per specification, drawings and instructions of the Engineer. (Vendor to supply all materials). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	10	QTL	
22.10	2309B	Supply and fixing in positing of high strength structural bolts (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. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work complete as per specification, drawings and instructions of the Engineer. (Vendor to supply all materials). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	271	QTL	
22.11	2310	Dismantling of steel structure at any elevation, lowering of material and carriage of the dismantled material up to field fabrication shop, or, return to projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions, (weight of such adjacent members and temporarily dismantled members not payable) including scaffolding, staging, tools & tackles, gas cutting, welding, consumables, etc complete as per specification, drawings and instructions of the Engineer.	54	MT	

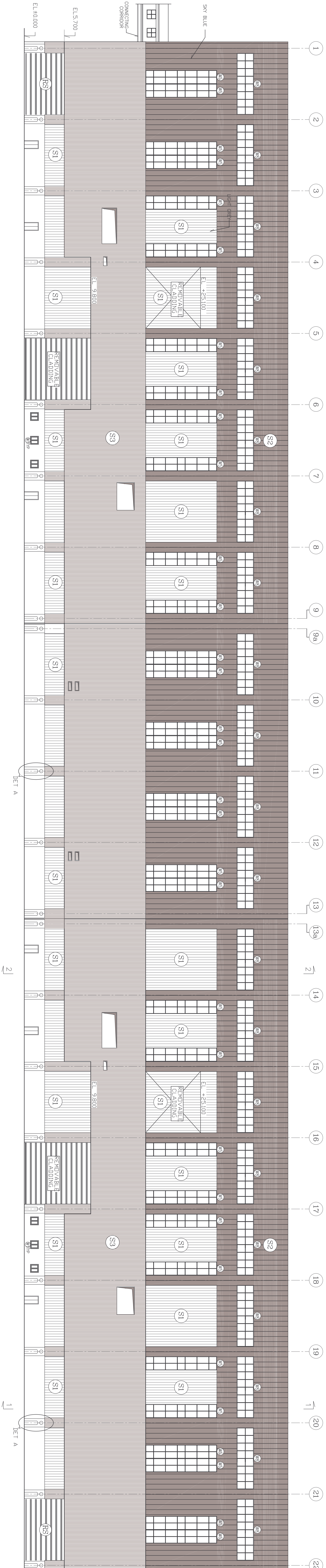
SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
22.12	2311	Addition to, alterations in and/or modification of "Erection Marks" either in erected position or in the shop including cutting of parts, gouging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members, (weight of such temporarily dismantled and adjacent members not payable), complete as per specifications, drawings and instructions of the Engineer.			
22.12.1	i)	In erected position.	9	MT	
22.12.2	ii)	In fabrication yard.	18	MT	
22.13	2312	Re-erection of dismantled fabricated structural steel members requiring additions, modification, (dismantling and additions to, alterations in and/or modification to be paid separately under ST NO. 2310 and 2311 respectively) including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required position, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, rewelding, supporting and restoring to the correct position of all temporarily dismantled members, re-alignment of adjacent connected members, (weight of such temporarily dismantled members and adjacent members not payable) including scaffolding, staging, tools & tackles, gas cutting, welding, consumables, etc complete as per the specifications, drawings and instructions of the Engineer.	12	MT	
22.14	2313	Fabrication and erection of 4 mm thick stainless steel liner of grade AISI-304; Finish Grade 2B (Cold rolled, Annealed & Pickled and Skin passed) on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers as directed by the Engineer including fixing with stainless steel studs, bolting (including countersunk), welding etc. complete as per specifications and IS standards. Electrode classification shall be E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. complete as per specifications, drawings and instructions of engineer (stainless steel liner plate shall be supplied by BHEL free of cost as per SCC).	84	MT	
22.15	2314	Supply, fabrication and delivery at site, transportation, loading/unloading of various sizes, seamless 40 dia stainless steel hand railing of approved shape/design including Stainless steel posts, fixing as per specification, labour and material complete for heavy duty class. (All Steel to be supplied by Vendor). Payment terms - a. On receipt of materials at site - 70%; b. On completion of erection & fixing - 30%.	650	KG	
22.16	2315	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of (+ or -) 50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc complete as per specification, drawing and instruction of the engineer.			
22.16.1	i)	Vertical Load of 20 Tons.	13	NO	
22.16.2	ii)	Vertical Load of 25 Tons.	10	NO	
22.16.3	iii)	Vertical Load of 40 Tons.	5	NO	
22.16.4	iv)	Vertical Load of 50 Tons.	3	NO	
22.16.5	v)	Vertical Load of 60 Tons.	4	NO	

SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
22.17	2316	Providing and fixing flexible open ended bellow strap of neoprene of minimum thickness of 2mm and minimum width 200 mm with aluminium strip edges as sealing below top of bunker and bottom of tripper floor to avoid coal dust nuisance.	254	RM	
22.18	2317	Conducting radiography test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per specifications complete (over and above the work already specified in the specifications).	79	RM	
22.19	2318	Conducting ultasonic test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials & labour as per spec complete (over & above the work already specified in specification).	53	RM	
22.20	2319	Conducting magnetic particle test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per spec complete (over & above the work already specified in specifications).	53	RM	
22.21	2320	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials & labour as per spec complete (over & above the work already specified in specifications).	53	RM	
22.22	2321	Conducting ultasonic test on steel plates as per ASTM-A435 or equivalent wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per specifications complete (over and above the work already specified in the specifications).	175	SQM	
23.0	2400	ROAD WORK INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR, MACHINERY ETC ALL COMPLETE AS PER SPEC, DRAWING, RELEVANT IRC & IS CODES AND AS DIRECTED BY THE ENGINEER-IN-CHARGE FOR FOLLOWING.			
23.1	2414	Concrete of grade M-30 in roads etc complete with 20 mm nominal size graded aggregate, plasticiser, etc. complete as per specification (cement shall be supplied by BHEL free of cost as per SCC)	5528	CUM	
23.2	2415	Filling below concrete roads with stone (63 mm down graded), in layers not exceeding 200 mm thickness including breaking of boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts all complete as per instructions of engineer.	3949	CUM	
24.0	2500	MISCELLANEOUS 2.			
24.1	2501	Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items).	100	NO	
24.2	2502	Construction of below ground earthing system test links as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items).	24	NO	
24.3	2503	Construction of below ground earthing system earth electrodes as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items.)	350	NO	
24.4	2504	Construction of below ground earthing system - Earth connection and riser pig tails as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items.)	1300	NO	
24.5	2505	Providing services of draftsman (with 2 years experience of AUTOCAD) exclusively to work in BHEL-PEM, Noida.	36	MAN-MTH	

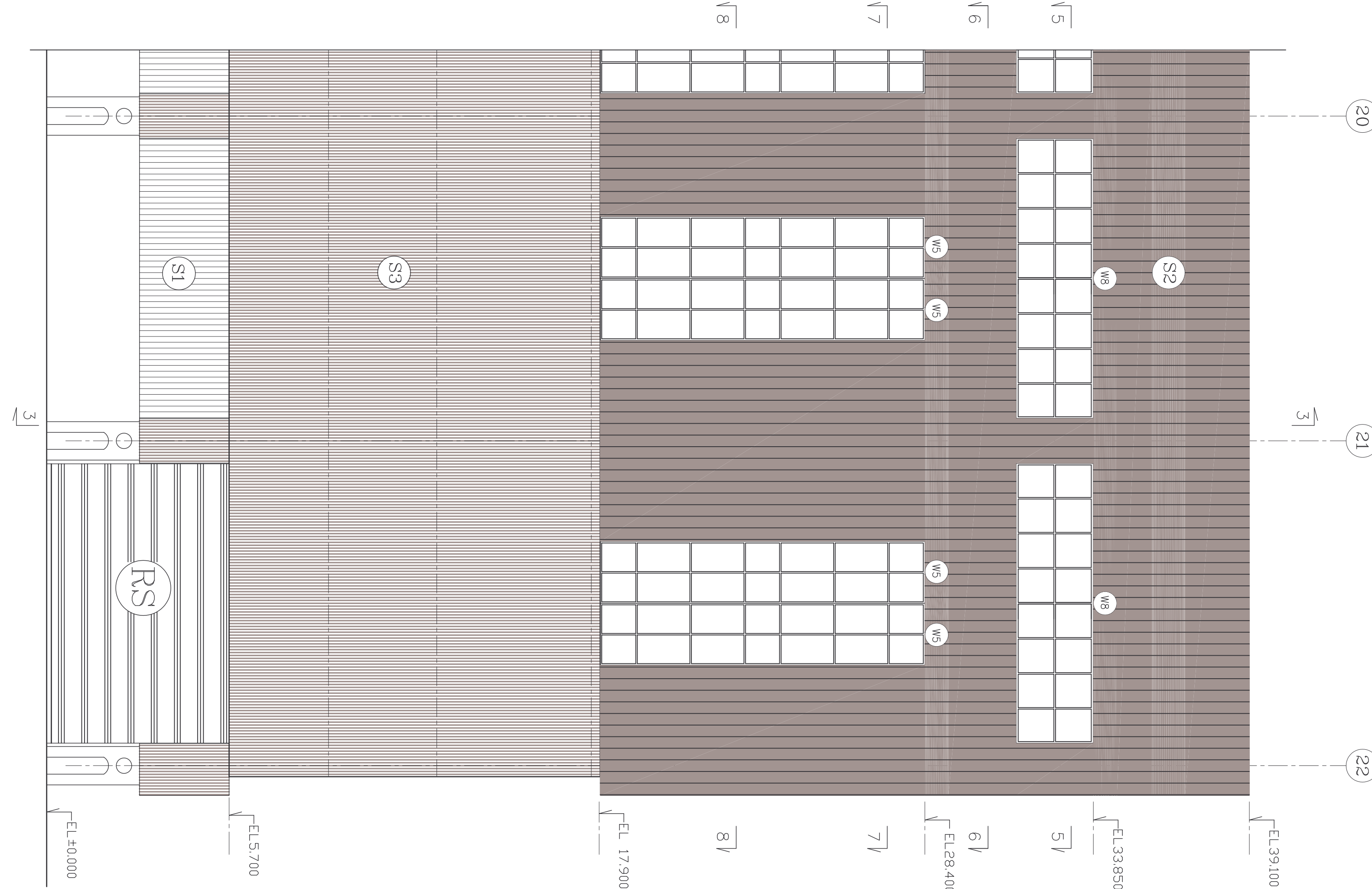
SL NO	ST NO	DESCRIPTION	QUANTITY		Price in percent (%) of total price for each item (in figures & words)
24.6	2506	Sprinkling of water by water tanker fitted with perforated GI Pipe (portable tanker minimum 3000 litre capacity) for roads and miscellaneous area within plant boundary, for dust suppression and reduction of suspended material at site for day to day work, as directed by BHEL Site Engineer (water for this purpose shall be provided by BHEL free of cost and utilisation of machine will be in terms of Tank-hour put in actual use for water sprinkling.	7440	TANK-HR	
24.7	2507	Providing services of crane operator for operation of BHEL crane.	300	MAN-HOUR	
TOTAL					100.00%
25.0	For items not covered above, quote % above or below the CPWD schedule (DSR-2002).				
25.1	Rate of complete item				
25.2	Rate of supply of materials at site only.				
25.3	Rate for execution complete excluding supply of materials.				

NOTE

Bidder to fill only percent against each items out of total (100%). These percents are to be worked out based on amount works out against each items with respect to total quoted amount.



"A" ROW ELEVATION



PART ELEVATION OF 'A' ROW

SECT 1-1
SCALE 1:100

SECT 2-2
SCALE 1:100

SECT 3-3
SCALE 1:100

CLADDING DETAIL FROM
1200W TO 2600W

SECTION 4-4

NOTES

1. ALL DIMENSIONS ARE IN MM AND LEVELS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. ALL ELEVATION MARKED ARE W.R.T. FINISHED FLOOR ELEVATION
± 0.00 WHICH CORRESPONDS TO RL +118.50M

CUSTOMER
DAMODAR VALLEY CORPORATION
KOLKATA

CONSULTANT
DEVELOPMENT CONSULTANTS PVT. LTD.
KOLKATA

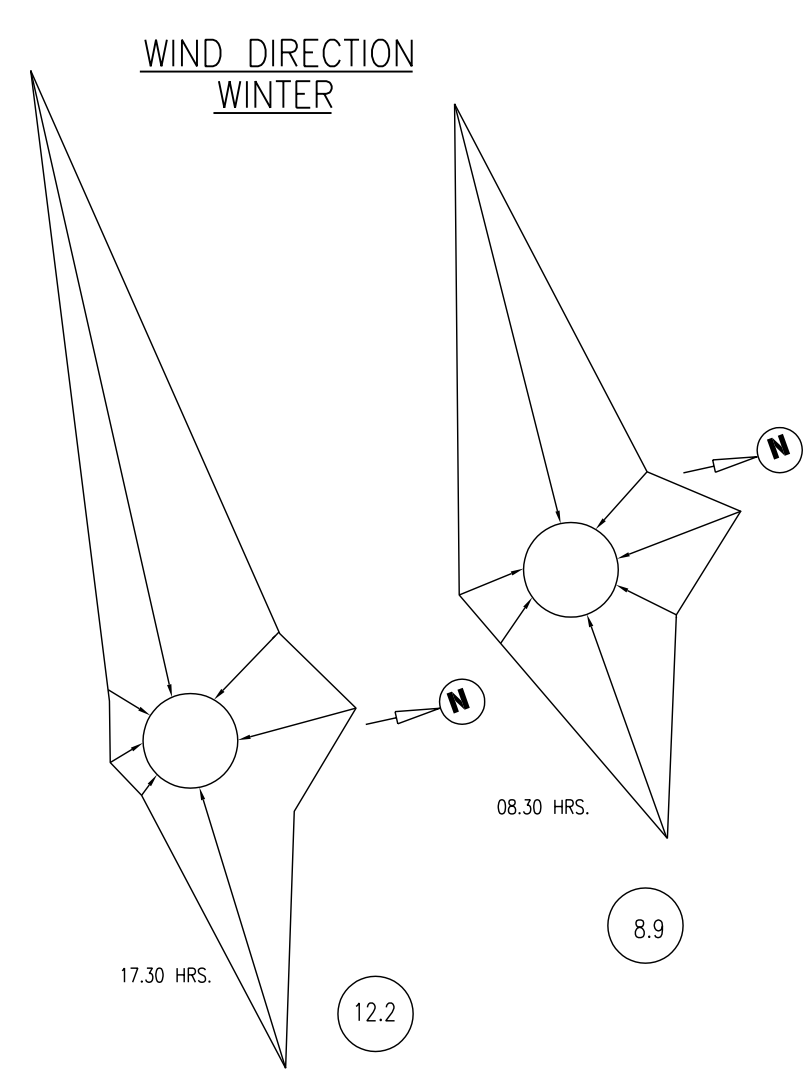
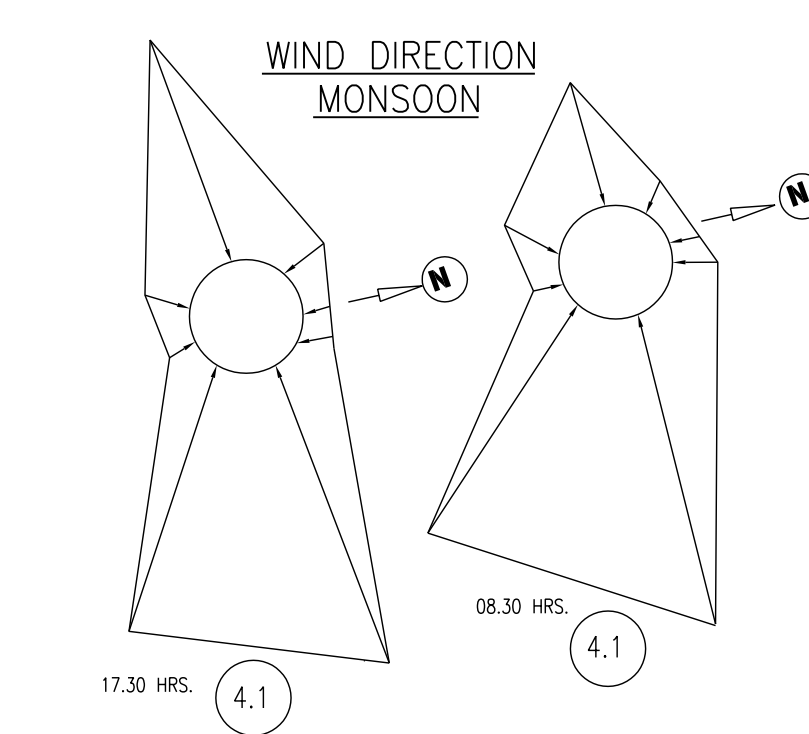
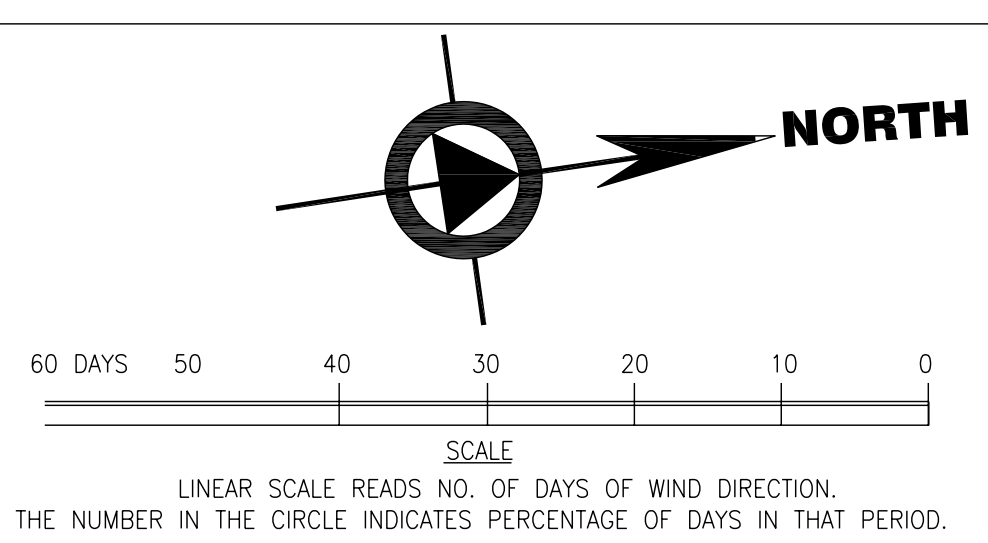
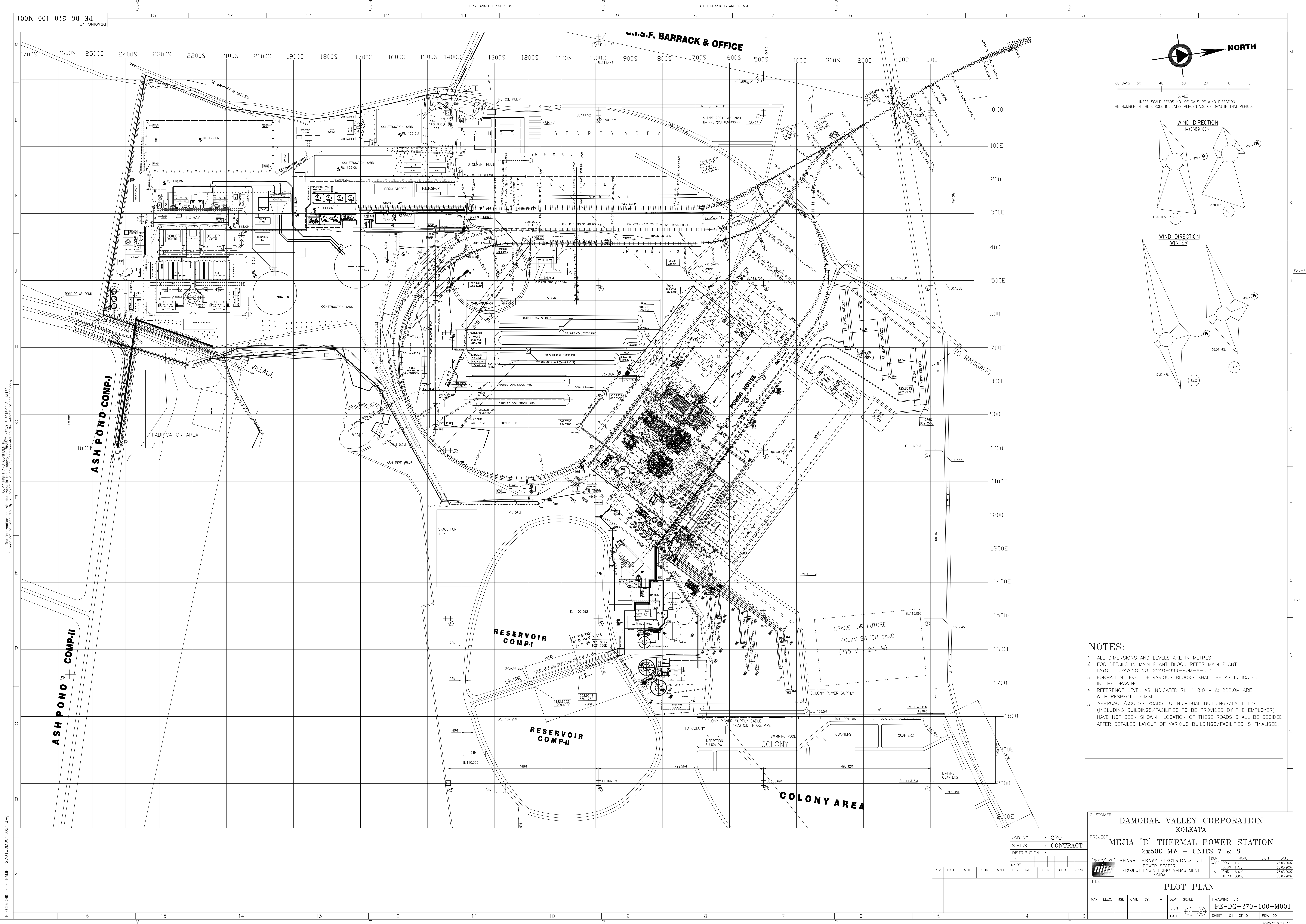
PROJECT
MEJA 'B' THERMAL POWER STATION
2 X 500 MW UNIT- 1 & 2

PROJECT
POWER SECTOR
NEW DELHI MANAGEMENT
C
1800 730000

TITLE
POWER HOUSE BUILDING
ELEVATION ON 'A' ROW

DRAWING NO.
PE-DG-270-611-C027

DATE
18/08/2024

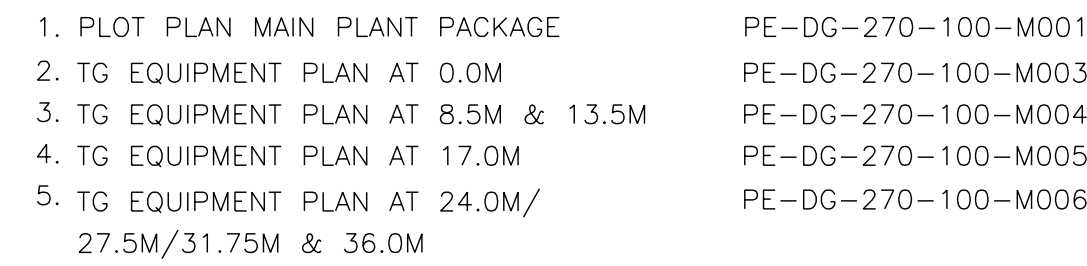


- NOTES:**
1. ALL DIMENSIONS AND LEVELS ARE IN METRES.
 2. FOR DETAILS IN MAIN PLANT BLOCK REFER MAIN PLANT LAYOUT DRAWING NO. 2240-999-POM-A-001.
 3. FORMATION LEVEL OF VARIOUS BLOCKS SHALL BE AS INDICATED IN THE DRAWING.
 4. REFERENCE LEVEL AS INDICATED RL. 118.0 M & 222.0M ARE WITH RESPECT TO MSL
 5. APPROACH/ACCESS ROADS TO INDIVIDUAL BUILDINGS/FACILITIES (INCLUDING BUILDINGS/FACILITIES TO BE PROVIDED BY THE EMPLOYER) HAVE NOT BEEN SHOWN. LOCATION OF THESE ROADS SHALL BE DECIDED AFTER DETAILED LAYOUT OF VARIOUS BUILDINGS/FACILITIES IS FINALISED.

CUSTOMER		DAMODAR VALLEY CORPORATION	
		KOLKATA	
PROJECT		MEJIA 'B' THERMAL POWER STATION	
		2x500 MW - UNITS 7 & 8	
DEPT.		POWER SECTOR	
PROJECT ENGINEERING MANAGEMENT			
Noida			
TITLE		PLOT PLAN	
MAX		ELEC.	MSE
SIGN		C&I	DEPT.
DATE		SCALE	DRAWING NO.
			PE-DG-270-100-M001
		SHEET	01 OF 01
		REV.	00
		FORMAT	SIZE A0

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JOB NO.		: 270	
STATUS		: CONTRACT	
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2X500 MW – UNITS 1 & 2	NAME
BHARAT HEVAY ELECTRICALS LTD	DEPT
POWER SECTOR	RESN
ENGINEERING MANAGEMENT	ANL
NEW DELHI	CHD
	SACHIN
	DR SUZDA

DETAIL OF COLUMNS (AXIS- A, B & C.)